Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-205

ROCKWOOD 23 KV

6.5 MW Capacity / 10 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 Mid-Atlantic Interstate Transmission, LLC (MAIT) (Penelec zone).

2 Preface

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Somerset County, Pennsylvania. The installed facilities will have a total capability of 10 MW with 6.5 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 31, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-205
Project Name	ROCKWOOD 23 KV
State	Pennsylvania
County	Somerset
Transmission Owner	PENELEC (MAIT)
MFO	10
MWE	10
MWC	6.5
Fuel	Solar
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

AG1-205 will interconnect with the PENELEC system via a tap on the 23 kV Confluence circuit at pole # 22624-S12. The IC's proposed generating unit site is approximately 1.9 miles southwest of Rockwood, PA., near 113 Vought Hill Road.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AG1-205 generation project to connect to the Penelec distribution system.

4.2 Secondary Point of Interconnection

There is no secondary point of interconnection specified for AG1-198.

5 Cost Summary

The AG1-205 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$170,200
Total System Network Upgrade Costs	$127,373,140[1]
Total Costs	$127,543,340

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 AG1-205 will interconnect with the Penelec distribution system via a tap on the 23 kV Confluence circuit at pole # 22624-S12. The IC will be responsible for acquiring all easements, properties, and permits that may be required to construct the new interconnection station and the associated facilities.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AG1-205 generation project to connect to the Penelec distribution system. The IC will be responsible for constructing all of the facilities on its side of the POI, including the attachment facilities which connect the generator to the FE distribution system's direct connection facilities.

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

Description	Total Cost
Proposed tap point at 22624-S12 on existing pole or interspersed pole on existing Rockwood 23kV distribution circuit, add new SCADA switch, add new primary metering. The customer is responsible to build their own line from their site to Penelec's existing facilities.	$137,000
Relay settings at sub for AG1-205 tap MW injection. @ Rockwood	$33,200
Total Physical Interconnection Costs	$170,200

7 Schedule

Based on the scope of work for the Direct and Non-Direct Connection 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 direct connection and that any distribution 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

Penelec performed an analysis of its distribution system. The AG1-205 project did not contribute to any overloads on the distribution system.

9 Interconnection Customer Requirements

9.1 System Protection

An analysis was conducted to assess the impact of the Rockwood 23 kV (AG1-205) Project on the system protection requirements in the area. The results of this review show that the following relay additions will be required:

Proposed single line diagrams show the IC constructing a generation facility they call tapping Penelec's Rockwood – 23 kV Confluence circuit at pole 22624-S12.

The 23kV interconnection proposal will require Developer to meet applicable "Technical Requirements" as outlined in First Energy's document titled "Technical Requirements for the Interconnection of Customer-Owned Generation to the FirstEnergy Distribution System". Anti-islanding system shall meet IEEE 1547 and UL 1741 Therefore no Direct Transfer Trip (DTT) will be required.

9.2 General Concerns

It is to be understood, for abnormal operation of the Penelec system, which could cause Developer's generation facility to be electrically isolated from the Penelec system synchronous source via the tripping of a interconnecting primary voltage line or device, Developer will, via Penelec's direction, be required to disconnect the generation from Penelec's system and remain disconnected (**units are required to be OFF**

LINE), until the Penelec system normal circuitry is restored. These abnormal conditions will be reviewed by Penelec system operators as to the need for the generation facility to be disconnected.

9.3 Requirements for Owner's/Developers generation IPP Facility

The proposed interconnection Owner's/Developer's facilities must be designed in accordance with the document titled *FirstEnergy Distribution Engineering Practices Interconnection of Customer-Owned Generation to the FirstEnergy Distribution System* dated 11/17/14 located at the following link:

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

The document is referred to as engineering practice EP(# 02-280) with section 4 part C specifically referencing the "interconnection technical requirements". Certain protection requirements are shown.

Additionally, Owner/Developer is responsible to provide adequate protection (for their equipment) under any distribution system operating condition' - which includes 'Separation from supply' (i.e. tripping of F.E. circuit breakers) and 'Re-synchronizing the generation after electric restoration of the supply' (i.e. reclosing of F.E. circuit breakers).

Owner's/Developer's protection must be designed to coordinate with the reclosing practices of FirstEnergy line protective devices. The generator must cease to energize the FirstEnergy circuit to which it is connected prior to reclosing of any (FE) automatic reclosing devices.

Owners/Developer's electrical protection and control schematics shall be provided to FE for consideration. FE may request modifications, if required, to meet the technical requirements.

9.4 Compliance Issues

The IC will be responsible for meeting a power factor between 0.95 lagging (producing MVARs) to 0.95 leading (absorbing MVARs) and assure that voltage deviation will be less than 1.0 volt as measured at the POI under all Solar Gen operating conditions due to the inherent dynamic reactive power capability of this solar facility.

Generators with no inherent VAR (reactive power) control capability, or those that have a restricted VAR capability less than the defined requirements, must provide dynamic supplementary reactive support located at the generation facility with electrical characteristics equivalent to that provided by a similar sized synchronous generator. A Dynamic Reactive Compensation (either Static VAR Compensator (SVC) or STATCOM) or other method be applied in order to maintain the required specifications at the POI. The IC is responsible for the installation of equipment on its side of the POI in order to adhere to the criteria stated above by FirstEnergy.

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

The Queue Project AG1-205 was evaluated as a 10.0 MW (Capacity 6.5 MW) injection at the Rockwood 23 kV substation in the PENELEC area. Project AG1-205 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-205 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)

None

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	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166579967	200734	26SCALP L.	115.0	PENELEC	200749	26RACHEL H	115.0	PENELEC	1	PN-P7-1-PN-230-001	tower	245.0	98.95	100.4	DC	3.55
166579950	200749	26RACHE L H	115.0	PENELEC	200751	26HILLCLAY	115.0	PENELEC	1	PN-P7-1-PN-230-001	tower	217.0	98.86	100.5	DC	3.55

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	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166580004	200743	26HOOVER SV	115.0	PENELEC	964910	AG1-355 TAP	115.0	PENELEC	1	PN-P7-1-PN-230-001	tower	245.0	102.28	103.72	DC	3.55
165935363	200745	26ALLEGHEN	115.0	PENELEC	200884	26NEW BALT	115.0	PENELEC	1	PN-P2-3-PN-115-35E	breaker	160.0	132.71	135.46	DC	4.4
165935316	200884	26NEW BALT	115.0	PENELEC	200501	26BDFORDN	115.0	PENELEC	1	PN-P2-3-PN-115-35E	breaker	160.0	155.46	158.21	DC	4.4
167335207	235449	01CARLOS	138.0	AP	237310	01DANSMTN	138.0	AP	1	FE-P2-3-MP-138-161	breaker	182.0	119.6	120.87	DC	2.31
167335208	235449	01CARLOS	138.0	AP	237310	01DANSMTN	138.0	AP	1	FE-P2-3-MP-138-160	breaker	182.0	119.59	120.86	DC	2.31
167335238	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	FE-P2-3-MP-138-150	breaker	206.0	114.37	115.53	DC	2.38
167335239	235469	01GARRET	138.0	AP	235449	01CARLOS	138.0	AP	1	FE-P2-3-MP-138-160	breaker	206.0	113.32	114.5	DC	2.43
165554736	237310	01DANSMTN	138.0	AP	235504	01RIDGLY	138.0	AP	1	FE-P2-2-MP-138-101_NON-A	bus	182.0	125.51	126.77	DC	2.31
167335129	237310	01DANSMTN	138.0	AP	235504	01RIDGLY	138.0	AP	1	FE-P2-3-MP-138-150	breaker	182.0	151.73	152.97	DC	2.26
167335130	237310	01DANSMTN	138.0	AP	235504	01RIDGLY	138.0	AP	1	FE-P2-3-MP-138-160	breaker	182.0	151.42	152.68	DC	2.31

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
165554691	934440	AD1-068 TAP	138.0	AP	235120	01ALBRIG	138.0	AP	1	PN-P2-2-PN-115-002	bus	191.0	160.56	164.08	DC	6.72
165935368	945670	AF1-232 TAP	115.0	PENELEC	200745	26ALLEGHEN	115.0	PENELEC	1	PN-P2-3-PN-115-35E	breaker	160.0	128.86	131.61	DC	4.4
166579966	964910	AG1-355 TAP	115.0	PENELEC	200734	26SCALP L.	115.0	PENELEC	1	PN-P7-1-PN-230-001	tower	245.0	102.28	103.72	DC	3.55

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
166178874	200742	26TOWER 51	115.0	PENELEC	200741	26SEWARD	115.0	PENELEC	1	AP-P1-3-PE-115-010	operation	185.0	136.6	138.4	DC	3.34
166178878	200742	26TOWER 51	115.0	PENELEC	200741	26SEWARD	115.0	PENELEC	1	Base Case	operation	147.0	116.27	117.83	DC	2.28
166178831	200743	26HOOVERSV	115.0	PENELEC	200742	26TOWER 51	115.0	PENELEC	1	AP-P1-3-PE-115-010	operation	172.0	161.62	163.59	DC	3.39
166178835	200743	26HOOVERSV	115.0	PENELEC	200742	26TOWER 51	115.0	PENELEC	1	Base Case	operation	137.0	141.12	142.81	DC	2.31
166178958	200744	26SOMERST	115.0	PENELEC	200743	26HOOVERSV	115.0	PENELEC	1	AP-P1-3-PE-115-010	operation	190.0	110.99	113.35	DC	4.49
166178844	200746	26ROCKWOOD	115.0	PENELEC	965880	AG1-457 TAP	115.0	PENELEC	1	AP-P1-3-PE-115-010	operation	179.0	177.99	183.57	DC	10.0
166178848	200746	26ROCKWOOD	115.0	PENELEC	965880	AG1-457 TAP	115.0	PENELEC	1	Base Case	operation	148.0	129.38	134.0	DC	6.84
166178821	200747	26PENN-MAR	115.0	PENELEC	200762	26GARRETT	115.0	PENELEC	1	PN-P1-2-PN-115-068-A	operation	179.0	167.1	172.68	DC	10.0
166178822	200747	26PENN-MAR	115.0	PENELEC	200762	26GARRETT	115.0	PENELEC	1	PN-P1-3-PN-115-025-A	operation	179.0	167.1	172.68	DC	10.0
166178823	200747	26PENN-MAR	115.0	PENELEC	200762	26GARRETT	115.0	PENELEC	1	Base Case	operation	148.0	158.89	161.02	DC	3.16
164389704	200762	26GARRETT	115.0	PENELEC	235470	01GARRET	115.0	AP	1	PN-P1-3-PN-115-025-A	operation	197.0	161.72	166.8	DC	10.0

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
164389705	200762	26GARRETT	115.0	PENELEC	235470	01GARRET	115.0	AP	1	PN-P1-2-PN-115-068-A	operation	197.0	161.72	166.8	DC	10.0
164389708	200762	26GARRETT	115.0	PENELEC	235470	01GARRET	115.0	AP	1	Base Case	operation	169.0	145.73	147.6	DC	3.16
167880619	235469	01GARRET	138.0	AP	934440	AD1-068 TAP	138.0	AP	1	PN-P1-2-PN-115-068-A	operation	191.0	126.58	130.09	DC	6.72
167880620	235469	01GARRET	138.0	AP	934440	AD1-068 TAP	138.0	AP	1	PN-P1-3-PN-115-025-A	operation	191.0	126.58	130.09	DC	6.72
167880621	235469	01GARRET	138.0	AP	934440	AD1-068 TAP	138.0	AP	1	Base Case	operation	164.0	105.37	106.66	DC	2.11
167880501	235470	01GARRET	115.0	AP	235469	01GARRET	138.0	AP	1	PN-P1-2-PN-115-068-A	operation	197.0	161.72	166.8	DC	10.0
167880502	235470	01GARRET	115.0	AP	235469	01GARRET	138.0	AP	1	PN-P1-3-PN-115-025-A	operation	197.0	161.72	166.8	DC	10.0
167880503	235470	01GARRET	115.0	AP	235469	01GARRET	138.0	AP	1	Base Case	operation	169.0	145.73	147.6	DC	3.16
167880680	237310	01DANSMTN	138.0	AP	235504	01RIDGLY	138.0	AP	1	FE-P1-2-MP-138-160_NON	operation	182.0	124.72	125.99	DC	2.32
169624925	934440	AD1-068 TAP	138.0	AP	235120	01ALBRIG	138.0	AP	1	PN-P1-3-PN-115-025-A	operation	191.0	160.51	164.03	DC	6.72
169624927	934440	AD1-068 TAP	138.0	AP	235120	01ALBRIG	138.0	AP	1	Base Case	operation	164.0	142.21	143.5	DC	2.11
166178815	965880	AG1-457 TAP	115.0	PENELEC	200744	26SOMERST	115.0	PENELEC	1	AP-P1-3-PE-115-010	operation	179.0	177.99	183.57	DC	10.0
166178819	965880	AG1-457 TAP	115.0	PENELEC	200744	26SOMERST	115.0	PENELEC	1	Base Case	operation	148.0	129.31	133.93	DC	6.84

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
167335208,167335207	6	01CARLOS 138.0 kV - 01DANSMTN 138.0 kV Ckt 1	APS n4655 (621) : Reconfigure Albright 138 kV SS to breaker-and-a-half layout Project Type : CON Cost : $20,701,800 Time Estimate : 30.0 Months	$20,701,800
167335239,167335238	7	01GARRET 138.0 kV - 01CARLOS 138.0 kV Ckt 1		
167335130,165554736,167335129	8	01DANSMTN 138.0 kV - 01RIDGLY 138.0 kV Ckt 1		
165935368	10	AF1-232 TAP 115.0 kV - 26ALLEGHEN 115.0 kV Ckt 1	PENELEC PN-AF2-F-0036A (2172) : Reconductor 1.7 miles of line. Project Type : FAC Cost : $5,250,000 Time Estimate : 24.0 Months PN-AF2-F-0036B (2173) : Replace the bus conductor at Allegheny. Project Type : FAC Cost : $200,000 Time Estimate : 12.0 Months	$5,450,000
165935316	5	26NEW BALT 115.0 kV - 26BDFORD N 115.0 kV Ckt 1	PENELEC PN-AG1-F-0032 (2288) : Reconductor 11.1 miles of line. Project Type : FAC Cost : $27,200,000 Time Estimate : 50.0 Months	$27,200,000
165554691	9	AD1-068 TAP 138.0 kV - 01ALBRIG 138.0 kV Ckt 1	APS PE-AG1-F-0008a (648) : 1) Replace (1) 600 A WHSE disconnect switch at Garrett. 2) Mon Power (Exclude from Estimate): Reconductor (2) existing sections of 500 CU subconductor circular at Albright to meet or exceed 350 MVA STE. 3) Replace (2) 5 A thermal relays at Garrett. 4) Replace (1) 800 A WHSE wave trap at Garrett. 5) Mon Power (Exclude from Estimate): Reconductor (1) existing section of 556.5 ACSR 26/7 subconductor circular at Albright to meet or exceed 350 MVA STE. 6) Reconductor (2) existing sections of 556.5 ACSR 26/7 subconductor circular at Garrett to meet or exceed 350 MVA STE. 7) Reconductor 15.47 miles of 556.5 ACSR 26/7 transmission line from Albright to Garrett with 1033 ACSR "Curlew" or equivalent to meet or exceed 350 MVA STE. 8) Reconductor existing sections of 556.5 ACSR 26/7 transmission line at Albright and Garrett with 1033 ACSR "Curlew" or equivalent to meet or exceed 350 MVA STE. Project Type : FAC Cost : $41,171,340 Time Estimate : 60.0 Months	$41,171,340

ID	Idx	Facility	Upgrade Description	Cost
166579950	2	**26RACHEL H 115.0 kV - 26HILLCLAY 115.0 kV Ckt 1**	**PENELEC** **PN-AF2-F-0040A (2186) : Replace line drops at Rachel Hill** **Project Type : FAC** **Cost : $200,000** **Time Estimate : 12.0 Months**	$200,000
166579967	1	**26SCALP L. 115.0 kV - 26RACHEL H 115.0 kV Ckt 1**	**PENELEC** **PN-AG1-F-0027A (2312) : Reconductor 2.70 miles of line.** **Project Type : FAC** **Cost : $8,350,000** **Time Estimate : 24.0 Months**	$8,350,000
166580004	3	**26HOOVERSV 115.0 kV - AG1-355 TAP 115.0 kV Ckt 1**	**PENELEC** **PN-AG1-F-0034 (2302) : Reconductor 5.4 miles of line.** **Project Type : FAC** **Cost : $13,300,000** **Time Estimate : 37.0 Months**	$13,300,000
166579966	11	**AG1-355 TAP 115.0 kV - 26SCALP L. 115.0 kV Ckt 1**		
165935363	4	**26ALLEGHEN 115.0 kV - 26NEW BALT 115.0 kV Ckt 1**	**PENELEC** **PN-AF2-F-0031A (2305) : Reconductor 3.52 miles of line.** **Project Type : FAC** **Cost : $10,800,000** **Time Estimate : 30.0 Months** **PN-AF2-F-0031B (2306) : Replace bus conductor at Allegheny.** **Project Type : FAC** **Cost : $200,000** **Time Estimate : 12.0 Months**	$11,000,000
			TOTAL COST	**$127,373,140**

11.6 Flow Gate Details

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

11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
166579967	200734	26SCALP L.	PENELEC	200749	26RACHEL H	PENELEC	1	PN-P7-1-PN-230-001	tower	245.0	98.95	100.4	DC	3.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2241	50/50	0.2241
200834	26SW_E13_K22	0.0596	50/50	0.0596
200835	26ARN_Z1-066	2.8383	50/50	2.8383
200840	26DEEPCRK1	0.1927	50/50	0.1927
200841	26DEEPCRK2	0.1946	50/50	0.1946
200846	26FORWARD	0.2364	50/50	0.2364
200864	K-013 E	10.8611	50/50	10.8611
200889	26STNY CRK	0.4605	50/50	0.4605
200890	26BF_G21_K23	0.2855	50/50	0.2855
200891	26CSLMN_L13	0.3303	50/50	0.3303
200892	26LOOKOUT	0.3526	50/50	0.3526
202225	26SCI_S29B	0.1193	50/50	0.1193
202652	26RGH_Y1-033	0.2159	50/50	0.2159
203915	26BF_Z2-108	6.3862	50/50	6.3862
292350	K-023	11.6726	50/50	11.6726
292542	L-013 1	11.3533	50/50	11.3533
293432	R-040 E	0.6386	50/50	0.6386
293902	O-048 E	10.2180	50/50	10.2180
294903	P-060 E	14.4211	50/50	14.4211
913142	Y1-033 E OP1	9.3096	50/50	9.3096
938351	AE1-053	3.5479	50/50	3.5479
938881	AE1-116	1.8901	50/50	1.8901
938993	AE1-128 C	18.2297	50/50	18.2297
938994	AE1-128 E	12.1531	50/50	12.1531
942361	AE2-249 C	2.0508	50/50	2.0508
942362	AE2-249 E	1.3672	50/50	1.3672
943711	AF1-039 C O1	2.4628	50/50	2.4628
943712	AF1-039 E O1	1.6419	50/50	1.6419
944781	AF1-143 C	21.2874	50/50	21.2874
944782	AF1-143 E	11.3533	50/50	11.3533
945671	AF1-232 C (Withdrawn : 01/19/2021)	38.5050	50/50	38.5050
945672	AF1-232 E (Withdrawn : 01/19/2021)	20.7334	50/50	20.7334
946571	AF1-321 C O1	6.1408	50/50	6.1408
946572	AF1-321 E O1	4.0938	50/50	4.0938
957001	AF2-001 C O1	6.1408	50/50	6.1408
957002	AF2-001 E O1	4.0938	50/50	4.0938
957011	AF2-002 C O1	3.0704	50/50	3.0704
957012	AF2-002 E O1	2.0469	50/50	2.0469
957981	AF2-092 C	1.5036	50/50	1.5036
957982	AF2-092 E	1.0024	50/50	1.0024

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958101	AF2-104 C (Withdrawn : 12/08/2020)	1.0081	50/50	1.0081
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.6720	50/50	0.6720
958471	AF2-141	2.8383	50/50	2.8383
959792	AF2-270 E	0.9421	50/50	0.9421
960451	AF2-336 C	2.5061	50/50	2.5061
960452	AF2-336 E	1.6707	50/50	1.6707
960461	AF2-337 C	2.5061	50/50	2.5061
960462	AF2-337 E	1.6707	50/50	1.6707
960471	AF2-338 C	2.5061	50/50	2.5061
960472	AF2-338 E	1.6707	50/50	1.6707
960481	AF2-339 C	2.5061	50/50	2.5061
960482	AF2-339 E	1.6707	50/50	1.6707
960901	AF2-381 C	33.2367	50/50	33.2367
960902	AF2-381 E	17.4908	50/50	17.4908
961911	AG1-033 C	2.2085	50/50	2.2085
961912	AG1-033 E	1.2423	50/50	1.2423
961981	AG1-041 C	1.2712	50/50	1.2712
961982	AG1-041 E	0.8475	50/50	0.8475
962292	AG1-077 E	1.4468	50/50	1.4468
962641	AG1-113	1.5121	50/50	1.5121
962651	AG1-114	3.5479	50/50	3.5479
963541	AG1-203 C	2.3511	50/50	2.3511
963542	AG1-203 E	1.2660	50/50	1.2660
963561	AG1-205 C	2.3061	50/50	2.3061
963562	AG1-205 E	1.2418	50/50	1.2418
963881	AG1-241 C	4.4860	50/50	4.4860
963882	AG1-241 E	2.4155	50/50	2.4155
964911	AG1-355 C	17.9013	50/50	17.9013
964912	AG1-355 E	11.9342	50/50	11.9342
964921	AG1-356 C	8.2162	50/50	8.2162
964922	AG1-356 E	5.4775	50/50	5.4775
965881	AG1-457 C	12.2232	50/50	12.2232
965882	AG1-457 E	8.1488	50/50	8.1488
966512	AG1-520 E	2.0469	50/50	2.0469
WEC	WEC	0.0447	Confirmed LTF	0.0447
LGEE	LGEE	0.0949	Confirmed LTF	0.0949
CPLE	CPLE	0.1276	Confirmed LTF	0.1276
CBM-W2	CBM-W2	1.3888	Confirmed LTF	1.3888
NY	NY	0.2411	Confirmed LTF	0.2411
TVA	TVA	0.2282	Confirmed LTF	0.2282
O-066	O-066	1.6287	Confirmed LTF	1.6287
SIGE	SIGE	0.0412	Confirmed LTF	0.0412
CBM-S2	CBM-S2	1.9001	Confirmed LTF	1.9001
CBM-S1	CBM-S1	0.0612	Confirmed LTF	0.0612
G-007	G-007	0.2467	Confirmed LTF	0.2467
MEC	MEC	0.2336	Confirmed LTF	0.2336
LAGN	LAGN	0.2818	Confirmed LTF	0.2818
CBM-W1	CBM-W1	1.8366	Confirmed LTF	1.8366

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
166579950	200749	26RACHEL H	PENELEC	200751	26HILLCLAY	PENELEC	1	PN-P7-1-PN-230-001	tower	217.0	98.86	100.5	DC	3.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2241	50/50	0.2241
200834	26SW_E13_K22	0.0596	50/50	0.0596
200835	26ARN_Z1-066	2.8383	50/50	2.8383
200840	26DEEPCRK1	0.1927	50/50	0.1927
200841	26DEEPCRK2	0.1946	50/50	0.1946
200846	26FORWARD	0.2364	50/50	0.2364
200864	K-013 E	10.8611	50/50	10.8611
200889	26STNY CRK	0.4605	50/50	0.4605
200890	26BF_G21_K23	0.2855	50/50	0.2855
200891	26CSLMN_L13	0.3303	50/50	0.3303
200892	26LOOKOUT	0.3526	50/50	0.3526
202225	26SCI_S29B	0.1193	50/50	0.1193
202652	26RGH_Y1-033	0.2159	50/50	0.2159
203915	26BF_Z2-108	6.3862	50/50	6.3862
292350	K-023	11.6726	50/50	11.6726
292542	L-013 1	11.3533	50/50	11.3533
293432	R-040 E	0.6386	50/50	0.6386
293902	O-048 E	10.2180	50/50	10.2180
294903	P-060 E	14.4211	50/50	14.4211
913142	Y1-033 E OP1	9.3096	50/50	9.3096
938351	AE1-053	3.5479	50/50	3.5479
938881	AE1-116	1.8901	50/50	1.8901
938993	AE1-128 C	18.2297	50/50	18.2297
938994	AE1-128 E	12.1531	50/50	12.1531
942361	AE2-249 C	2.0508	50/50	2.0508
942362	AE2-249 E	1.3672	50/50	1.3672
943711	AF1-039 C O1	2.4628	50/50	2.4628
943712	AF1-039 E O1	1.6419	50/50	1.6419
944781	AF1-143 C	21.2874	50/50	21.2874
944782	AF1-143 E	11.3533	50/50	11.3533
945671	AF1-232 C (Withdrawn : 01/19/2021)	38.5050	50/50	38.5050
945672	AF1-232 E (Withdrawn : 01/19/2021)	20.7334	50/50	20.7334
946571	AF1-321 C O1	6.1408	50/50	6.1408
946572	AF1-321 E O1	4.0938	50/50	4.0938
957001	AF2-001 C O1	6.1408	50/50	6.1408
957002	AF2-001 E O1	4.0938	50/50	4.0938
957011	AF2-002 C O1	3.0704	50/50	3.0704
957012	AF2-002 E O1	2.0469	50/50	2.0469
957981	AF2-092 C	1.5036	50/50	1.5036
957982	AF2-092 E	1.0024	50/50	1.0024

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958101	AF2-104 C (Withdrawn : 12/08/2020)	1.0081	50/50	1.0081
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.6720	50/50	0.6720
958471	AF2-141	2.8383	50/50	2.8383
959792	AF2-270 E	0.9421	50/50	0.9421
960451	AF2-336 C	2.5061	50/50	2.5061
960452	AF2-336 E	1.6707	50/50	1.6707
960461	AF2-337 C	2.5061	50/50	2.5061
960462	AF2-337 E	1.6707	50/50	1.6707
960471	AF2-338 C	2.5061	50/50	2.5061
960472	AF2-338 E	1.6707	50/50	1.6707
960481	AF2-339 C	2.5061	50/50	2.5061
960482	AF2-339 E	1.6707	50/50	1.6707
960901	AF2-381 C	33.2367	50/50	33.2367
960902	AF2-381 E	17.4908	50/50	17.4908
961911	AG1-033 C	2.2085	50/50	2.2085
961912	AG1-033 E	1.2423	50/50	1.2423
961981	AG1-041 C	1.2712	50/50	1.2712
961982	AG1-041 E	0.8475	50/50	0.8475
962292	AG1-077 E	1.4468	50/50	1.4468
962641	AG1-113	1.5121	50/50	1.5121
962651	AG1-114	3.5479	50/50	3.5479
963541	AG1-203 C	2.3511	50/50	2.3511
963542	AG1-203 E	1.2660	50/50	1.2660
963561	AG1-205 C	2.3061	50/50	2.3061
963562	AG1-205 E	1.2418	50/50	1.2418
963881	AG1-241 C	4.4860	50/50	4.4860
963882	AG1-241 E	2.4155	50/50	2.4155
964911	AG1-355 C	17.9013	50/50	17.9013
964912	AG1-355 E	11.9342	50/50	11.9342
964921	AG1-356 C	8.2162	50/50	8.2162
964922	AG1-356 E	5.4775	50/50	5.4775
965881	AG1-457 C	12.2232	50/50	12.2232
965882	AG1-457 E	8.1488	50/50	8.1488
966512	AG1-520 E	2.0469	50/50	2.0469
WEC	WEC	0.0447	Confirmed LTF	0.0447
LGEE	LGEE	0.0949	Confirmed LTF	0.0949
CPLE	CPLE	0.1276	Confirmed LTF	0.1276
CBM-W2	CBM-W2	1.3888	Confirmed LTF	1.3888
NY	NY	0.2411	Confirmed LTF	0.2411
TVA	TVA	0.2282	Confirmed LTF	0.2282
O-066	O-066	1.6287	Confirmed LTF	1.6287
SIGE	SIGE	0.0412	Confirmed LTF	0.0412
CBM-S2	CBM-S2	1.9001	Confirmed LTF	1.9001
CBM-S1	CBM-S1	0.0612	Confirmed LTF	0.0612
G-007	G-007	0.2467	Confirmed LTF	0.2467
MEC	MEC	0.2336	Confirmed LTF	0.2336
LAGN	LAGN	0.2818	Confirmed LTF	0.2818
CBM-W1	CBM-W1	1.8366	Confirmed LTF	1.8366

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
166580004	200743	26HOOVERSV	PENELEC	964910	AG1-355 TAP	PENELEC	1	PN-P7-1-PN-230-001	tower	245.0	102.28	103.72	DC	3.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2241	50/50	0.2241
200834	26SW_E13_K22	0.0596	50/50	0.0596
200835	26ARN_Z1-066	2.8383	50/50	2.8383
200840	26DEEPCRK1	0.1927	50/50	0.1927
200841	26DEEPCRK2	0.1946	50/50	0.1946
200846	26FORWARD	0.2364	50/50	0.2364
200864	K-013 E	10.8611	50/50	10.8611
200889	26STNY CRK	0.4605	50/50	0.4605
200890	26BF_G21_K23	0.2855	50/50	0.2855
200891	26CSLMN_L13	0.3303	50/50	0.3303
200892	26LOOKOUT	0.3526	50/50	0.3526
202225	26SCI_S29B	0.1193	50/50	0.1193
202652	26RGH_Y1-033	0.2159	50/50	0.2159
203915	26BF_Z2-108	6.3862	50/50	6.3862
292350	K-023	11.6726	50/50	11.6726
292542	L-013 1	11.3533	50/50	11.3533
293432	R-040 E	0.6386	50/50	0.6386
293902	O-048 E	10.2180	50/50	10.2180
294903	P-060 E	14.4211	50/50	14.4211
913142	Y1-033 E OP1	9.3096	50/50	9.3096
938351	AE1-053	3.5479	50/50	3.5479
938881	AE1-116	1.8901	50/50	1.8901
938993	AE1-128 C	18.2297	50/50	18.2297
938994	AE1-128 E	12.1531	50/50	12.1531
942361	AE2-249 C	2.0508	50/50	2.0508
942362	AE2-249 E	1.3672	50/50	1.3672
943301	AF1-001 C	0.4718	Adder	0.56
943302	AF1-001 E	0.5262	Adder	0.62
943711	AF1-039 C O1	2.4628	50/50	2.4628
943712	AF1-039 E O1	1.6419	50/50	1.6419
944781	AF1-143 C	21.2874	50/50	21.2874
944782	AF1-143 E	11.3533	50/50	11.3533
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**38.5050**	**50/50**	**38.5050**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**20.7334**	**50/50**	**20.7334**
946571	AF1-321 C O1	6.1408	50/50	6.1408
946572	AF1-321 E O1	4.0938	50/50	4.0938
957001	AF2-001 C O1	6.1408	50/50	6.1408
957002	AF2-001 E O1	4.0938	50/50	4.0938
957011	AF2-002 C O1	3.0704	50/50	3.0704
957012	AF2-002 E O1	2.0469	50/50	2.0469

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957981	AF2-092 C	1.5036	50/50	1.5036
957982	AF2-092 E	1.0024	50/50	1.0024
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**1.0081**	**50/50**	**1.0081**
958102	**AF2-104 E (Withdrawn : 12/08/2020)**	**0.6720**	**50/50**	**0.6720**
958471	AF2-141	2.8383	50/50	2.8383
959792	AF2-270 E	0.9421	50/50	0.9421
960451	AF2-336 C	2.5061	50/50	2.5061
960452	AF2-336 E	1.6707	50/50	1.6707
960461	AF2-337 C	2.5061	50/50	2.5061
960462	AF2-337 E	1.6707	50/50	1.6707
960471	AF2-338 C	2.5061	50/50	2.5061
960472	AF2-338 E	1.6707	50/50	1.6707
960481	AF2-339 C	2.5061	50/50	2.5061
960482	AF2-339 E	1.6707	50/50	1.6707
960901	AF2-381 C	33.2367	50/50	33.2367
960902	AF2-381 E	17.4908	50/50	17.4908
961981	AG1-041 C	1.2712	50/50	1.2712
961982	AG1-041 E	0.8475	50/50	0.8475
962292	AG1-077 E	1.4468	50/50	1.4468
962641	AG1-113	1.5121	50/50	1.5121
962651	AG1-114	3.5479	50/50	3.5479
963541	AG1-203 C	2.3511	50/50	2.3511
963542	AG1-203 E	1.2660	50/50	1.2660
963561	AG1-205 C	2.3061	50/50	2.3061
963562	AG1-205 E	1.2418	50/50	1.2418
964921	AG1-356 C	8.2162	50/50	8.2162
964922	AG1-356 E	5.4775	50/50	5.4775
965881	AG1-457 C	12.2232	50/50	12.2232
965882	AG1-457 E	8.1488	50/50	8.1488
966512	AG1-520 E	2.0469	50/50	2.0469
WEC	WEC	0.0447	Confirmed LTF	0.0447
LGEE	LGEE	0.0949	Confirmed LTF	0.0949
CPLE	CPLE	0.1276	Confirmed LTF	0.1276
CBM-W2	CBM-W2	1.3888	Confirmed LTF	1.3888
NY	NY	0.2411	Confirmed LTF	0.2411
TVA	TVA	0.2282	Confirmed LTF	0.2282
O-066	O-066	1.6287	Confirmed LTF	1.6287
SIGE	SIGE	0.0412	Confirmed LTF	0.0412
CBM-S2	CBM-S2	1.9001	Confirmed LTF	1.9001
CBM-S1	CBM-S1	0.0612	Confirmed LTF	0.0612
G-007	G-007	0.2467	Confirmed LTF	0.2467
MEC	MEC	0.2336	Confirmed LTF	0.2336
LAGN	LAGN	0.2818	Confirmed LTF	0.2818
CBM-W1	CBM-W1	1.8366	Confirmed LTF	1.8366

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
165935363	200745	26ALLEGHEN	PENELEC	200884	26NEW BALT	PENELEC	1	PN-P2-3-PN-115-35E	breaker	160.0	132.71	135.46	DC	4.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2780	50/50	0.2780
200834	26SW_E13_K22	0.0740	50/50	0.0740
200835	26ARN_Z1-066	3.5201	50/50	3.5201
200840	26DEEPCRK1	0.2393	50/50	0.2393
200841	26DEEPCRK2	0.2417	50/50	0.2417
200890	26BF_G21_K23	0.3540	50/50	0.3540
200891	26CSLMN_L13	0.4096	50/50	0.4096
200892	26LOOKOUT	0.4373	50/50	0.4373
202225	26SCI_S29B	0.1479	50/50	0.1479
202652	26RGH_Y1-033	0.2678	50/50	0.2678
203915	26BF_Z2-108	7.9202	50/50	7.9202
292350	K-023	14.4763	50/50	14.4763
292542	L-013 1	14.0803	50/50	14.0803
293432	R-040 E	0.7920	50/50	0.7920
293902	O-048 E	12.6723	50/50	12.6723
913142	Y1-033 E OP1	11.5481	50/50	11.5481
938351	AE1-053	4.4001	50/50	4.4001
938881	AE1-116	2.3439	50/50	2.3439
943301	AF1-001 C	0.6898	50/50	0.6898
943302	AF1-001 E	0.7694	50/50	0.7694
943711	AF1-039 C O1	3.0551	50/50	3.0551
943712	AF1-039 E O1	2.0367	50/50	2.0367
944751	AF1-140 C	-0.6928	Adder	-0.82
944781	AF1-143 C	26.4006	50/50	26.4006
944782	AF1-143 E	14.0803	50/50	14.0803
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**64.1139**	**50/50**	**64.1139**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**34.5229**	**50/50**	**34.5229**
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**1.2501**	**50/50**	**1.2501**
958102	**AF2-104 E (Withdrawn : 12/08/2020)**	**0.8334**	**50/50**	**0.8334**
958471	AF2-141	3.5201	50/50	3.5201
959793	AF2-270 BAT	0.2381	50/50	0.2381
962292	AG1-077 E	2.5315	50/50	2.5315
962641	AG1-113	1.8751	50/50	1.8751
962651	AG1-114	4.4001	50/50	4.4001
963541	AG1-203 C	4.1137	50/50	4.1137
963542	AG1-203 E	2.2150	50/50	2.2150
963561	AG1-205 C	2.8601	50/50	2.8601
963562	AG1-205 E	1.5400	50/50	1.5400

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964753	AG1-338 BAT	0.2217	Merchant Transmission	0.2217
964763	AG1-339 BAT	0.2217	Merchant Transmission	0.2217
964773	AG1-340 BAT	0.2217	Merchant Transmission	0.2217
964921	AG1-356 C	12.8954	50/50	12.8954
964922	AG1-356 E	8.5969	50/50	8.5969
965881	AG1-457 C	15.1587	50/50	15.1587
965882	AG1-457 E	10.1058	50/50	10.1058
WEC	WEC	0.0630	Confirmed LTF	0.0630
LGEE	LGEE	0.1326	Confirmed LTF	0.1326
CPLE	CPLE	0.1720	Confirmed LTF	0.1720
CBM-W2	CBM-W2	1.9354	Confirmed LTF	1.9354
NY	NY	0.3368	Confirmed LTF	0.3368
TVA	TVA	0.3150	Confirmed LTF	0.3150
O-066	O-066	2.2545	Confirmed LTF	2.2545
SIGE	SIGE	0.0571	Confirmed LTF	0.0571
CBM-S2	CBM-S2	2.5682	Confirmed LTF	2.5682
CBM-S1	CBM-S1	0.0844	Confirmed LTF	0.0844
G-007	G-007	0.3402	Confirmed LTF	0.3402
MEC	MEC	0.3273	Confirmed LTF	0.3273
LAGN	LAGN	0.3885	Confirmed LTF	0.3885
CBM-W1	CBM-W1	2.6077	Confirmed LTF	2.6077

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
165935316	200884	26NEW BALT	PENELEC	200501	26BDFORD N	PENELEC	1	PN-P2-3-PN-115-35E	breaker	160.0	155.46	158.21	DC	4.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2779	50/50	0.2779
200834	26SW_E13_K22	0.0740	50/50	0.0740
200835	26ARN_Z1-066	3.5198	50/50	3.5198
200840	26DEEPCRK1	0.2392	50/50	0.2392
200841	26DEEPCRK2	0.2416	50/50	0.2416
200889	26STNY CRK	0.8959	50/50	0.8959
200890	26BF_G21_K23	0.3540	50/50	0.3540
200891	26CSLMN_L13	0.4095	50/50	0.4095
200892	26LOOKOUT	0.4373	50/50	0.4373
202225	26SCI_S29B	0.1479	50/50	0.1479
202652	26RGH_Y1-033	0.2677	50/50	0.2677
203915	26BF_Z2-108	7.9195	50/50	7.9195
292350	K-023	14.4750	50/50	14.4750
292542	L-013 1	14.0790	50/50	14.0790
293432	R-040 E	0.7919	50/50	0.7919
293902	O-048 E	12.6711	50/50	12.6711
294903	P-060 E	28.0585	50/50	28.0585
913142	Y1-033 E OP1	11.5467	50/50	11.5467
938351	AE1-053	4.3997	50/50	4.3997
938881	AE1-116	2.3437	50/50	2.3437
943301	AF1-001 C	0.6895	50/50	0.6895
943302	AF1-001 E	0.7691	50/50	0.7691
943711	AF1-039 C O1	3.0547	50/50	3.0547
943712	AF1-039 E O1	2.0365	50/50	2.0365
944781	AF1-143 C	26.3982	50/50	26.3982
944782	AF1-143 E	14.0790	50/50	14.0790
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**64.1087**	**50/50**	**64.1087**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**34.5201**	**50/50**	**34.5201**
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**1.2500**	**50/50**	**1.2500**
958102	**AF2-104 E (Withdrawn : 12/08/2020)**	**0.8333**	**50/50**	**0.8333**
958471	AF2-141	3.5198	50/50	3.5198
959793	AF2-270 BAT	0.2382	50/50	0.2382
962292	AG1-077 E	2.5313	50/50	2.5313
962641	AG1-113	1.8750	50/50	1.8750
962651	AG1-114	4.3997	50/50	4.3997
963541	AG1-203 C	4.1134	50/50	4.1134
963542	AG1-203 E	2.2149	50/50	2.2149
963561	AG1-205 C	2.8598	50/50	2.8598

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963562	AG1-205 E	1.5399	50/50	1.5399
964753	AG1-338 BAT	0.2218	Merchant Transmission	0.2218
964763	AG1-339 BAT	0.2218	Merchant Transmission	0.2218
964773	AG1-340 BAT	0.2218	Merchant Transmission	0.2218
964921	AG1-356 C	12.8943	50/50	12.8943
964922	AG1-356 E	8.5962	50/50	8.5962
965881	AG1-457 C	15.1574	50/50	15.1574
965882	AG1-457 E	10.1049	50/50	10.1049
WEC	WEC	0.0617	Confirmed LTF	0.0617
LGEE	LGEE	0.1301	Confirmed LTF	0.1301
CPLE	CPLE	0.1693	Confirmed LTF	0.1693
CBM-W2	CBM-W2	1.8995	Confirmed LTF	1.8995
NY	NY	0.3390	Confirmed LTF	0.3390
TVA	TVA	0.3094	Confirmed LTF	0.3094
O-066	O-066	2.2815	Confirmed LTF	2.2815
SIGE	SIGE	0.0571	Confirmed LTF	0.0571
CBM-S2	CBM-S2	2.5265	Confirmed LTF	2.5265
CBM-S1	CBM-S1	0.0828	Confirmed LTF	0.0828
G-007	G-007	0.3444	Confirmed LTF	0.3444
MEC	MEC	0.3210	Confirmed LTF	0.3210
LAGN	LAGN	0.3815	Confirmed LTF	0.3815
CBM-W1	CBM-W1	2.5516	Confirmed LTF	2.5516

11.6.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
167335208	235449	01CARLOS	AP	237310	01DANSMTN	AP	1	FE-P2-3-MP-138-160	breaker	182.0	119.59	120.86	DC	2.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.3755	50/50	0.3755
200834	26SW_E13_K22	0.0197	50/50	0.0197
200835	26ARN_Z1-066	1.8458	50/50	1.8458
200840	26DEEPCRK1	0.8682	50/50	0.8682
200841	26DEEPCRK2	0.8770	50/50	0.8770
200864	K-013 E	1.4729	Adder	1.73
200889	26STNY CRK	0.1474	50/50	0.1474
200890	26BF_G21_K23	0.1857	50/50	0.1857
200891	26CSLMN_L13	0.2148	50/50	0.2148
200892	26LOOKOUT	0.2293	50/50	0.2293
202225	26SCI_S29B	0.0395	50/50	0.0395
202652	26RGH_Y1-033	0.2719	50/50	0.2719
203915	26BF_Z2-108	4.1531	50/50	4.1531
235532	AA1-100 BAT	1.0857	Merchant Transmission	1.0857
237084	**AD1-018 E (Suspended)**	**2.1204**	**50/50**	**2.1204**
237089	**AD1-018 C (Suspended)**	**1.2996**	**50/50**	**1.2996**
292350	K-023	7.5910	50/50	7.5910
292542	L-013 1	7.3834	50/50	7.3834
293432	R-040 E	0.4153	50/50	0.4153
293902	O-048 E	6.6450	50/50	6.6450
294903	P-060 E	4.6171	50/50	4.6171
913142	Y1-033 E OP1	11.7274	50/50	11.7274
934443	AD1-068 C	7.1635	50/50	7.1635
934445	AD1-068 E	41.5677	50/50	41.5677
938351	AE1-053	2.3073	50/50	2.3073
938881	AE1-116	0.6258	50/50	0.6258
938993	AE1-128 C	4.6304	Adder	5.45
938994	AE1-128 E	3.0869	Adder	3.63
942361	AE2-249 C	0.5209	Adder	0.61
942362	AE2-249 E	0.3473	Adder	0.41
942901	AE2-309 C	3.2938	50/50	3.2938
942902	AE2-309 E	0.6287	50/50	0.6287
943301	AF1-001 C	3.9599	50/50	3.9599
943302	AF1-001 E	4.4168	50/50	4.4168
943711	AF1-039 C O1	3.1025	50/50	3.1025
943712	AF1-039 E O1	2.0683	50/50	2.0683
944781	AF1-143 C	13.8438	50/50	13.8438
944782	AF1-143 E	7.3834	50/50	7.3834
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**12.4956**	**50/50**	**12.4956**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945672	AF1-232 E (Withdrawn : 01/19/2021)	6.7284	50/50	6.7284
946571	AF1-321 C O1	0.7599	Adder	0.89
946572	AF1-321 E O1	0.5066	Adder	0.6
957001	AF2-001 C O1	0.7599	Adder	0.89
957002	AF2-001 E O1	0.5066	Adder	0.6
957011	AF2-002 C O1	0.3800	Adder	0.45
957012	AF2-002 E O1	0.2533	Adder	0.3
957981	AF2-092 C	0.4315	Adder	0.51
957982	AF2-092 E	0.2877	Adder	0.34
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.3338	50/50	0.3338
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.2225	50/50	0.2225
958471	AF2-141	1.8458	50/50	1.8458
959792	AF2-270 E	0.2393	Adder	0.28
960192	AF2-310 BAT	1.2876	Merchant Transmission	1.2876
960451	AF2-336 C	0.7192	Adder	0.85
960452	AF2-336 E	0.4795	Adder	0.56
960461	AF2-337 C	0.7192	Adder	0.85
960462	AF2-337 E	0.4795	Adder	0.56
960471	AF2-338 C	0.7192	Adder	0.85
960472	AF2-338 E	0.4795	Adder	0.56
960481	AF2-339 C	0.7192	Adder	0.85
960482	AF2-339 E	0.4795	Adder	0.56
960901	AF2-381 C	5.2190	Adder	6.14
960902	AF2-381 E	2.7465	Adder	3.23
961911	AG1-033 C	0.0880	Adder	0.2
961912	AG1-033 E	0.0495	Adder	0.11
961981	AG1-041 C	0.2165	Adder	0.48
961982	AG1-041 E	0.1444	Adder	0.32
962292	AG1-077 E	0.4676	50/50	0.4676
962501	AG1-099	0.8690	Adder	1.93
962641	AG1-113	0.5007	50/50	0.5007
962651	AG1-114	2.3073	50/50	2.3073
963541	AG1-203 C	0.7598	50/50	0.7598
963542	AG1-203 E	0.4091	50/50	0.4091
963561	AG1-205 C	1.4997	50/50	1.4997
963562	AG1-205 E	0.8076	50/50	0.8076
963881	AG1-241 C	0.1788	Adder	0.4
963882	AG1-241 E	0.0963	Adder	0.21
964911	AG1-355 C	1.0425	Adder	2.31
964912	AG1-355 E	0.6950	Adder	1.54
964921	AG1-356 C	2.6784	50/50	2.6784
964922	AG1-356 E	1.7856	50/50	1.7856
965881	AG1-457 C	6.4528	50/50	6.4528
965882	AG1-457 E	4.3019	50/50	4.3019
966512	AG1-520 E	0.1342	Adder	0.3
G-007A	G-007A	0.5994	Confirmed LTF	0.5994
VFT	VFT	1.6770	Confirmed LTF	1.6770
CALDERWOOD	CALDERWOOD	0.1088	Confirmed LTF	0.1088
PRAIRIE	PRAIRIE	0.4288	Confirmed LTF	0.4288
CHEOAH	CHEOAH	0.1106	Confirmed LTF	0.1106

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-N	CBM-N	0.3372	Confirmed LTF	0.3372
COTTONWOOD	COTTONWOOD	0.4095	Confirmed LTF	0.4095
HAMLET	HAMLET	0.1681	Confirmed LTF	0.1681
GIBSON	GIBSON	0.0835	Confirmed LTF	0.0835
BLUEG	BLUEG	0.2691	Confirmed LTF	0.2691
TRIMBLE	TRIMBLE	0.0857	Confirmed LTF	0.0857
CATAWBA	CATAWBA	0.0941	Confirmed LTF	0.0941

11.6.7 Index 7

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
167335238	235469	01GARRET	AP	235449	01CARLOS	AP	1	FE-P2-3-MP-138-150	breaker	206.0	114.37	115.53	DC	2.38

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.3877	50/50	0.3877
200834	26SW_E13_K22	0.0204	50/50	0.0204
200835	26ARN_Z1-066	1.9068	50/50	1.9068
200840	26DEEPCRK1	0.8964	50/50	0.8964
200841	26DEEPCRK2	0.9054	50/50	0.9054
200864	K-013 E	1.5251	Adder	1.79
200889	26STNY CRK	0.1525	50/50	0.1525
200890	26BF_G21_K23	0.1918	50/50	0.1918
200891	26CSLMN_L13	0.2219	50/50	0.2219
200892	26LOOKOUT	0.2369	50/50	0.2369
202225	26SCI_S29B	0.0408	50/50	0.0408
202652	26RGH_Y1-033	0.2808	50/50	0.2808
203915	26BF_Z2-108	4.2903	50/50	4.2903
235532	AA1-100 BAT	1.2210	50/50	1.2210
292350	K-023	7.8417	50/50	7.8417
292542	L-013 1	7.6272	50/50	7.6272
293432	R-040 E	0.4290	50/50	0.4290
293902	O-048 E	6.8645	50/50	6.8645
294903	P-060 E	4.7750	50/50	4.7750
913142	Y1-033 E OP1	12.1104	50/50	12.1104
934443	AD1-068 C	7.3952	50/50	7.3952
934445	AD1-068 E	42.9120	50/50	42.9120
938351	AE1-053	2.3835	50/50	2.3835
938881	AE1-116	0.6469	50/50	0.6469
938993	AE1-128 C	4.7932	Adder	5.64
938994	AE1-128 E	3.1955	Adder	3.76
942361	AE2-249 C	0.5392	Adder	0.63
942362	AE2-249 E	0.3595	Adder	0.42
942903	AE2-309 BAT	1.4234	50/50	1.4234
943301	AF1-001 C	4.0880	50/50	4.0880
943302	AF1-001 E	4.5597	50/50	4.5597
943711	AF1-039 C O1	3.2038	50/50	3.2038
943712	AF1-039 E O1	2.1359	50/50	2.1359
944781	AF1-143 C	14.3010	50/50	14.3010
944782	AF1-143 E	7.6272	50/50	7.6272
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**12.9199**	**50/50**	**12.9199**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**6.9569**	**50/50**	**6.9569**
946571	AF1-321 C O1	0.7868	Adder	0.93
946572	AF1-321 E O1	0.5246	Adder	0.62
957001	AF2-001 C O1	0.7868	Adder	0.93

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957002	AF2-001 E O1	0.5246	Adder	0.62
957011	AF2-002 C O1	0.3934	Adder	0.46
957012	AF2-002 E O1	0.2623	Adder	0.31
957981	AF2-092 C	0.4468	Adder	0.53
957982	AF2-092 E	0.2979	Adder	0.35
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**0.3450**	**50/50**	**0.3450**
958102	**AF2-104 E (Withdrawn : 12/08/2020)**	**0.2300**	**50/50**	**0.2300**
958471	AF2-141	1.9068	50/50	1.9068
959792	AF2-270 E	0.2477	Adder	0.29
960192	AF2-310 BAT	2.2200	50/50	2.2200
960451	AF2-336 C	0.7447	Adder	0.88
960452	AF2-336 E	0.4965	Adder	0.58
960461	AF2-337 C	0.7447	Adder	0.88
960462	AF2-337 E	0.4965	Adder	0.58
960471	AF2-338 C	0.7447	Adder	0.88
960472	AF2-338 E	0.4965	Adder	0.58
960481	AF2-339 C	0.7447	Adder	0.88
960482	AF2-339 E	0.4965	Adder	0.58
960901	AF2-381 C	5.4035	Adder	6.36
960902	AF2-381 E	2.8436	Adder	3.35
961911	AG1-033 C	0.0912	Adder	0.2
961912	AG1-033 E	0.0513	Adder	0.11
961981	AG1-041 C	0.2243	Adder	0.5
961982	AG1-041 E	0.1495	Adder	0.33
962292	AG1-077 E	0.4836	50/50	0.4836
962502	AG1-099 BAT	0.9298	Merchant Transmission	0.9298
962641	AG1-113	0.5175	50/50	0.5175
962651	AG1-114	2.3835	50/50	2.3835
963541	AG1-203 C	0.7858	50/50	0.7858
963542	AG1-203 E	0.4231	50/50	0.4231
963561	AG1-205 C	1.5493	50/50	1.5493
963562	AG1-205 E	0.8342	50/50	0.8342
963881	AG1-241 C	0.1852	Adder	0.41
963882	AG1-241 E	0.0997	Adder	0.22
964911	AG1-355 C	1.0795	Adder	2.4
964912	AG1-355 E	0.7197	Adder	1.6
964921	AG1-356 C	2.7693	50/50	2.7693
964922	AG1-356 E	1.8462	50/50	1.8462
965881	AG1-457 C	6.6669	50/50	6.6669
965882	AG1-457 E	4.4446	50/50	4.4446
966512	AG1-520 E	0.1390	Adder	0.31
G-007A	G-007A	0.5562	Confirmed LTF	0.5562
VFT	VFT	1.5609	Confirmed LTF	1.5609
CALDERWOOD	CALDERWOOD	0.1069	Confirmed LTF	0.1069
PRAIRIE	PRAIRIE	0.3823	Confirmed LTF	0.3823
CHEOAH	CHEOAH	0.1086	Confirmed LTF	0.1086
CBM-N	CBM-N	0.3180	Confirmed LTF	0.3180
COTTONWOOD	COTTONWOOD	0.3885	Confirmed LTF	0.3885
HAMLET	HAMLET	0.1773	Confirmed LTF	0.1773
GIBSON	GIBSON	0.0721	Confirmed LTF	0.0721
BLUEG	BLUEG	0.2326	Confirmed LTF	0.2326

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
TRIMBLE	TRIMBLE	0.0740	Confirmed LTF	0.0740
CATAWBA	CATAWBA	0.0977	Confirmed LTF	0.0977

11.6.8 Index 8

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
167335130	237310	01DANSMTN	AP	235504	01RIDGLY	AP	1	FE-P2-3-MP-138-160	breaker	182.0	151.42	152.68	DC	2.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.3754	50/50	0.3754
200834	26SW_E13_K22	0.0197	50/50	0.0197
200835	26ARN_Z1-066	1.8452	50/50	1.8452
200840	26DEEPCRK1	0.8681	50/50	0.8681
200841	26DEEPCRK2	0.8769	50/50	0.8769
200864	K-013 E	1.4715	Adder	1.73
200889	26STNY CRK	0.1473	50/50	0.1473
200890	26BF_G21_K23	0.1856	50/50	0.1856
200891	26CSLMN_L13	0.2147	50/50	0.2147
200892	26LOOKOUT	0.2293	50/50	0.2293
202225	26SCI_S29B	0.0395	50/50	0.0395
202652	26RGH_Y1-033	0.2719	50/50	0.2719
203915	26BF_Z2-108	4.1517	50/50	4.1517
235532	AA1-100 BAT	1.0865	Merchant Transmission	1.0865
237084	**AD1-018 E (Suspended)**	**2.1195**	**50/50**	**2.1195**
237089	**AD1-018 C (Suspended)**	**1.2991**	**50/50**	**1.2991**
237312	01DANS_S-014	1.8203	50/50	1.8203
290229	S-014 E	46.1502	50/50	46.1502
292350	K-023	7.5884	50/50	7.5884
292542	L-013 1	7.3808	50/50	7.3808
293432	R-040 E	0.4152	50/50	0.4152
293902	O-048 E	6.6427	50/50	6.6427
294903	P-060 E	4.6141	50/50	4.6141
913142	Y1-033 E OP1	11.7250	50/50	11.7250
934443	AD1-068 C	7.1625	50/50	7.1625
934445	AD1-068 E	41.5623	50/50	41.5623
938351	AE1-053	2.3065	50/50	2.3065
938881	AE1-116	0.6255	50/50	0.6255
938993	AE1-128 C	4.6261	Adder	5.44
938994	AE1-128 E	3.0841	Adder	3.63
942361	AE2-249 C	0.5204	Adder	0.61
942362	AE2-249 E	0.3470	Adder	0.41
942901	AE2-309 C	3.2927	50/50	3.2927
942902	AE2-309 E	0.6285	50/50	0.6285
943301	AF1-001 C	3.9594	50/50	3.9594
943302	AF1-001 E	4.4163	50/50	4.4163
943711	AF1-039 C O1	3.1019	50/50	3.1019
943712	AF1-039 E O1	2.0679	50/50	2.0679
944781	AF1-143 C	13.8390	50/50	13.8390
944782	AF1-143 E	7.3808	50/50	7.3808
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**12.4873**	**50/50**	**12.4873**

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945672	AF1-232 E (Withdrawn : 01/19/2021)	6.7239	50/50	6.7239
946571	AF1-321 C O1	0.7591	Adder	0.89
946572	AF1-321 E O1	0.5061	Adder	0.6
957001	AF2-001 C O1	0.7591	Adder	0.89
957002	AF2-001 E O1	0.5061	Adder	0.6
957011	AF2-002 C O1	0.3795	Adder	0.45
957012	AF2-002 E O1	0.2530	Adder	0.3
957981	AF2-092 C	0.4311	Adder	0.51
957982	AF2-092 E	0.2874	Adder	0.34
958101	AF2-104 C (Withdrawn : 12/08/2020)	0.3336	50/50	0.3336
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.2224	50/50	0.2224
958471	AF2-141	1.8452	50/50	1.8452
959792	AF2-270 E	0.2391	Adder	0.28
960451	AF2-336 C	0.7185	Adder	0.85
960452	AF2-336 E	0.4790	Adder	0.56
960461	AF2-337 C	0.7185	Adder	0.85
960462	AF2-337 E	0.4790	Adder	0.56
960471	AF2-338 C	0.7185	Adder	0.85
960472	AF2-338 E	0.4790	Adder	0.56
960481	AF2-339 C	0.7185	Adder	0.85
960482	AF2-339 E	0.4790	Adder	0.56
960901	AF2-381 C	5.2142	Adder	6.13
960902	AF2-381 E	2.7440	Adder	3.23
962292	AG1-077 E	0.4673	50/50	0.4673
962501	AG1-099	0.8683	Adder	1.93
962641	AG1-113	0.5004	50/50	0.5004
962651	AG1-114	2.3065	50/50	2.3065
963541	AG1-203 C	0.7594	50/50	0.7594
963542	AG1-203 E	0.4089	50/50	0.4089
963561	AG1-205 C	1.4992	50/50	1.4992
963562	AG1-205 E	0.8073	50/50	0.8073
964911	AG1-355 C	1.0414	Adder	2.31
964912	AG1-355 E	0.6943	Adder	1.54
964921	AG1-356 C	2.6769	50/50	2.6769
964922	AG1-356 E	1.7846	50/50	1.7846
965881	AG1-457 C	6.4505	50/50	6.4505
965882	AG1-457 E	4.3003	50/50	4.3003
966512	AG1-520 E	0.1341	Adder	0.3
G-007A	G-007A	0.5802	Confirmed LTF	0.5802
VFT	VFT	1.6254	Confirmed LTF	1.6254
CALDERWOOD	CALDERWOOD	0.1128	Confirmed LTF	0.1128
PRAIRIE	PRAIRIE	0.4494	Confirmed LTF	0.4494
CHEOAH	CHEOAH	0.1146	Confirmed LTF	0.1146
CBM-N	CBM-N	0.3276	Confirmed LTF	0.3276
COTTONWOOD	COTTONWOOD	0.4263	Confirmed LTF	0.4263
HAMLET	HAMLET	0.1727	Confirmed LTF	0.1727
GIBSON	GIBSON	0.0879	Confirmed LTF	0.0879
BLUEG	BLUEG	0.2830	Confirmed LTF	0.2830
TRIMBLE	TRIMBLE	0.0902	Confirmed LTF	0.0902
CATAWBA	CATAWBA	0.0969	Confirmed LTF	0.0969

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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
165554691	934440	AD1-068 TAP	AP	235120	01ALBRIG	AP	1	PN-P2-2-PN-115-002	bus	191.0	160.56	164.08	DC	6.72

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.6357	50/50	0.6357
200835	26ARN_Z1-066	5.3729	50/50	5.3729
200840	26DEEPCRK1	1.0490	50/50	1.0490
200841	26DEEPCRK2	1.0596	50/50	1.0596
200890	26BF_G21_K23	0.5404	50/50	0.5404
200891	26CSLMN_L13	0.6252	50/50	0.6252
200892	26LOOKOUT	0.6675	50/50	0.6675
202652	26RGH_Y1-033	0.5298	50/50	0.5298
203915	26BF_Z2-108	12.0890	50/50	12.0890
235098	U2-073A E	13.3805	50/50	13.3805
235099	U2-073B E	5.8662	50/50	5.8662
235526	01WR_AA1-100	1.6207	50/50	1.6207
235530	01TR_U2-073A	0.4709	50/50	0.4709
235531	01TR_U2-073B	0.2727	50/50	0.2727
236001	01WARRIOR RN	4.1842	50/50	4.1842
237084	**AD1-018 E (Suspended)**	**2.0340**	**50/50**	**2.0340**
237089	**AD1-018 C (Suspended)**	**1.2466**	**50/50**	**1.2466**
237312	01DANS_S-014	0.5512	50/50	0.5512
290229	S-014 E	13.9759	50/50	13.9759
292350	K-023	22.0960	50/50	22.0960
292542	L-013 1	21.4915	50/50	21.4915
293432	R-040 E	1.2089	50/50	1.2089
293902	O-048 E	19.3424	50/50	19.3424
913142	Y1-033 E OP1	22.8478	50/50	22.8478
934443	AD1-068 C	9.6742	50/50	9.6742
934445	AD1-068 E	56.1370	50/50	56.1370
938351	AE1-053	6.7161	50/50	6.7161
940461	AE2-030 C	0.9798	50/50	0.9798
940462	AE2-030 E	1.3530	50/50	1.3530
942731	AE2-289 C	1.3553	50/50	1.3553
942732	AE2-289 E	7.8647	50/50	7.8647
942901	AE2-309 C	2.7217	50/50	2.7217
942902	AE2-309 E	0.5195	50/50	0.5195
943301	AF1-001 C	4.3654	50/50	4.3654
943302	AF1-001 E	4.8691	50/50	4.8691
943711	AF1-039 C O1	6.0444	50/50	6.0444
943712	AF1-039 E O1	4.0296	50/50	4.0296
944781	AF1-143 C	40.2966	50/50	40.2966
944782	AF1-143 E	21.4915	50/50	21.4915
958471	AF2-141	5.3729	50/50	5.3729
962651	AG1-114	6.7161	50/50	6.7161

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963561	AG1-205 C	4.3655	50/50	4.3655
963562	AG1-205 E	2.3506	50/50	2.3506
965881	AG1-457 C	21.7602	50/50	21.7602
965882	AG1-457 E	14.5068	50/50	14.5068
CPLE	CPLE	0.0082	Confirmed LTF	0.0082
G-007A	G-007A	0.4411	Confirmed LTF	0.4411
VFT	VFT	1.1610	Confirmed LTF	1.1610
CALDERWOOD	CALDERWOOD	0.0721	Confirmed LTF	0.0721
PRAIRIE	PRAIRIE	0.5631	Confirmed LTF	0.5631
CHEOAH	CHEOAH	0.0711	Confirmed LTF	0.0711
CBM-N	CBM-N	0.2076	Confirmed LTF	0.2076
COTTONWOOD	COTTONWOOD	0.3696	Confirmed LTF	0.3696
HAMLET	HAMLET	0.0087	Confirmed LTF	0.0087
GIBSON	GIBSON	0.1310	Confirmed LTF	0.1310
BLUEG	BLUEG	0.4201	Confirmed LTF	0.4201
TRIMBLE	TRIMBLE	0.1352	Confirmed LTF	0.1352
CATAWBA	CATAWBA	0.0207	Confirmed LTF	0.0207

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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
165935368	945670	AF1-232 TAP	PENELEC	200745	26ALLEGHEN	PENELEC	1	PN-P2-3-PN-115-35E	breaker	160.0	128.86	131.61	DC	4.4

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2780	50/50	0.2780
200834	26SW_E13_K22	0.0740	50/50	0.0740
200835	26ARN_Z1-066	3.5201	50/50	3.5201
200840	26DEEPCRK1	0.2393	50/50	0.2393
200841	26DEEPCRK2	0.2417	50/50	0.2417
200890	26BF_G21_K23	0.3540	50/50	0.3540
200891	26CSLMN_L13	0.4096	50/50	0.4096
200892	26LOOKOUT	0.4373	50/50	0.4373
202225	26SCI_S29B	0.1479	50/50	0.1479
202652	26RGH_Y1-033	0.2678	50/50	0.2678
203915	26BF_Z2-108	7.9202	50/50	7.9202
292350	K-023	14.4763	50/50	14.4763
292542	L-013 1	14.0803	50/50	14.0803
293432	R-040 E	0.7920	50/50	0.7920
293902	O-048 E	12.6723	50/50	12.6723
913142	Y1-033 E OP1	11.5481	50/50	11.5481
938351	AE1-053	4.4001	50/50	4.4001
938881	AE1-116	2.3439	50/50	2.3439
943301	AF1-001 C	0.6898	50/50	0.6898
943302	AF1-001 E	0.7694	50/50	0.7694
943711	AF1-039 C O1	3.0551	50/50	3.0551
943712	AF1-039 E O1	2.0367	50/50	2.0367
944751	AF1-140 C	-0.6928	Adder	-0.82
944781	AF1-143 C	26.4006	50/50	26.4006
944782	AF1-143 E	14.0803	50/50	14.0803
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**64.1139**	**50/50**	**64.1139**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**34.5229**	**50/50**	**34.5229**
958101	**AF2-104 C (Withdrawn : 12/08/2020)**	**1.2501**	**50/50**	**1.2501**
958102	**AF2-104 E (Withdrawn : 12/08/2020)**	**0.8334**	**50/50**	**0.8334**
958471	AF2-141	3.5201	50/50	3.5201
959793	AF2-270 BAT	0.2381	50/50	0.2381
962641	AG1-113	1.8751	50/50	1.8751
962651	AG1-114	4.4001	50/50	4.4001
963561	AG1-205 C	2.8601	50/50	2.8601
963562	AG1-205 E	1.5400	50/50	1.5400
964753	AG1-338 BAT	0.2217	Merchant Transmission	0.2217
964763	AG1-339 BAT	0.2217	Merchant Transmission	0.2217
964773	AG1-340 BAT	0.2217	Merchant Transmission	0.2217

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964921	AG1-356 C	12.8954	50/50	12.8954
964922	AG1-356 E	8.5969	50/50	8.5969
965881	AG1-457 C	15.1587	50/50	15.1587
965882	AG1-457 E	10.1058	50/50	10.1058
WEC	WEC	0.0630	Confirmed LTF	0.0630
LGEE	LGEE	0.1326	Confirmed LTF	0.1326
CPLE	CPLE	0.1720	Confirmed LTF	0.1720
CBM-W2	CBM-W2	1.9354	Confirmed LTF	1.9354
NY	NY	0.3368	Confirmed LTF	0.3368
TVA	TVA	0.3150	Confirmed LTF	0.3150
O-066	O-066	2.2545	Confirmed LTF	2.2545
SIGE	SIGE	0.0571	Confirmed LTF	0.0571
CBM-S2	CBM-S2	2.5682	Confirmed LTF	2.5682
CBM-S1	CBM-S1	0.0844	Confirmed LTF	0.0844
G-007	G-007	0.3402	Confirmed LTF	0.3402
MEC	MEC	0.3273	Confirmed LTF	0.3273
LAGN	LAGN	0.3885	Confirmed LTF	0.3885
CBM-W1	CBM-W1	2.6077	Confirmed LTF	2.6077

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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
166579966	964910	AG1-355 TAP	PENELEC	200734	26SCALP L.	PENELEC	1	PN-P7-1-PN-230-001	tower	245.0	102.28	103.72	DC	3.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200813	26YOUGH	0.2241	50/50	0.2241
200834	26SW_E13_K22	0.0596	50/50	0.0596
200835	26ARN_Z1-066	2.8383	50/50	2.8383
200840	26DEEPCRK1	0.1927	50/50	0.1927
200841	26DEEPCRK2	0.1946	50/50	0.1946
200846	26FORWARD	0.2364	50/50	0.2364
200864	K-013 E	10.8611	50/50	10.8611
200889	26STNY CRK	0.4605	50/50	0.4605
200890	26BF_G21_K23	0.2855	50/50	0.2855
200891	26CSLMN_L13	0.3303	50/50	0.3303
200892	26LOOKOUT	0.3526	50/50	0.3526
202225	26SCI_S29B	0.1193	50/50	0.1193
202652	26RGH_Y1-033	0.2159	50/50	0.2159
203915	26BF_Z2-108	6.3862	50/50	6.3862
292350	K-023	11.6726	50/50	11.6726
292542	L-013 1	11.3533	50/50	11.3533
293432	R-040 E	0.6386	50/50	0.6386
293902	O-048 E	10.2180	50/50	10.2180
294903	P-060 E	14.4211	50/50	14.4211
913142	Y1-033 E OP1	9.3096	50/50	9.3096
938351	AE1-053	3.5479	50/50	3.5479
938881	AE1-116	1.8901	50/50	1.8901
938993	AE1-128 C	18.2297	50/50	18.2297
938994	AE1-128 E	12.1531	50/50	12.1531
942361	AE2-249 C	2.0508	50/50	2.0508
942362	AE2-249 E	1.3672	50/50	1.3672
943301	AF1-001 C	0.4718	Adder	0.56
943302	AF1-001 E	0.5262	Adder	0.62
943711	AF1-039 C O1	2.4628	50/50	2.4628
943712	AF1-039 E O1	1.6419	50/50	1.6419
944781	AF1-143 C	21.2874	50/50	21.2874
944782	AF1-143 E	11.3533	50/50	11.3533
945671	**AF1-232 C (Withdrawn : 01/19/2021)**	**38.5050**	**50/50**	**38.5050**
945672	**AF1-232 E (Withdrawn : 01/19/2021)**	**20.7334**	**50/50**	**20.7334**
946571	AF1-321 C O1	6.1408	50/50	6.1408
946572	AF1-321 E O1	4.0938	50/50	4.0938
957001	AF2-001 C O1	6.1408	50/50	6.1408
957002	AF2-001 E O1	4.0938	50/50	4.0938
957011	AF2-002 C O1	3.0704	50/50	3.0704
957012	AF2-002 E O1	2.0469	50/50	2.0469

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
957981	AF2-092 C	1.5036	50/50	1.5036
957982	AF2-092 E	1.0024	50/50	1.0024
958101	AF2-104 C (Withdrawn : 12/08/2020)	1.0081	50/50	1.0081
958102	AF2-104 E (Withdrawn : 12/08/2020)	0.6720	50/50	0.6720
958471	AF2-141	2.8383	50/50	2.8383
959792	AF2-270 E	0.9421	50/50	0.9421
960451	AF2-336 C	2.5061	50/50	2.5061
960452	AF2-336 E	1.6707	50/50	1.6707
960461	AF2-337 C	2.5061	50/50	2.5061
960462	AF2-337 E	1.6707	50/50	1.6707
960471	AF2-338 C	2.5061	50/50	2.5061
960472	AF2-338 E	1.6707	50/50	1.6707
960481	AF2-339 C	2.5061	50/50	2.5061
960482	AF2-339 E	1.6707	50/50	1.6707
960901	AF2-381 C	33.2367	50/50	33.2367
960902	AF2-381 E	17.4908	50/50	17.4908
961981	AG1-041 C	1.2712	50/50	1.2712
961982	AG1-041 E	0.8475	50/50	0.8475
962292	AG1-077 E	1.4468	50/50	1.4468
962641	AG1-113	1.5121	50/50	1.5121
962651	AG1-114	3.5479	50/50	3.5479
963541	AG1-203 C	2.3511	50/50	2.3511
963542	AG1-203 E	1.2660	50/50	1.2660
963561	AG1-205 C	2.3061	50/50	2.3061
963562	AG1-205 E	1.2418	50/50	1.2418
964911	AG1-355 C	17.9013	50/50	17.9013
964912	AG1-355 E	11.9342	50/50	11.9342
964921	AG1-356 C	8.2162	50/50	8.2162
964922	AG1-356 E	5.4775	50/50	5.4775
965881	AG1-457 C	12.2232	50/50	12.2232
965882	AG1-457 E	8.1488	50/50	8.1488
966512	AG1-520 E	2.0469	50/50	2.0469
WEC	WEC	0.0447	Confirmed LTF	0.0447
LGEE	LGEE	0.0949	Confirmed LTF	0.0949
CPLE	CPLE	0.1276	Confirmed LTF	0.1276
CBM-W2	CBM-W2	1.3888	Confirmed LTF	1.3888
NY	NY	0.2411	Confirmed LTF	0.2411
TVA	TVA	0.2282	Confirmed LTF	0.2282
O-066	O-066	1.6287	Confirmed LTF	1.6287
SIGE	SIGE	0.0412	Confirmed LTF	0.0412
CBM-S2	CBM-S2	1.9001	Confirmed LTF	1.9001
CBM-S1	CBM-S1	0.0612	Confirmed LTF	0.0612
G-007	G-007	0.2467	Confirmed LTF	0.2467
MEC	MEC	0.2336	Confirmed LTF	0.2336
LAGN	LAGN	0.2818	Confirmed LTF	0.2818
CBM-W1	CBM-W1	1.8366	Confirmed LTF	1.8366

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
AA1-100	Warrior Run 138kV	In Service
AD1-018	Carlos Jct - Plaza 34 kV	Suspended
AD1-068	Albright-Garrett 138 kV	Active
AE1-053	Meyersdale North	Active
AE1-116	Somerset Windpower 23 kV	Active
AE1-128	Bedford North-Wills Mounain 115 kV	Active
AE2-030	Frostburg 138kV	Active
AE2-249	Bedford North-Pennsylvania Hollow 23 kV	Engineering and Procurement
AE2-289	Frostburg 138 kV	Active
AE2-309	Carlos Junction-Lonaconing 34.5 kV	Active
AF1-001	Thayerville 34.5 kV	Engineering and Procurement
AF1-039	Listonburg-Highpoint 24.9 kV	Active
AF1-140	Claysburg 23 kV	Engineering and Procurement
AF1-143	Lick Run 115 kV	Active
AF1-232	Allegheny-Somerset 115 kV	Withdrawn
AF1-321	Hooversville 115 kV I	Active
AF2-001	Hooversville 115 kV II	Active
AF2-002	Hooversville 115 kV III	Active
AF2-092	Snake Spring-Bedford Area 23 kV	Active
AF2-104	Somerset 23 kV	Withdrawn
AF2-141	Lick Run 115 kV	Active
AF2-270	Bedford South RCB-Bedford Area 23 kV	Engineering and Procurement
AF2-310	Jennings-Hoyes Road 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
AG1-033	Scalp Level 23 kV	Active
AG1-041	Osterburg-Bedford North 23 kV	Active
AG1-077	Allegheny Tunnel 23 kV	Active
AG1-099	Westernport 34.5 kV	Active
AG1-113	Somerset Windpower 22.86 kV	Active
AG1-114	Meyersdale North 115 kV	Active
AG1-203	Reels Corner 23 kV	Active
AG1-205	Rockwood 23 kV	Active
AG1-241	Scalp Level 23 kV	Active
AG1-338	Curryville-RKB-Yellow Creek 23 kV I	Active
AG1-339	Curryville-RKB-Yellow Creek 23 kV II	Active

Queue Number	Project Name	Status
AG1-340	Curryville 23 kV	Active
AG1-355	Scalp Level-Hooversville 115 kV	Active
AG1-356	Somerset-Allegheny 115 kV	Active
AG1-457	Somerset-Rockwood 115 kV	Active
AG1-520	Hooversville-Rockingham 23 kV	Active
U2-073A	N/A	N/A
U2-073B	N/A	N/A
Y1-033	Penn Mar-Rock Wood 115kV	In Service
Z1-066	Arnold 34.5kV	In Service
Z2-108	Meyersdale North 115kV	In Service

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
FE-P2-3-MP-138-150	CONTINGENCY '"FE-P2-3-MP-138-150"' / 134 OPEN BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 / 235120 01ALBRIG 138 235305 01 106 J 138 1 OPEN BRANCH FROM BUS 235305 TO BUS 938800 CKT 1 / 235305 01 106 J 138 938800 AE1-106 TAP 138 1 OPEN BRANCH FROM BUS 235297 TO BUS 235305 CKT 1 / 235297 01HAZELT 138 235305 01 106 J 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 / 235120 01ALBRIG 138 960650 AF2-356 TAP 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 / 235120 01ALBRIG 138 235402 01SNOW T 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 / 235120 01ALBRIG 138 235320 01DENVER 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 / 235120 01ALBRIG 138 934440 AD1-068 TAP 138 1 END
FE-P2-2-MP-138-101_NON-A	CONTINGENCY 'FE-P2-2-MP-138-101_NON-A' /* ALBRIGHT-138-SOUTH DISCONNECT BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 /* 01ALBRIG 138 01DENVER 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 /* 01ALBRIG 138 01SNOW T 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1-068 TAP 138 DISCONNECT BRANCH FROM BUS 934440 TO BUS 235469 CKT 1 /* AD1-068 TAP 138 01GARRET 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 /* 01ALBRIG 138 AF2-356 TAP 138 DISCONNECT BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 /* 01ALBRIG 138 01 106 J 138 END
PN-P1-2-PN-115-068-A	CONTINGENCY 'PN-P1-2-PN-115-068-A' /* ROCKWOOD - SOMERSET 115KV DISCONNECT BRANCH FROM BUS 200744 TO BUS 965880 CKT 1 /* 26SOMERST 115 AG1-457 TAP 115 END
PN-P2-2-PN-115-002	CONTINGENCY 'PN-P2-2-PN-115-002' /* SOMERSET #1 115KV BUS FAULT DISCONNECT BRANCH FROM BUS 200744 TO BUS 200743 CKT 1 /* 26SOMERST 115 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200744 TO BUS 202637 CKT 1 /* 26SOMERST 115 26PRIDE 115 DISCONNECT BRANCH FROM BUS 200744 TO BUS 965880 CKT 1 /* 26SOMERST 115 AG1-457 TAP 115 DISCONNECT BRANCH FROM BUS 200744 TO BUS 200774 CKT 1 /* 26SOMERST 115 26SOMRSET1 23 END

Contingency Name	Contingency Definition
PN-P2-3-PN-115-35E	CONTINGENCY 'PN-P2-3-PN-115-35E' /* #14 STUCK TIE BREAKER BETWEEN BUSES 1 AND 2 DISCONNECT BRANCH FROM BUS 964910 TO BUS 200743 CKT 1 /* AG1-355 TAP 115 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200802 CKT 1 /* 26HOOVERSV 115 26RALPHTON 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200776 CKT 1 /* 26HOOVERSV 115 26HOOVER#1 23 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200744 CKT 1 /* 26HOOVERSV 115 26SOMERST 115 DISCONNECT BRANCH FROM BUS 200742 TO BUS 200743 CKT 1 /* 26TOWER 51 115 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200743 TO BUS 200789 CKT 2 /* 26HOOVERSV 115 26HOOVER#2 23 END
FE-P1-2-MP-138-160_NON	CONTINGENCY 'FE-P1-2-MP-138-160_NON' /* ALBRIGHT - AD1-068 -GARRETT 138KV DISCONNECT BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 /* 01ALBRIG 138 AD1-068 TAP 138 DISCONNECT BRANCH FROM BUS 934440 TO BUS 235469 CKT 1 /* AD1-068 TAP 138 01GARRET 138 END
AP-P1-3-PE-115-010	CONTINGENCY 'AP-P1-3-PE-115-010' /* GARRETT 138/115KV XFMR FAULT OPEN BRANCH FROM BUS 235469 TO BUS 235470 CKT 1 /* 01GARRET 138.00 01GARRET 115.00 END
Base Case	
PN-P7-1-PN-230-001	CONTINGENCY 'PN-P7-1-PN-230-001' /* HOMER CITY - HOOVERSVILLE 230KV & SEWARD - TOWER 51 115KV DISCONNECT BRANCH FROM BUS 200767 TO BUS 200768 CKT 1 /* 26HOMER CT 230 26QUEMAHON 230 DISCONNECT BRANCH FROM BUS 200768 TO BUS 200796 CKT 1 /* 26QUEMAHON 230 26HOOVRSVL 230 DISCONNECT BRANCH FROM BUS 200796 TO BUS 200743 CKT 3 /* 26HOOVRSVL 230 26HOOVERSV 115 DISCONNECT BRANCH FROM BUS 200741 TO BUS 200742 CKT 1 /* 26SEWARD 115 26TOWER 51 115 END

Contingency Name	Contingency Definition
PN-P1-3-PN-115-025-A	CONTINGENCY 'PN-P1-3-PN-115-025-A' /* SOMERSET #1 XFMR FAULT DISCONNECT BRANCH FROM BUS 200744 TO BUS 200774 CKT 1 /* 26SOMERST 115 26SOMRSET1 23 DISCONNECT BRANCH FROM BUS 200744 TO BUS 965880 CKT 1 /* 26SOMERST 115 AG1-457 TAP 115 DISCONNECT BRANCH FROM BUS 200744 TO BUS 202637 CKT 1 /* 26SOMERST 115 26PRIDE 115 DISCONNECT BRANCH FROM BUS 202637 TO BUS 964920 CKT 1 /* 26PRIDE 115 AF1-232 TAP 115 DISCONNECT BRANCH FROM BUS 200744 TO BUS 200743 CKT 1 /* 26SOMERST 115 26HOOVERSV 115 END
FE-P2-3-MP-138-161	CONTINGENCY '"FE-P2-3-MP-138-161"' / 145 OPEN BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 / 235120 01ALBRIG 138 235320 01DENVER 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 / 235120 01ALBRIG 138 235305 01 106 J 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 / 235120 01ALBRIG 138 934440 AD1-068 TAP 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 / 235120 01ALBRIG 138 235402 01SNOW T 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 / 235120 01ALBRIG 138 960650 AF2-356 TAP 138 1 OPEN BRANCH FROM BUS 235492 TO BUS 235518 CKT 1 / 235492 01MTZION 138 235518 01WESTVA 138 1 END
FE-P2-3-MP-138-160	CONTINGENCY '"FE-P2-3-MP-138-160"' / 144 OPEN BRANCH FROM BUS 235120 TO BUS 960650 CKT 1 / 235120 01ALBRIG 138 960650 AF2-356 TAP 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235305 CKT 1 / 235120 01ALBRIG 138 235305 01 106 J 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235320 CKT 1 / 235120 01ALBRIG 138 235320 01DENVER 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 934440 CKT 1 / 235120 01ALBRIG 138 934440 AD1-068 TAP 138 1 OPEN BRANCH FROM BUS 235120 TO BUS 235402 CKT 1 / 235120 01ALBRIG 138 235402 01SNOW T 138 1 OPEN BRANCH FROM BUS 235402 TO BUS 235403 CKT 1 / 235402 01SNOW T 138 235403 01SNWYCK 138 1 OPEN BRANCH FROM BUS 235402 TO BUS 235497 CKT 1 / 235402 01SNOW T 138 235497 01OAKPRK 138 1 OPEN BRANCH FROM BUS 235403 TO BUS 237273 CKT 1 / 235403 01SNWYCK 138 237273 01SNOW C 66.0 1 END

12 Short Circuit Analysis

The following Breakers are overdutied:

None.

12.1 System Reinforcements - Short Circuit

None.

13 Affected Systems

13.1 NYISO

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

14 Attachment 1: One Line Diagram