Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-484

MOUNTAIN 115 KV

20 MW Capacity / 20 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) (ME 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; Storage generating facility located in Cumberland County, Pennsylvania. The installed facilities will have a total capability of 20 MW with 20 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 01, 2024. This study does not imply a TO commitment to this in-service date.

Queue Number	**AG1-484**
Project Name	MOUNTAIN 115 KV
State	Pennsylvania
County	Cumberland
Transmission Owner	MAIT (ME)
MFO	20
MWE	20
MWC	20
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 POI

The interconnection of the project at the will be accomplished by constructing a new 115 kV line terminal and dead-end structure at the existing Mountain 115 kV substation.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AG1-484 generation project to connect to the FirstEnergy ("FE") transmission system. Attachment 2 provides the proposed location for the point of interconnection. IC will be responsible for constructing the facilities on its side of the POI, including the attachment facilities which connect the generator to the FE transmission system's direct connection facilities.

4.2 Secondary POI

As a secondary POI, the interconnecting customer has selected a connection to the customer side of the existing Mountain CT generation tie POI. A full scope of work or estimated cost is not provided for the proposed Secondary POI.

5 Cost Summary

The AG1-484 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$1,520,000
Total System Network Upgrade Costs	$75,138,680[1]
Total Costs	$76,658,680

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 will be accomplished by constructing a new 115 kV line terminal and dead-end structure at the existing Mountain 115 kV substation.

Attachment 1 shows a one-line diagram of the proposed primary direct connection facilities for the AG1-484 generation project to connect to the FirstEnergy ("FE") transmission system. Attachment 2 provides the proposed location for the point of interconnection. IC will be responsible for constructing the facilities on its side of the POI, including the attachment facilities which connect the generator to the FE transmission system's direct connection facilities.

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

Description	**Total Cost**
Install one new 115kV breaker and associated equipment at Mountain substation	$1,520,000
Total Physical Interconnection Costs	$1,520,000

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 and construction kickoff call to complete the installation. 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 work and that all system outages will be allowed when requested.

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

8 Transmission Owner Analysis

8.1 Power Flow Analysis

FE performed an analysis of its underlying transmission <100 kV system. The AG1-484 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 it's 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 AG1-484 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 AG1-484 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 system.

9.3 Power Factor Requirements

The IC shall design its solar-powered 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/meter^2) - (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 AG1-484 was evaluated as a 20.0 MW (Capacity 20.0 MW) injection at the Mountain 115 kV substation in the ME area. Project AG1-484 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-484 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)

None

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
165137936	200504	26CARLISLE	115.0	PENELEC	204528	27GARDNERS	115.0	METED	1	PL:10:P24:100548	bus	160.0	103.88	106.29	DC	3.85
165822855	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	PL:10:P24:100548	bus	159.0	113.2	115.56	DC	3.75
166064006	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	ME-P2-3-ME-230-005A	breaker	159.0	114.78	117.46	DC	4.26
166064007	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	PL:10:P45:102437	breaker	159.0	113.2	115.56	DC	3.75
166064008	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	ME-P2-3-ME-230-005C	breaker	159.0	111.67	114.18	DC	3.99
166623277	204523	27CLY 975	115.0	METED	204524	27CLY 978	115.0	METED	ZB	ME-P7-1-ME-230-008A-B	tower	140.0	109.08	110.99	DC	2.67
166623278	204523	27CLY 975	115.0	METED	204524	27CLY 978	115.0	METED	ZB	ME-P7-1-ME-230-008A-A	tower	140.0	103.94	105.85	DC	2.67
166063990	204558	27SMITH TP	115.0	METED	204557	27SMITH ST	115.0	METED	1	ME-P2-ME-230-DTR059	breaker	223.0	117.9	120.3	DC	5.36
166063991	204558	27SMITH TP	115.0	METED	204557	27SMITH ST	115.0	METED	1	ME-P2-ME-230-DTR065	breaker	223.0	117.83	120.24	DC	5.37
165822839	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	PL:10:P24:100548	bus	159.0	122.59	124.95	DC	3.75
166063980	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	ME-P2-3-ME-230-005A	breaker	159.0	123.55	126.23	DC	4.26
166063981	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	PL:10:P45:102437	breaker	159.0	122.59	124.95	DC	3.75
166063982	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	ME-P2-3-ME-230-005C	breaker	159.0	120.62	123.13	DC	3.99

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
167746391	200504	26CARLISLE	115.0	PENELEC	204528	27GARDNERS	115.0	METED	1	Base Case	operation	133.0	102.76	105.63	DC	3.82
167746392	200504	26CARLISLE	115.0	PENELEC	204528	27GARDNERS	115.0	METED	1	ME-P1-3-ME-500-003T	operation	160.0	101.47	104.0	DC	4.04
166286293	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	Base Case	operation	133.0	113.72	116.52	DC	3.73
166286294	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	ME-P1-3-ME-500-003T	operation	159.0	111.02	113.5	DC	3.94
166286295	200520	26ROXBURY	115.0	PENELEC	961480	AF2-439 TAP	115.0	PENELEC	1	ME-P1-2-ME-230-019	operation	159.0	111.02	113.5	DC	3.94
166286273	204524	27CLY 978	115.0	METED	204682	27ES3	115.0	METED	1	ME-P1-2-ME-115-025-B	operation	130.0	118.83	120.75	DC	2.49
166286373	204598	27MIDDJCT	115.0	METED	939000	AE1-129 TAP	115.0	METED	1	ME-P1-2-ME-115-066	operation	156.0	99.6	100.12	DC	1.78
166286287	204682	27ES3	115.0	METED	204572	27RAINTREE	115.0	METED	1	ME-P1-2-ME-115-025-B	operation	130.0	115.99	117.9	DC	2.49
168019138	936470	AD2-062 TAP	138.0	AP	235188	01GREENE	138.0	AP	1	AP-P1-2-PE-230-020T	operation	206.0	101.04	102.24	DC	2.49
168019139	936470	AD2-062 TAP	138.0	AP	235188	01GREENE	138.0	AP	1	TS_P1-3_#T1_RICE 500_230	operation	206.0	101.04	102.24	DC	2.49
166286063	938380	AE1-071-POI	115.0	PENELEC	200520	26ROXBURY	115.0	PENELEC	1	Base Case	operation	131.0	132.84	133.38	DC	1.34
166286257	939000	AE1-129 TAP	115.0	METED	204571	27ZIONSVW	115.0	METED	1	ME-P1-2-ME-115-066	operation	156.0	122.07	122.59	DC	1.78
166286234	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	Base Case	operation	133.0	124.62	127.42	DC	3.73
166286235	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	ME-P1-2-ME-230-019	operation	159.0	120.01	122.48	DC	3.94
166286236	961480	AF2-439 TAP	115.0	PENELEC	200504	26CARLISLE	115.0	PENELEC	1	ME-P1-3-ME-500-003T	operation	159.0	120.01	122.48	DC	3.94

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
165822855,166064008,166064006,166064007	2	26ROXBURY 115.0 kV - AF2-439 TAP 115.0 kV Ckt 1	PENELEC PN-AG1-F-0026A (2250) : Reconductor 2.59 miles of line. Project Type : FAC Cost : $6,380,000 Time Estimate : 30.0 Months	$6,380,000
165137936	1	26CARLISLE 115.0 kV - 27GARDNERS 115.0 kV Ckt 1	METED ME-AG1-F-0005A (2144) : Reconductor line with larger conductor (13.1 miles). Project Type : FAC Cost : $31,738,680 Time Estimate : 50.0 Months PENELEC PN-AG1-F-0035C (2290) : Reconductor 7.54 miles of line. Project Type : FAC Cost : $18,480,000 Time Estimate : 44.0 Months	$50,218,680
166063991,166063990	4	27SMITH TP 115.0 kV - 27SMITH ST 115.0 kV Ckt 1	METED b3136 (2126) : Replace bus conductor at Smith 115 kV substation Project Type : FAC Cost : $0 Time Estimate : Projected in-service date: 06/01/2024 Months s1813.1 (2134) : PJM RTEP Supplemental Project: Smith Street Smith Street Tap115 kV Line - Rebuild approximately 1.3 miles of wood pole construction Project Type : FAC Cost : $0 Time Estimate : Projected in-service date: 11/28/2022 Months	$0
166063982,166063980,165822839,166063981	5	AF2-439 TAP 115.0 kV - 26CARLISLE 115.0 kV Ckt 1	PENELEC PN-AG1-F-0020A (2235) : Upgrade relaying at Carlisle Pike Project Type : FAC Cost : $800,000 Time Estimate : 12.0 Months PN-AG1-F-0020B (2236) : Reconductor 6.82 miles of line. Please line drops at Carlisle Pike substation. Project Type : FAC Cost : $16,840,000 Time Estimate : 42.0 Months PN-AG1-F-0020C (2237) : Adjust CT ratios. Project Type : FAC Cost : $900,000 Time Estimate : 12.0 Months	$18,540,000

ID	Idx	Facility	Upgrade Description	Cost
166623277,166623278	3	27CLY 975 115.0 kV - 27CLY 978 115.0 kV Ckt ZB	**METED** **s1727.1 : PJM RTEP Supplemental Project: Construct a five (5) breaker 115 kV ring bus at Cly.** **Project Type : CON** **Cost : $0** **Time Estimate : Projected in-service date: 12/31/2023 Months**	$0
			TOTAL COST	**$75,138,680**[1]

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
16513793 6	20050 4	26CARLISL E	PENELE C	20452 8	27GARDNER S	METE D	1	PL:10:P24:10054 8	bus	160.0	103.88	106.29	DC	3.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
200870	26C_T85_W218	0.3757	50/50	0.3757
203905	26W1-045 C	0.2399	50/50	0.2399
237329	01CHBRG_I12	0.5202	50/50	0.5202
901242	W1-045 E OP1	1.3251	50/50	1.3251
930822	AB1-127 E	0.3881	Adder	0.46
930832	AB1-128 E	0.3881	Adder	0.46
933977	**AD1-020 EBAT (Suspended)**	**1.3794**	**Merchant Transmission**	**1.3794**
934371	AD1-061 C	0.3669	Adder	0.43
934372	AD1-061 E	0.3186	Adder	0.37
936061	AD2-009 C	2.4854	Adder	2.92
936062	AD2-009 E	1.1316	Adder	1.33
936471	AD2-062 C O1	10.9654	50/50	10.9654
936472	AD2-062 E O1	5.4929	50/50	5.4929
938384	AE1-071-C	14.1867	50/50	14.1867
938385	AE1-071-E	8.6811	50/50	8.6811
938753	AE1-101 C1	1.9142	Adder	2.25
938754	AE1-101 C2	0.9571	Adder	1.13
938756	AE1-101 E1	3.9517	Adder	4.65
938757	AE1-101 E2	1.9729	Adder	2.32
939033	AE1-132 C	2.6352	Adder	3.1
939034	AE1-132 E	1.7568	Adder	2.07
939591	AE1-188 C	0.6808	Adder	0.8
939592	AE1-188 E	0.3999	Adder	0.47
940671	**AE2-054 C (Suspended)**	**0.5756**	**Adder**	**0.68**
940672	**AE2-054 E (Suspended)**	**0.3837**	**Adder**	**0.45**
945011	AF1-166 C	0.5644	Adder	0.66
945012	AF1-166 E	0.3763	Adder	0.44
945441	AF1-209 C O1	0.5609	Adder	0.66
945442	AF1-209 E O1	0.3739	Adder	0.44
945591	AF1-224 C	0.4269	Adder	0.5
945592	AF1-224 E	0.2161	Adder	0.25
958071	AF2-101 C	-0.2674	Adder	-0.31
958221	AF2-116 C	0.6872	Adder	0.81
958222	AF2-116 E	0.3462	Adder	0.41
958231	AF2-117 C	2.1961	Adder	2.58
958232	AF2-117 E	1.0978	Adder	1.29
958551	AF2-146 C	1.8602	50/50	1.8602
958552	AF2-146 E	1.2402	50/50	1.2402
958571	AF2-148 C	1.5119	50/50	1.5119
958572	AF2-148 E	1.0080	50/50	1.0080
958601	AF2-151 C	-0.2638	Adder	-0.31

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

11.6.2 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
166064006	200520	26ROXBURY	PENELEC	961480	AF2-439 TAP	PENELEC	1	ME-P2-3-ME-230-005A	breaker	159.0	114.78	117.46	DC	4.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
237329	01CHBRG_I12	0.4706	50/50	0.4706
901242	W1-045 E OP1	0.3063	Adder	0.36
930822	AB1-127 E	0.3508	Adder	0.41
930832	AB1-128 E	0.3508	Adder	0.41
933977	**AD1-020 EBAT (Suspended)**	**2.1736**	**50/50**	**2.1736**
934371	AD1-061 C	0.3320	Adder	0.39
934372	AD1-061 E	0.2883	Adder	0.34
936061	AD2-009 C	2.2487	Adder	2.65
936062	AD2-009 E	1.0238	Adder	1.2
936471	AD2-062 C O1	9.9066	50/50	9.9066
936472	AD2-062 E O1	4.9626	50/50	4.9626
938384	AE1-071-C	12.4256	50/50	12.4256
938385	AE1-071-E	7.6034	50/50	7.6034
938753	AE1-101 C1	1.7324	Adder	2.04
938754	AE1-101 C2	0.8662	Adder	1.02
938756	AE1-101 E1	3.5765	Adder	4.21
938757	AE1-101 E2	1.7856	Adder	2.1
939033	AE1-132 C	2.3842	Adder	2.8
939034	AE1-132 E	1.5895	Adder	1.87
939591	AE1-188 C	0.6143	Adder	0.72
939592	AE1-188 E	0.3608	Adder	0.42
940671	**AE2-054 C (Suspended)**	**0.5208**	**Adder**	**0.61**
940672	**AE2-054 E (Suspended)**	**0.3472**	**Adder**	**0.41**
945011	AF1-166 C	0.5102	Adder	0.6
945012	AF1-166 E	0.3401	Adder	0.4
945441	AF1-209 C O1	0.5070	Adder	0.6
945442	AF1-209 E O1	0.3380	Adder	0.4
945591	AF1-224 C	0.3852	Adder	0.45
945592	AF1-224 E	0.1950	Adder	0.23
958071	AF2-101 C	-0.2947	Adder	-0.35
958221	AF2-116 C	0.6218	Adder	0.73
958222	AF2-116 E	0.3132	Adder	0.37
958231	AF2-117 C	1.9863	Adder	2.34
958232	AF2-117 E	0.9929	Adder	1.17
958551	AF2-146 C	1.4569	50/50	1.4569
958552	AF2-146 E	0.9713	50/50	0.9713
958571	AF2-148 C	1.2580	50/50	1.2580
958572	AF2-148 E	0.8387	50/50	0.8387
958601	AF2-151 C	-0.2906	Adder	-0.34
958871	AF2-178	0.2673	Adder	0.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958881	AF2-179	0.3083	Adder	0.36
958891	AF2-180	0.3083	Adder	0.36
958931	AF2-184	0.2534	Adder	0.3
959223	AF2-213 BAT	4.9280	Merchant Transmission	4.9280
959241	AF2-215 C	0.1427	Adder	0.17
959242	AF2-215 E	0.0951	Adder	0.11
959381	AF2-229 C	0.7469	Adder	0.88
959382	AF2-229 E	0.6236	Adder	0.73
959773	AF2-268 BAT	0.1617	50/50	0.1617
959842	AF2-275 E	0.1595	Adder	0.19
959852	AF2-276 E	0.1595	Adder	0.19
962082	AG1-052 BAT	0.6605	Merchant Transmission	0.6605
963901	AG1-243 C	0.1817	Adder	0.4
963902	AG1-243 E	0.0978	Adder	0.22
964641	AG1-327 C O1	0.5731	Adder	1.27
964642	AG1-327 E O1	0.2952	Adder	0.66
964693	AG1-332 BAT	0.1533	Merchant Transmission	0.1533
965963	AG1-465 BAT	3.9252	Merchant Transmission	3.9252
966152	AG1-484 BAT	4.2560	50/50	4.2560
966172	AG1-486 BAT	1.6170	50/50	1.6170
966461	AG1-515 C	0.1313	Adder	0.29
966462	AG1-515 E	0.1969	Adder	0.44
WEC	WEC	0.0936	Confirmed LTF	0.0936
LGEE	LGEE	0.1860	Confirmed LTF	0.1860
CPLE	CPLE	0.1870	Confirmed LTF	0.1870
CBM-W2	CBM-W2	2.6253	Confirmed LTF	2.6253
NY	NY	0.1924	Confirmed LTF	0.1924
TVA	TVA	0.4074	Confirmed LTF	0.4074
O-066	O-066	4.4485	Confirmed LTF	4.4485
SIGE	SIGE	0.1005	Confirmed LTF	0.1005
CBM-S2	CBM-S2	2.9232	Confirmed LTF	2.9232
CBM-S1	CBM-S1	0.1110	Confirmed LTF	0.1110
G-007	G-007	0.6919	Confirmed LTF	0.6919
MEC	MEC	0.4688	Confirmed LTF	0.4688
LAGN	LAGN	0.5093	Confirmed LTF	0.5093
CBM-W1	CBM-W1	4.1639	Confirmed LTF	4.1639

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
166623277	204523	27CLY 975	METED	204524	27CLY 978	METED	ZB	ME-P7-1-ME-230-008A-B	tower	140.0	109.08	110.99	DC	2.67

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
204648	27MOUNT CT	0.8330	50/50	0.8330
939001	AE1-129 C	12.9964	50/50	12.9964
939002	AE1-129 E	9.0146	50/50	9.0146
945271	AF1-192	0.0211	50/50	0.0211
958071	AF2-101 C	0.3033	50/50	0.3033
958072	AF2-101 E	0.2022	50/50	0.2022
958601	AF2-151 C	0.3116	50/50	0.3116
958602	AF2-151 E	0.2078	50/50	0.2078
959223	AF2-213 BAT	20.8562	50/50	20.8562
960922	AF2-383 BAT	1.4098	Merchant Transmission	1.4098
962081	AG1-052	5.5304	50/50	5.5304
963953	AG1-248 BAT	27.0040	50/50	27.0040
966151	AG1-484	2.6734	50/50	2.6734
G-007A	G-007A	0.1582	Confirmed LTF	0.1582
VFT	VFT	0.4838	Confirmed LTF	0.4838
CALDERWOOD	CALDERWOOD	0.0060	Confirmed LTF	0.0060
PRAIRIE	PRAIRIE	0.0103	Confirmed LTF	0.0103
CHEOAH	CHEOAH	0.0065	Confirmed LTF	0.0065
CBM-N	CBM-N	0.1008	Confirmed LTF	0.1008
COTTONWOOD	COTTONWOOD	0.0189	Confirmed LTF	0.0189
HAMLET	HAMLET	0.0150	Confirmed LTF	0.0150
GIBSON	GIBSON	0.0011	Confirmed LTF	0.0011
BLUEG	BLUEG	0.0035	Confirmed LTF	0.0035
TRIMBLE	TRIMBLE	0.0011	Confirmed LTF	0.0011
CATAWBA	CATAWBA	0.0073	Confirmed LTF	0.0073
CBM-W1	CBM-W1	0.0140	Confirmed LTF	0.0140

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
166063991	204558	27SMITH TP	METED	204557	27SMITH ST	METED	1	ME-P2-ME-230-DTR065	breaker	223.0	117.83	120.24	DC	5.37

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
204638	27CAT TRAC	2.0081	Adder	2.36
204642	27YK SOLID	0.5836	50/50	0.5836
958051	AF2-099 C	0.1349	Adder	0.16
958052	AF2-099 E	0.0900	Adder	0.11
958061	AF2-100 C	0.1349	Adder	0.16
958062	AF2-100 E	0.0900	Adder	0.11
958071	AF2-101 C	-0.5019	Adder	-0.59
958601	AF2-151 C	-0.5141	Adder	-0.6
959223	AF2-213 BAT	61.2427	50/50	61.2427
962082	AG1-052 BAT	14.6602	50/50	14.6602
963951	AG1-248 C	0.4547	Adder	1.01
963952	AG1-248 E	4.6129	Adder	10.24
966152	AG1-484 BAT	5.3660	50/50	5.3660
966891	AG1-560 BAT	1.1671	Merchant Transmission	1.1671
966901	AG1-561 BAT	0.8745	Merchant Transmission	0.8745
G-007A	G-007A	0.7864	Confirmed LTF	0.7864
VFT	VFT	2.1285	Confirmed LTF	2.1285
CALDERWOOD	CALDERWOOD	0.0621	Confirmed LTF	0.0621
PRAIRIE	PRAIRIE	0.3151	Confirmed LTF	0.3151
CHEOAH	CHEOAH	0.0626	Confirmed LTF	0.0626
CBM-N	CBM-N	0.3876	Confirmed LTF	0.3876
COTTONWOOD	COTTONWOOD	0.2604	Confirmed LTF	0.2604
HAMLET	HAMLET	0.0739	Confirmed LTF	0.0739
GIBSON	GIBSON	0.0661	Confirmed LTF	0.0661
BLUEG	BLUEG	0.2118	Confirmed LTF	0.2118
TRIMBLE	TRIMBLE	0.0679	Confirmed LTF	0.0679
CATAWBA	CATAWBA	0.0445	Confirmed LTF	0.0445

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
166063980	961480	AF2-439 TAP	PENELEC	200504	26CARLISLE	PENELEC	1	ME-P2-3-ME-230-005A	breaker	159.0	123.55	126.23	DC	4.26

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
237329	01CHBRG_I12	0.4706	50/50	0.4706
901242	W1-045 E OP1	0.3063	Adder	0.36
930822	AB1-127 E	0.3508	Adder	0.41
930832	AB1-128 E	0.3508	Adder	0.41
933977	**AD1-020 EBAT (Suspended)**	**2.1736**	**50/50**	**2.1736**
934371	AD1-061 C	0.3320	Adder	0.39
934372	AD1-061 E	0.2883	Adder	0.34
936061	AD2-009 C	2.2487	Adder	2.65
936062	AD2-009 E	1.0238	Adder	1.2
936471	AD2-062 C O1	9.9066	50/50	9.9066
936472	AD2-062 E O1	4.9626	50/50	4.9626
938384	AE1-071-C	12.4256	50/50	12.4256
938385	AE1-071-E	7.6034	50/50	7.6034
938753	AE1-101 C1	1.7324	Adder	2.04
938754	AE1-101 C2	0.8662	Adder	1.02
938756	AE1-101 E1	3.5765	Adder	4.21
938757	AE1-101 E2	1.7856	Adder	2.1
939033	AE1-132 C	2.3842	Adder	2.8
939034	AE1-132 E	1.5895	Adder	1.87
939591	AE1-188 C	0.6143	Adder	0.72
939592	AE1-188 E	0.3608	Adder	0.42
940671	**AE2-054 C (Suspended)**	**0.5208**	**Adder**	**0.61**
940672	**AE2-054 E (Suspended)**	**0.3472**	**Adder**	**0.41**
945011	AF1-166 C	0.5102	Adder	0.6
945012	AF1-166 E	0.3401	Adder	0.4
945441	AF1-209 C O1	0.5070	Adder	0.6
945442	AF1-209 E O1	0.3380	Adder	0.4
945591	AF1-224 C	0.3852	Adder	0.45
945592	AF1-224 E	0.1950	Adder	0.23
958071	AF2-101 C	-0.2947	Adder	-0.35
958221	AF2-116 C	0.6218	Adder	0.73
958222	AF2-116 E	0.3132	Adder	0.37
958231	AF2-117 C	1.9863	Adder	2.34
958232	AF2-117 E	0.9929	Adder	1.17
958551	AF2-146 C	1.4569	50/50	1.4569
958552	AF2-146 E	0.9713	50/50	0.9713
958571	AF2-148 C	1.2580	50/50	1.2580
958572	AF2-148 E	0.8387	50/50	0.8387
958601	AF2-151 C	-0.2906	Adder	-0.34
958871	AF2-178	0.2673	Adder	0.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958881	AF2-179	0.3083	Adder	0.36
958891	AF2-180	0.3083	Adder	0.36
958931	AF2-184	0.2534	Adder	0.3
959223	AF2-213 BAT	4.9280	Merchant Transmission	4.9280
959241	AF2-215 C	0.1427	Adder	0.17
959242	AF2-215 E	0.0951	Adder	0.11
959381	AF2-229 C	0.7469	Adder	0.88
959382	AF2-229 E	0.6236	Adder	0.73
959773	AF2-268 BAT	0.1617	50/50	0.1617
959842	AF2-275 E	0.1595	Adder	0.19
959852	AF2-276 E	0.1595	Adder	0.19
961481	AF2-439 C	7.5080	50/50	7.5080
961482	AF2-439 E	6.9305	50/50	6.9305
962082	AG1-052 BAT	0.6605	Merchant Transmission	0.6605
963901	AG1-243 C	0.1817	Adder	0.4
963902	AG1-243 E	0.0978	Adder	0.22
964641	AG1-327 C O1	0.5731	Adder	1.27
964642	AG1-327 E O1	0.2952	Adder	0.66
964693	AG1-332 BAT	0.1533	Merchant Transmission	0.1533
965963	AG1-465 BAT	3.9252	Merchant Transmission	3.9252
966152	AG1-484 BAT	4.2560	50/50	4.2560
966172	AG1-486 BAT	1.6170	50/50	1.6170
966461	AG1-515 C	0.1313	Adder	0.29
966462	AG1-515 E	0.1969	Adder	0.44
WEC	WEC	0.0936	Confirmed LTF	0.0936
LGEE	LGEE	0.1860	Confirmed LTF	0.1860
CPLE	CPLE	0.1870	Confirmed LTF	0.1870
CBM-W2	CBM-W2	2.6253	Confirmed LTF	2.6253
NY	NY	0.1924	Confirmed LTF	0.1924
TVA	TVA	0.4074	Confirmed LTF	0.4074
O-066	O-066	4.4485	Confirmed LTF	4.4485
SIGE	SIGE	0.1005	Confirmed LTF	0.1005
CBM-S2	CBM-S2	2.9232	Confirmed LTF	2.9232
CBM-S1	CBM-S1	0.1110	Confirmed LTF	0.1110
G-007	G-007	0.6919	Confirmed LTF	0.6919
MEC	MEC	0.4688	Confirmed LTF	0.4688
LAGN	LAGN	0.5093	Confirmed LTF	0.5093
CBM-W1	CBM-W1	4.1639	Confirmed LTF	4.1639

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
AB1-127	St. Thomas-Guilford 34.5kV	In Service
AB1-128	St. Thomas-Mercersburg 34.5kV	In Service
AD1-020	Hunterstown-Lincoln 115 kV	Suspended
AD1-061	McConnelsburg-Mercersburg 34 kV	Active
AD2-009	McConnellsburg 138 kV	Active
AD2-062	Roxbury-Greene 138 kV	Active
AE1-071	Shade Gap-Roxbury 115 kV	Active
AE1-101	McConnellsburg-Texas Eastern 138 kV	Active
AE1-129	Zion View - Middletown 115 kV	Active
AE1-132	McConnellsburg 138 kV	Active
AE1-188	Fayetteville 34.5 kV	Engineering and Procurement
AE2-054	Warfordsburg 34 kV	Suspended
AF1-166	Target-Chambers No.5 34.5 kV	Engineering and Procurement
AF1-192	Mountain 2 115 kV	Partially in Service - Under Construction
AF1-209	Guilford 34.5 kV	Active
AF1-224	Fayetteville 34.5 kV	Engineering and Procurement
AF2-099	Taxville 2 13.2 kV	Engineering and Procurement
AF2-100	Taxville 1 13.2 kV	Engineering and Procurement
AF2-101	Allen 13.2 kV	Engineering and Procurement
AF2-116	McConnellsburg 138 kV	Active
AF2-117	Warfordsburg-McConnellsburg 138 kV	Active
AF2-146	Hill Valley-Valley REC 46 kV	Active
AF2-148	Shade Gap-Three Springs KTS 23 kV	Active
AF2-151	Dillsburg 13.2 kV	Engineering and Procurement
AF2-178	Roxbury 23 kV II	In Service
AF2-179	St. Thomas-Mercersburg 34.5 kV II	In Service
AF2-180	St. Thomas-Guilford 34.5 kV II	In Service
AF2-184	McConnelsburg-Mercersburg 34 kV II	Active
AF2-213	Zions View-Smith Street 115 kV	Active
AF2-215	Saint Thomas-LeMasters Junction 34.5 kV	Engineering and Procurement
AF2-229	Roxbury 23 kV	Active
AF2-268	Orrtanna 13.2 kV	Engineering and Procurement
AF2-275	Guilford 12.47 kV	Active
AF2-276	Guilford 12.47 kV	Active
AF2-383	Tolna 115 kV	Active
AF2-439	Roxbury-Carlisle 115 kV	Active
AG1-052	Zionsview-Middletown 115 kV II	Active
AG1-243	Guilford-Fayetteville 34.5 kV	Active
AG1-248	York Storage 115 kV	Active
AG1-327	West Waynesboro-East Waynesboro 138 kV	Active
AG1-332	Oxford 13.2 kV	Active
AG1-465	North Hanover-Gitts Run 115 kV	Active
AG1-473	Shingletown-Lewistown 230 kV	Active

Queue Number	Project Name	Status
AG1-484	Mountain 115 kV	Active
AG1-486	Orrtanna 115 kV	Active
AG1-515	Guilford 138 kV	Active
AG1-560	Shade Gap-Roxbury 115 kV II	Active
AG1-561	Roxbury-Greene 138 kV II	Active
W1-045	Roxbury 23 kV	In Service

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
AP-P1-2-PE-230-020T	CONTINGENCY 'AP-P1-2-PE-230-020T' /*RICE TO RINGGOLD 230 KV DISCONNECT BRANCH FROM BUS 270071 TO BUS 235506 CKT 1 /* RICE_230 230 01RINGLD 230 END
ME-P1-2-ME-230-019	CONTINGENCY 'ME-P1-2-ME-230-019' /* LINE 27HUNTRSTN 230.0 TO 27HUNTRST1 230.0 CIRCUIT 1 DISCONNECT BRANCH FROM BUS 204501 TO BUS 204575 CKT 1 /* 27HUNTRSTN 230 27HUNTRST1 230 END
PL:10:P45:102437	CONTINGENCY 'PL:10:P45:102437' /* JUNI BU2 230KV BUS; BUS_SEC_1-2 CB @ JUNI 230KV DISCONNECT BUS 208004 /* JUNI BU1 230 DISCONNECT BUS 208005 /* JUNI BU2 230 END
ME-P1-2-ME-115-066	CONTINGENCY 'ME-P1-2-ME-115-066' /* CLY-SMITH STREET 115 KV DISCONNECT BRANCH FROM BUS 204524 TO BUS 204682 CKT 1 /* 27CLY 978 115 27ES3 115 DISCONNECT BRANCH FROM BUS 204682 TO BUS 204572 CKT 1 /* 27ES3 115 27RAINTREE 115 DISCONNECT BRANCH FROM BUS 204572 TO BUS 204557 CKT 1 /* 27RAINTREE 115 27SMITH ST 115 REMOVE LOAD 1 FROM BUS 204572 /* 27RAINTREE 115 REMOVE LOAD C FROM BUS 204682 /* 27ES3 115 DISCONNECT BUS 204682 /* 27ES3 115 DISCONNECT BUS 204572 /* 27RAINTREE 115 END
PL:10:P24:100548	CONTINGENCY 'PL:10:P24:100548' /* JUNI 230KV BUS_SEC_1-2 CB DISCONNECT BUS 208005 /* JUNI BU2 230 DISCONNECT BUS 208004 /* JUNI BU1 230 /* JUNI BU1 230 END

Contingency Name	Contingency Definition
ME-P7-1-ME-230-008A-A	CONTINGENCY 'ME-P7-1-ME-230-008A-A' /* MIDD JCT-SMITH ST 977 & MIDD JCT-CLY 978 115 KV DISCONNECT BRANCH FROM BUS 204598 TO BUS 204566 CKT 1 /* 27MIDD JCT 115 27YK HAVEN 115 DISCONNECT BRANCH FROM BUS 204566 TO BUS 204660 CKT ZL /* 27YK HAVEN 115 27YK H STA 115 DISCONNECT BRANCH FROM BUS 204566 TO BUS 204524 CKT 1 /* 27YK HAVEN 115 27CLY 978 115 DISCONNECT BRANCH FROM BUS 204598 TO BUS 939000 CKT 1 /* 27MIDD JCT 115 AE1-129 TAP 115 DISCONNECT BUS 204566 /* 27YK HAVEN 115 DISCONNECT BUS 204660 /* 27YK H STA 115 END
ME-P7-1-ME-230-008A-B	CONTINGENCY 'ME-P7-1-ME-230-008A-B' /* MIDD JCT-SMITH ST 977 & MIDD JCT-CLY 978 115 KV DISCONNECT BRANCH FROM BUS 204598 TO BUS 204566 CKT 1 /* 27MIDD JCT 115 27YK HAVEN 115 DISCONNECT BRANCH FROM BUS 204566 TO BUS 204660 CKT ZL /* 27YK HAVEN 115 27YK H STA 115 DISCONNECT BRANCH FROM BUS 204566 TO BUS 204524 CKT 1 /* 27YK HAVEN 115 27CLY 978 115 DISCONNECT BRANCH FROM BUS 939000 TO BUS 204571 CKT 1 /* AE1-129 TAP 115 27ZIONS VW 115 DISCONNECT BRANCH FROM BUS 204571 TO BUS 959220 CKT 1 /* 27ZIONS VW 115 AF2-213 TAP ST 115 DISCONNECT BUS 204566 /* 27YK HAVEN 115 DISCONNECT BUS 204660 /* 27YK H STA 115 DISCONNECT BUS 204571 /* 27ZIONS VW 115 END
ME-P2-3-ME-230-005A	CONTINGENCY 'ME-P2-3-ME-230-005A' /* HUNTRSTOWN-JACKSON_ HUNTRSTWN BK1 (HUNTRSTWN-105392) DISCONNECT BRANCH FROM BUS 204575 TO BUS 204502 CKT 1 /* 27HUNTRST1 230 27JACKSON 230 DISCONNECT BRANCH FROM BUS 204575 TO BUS 204501 CKT 1 /* 27HUNTRST1 230 27HUNTRSTN 230 DISCONNECT BRANCH FROM BUS 200026 TO BUS 204501 CKT 1 /* HUNTERTN 500 27HUNTRSTN 230 DISCONNECT BUS 204501 /* 27HUNTRSTN 230 END
ME-P2-3-ME-230-005C	CONTINGENCY 'ME-P2-3-ME-230-005C' /* HUNTRSTOWN BK1_ HUNTRSTOWN BK4 (HUNTRSTWN-B1) DISCONNECT BRANCH FROM BUS 204575 TO BUS 204501 CKT 1 /* 27HUNTRST1 230 27HUNTRSTN 230 DISCONNECT BRANCH FROM BUS 200026 TO BUS 204501 CKT 1 /* HUNTERTN 500 27HUNTRSTN 230 DISCONNECT BRANCH FROM BUS 204575 TO BUS 204539 CKT 4 /* 27HUNTRST1 230 27HUNTRSTN 115 DISCONNECT BUS 204501 /* 27HUNTRSTN 230 END

Contingency Name	Contingency Definition
ME-P1-2-ME-115-025-B	CONTINGENCY 'ME-P1-2-ME-115-025-B' /* MIDD JUNCTION-ZIONSVIEW-SMITH STREET 115 KV DISCONNECT BRANCH FROM BUS 939000 TO BUS 204571 CKT 1 /* AE1-129 115 27ZIONS VW 115 DISCONNECT BRANCH FROM BUS 204571 TO BUS 959220 CKT 1 /* 27ZIONS VW 115 AF2-213 TAP 115 REMOVE LOAD 1 FROM BUS 204571 /* 27ZIONS VW 115 REMOVE LOAD 2 FROM BUS 204571 /* 27ZIONS VW 115 DISCONNECT BUS 204571 /* 27ZIONS VW 115 END
ME-P1-3-ME-500-003T	CONTINGENCY 'ME-P1-3-ME-500-003T' /* TRAN HUNTERTN 500.00 TO 27HUNTRSTN 230.00 CIRCUIT 1 DISCONNECT BRANCH FROM BUS 200026 TO BUS 204501 CKT 1 /* HUNTERTN 500 27HUNTRSTN 230 END
TS_P1-3_#T1_RICE 500_230	CONTINGENCY 'TS_P1-3_#T1_RICE 500_230' OPEN BRANCH FROM BUS 270070 TO BUS 270071 CKT 1 / 270070 RICE_500 500 TO 270071 RICE_230 230 1 OPEN BRANCH FROM BUS 270070 TO BUS 270071 CKT 2 / 270070 RICE_500 500 TO 270071 RICE_230 230 2 END
Base Case	
ME-P2-ME-230-DTR065	CONTINGENCY 'ME-P2-ME-230-DTR065' /* DISCONNECT MIDTWN JCT XFRM 5 TO MIDTWN JCT AND BKR 64 FAILS TO OPEN DISCONNECT BRANCH FROM BUS 204504 TO BUS 204595 CKT 2 /* DISCONNECT MIDTWN JCT BUS 4 TO XFMR 2 DISCONNECT BUS 204709 /* DISCONNECT BUS 204709 AT MIDTWN JCT END
ME-P2-ME-230-DTR059	CONTINGENCY 'ME-P2-ME-230-DTR059' /* DISCONNECT MIDTWN JCT XFRM 5 TO MIDTWN JCT AND BKR 28 FAILS TO OPEN DISCONNECT BRANCH FROM BUS 204709 TO BUS 204596 CKT 5 /* XFMR #5 AT MIDTWN JCT DISCONNECT BUS 204504 /* DISCONNECT BUS 204504 AT MIDTWN JCT END

12 Short Circuit Analysis

The following Breakers are overdutied:

None

13 Affected Systems

1.1 NYISO

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

1.2 MISO

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

14 Attachment 1: One Line Diagram