



**Generation Interconnection
Feasibility Study Report
for
Queue Project AG1-547
MOUNT AIRY-CHATHAM 69 KV
32.54 MW Capacity / 50 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 Dominion.

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 and Storage generating facility located in Pittsylvania County, Virginia. The installed facilities will have a total capability of 50 MW with 32.54 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is October 01, 2024. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-547
Project Name	MOUNT AIRY-CHATHAM 69 KV
State	Virginia
County	Pittsylvania
Transmission Owner	Dominion
MFO	50
MWE	50
MWC	32.54
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

1.1 Primary Point of Interconnection

AG1-547 "Mount Airy-Chatham 69 kV" will interconnect with the Dominion transmission system. The primary POI will be a newly constructed 69 kV three breaker ring bus located on the line between the Mount Airy substation and Chatham substation.

The IC is responsible for securing right-of-way, permits, and constructing the proposed attachment line from the generating facility site to the Point of Interconnection. The IC may not install any facilities on Dominion's right-of-way without first obtaining the necessary approval from Dominion Energy.

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

1.2 Secondary Point of Interconnection

There is no secondary point of interconnection specified for AG1-547.

5 Cost Summary

The AG1-547 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ 8,800,000
Total System Network Upgrade Costs	\$ 127,892,200 ¹
Total Costs	\$ 136,692,200

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 required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of AG1-547 to the Dominion Transmission System is detailed in the following sections. The associated one-line showing the generation project attachment facilities and primary direct and non-direct connection is shown in Attachment 1.

Note that the ITO findings were made from a conceptual review of this project. A more detailed review of the connection facilities and their cost will be identified in a future study phase. Further note that the cost estimate data contained in this document should be considered high level estimates since it was produced without a detailed engineering review. The applicant will be responsible for the actual cost of construction. ITO herein reserves the right to return to any issues in this document and, upon appropriate justification, request additional monies to complete any reinforcements to the transmission systems.

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

Description	Total Cost
<i>Attachment Facilities</i>	\$1,700,000
<i>69 kV Three Breaker Ring-Bus Substation</i>	\$5,500,000
<i>Re-arrange line and tie-in new substation</i>	\$1,600,000
Total Physical Interconnection Costs	\$8,800,000

AG1-547 "Mount Airy-Chatham 69 kV" will interconnect with the Dominion transmission system. The primary POI will be a newly constructed 69 kV three breaker ring bus located on the line between the Mount Airy substation and Chatham substation.

It is estimated to take 18-30 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase.

Remote Terminal Work: During the Facilities Study, ITO's System Protection Engineering Department will review transmission line protection as well as anti-islanding required to accommodate the new generation and interconnection substation. System Protection Engineering will determine the minimal acceptable protection requirements to reliably interconnect the proposed generating facility with the transmission system. The review is based on maintaining system reliability by reviewing ITO's protection requirements with the known transmission system configuration which includes generating facilities in the area. This review may determine that transmission line protection and communication upgrades are required at remote substations.

7 Schedule

The estimated schedule for the Attachment Facilities, Direct Connection and Non-Direct Connection work is identified in the “Transmission Owner Scope of Work” section of this report.

The estimated schedule for the required Network Impact Reinforcements is identified in the “System Reinforcements” section of this report.

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

Dominion assessed the impact of the proposed AG1-547 for compliance with NERC Reliability Criteria on the Dominion Transmission System. The system was assessed using the summer 2024 AG1 case provided to Dominion by PJM.

When performing a generation analysis, Dominion’s main analysis includes load flow study results following a single contingency event for both normal and stressed system conditions. Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion’s Planning Criteria and interconnection requirements can be found in the Company’s Facility Connection Requirements which are publicly available at:

<http://www.dominionenergy.com>.

The results of these studies evaluate the system under a limited set of operating conditions and do not guarantee the full delivery of the capacity and associated energy of this proposed generation facility under all operating conditions. NERC Planning and Operating Reliability Criteria allow for the re-dispatch of generating units to resolve projected and actual deficiencies in real time and planning studies. Specifically, in Planning Studies, NERC Planning Event 3 and 6 Contingency Conditions (Loss of generator, transmission circuit, transformer, shunt device, or Single Pole of a DC line followed by the loss of a generator, transmission circuit, transformer, shunt device or single pole of a DC line) allow for re-dispatch of generating units to resolve potential reliability deficiencies. For Dominion Planning Criteria the re-dispatch of generating units for these contingency conditions is allowed as long as the projected loading does not exceed 100% of a facility Load Dump Rating.

8.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2024 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system and no further deficiencies were identified.

9 Interconnection Customer Requirements

9.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in Dominion’s “Dominion Energy Electric Transmission Generator Interconnection Requirements” documented in Dominion’s Facility Interconnection Requirements “Exhibit C” located at:

<https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. 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 Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. In particular, the IC is responsible for the following:

1. The purchase and installation of a fully rated protection device (circuit breaker, circuit switcher, fuse) to protect the IC’s GSU transformer(s).
2. The purchase and installation of the minimum required Dominion generation interconnection relaying and control facilities as described in the System Protection section noted above. 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 Dominion Transmission System Control Center.
4. Compliance with the Dominion and PJM generator power factor and voltage control requirements.

The GSU(s) associated with the IC queue request shall meet the grounding requirements as noted in Dominion’s “Dominion’s Facility Interconnection Requirements” document located at:

<https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>.

The IC will also be required to meet all PJM, SERC, 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 SERC 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 Dominion system.

9.3 Power Factor Requirements

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

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

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

10.2 Meteorological Data Reporting Requirements

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

- Back Panel temperature (Fahrenheit) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Irradiance (Watts/meter²) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Ambient air temperature (Fahrenheit) - (Accepted, not required)
- Wind speed (meters/second) - (Accepted, not required)
- Wind direction (decimal degrees from true north) - (Accepted, not required)

10.3 Interconnected Transmission Owner Requirements

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

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

11 Summer Peak - Load Flow Analysis

The Queue Project AG1-547 was evaluated as a 50.0 MW (Capacity 32.5 MW) injection tapping the Chatham to Gretna DP 69 kV line in the Dominion area. Project AG1-547 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-547 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

11.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC D C	MW IMPAC T
169290942	314735	2ALTAVISTA DP	69.0	DVP	314730	2STONE MIL	69.0	DVP	1	DVP_P1-2: LN 173-A	single	85.5400009155	82.42	120.45	DC	32.54
169290943	314735	2ALTAVISTA DP	69.0	DVP	314730	2STONE MIL	69.0	DVP	1	Base Case	single	85.5400009155	74.23	112.27	DC	32.54
163939123	314861	3SKIMMER	115.0	DVP	242886	05SKIM MR	69.0	AEP	2	AEP_P2-1_242741 05OTTE R 138 314667 4ALTVST A 138 1	single	53.0	98.74	102.93	DC	2.22

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	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADIN G %	POST PROJE CT LOADIN G %	AC D C	MW IMPAC T
168049082	242549	05BANS TR	138.0	AEP	242632	05EDAN 2	138.0	AEP	1	AEP_P2-1_242720 05MONETA 138 242775 05ROCKCAS SS 138 1	single	296.0	106.73	108.61	DC	5.55
168049083	242549	05BANS TR	138.0	AEP	242632	05EDAN 2	138.0	AEP	1	AEP_P1-2_#5419_105	single	296.0	102.15	104.03	DC	5.55
161956351	242575	05CAMD LM	138.0	AEP	242737	05OPOSSU MCK	138.0	AEP	1	AEP_P2-2_#10292_05NEWL DN 138 1	bus	284.0	114.65	116.47	DC	5.18
161956230	242687	05JOHN MT	138.0	AEP	242734	05NEWLDN	138.0	AEP	1	AEP_P2-2_#13260_05SKIM MR 69.0_1	bus	240.0	158.18	166.0	DC	18.78
161956231	242687	05JOHN MT	138.0	AEP	242734	05NEWLDN	138.0	AEP	1	AEP_P2-2_#10163_05EDAN 2 138 2	bus	240.0	155.37	162.77	DC	17.75
161956597	242687	05JOHN MT	138.0	AEP	242734	05NEWLDN	138.0	AEP	1	AEP_P7-1_#10778	tower	240.0	155.37	162.77	DC	17.75

ID	FRO M BUS#	FROM BUS	kV	FRO M BUS ARE A	TO BUS#	TO BUS	kV	TO BUS ARE A	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
161956 598	2426 87	05JOHN MT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	AEP_P7-1_#10830	towe r	240.0	151.45	158.72	DC	17.47
167489 901	2426 87	05JOHN MT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	AEP_P4_#2914_05J. FERR	break er	240.0	146.71	153.59	DC	16.52
167489 902	2426 87	05JOHN MT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	AEP_P4_#311_05CL OVRD	break er	240.0	146.71	153.59	DC	16.52
168284 698	2426 87	05JOHN MT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	Base Case	single	167.0	148.46	155.08	DC	11.07
168284 700	2426 87	05JOHN MT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	AEP_P1-2_#3174_6	single	240.0	104.7	108.48	DC	9.09
161956 317	2427 01	05LEESV I	138 .0	AEP	2428 02	05SMITHM TN	138 .0	AEP	1	AEP_P2- 2_#10292_05NEWL DN 138_1	bus	255.0	109.45	120.58	DC	28.37
161956 225	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P2- 2_#13260_05SKIM MR 69.0_1	bus	245.0	158.48	166.15	DC	18.78
161956 226	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P2- 2_#10163_05EDAN 2 138_2	bus	245.0	153.09	160.33	DC	17.75
161956 607	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P7-1_#10778	towe r	245.0	153.09	160.33	DC	17.75
161956 608	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P7-1_#10830	towe r	245.0	151.0	158.14	DC	17.47
167489 909	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P4_#2914_05J. FERR	break er	245.0	144.22	150.96	DC	16.52
167489 910	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P4_#311_05CL OVRD	break er	245.0	144.22	150.96	DC	16.52
168284 690	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	Base Case	single	167.0	150.42	157.04	DC	11.07
168284 692	2427 41	05OTTE R	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	AEP_P2-1_242515 05JOSHUA 765 247669 05JOSHUA 1EQ 999 1	single	245.0	104.04	107.75	DC	9.09
163938 910	3146 67	4ALTVST A	138 .0	DVP	2427 41	05OTTER	138 .0	AEP	1	Base Case	single	167.0	152.33	158.96	DC	11.07
163938 911	3146 67	4ALTVST A	138 .0	DVP	2427 41	05OTTER	138 .0	AEP	1	DVP_P1-2: LN 1016- A	single	245.0	126.45	132.08	DC	13.79
164142 195	3146 67	4ALTVST A	138 .0	DVP	3146 66	3ALTVSTA	115 .0	DVP	2	AEP_P2- 2_#10292_05NEWL DN 138_1	bus	146.60000 6104	113.22	122.31	DC	13.33
169290 894	3146 70	2ALTVST A	69. 0	DVP	3146 67	4ALTVSTA	138 .0	DVP	1	Base Case	single	128.77999 8779	122.45	147.71	DC	32.54
169290 895	3146 70	2ALTVST A	69. 0	DVP	3146 67	4ALTVSTA	138 .0	DVP	1	DVP_P1-2: LN 173-A	single	134.04400 6348	122.79	147.06	DC	32.54
164142 268	3146 88	3CRSTL HILL	115 .0	DVP	9272 60	AC1-222 TAP	115 .0	DVP	1	AEP_P2- 2_#10292_05NEWL DN 138_1	bus	350.0	103.92	108.1	DC	14.63
169290 904	3146 96	3SEDGE HILL	115 .0	DVP	3146 97	6SEDGE HILL	230 .0	DVP	1	DVP_P1-3: 6SEDGE HILL-TX#2	single	226.72799 6826	183.78	185.73	DC	4.43
169290 907	3146 96	3SEDGE HILL	115 .0	DVP	3146 97	6SEDGE HILL	230 .0	DVP	1	Base Case	single	223.53199 7681	105.99	107.17	DC	2.63
169290 920	3146 96	3SEDGE HILL	115 .0	DVP	3146 97	6SEDGE HILL	230 .0	DVP	2	DVP_P1-3: 6SEDGE HILL-TX#1	single	256.05599 9756	162.24	163.96	DC	4.42
164142 263	3147 14	3PERTH	115 .0	DVP	9644 70	AG1-310 TAP	115 .0	DVP	1	AEP_P2- 2_#10292_05NEWL DN 138_1	bus	350.0	104.28	108.46	DC	14.63
169290 851	3147 30	2STONE MIL	69. 0	DVP	3146 70	2ALTVSTA	69. 0	DVP	1	DVP_P1-2: LN 173-A	single	101.51999 6643	162.12	194.17	DC	32.54
169290 852	3147 30	2STONE MIL	69. 0	DVP	3146 70	2ALTVSTA	69. 0	DVP	1	Base Case	single	101.51999 6643	155.33	187.38	DC	32.54
163939 106	3148 61	3SKIMM ER	115 .0	DVP	2428 86	05SKIMMR	69. 0	AEP	1	DVP_P1-3: 3SKIMMER- 3SKIMMER-CK2	single	53.0	113.29	117.42	DC	2.19
163939 107	3148 61	3SKIMM ER	115 .0	DVP	2428 86	05SKIMMR	69. 0	AEP	1	AEP_P2-1_242741 05OTTER 138 314667 4ALTVSTA 138 1	single	53.0	102.32	106.67	DC	2.3

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADING %	POST PROJE CT LOADING %	AC DC	MW IMPACT
163939118	314861	3SKIMMER	115.0	DVP	242886	05SKIMMR	69.0	AEP	2	DVP_P1-3: 3SKIMMER-3SKIMMER	single	53.0	112.52	116.61	DC	2.17
161956341	926520	AC1-123 TAP	138.0	AEP	242575	05CAMDLM	138.0	AEP	1	AEP_P2-2_#10292_05NEWL DN 138_1	bus	255.0	115.92	117.95	DC	5.18
161956381	946590	AF1-323 TAP	138.0	AEP	242792	05SCOTSV	138.0	AEP	1	AEP_P2-2_#1372_05JOSHUA 765_1	bus	167.0	110.93	112.06	DC	4.17
167235114	946590	AF1-323 TAP	138.0	AEP	242792	05SCOTSV	138.0	AEP	1	AEP_P4_#3174_05C LOVRD	breaker	167.0	110.93	112.06	DC	4.17
164142239	964470	AG1-310 TAP	115.0	DVP	314688	3CRSTL HILL	115.0	DVP	1	AEP_P2-2_#10292_05NEWL DN 138_1	bus	350.0	108.83	113.01	DC	14.63

11.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADING %	POST PROJE CT LOADING %	AC DC	MW IMPACT
168049079	242549	05BANSTR	138.0	AEP	242632	05EDAN 2	138.0	AEP	1	AEP_P2-1_242720 05MONETA 138 242775 05ROCKCAS SS 138 1	operation	296.0	150.19	153.08	DC	8.52
168049081	242549	05BANSTR	138.0	AEP	242632	05EDAN 2	138.0	AEP	1	Base Case	operation	296.0	119.37	121.6	DC	6.56
168049317	242550	05BEARSK	138.0	AEP	940080	AE1-250 TAP	138.0	AEP	1	AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	operation	392.0	110.02	112.21	DC	8.52
168049319	242550	05BEARSK	138.0	AEP	940080	AE1-250 TAP	138.0	AEP	1	Base Case	operation	335.0	99.17	101.14	DC	6.56
168284927	242632	05EDAN 2	138.0	AEP	242631	05EDAN 1	138.0	AEP	Z1	AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	operation	296.0	114.02	115.87	DC	5.48
168285011	242641	05FOREST	138.0	AEP	242561	05BOONSB ORO	138.0	AEP	1	AEP_P2-1_242569 05BRUSHT 138 242734 05NEWLDN 138 1	operation	240.0	98.82	104.92	DC	14.64

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 PROJE CT LOADING %	POST PROJE CT LOADING %	AC/DC	MW IMPACT
168284 697	2426 87	05JOHNMT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	Base Case	operation	167.0	191.92	202.1	DC	17.0
168284 699	2426 87	05JOHNMT	138 .0	AEP	2427 34	05NEWLDN	138 .0	AEP	1	AEP_P1-2_#3174_6	operation	240.0	137.81	143.63	DC	13.96
163939 082	2427 01	05LEESVI	138 .0	AEP	3146 67	4ALTVSTA	138 .0	DVP	1	Base Case	operation	205.0	135.66	137.86	DC	4.51
163939 083	2427 01	05LEESVI	138 .0	AEP	3146 67	4ALTVSTA	138 .0	DVP	1	AEP_P2-1_242575 05CAMDLM 138 242737 05POSSUMCK 138 1	operation	284.0	127.87	129.41	DC	4.38
168284 892	2427 01	05LEESVI	138 .0	AEP	2428 02	05SMITHMTN	138 .0	AEP	1	AEP_P2-1_242687 05JOHNMT 138 242734 05NEWLDN 138 1	operation	255.0	109.22	120.35	DC	28.37
168284 990	2427 20	05MONETA	138 .0	AEP	2438 92	05MEADS8	138 .0	AEP	1	AEP_P1-2_#5366_42-A	operation	409.0	105.24	107.38	DC	8.72
168284 831	2427 34	05NEWLDN	138 .0	AEP	2425 69	05BRUSHT	138 .0	AEP	1	AEP_P2-1_242641 05FOREST 138 242734 05NEWLDN 138 1	operation	207.0	124.73	131.54	DC	14.1
168284 924	2427 34	05NEWLDN	138 .0	AEP	2426 41	05FOREST	138 .0	AEP	1	AEP_P2-1_242569 05BRUSHT 138 242734 05NEWLDN 138 1	operation	240.0	110.7	116.8	DC	14.64
168284 689	2427 41	05OTTER	138 .0	AEP	2426 87	05JOHNMT	138 .0	AEP	1	Base Case	operation	167.0	199.94	210.13	DC	17.0
168284 952	2427 75	05ROCKCASS	138 .0	AEP	2427 20	05MONETA	138 .0	AEP	1	AEP_P2-1_242549 05BANSTR 138 940080 AE1-250 TAP 138 1-A	operation	409.0	109.18	111.32	DC	8.72
168284 953	2427 75	05ROCKCASS	138 .0	AEP	2427 20	05MONETA	138 .0	AEP	1	AEP_P1-2_#5366_42-A	operation	409.0	109.18	111.32	DC	8.72
163939 148	2427 92	05SCOTSV	138 .0	AEP	9388 20	AE1-108 TAP	138 .0	DVP	1	AEP_P2-1_242515 05JOSHUA 765 247669 05JOSHUA 1EQ 999 1	operation	167.0	104.94	106.07	DC	4.17
163939 149	2427 92	05SCOTSV	138 .0	AEP	9388 20	AE1-108 TAP	138 .0	DVP	1	AEP_P2-1_247670 05JOSHUA_XFL 138 247669 05JOSHUA 1EQ 999 1	operation	167.0	104.94	106.07	DC	4.17
163939 150	2427 92	05SCOTSV	138 .0	AEP	9388 20	AE1-108 TAP	138 .0	DVP	1	AEP_P2-1_242688 05JOSHUA 138 247670 05JOSHUA_XFL 138 1	operation	167.0	104.94	106.07	DC	4.17
163939 151	2427 92	05SCOTSV	138 .0	AEP	9388 20	AE1-108 TAP	138 .0	DVP	1	AEP_P1-3_#1372_05JOSHUA 765_1	operation	167.0	104.94	106.07	DC	4.17

ID	FRO M BUS#	FROM BUS	kV	FRO M BUS ARE A	TO BUS#	TO BUS	kV	TO BUS ARE A	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
168284 845	2428 02	05SMITHM TN	138 .0	AEP	9260 50	AC1-083 TAP	138 .0	AEP	1	AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	operati on	296.0	125.4	128.29	DC	8.52
168284 855	2428 02	05SMITHM TN	138 .0	AEP	2427 01	05LEESVI	138 .0	AEP	1	AEP_P2-1_242575 05CAMDLM 138 242737 05OPOSSUMCK 138 1	operati on	255.0	126.2	127.91	DC	4.37
168284 857	2428 02	05SMITHM TN	138 .0	AEP	2427 01	05LEESVI	138 .0	AEP	1	Base Case	operati on	205.0	115.59	117.79	DC	4.5
168285 002	2428 02	05SMITHM TN	138 .0	AEP	2427 75	05ROCKCAS SS	138 .0	AEP	1	AEP_P1-2_#5366_42-A	operati on	409.0	103.89	106.03	DC	8.72
168284 887	2438 92	05MEADS8	138 .0	AEP	2426 07	05CLOVRD	138 .0	AEP	1	AEP_P1-2_#5366_42-A	operati on	407.0	118.36	120.51	DC	8.72
168284 889	2438 92	05MEADS8	138 .0	AEP	2426 07	05CLOVRD	138 .0	AEP	1	Base Case	operati on	348.0	101.9	103.8	DC	6.59
169291 066	3146 66	3ALTVSTA	115 .0	DVP	3146 67	4ALTVSTA	138 .0	DVP	1	DVP_P1-3: 4ALTVSTA-TX#4	operati on	126.524002 075	137.45	139.89	DC	3.08
163938 905	3146 67	4ALTVSTA	138 .0	DVP	2427 41	05OTTER	138 .0	AEP	1	Base Case	operati on	167.0	201.86	212.04	DC	17.0
163938 906	3146 67	4ALTVSTA	138 .0	DVP	2427 41	05OTTER	138 .0	AEP	1	DVP_P1-2: LN 1016-A	operati on	245.0	178.29	186.93	DC	21.19
169291 065	3146 67	4ALTVSTA	138 .0	DVP	3146 66	3ALTVSTA	115 .0	DVP	1	DVP_P1-3: 4ALTVSTA-TX#4	operati on	126.524002 075	131.88	142.04	DC	12.85
169291 085	3146 67	4ALTVSTA	138 .0	DVP	3146 66	3ALTVSTA	115 .0	DVP	2	AEP_P2-1_242687 05JOHNMT 138 242734 05NEWLDN 138 1	operati on	130.472000 122	127.04	137.25	DC	13.33
169290 892	3146 70	2ALTVSTA	69. 0	DVP	3146 67	4ALTVSTA	138 .0	DVP	1	Base Case	operati on	128.779998 779	228.8	267.62	DC	49.99
169290 893	3146 70	2ALTVSTA	69. 0	DVP	3146 67	4ALTVSTA	138 .0	DVP	1	DVP_P1-2: LN 173-A	operati on	134.044006 348	224.96	262.26	DC	49.99
169291 119	3146 88	3CRSTL HILL	115 .0	DVP	9272 60	AC1-222 TAP	115 .0	DVP	1	AEP_P1-2_#375_5201	operati on	285.760009 766	126.87	131.99	DC	14.63
169291 121	3146 88	3CRSTL HILL	115 .0	DVP	9272 60	AC1-222 TAP	115 .0	DVP	1	Base Case	operati on	285.760009 766	97.75	101.39	DC	10.41
169290 902	3146 96	3SEEDGE HILL	115 .0	DVP	3146 97	6SEEDGE HILL	230 .0	DVP	1	DVP_P1-3: 6SEEDGE HILL-TX#2	operati on	226.727996 826	264.24	265.58	DC	6.81
169290 905	3146 96	3SEEDGE HILL	115 .0	DVP	3146 97	6SEEDGE HILL	230 .0	DVP	1	Base Case	operati on	223.531997 681	153.03	153.84	DC	4.03
169290 918	3146 96	3SEEDGE HILL	115 .0	DVP	3146 97	6SEEDGE HILL	230 .0	DVP	2	DVP_P1-3: 6SEEDGE HILL-TX#1	operati on	256.055999 756	233.27	234.46	DC	6.79
169290 921	3146 96	3SEEDGE HILL	115 .0	DVP	3146 97	6SEEDGE HILL	230 .0	DVP	2	Base Case	operati on	253.235992 432	133.73	134.45	DC	3.99
169291 163	3146 98	2TAYLORS MIL	69. 0	DVP	3147 33	2GRNA DP	69. 0	DVP	1	DVP_P1-2: LN 173-A	operati on	123.139999 39	84.96	125.56	DC	49.99
169291 164	3146 98	2TAYLORS MIL	69. 0	DVP	3147 33	2GRNA DP	69. 0	DVP	1	Base Case	operati on	123.139999 39	79.35	119.95	DC	49.99
169291 040	3147 12	3OTTER R	115 .0	DVP	3146 66	3ALTVSTA	115 .0	DVP	1	Base Case	operati on	247.220001 221	113.6	114.61	DC	2.5
169291 114	3147 14	3PERTH	115 .0	DVP	9644 70	AG1-310 TAP	115 .0	DVP	1	AEP_P1-2_#375_5201	operati on	285.760009 766	127.32	132.44	DC	14.63
169291 116	3147 14	3PERTH	115 .0	DVP	9644 70	AG1-310 TAP	115 .0	DVP	1	Base Case	operati on	285.760009 766	104.58	108.23	DC	10.41
169290 849	3147 30	2STONE MIL	69. 0	DVP	3146 70	2ALTVSTA	69. 0	DVP	1	DVP_P1-2: LN 173-A	operati on	101.519996 643	297.03	346.27	DC	49.99

ID	FRO M BUS#	FROM BUS	kV	FRO M BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC DC	MW IMPA CT
169290850	314730	2STONE MIL	69.0	DVP	314670	2ALTVSTA	69.0	DVP	1	Base Case	operati on	101.519996643	290.23	339.48	DC	49.99
169291117	314731	2GRETNA	69.0	DVP	314739	2MT A TP	69.0	DVP	1	DVP_P1-2: LN 173-A	operati on	123.13999939	91.49	132.09	DC	49.99
169291118	314731	2GRETNA	69.0	DVP	314739	2MT A TP	69.0	DVP	1	Base Case	operati on	123.13999939	85.81	126.41	DC	49.99
169291068	314733	2GRNA DP	69.0	DVP	314731	2GRETNA	69.0	DVP	1	Base Case	operati on	111.86000061	94.73	139.42	DC	49.99
169291069	314733	2GRNA DP	69.0	DVP	314731	2GRETNA	69.0	DVP	1	DVP_P1-2: LN 173-A	operati on	123.13999939	91.74	132.34	DC	49.99
169290940	314735	2ALTAVIST ADP	69.0	DVP	314730	2STONE MIL	69.0	DVP	1	DVP_P1-2: LN 173-A	operati on	85.5400009155	171.45	229.9	DC	49.99
169290941	314735	2ALTAVIST ADP	69.0	DVP	314730	2STONE MIL	69.0	DVP	1	Base Case	operati on	85.5400009155	163.27	221.71	DC	49.99
169505253	314739	2MT A TP	69.0	DVP	314735	2ALTAVIST ADP	69.0	DVP	1	DVP_P1-2: LN 173-A	operati on	123.13999939	123.32	163.92	DC	49.99
169505254	314739	2MT A TP	69.0	DVP	314735	2ALTAVIST ADP	69.0	DVP	1	Base Case	operati on	123.13999939	117.64	158.24	DC	49.99
163939101	314861	3SKIMMER	115.0	DVP	242886	05SKIMMR	69.0	AEP	1	DVP_P1-3: 3SKIMMER-3SKIMMER_CK 2	operati on	53.0	128.94	131.8	DC	3.36
163939117	314861	3SKIMMER	115.0	DVP	242886	05SKIMMR	69.0	AEP	2	DVP_P1-3: 3SKIMMER-3SKIMMER	operati on	53.0	128.04	130.87	DC	3.33
168049106	926050	AC1-083 TAP	138.0	AEP	242550	05BEARSK	138.0	AEP	1	AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	operati on	296.0	145.74	148.63	DC	8.52
168049108	926050	AC1-083 TAP	138.0	AEP	242550	05BEARSK	138.0	AEP	1	Base Case	operati on	296.0	112.28	114.5	DC	6.56
169813076	926520	AC1-123 TAP	138.0	AEP	242575	05CAMDLM	138.0	AEP	1	AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	operati on	255.0	115.22	115.76	DC	3.02
169291043	927260	AC1-222 TAP	115.0	DVP	314696	3SEGE HILL	115.0	DVP	1	Base Case	operati on	285.760009766	113.88	117.53	DC	10.41
169813031	940080	AE1-250 TAP	138.0	AEP	242549	05BANSTR	138.0	AEP	1	AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	operati on	392.0	120.64	122.82	DC	8.52
169813033	940080	AE1-250 TAP	138.0	AEP	242549	05BANSTR	138.0	AEP	1	Base Case	operati on	335.0	107.92	109.89	DC	6.56
169291190	942750	AE2-291 TAP	115.0	DVP	314714	3PERTH	115.0	DVP	1	AEP_P1-2_#375_5201	operati on	285.760009766	110.41	115.54	DC	14.64
169291070	964470	AG1-310 TAP	115.0	DVP	314688	3CRSTL HILL	115.0	DVP	1	AEP_P1-2_#375_5201	operati on	285.760009766	132.89	138.01	DC	14.63
169291072	964470	AG1-310 TAP	115.0	DVP	314688	3CRSTL HILL	115.0	DVP	1	Base Case	operati on	285.760009766	103.77	107.41	DC	10.41

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
163938911,163938910	8	4ALTVSTA 138.0 kV - 05OTTER 138.0 kV Ckt 1	<p><u>AEP</u> AEPA0014a (233) : Rebuild / reconductor 0.9 miles of overhead conductor (ACSR ~ 397.5 ~ 30/7 ~ LARK) Project Type : FAC Cost : \$1,350,000 Time Estimate : 24-36 Months</p> <p>AEPA0014b (234) : Replace 795 AAC station conductors at Altavista Project Type : FAC Cost : \$100,000 Time Estimate : 12-18 Months</p> <p><u>DVP</u> dom-001 (1344) : Relay Change Outs (Secondary) at Altavista Substation Project Type : FAC Cost : \$120,000 Time Estimate : 6-12 Months</p>	\$1,570,000
167489910,168284690,161956608,161956607,161956225,168284692,167489909,161956226	7	05OTTER 138.0 kV - 05JOHNMT 138.0 kV Ckt 1	<p><u>AEP</u> AEPA0019a (247) : 2) Rebuild/reconductor JohnMt - Otter Line, ACSR ~ 397.5 ~ 30/7 ~ LARK Conductor Section 1, 7 Miles. \$10.5M Project Type : FAC Cost : \$10,500,000 Time Estimate : 24-36 Months</p> <p>AEPA0019b (248) : Replace 795 AAC station conductors at Otter Project Type : FAC Cost : \$10,670,000 Time Estimate : 18-24 Months</p> <p>AEPA0019c (249) : Replace 1200 A Switch at Otter Project Type : FAC Cost : \$100,000 Time Estimate : 12-18 Months</p>	\$21,270,000
169290943,169290942	1	2ALTAVISTADP 69.0 kV - 2STONE MIL 69.0 kV Ckt 1	<p><u>DVP</u> dom-359 (1760) : Reconductor 2.1 miles of 69 kV Line 35 from Altavista DP to Stone Mill with 636 ACSR 150 C Project Type : FAC Cost : \$1,260,000 Time Estimate : 30-36 Months</p>	\$1,260,000

ID	Idx	Facility	Upgrade Description	Cost
161956317	6	05LEESVI 138.0 kV - 05SMITHMTN1 138.0 kV Ckt 1	<p><u>AEP</u> AEP A0017a (240) : Rebuild / reconductor 8.1 miles of overhead conductor (ACSR ~ 556.5 ~ 26/7 ~ DOVE) Project Type : FAC Cost : \$12,150,000 Time Estimate : 24-36 Months</p> <p>AEP A0017b (241) : Increase CT thermal limit at Leesville above 327 MVA Project Type : FAC Cost : \$25,000 Time Estimate : 12-18 Months</p> <p>AEP A0017c (242) : Increase Relay Compliance Trip Limit at Smith Mountain above 327 MVA Project Type : FAC Cost : \$25,000 Time Estimate : 12-18 Months</p> <p>AEP A0017e (244) : Replace Leesville & Smithmtn Riser Sub Cond 795 AAC 37 Str Project Type : FAC Cost : \$100,000 Time Estimate : 12-18 Months</p>	\$12,300,000
169290852,169290851	15	2STONE MIL 69.0 kV - 2ALTVSTA 69.0 kV Ckt 1	<p><u>DVP</u> dom-111 (1478) : Rebuild 1.64 miles of 69 kV Line 35 from Stone Mill to Altavista with 768 ACSS. Project Type : FAC Cost : \$2,132,000 Time Estimate : 30-36 Months</p>	\$2,132,000
164142239	19	AG1-310 TAP 115.0 kV - 3CRSTL HILL 115.0 kV Ckt 1	<p><u>DVP</u> dom-344 (1745) : Reconductor 1.005 miles of 115 kV Line 1016 from Crystal Hill to AG1-310 Tap with 768.2 ACSS 250 Project Type : FAC Cost : \$603,000 Time Estimate : 30-36 Months</p>	\$603,000
161956341	17	AC1-123 TAP 138.0 kV - 05CAMDLM 138.0 kV Ckt 1	<p><u>AEP</u> AEP A0027a (596) : Reconductor/ Rebuild 17.2 miles between Candiers Mountain - Redeye 138kV which currently has ACSR ~ 556 ACSR ~ 26/7 overhead conductor Project Type : FAC Cost : \$34,400,000 Time Estimate : 24 - 36 months Months</p>	\$34,400,000

ID	Idx	Facility	Upgrade Description	Cost
161956351	4	05CAMDLM 138.0 kV - 05OPOSSUMCK 138.0 kV Ckt 1	<u>AEP</u> AEPA0033a (268) : Reconductor/Rebuild 4.2 miles between Opossum Creek-Candlers Mountain 138 kV which currently has 556.5 ACSR 26/7 Dove Project Type : FAC Cost : \$6,300,000 Time Estimate : 12-18 Months	\$6,300,000
168049083,168 049082	3	05BANSTR 138.0 kV - 05EDAN 2 138.0 kV Ckt 1	<u>AEP</u> AEPA0010e (221) : A Sag Study will be required for the 10.7 miles of overhead conductor (2 bundle ACSR ~ 556.5 ~ 26/7 ~ DOVE) to mitigate the overload. Depending on the sag study results, the cost for this upgrade is expected to be between \$42,800 (no remediation required, just sag study) and \$21.4 million (complete line reconductor/rebuild).New Rating after sag study is SN 298MVA, SE:396MVA. Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement. Project Type : FAC Cost : \$42,800 Time Estimate : 6-12 Months	\$42,800
169290895,169 290894	10	2ALTVSTA 69.0 kV - 4ALTVSTA 138.0 kV Ckt 1	<u>DVP</u> dom-121 (1488) : Add additional 138/69 kV transformer at Altavista substation Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
164142263	14	3PERTH 115.0 kV - AG1-310 TAP 115.0 kV Ckt 1	<u>DVP</u> dom-357 (1758) : Reconductor 11.56 miles of 115 kV Line 1016 from Perth to AG1-310 Tap with 768.2 ACSR 250 Project Type : FAC Cost : \$6,936,000 Time Estimate : 36-40 Months	\$6,936,000
167235114,161 956381	18	AF1-323 TAP 138.0 kV - 05SCOTSV 138.0 kV Ckt 1	<u>AEP</u> AEPA0034a (593) : A sag study will be required on the 0.85 miles of ACSR ~ 397.5 ~ 30/7 ~ LARK - Conductor to determine what mitigation would be required (if any) to operate at the conductor's MOT. Depending on the sag study results, the cost for this upgrade is expected to be between \$3,400 (no remediation required, just sag study) and \$1.275 million (complete line reconductor/rebuild). Time Estimate: a) Sag Study: 6-12 months b) Rebuild: The standard time required for construction differs from state to state. An approximate construction time would be 24 to 36 months after signing an interconnection agreement Project Type : FAC Cost : \$3,400 Time Estimate : 6 - 12 months	\$3,400

ID	Idx	Facility	Upgrade Description	Cost
163939107,163939106	16	3SKIMMER 115.0 kV - 05SKIMMR 69.0 kV Ckt 1	<u>AEP</u> AEP0016a (237) : Increase relay thermal limit above 80 MVA Project Type : FAC Cost : \$25,000 Time Estimate : 12-18 Months	\$25,000
163939118,163939123	2	3SKIMMER 115.0 kV - 05SKIMMR 69.0 kV Ckt 2	<u>DVP</u> Limiting equipment owned by AEP	
164142268	11	3CRSTL HILL 115.0 kV - AC1- 222 TAP 115.0 kV Ckt 1	<u>DVP</u> dom-119 (1486) : Rebuild 0.5 miles of 115 kV Line 1016 from Crystal Hill DP to AC1-222 Tap with 768 ACSS. Project Type : FAC Cost : \$650,000 Time Estimate : 30-36 Months	\$650,000
169290904,169290907	12	3SEEDGE HILL 115.0 kV - 6SEEDGE HILL 230.0 kV Ckt 1	<u>DVP</u> dom-046 (1399) : Add additional 230/115 kV transformer at Sedge Hill substation.	\$6,000,000
169290920	13	3SEEDGE HILL 115.0 kV - 6SEEDGE HILL 230.0 kV Ckt 2	Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	
164142195	9	4ALTVSTA 138.0 kV - 3ALTVSTA 115.0 kV Ckt 2	<u>DVP</u> dom-122 (1489) : Add additional 138/115 kV transformer at Altavista substation Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
168284700,161956598,161956230,161956231,167489901,168284698,161956597,167489902	5	05JOHNMT 138.0 kV - 05NEWLDN 138.0 kV Ckt 1	<u>AEP</u> AEP0020a (250) : Current Station Rating: S/N: 167, S/E: 240 1) Rebuild/reconductor ACSR ~ 397.5 ~ 30/7 ~ LARK ~ Fe Clamps 9 d, Conductor Section 1, 14.43 miles Project Type : FAC Cost : \$21,650,000 Time Estimate : 12-18 Months AEP0020b (251) : Replace 1200 A Wavetrapp at New London Project Type : FAC Cost : \$50,000 Time Estimate : 24-36 Months AEP0020c (252) : Replace 7 Sub cond 1590 AAC 61 Str. At New London Project Type : FAC Cost : \$700,000 Time Estimate : 12-18 months	\$22,400,000
			TOTAL COST	\$127,892,200

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
169290942	314735	2ALTAVISTADP	DVP	314730	2STONE MIL	DVP	1	DVP_P1-2: LN 173-A	single	85.54	82.42	120.45	DC	32.54

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925661	AC1-042 C	15.9584	80/20	15.9584
926645	AC1-145 C	2.9973	80/20	2.9973
939941	AE1-230 C	7.1993	80/20	7.1993
941821	AE2-187 C	35.9964	80/20	35.9964
945081	AF1-173	13.9486	80/20	13.9486
961121	AF2-403	7.9992	80/20	7.9992
963601	AG1-209 C	2.7997	80/20	2.7997
966761	AG1-547 C	32.5367	80/20	32.5367
CALDERWOOD	CALDERWOOD	0.0050	Confirmed LTF	0.0050
NY	NY	0.0055	Confirmed LTF	0.0055
PRAIRIE	PRAIRIE	0.0258	Confirmed LTF	0.0258
CHEOAH	CHEOAH	0.0050	Confirmed LTF	0.0050
COTTONWOOD	COTTONWOOD	0.0210	Confirmed LTF	0.0210
HAMLET	HAMLET	0.0058	Confirmed LTF	0.0058
GIBSON	GIBSON	0.0055	Confirmed LTF	0.0055
BLUEG	BLUEG	0.0174	Confirmed LTF	0.0174
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0035	Confirmed LTF	0.0035

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
163939118	314861	3SKIMMER	DVP	242886	05SKIMMR	AEP	2	DVP_P1-3: 3SKIMMER-3SKIMMER	single	53.0	112.52	116.61	DC	2.17

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315156	1HALLBR1	0.7292	80/20	0.7292
316123	AC1-075 C	0.3051	80/20	0.3051
925661	AC1-042 C	1.0642	80/20	1.0642
926023	AC1-080 C	0.1020	80/20	0.1020
926645	AC1-145 C	0.1999	80/20	0.1999
939941	AE1-230 C	0.4801	80/20	0.4801
941801	AE2-185 C	2.4005	80/20	2.4005
941821	AE2-187 C	2.4005	80/20	2.4005
942671	AE2-283 C	2.6405	80/20	2.6405
942751	AE2-291 C	3.7834	80/20	3.7834
942761	AE2-292 C O1	4.7107	80/20	4.7107
945081	AF1-173	0.9302	80/20	0.9302
961121	AF2-403	0.5334	80/20	0.5334
963601	AG1-209 C	0.1867	80/20	0.1867
964141	AG1-275 C	0.8002	80/20	0.8002
964151	AG1-276 C	0.8002	80/20	0.8002
966691	AG1-539 C	1.9782	80/20	1.9782
966761	AG1-547 C	2.1698	80/20	2.1698
CPLE	CPLE	0.2020	Confirmed LTF	0.2020
G-007A	G-007A	0.0048	Confirmed LTF	0.0048
VFT	VFT	0.0064	Confirmed LTF	0.0064
NY	NY	0.0028	Confirmed LTF	0.0028
PRAIRIE	PRAIRIE	0.1007	Confirmed LTF	0.1007
CBM-S2	CBM-S2	1.7852	Confirmed LTF	1.7852
CBM-N	CBM-N	0.0012	Confirmed LTF	0.0012
COTTONWOOD	COTTONWOOD	0.0063	Confirmed LTF	0.0063
GIBSON	GIBSON	0.0317	Confirmed LTF	0.0317
BLUEG	BLUEG	0.1111	Confirmed LTF	0.1111
TRIMBLE	TRIMBLE	0.0362	Confirmed LTF	0.0362

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
168049082	242549	05BANSTR	AEP	242632	05EDAN 2	AEP	1	AEP_P2- 1_242720 05MONETA 138 242775 05ROCKCAS SS 138 1	single	296.0	106.73	108.61	DC	5.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
242889	05REUSENS	0.0515	80/20	0.0515
246843	05SMG1	3.5712	80/20	3.5712
246844	05SMG2	9.7076	80/20	9.7076
246845	05SMG3	6.0861	80/20	6.0861
246846	05SMG4	9.5567	80/20	9.5567
246847	05SMG5	3.7221	80/20	3.7221
247284	05LEESVG	1.9442	80/20	1.9442
315156	1HALLBR1	1.2904	80/20	1.2904
316123	AC1-075 C	0.4585	80/20	0.4585
925661	AC1-042 C	2.7205	80/20	2.7205
926023	AC1-080 C	0.1532	80/20	0.1532
926051	AC1-083 C O1	19.0954	80/20	19.0954
926521	AC1-123 C O1	2.0209	80/20	2.0209
926645	AC1-145 C	0.5110	80/20	0.5110
933941	AD1-017 C	3.8191	80/20	3.8191
935241	AD1-161 C	2.5993	80/20	2.5993
938451	AE1-064 C	21.4559	80/20	21.4559
939941	AE1-230 C	1.2273	80/20	1.2273
940081	AE1-250 C	57.5154	80/20	57.5154
941801	AE2-185 C	6.1366	80/20	6.1366
941821	AE2-187 C	6.1366	80/20	6.1366
942671	AE2-283 C	6.7502	80/20	6.7502
942751	AE2-291 C	6.1176	80/20	6.1176
942761	AE2-292 C O1	7.6170	80/20	7.6170
945081	AF1-173	2.3779	80/20	2.3779
958131	AF2-107 C	1.8934	80/20	1.8934
961121	AF2-403	1.3637	80/20	1.3637
962741	AG1-123 C O1	3.0900	80/20	3.0900
962751	AG1-124 C O1	4.1436	80/20	4.1436
963601	AG1-209 C	0.4773	80/20	0.4773
964141	AG1-275 C	2.0455	80/20	2.0455
964151	AG1-276 C	2.0455	80/20	2.0455
964251	AG1-286 C	0.8361	80/20	0.8361
964531	AG1-316 C O1	7.6979	80/20	7.6979
966251	AG1-494 C	1.3718	80/20	1.3718
966691	AG1-539 C	3.1987	80/20	3.1987
966761	AG1-547 C	5.5468	80/20	5.5468
CALDERWOOD	CALDERWOOD	0.3628	Confirmed LTF	0.3628
NY	NY	0.0553	Confirmed LTF	0.0553

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
PRAIRIE	PRAIRIE	0.7801	Confirmed LTF	0.7801
CHEOAH	CHEOAH	0.3804	Confirmed LTF	0.3804
COTTONWOOD	COTTONWOOD	1.2369	Confirmed LTF	1.2369
HAMLET	HAMLET	1.1966	Confirmed LTF	1.1966
GIBSON	GIBSON	0.0814	Confirmed LTF	0.0814
BLUEG	BLUEG	0.1962	Confirmed LTF	0.1962
TRIMBLE	TRIMBLE	0.0590	Confirmed LTF	0.0590
CATAWBA	CATAWBA	0.5712	Confirmed LTF	0.5712

11.6.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
16195635 1	24257 5	05CAMDL M	AEP	24273 7	05OPOSSUMC K	AEP	1	AEP_P2- 2_#10292_05NEWLD N 138_1	bus	284.0	114.65	116.47	DC	5.18

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.9399	50/50	1.9399
246844	05SMG2	5.2732	50/50	5.2732
246845	05SMG3	3.3060	50/50	3.3060
246846	05SMG4	5.1913	50/50	5.1913
246847	05SMG5	2.0219	50/50	2.0219
247284	05LEESVG	1.0979	50/50	1.0979
925661	AC1-042 C	1.6528	50/50	1.6528
925662	AC1-042 E	2.6967	50/50	2.6967
925997	AC1-075 E	1.0121	Adder	1.19
926024	AC1-080 E	0.3358	Adder	0.4
926051	AC1-083 C O1	4.8651	50/50	4.8651
926052	AC1-083 E O1	7.9379	50/50	7.9379
926521	AC1-123 C O1	3.6473	50/50	3.6473
926522	AC1-123 E O1	10.8777	50/50	10.8777
926645	AC1-145 C	0.3104	50/50	0.3104
926646	AC1-145 E	1.7657	50/50	1.7657
933941	AD1-017 C	0.9730	50/50	0.9730
933942	AD1-017 E	1.5876	50/50	1.5876
938451	AE1-064 C	9.5344	50/50	9.5344
938452	AE1-064 E	4.9301	50/50	4.9301
939011	AE1-130 C	3.6885	Adder	4.34
939012	AE1-130 E	1.8476	Adder	2.17
939941	AE1-230 C	0.7456	50/50	0.7456
939942	AE1-230 E	1.3256	50/50	1.3256
940081	AE1-250 C	7.2262	Adder	8.5
940082	AE1-250 E	4.8175	Adder	5.67
941801	AE2-185 C	3.7282	50/50	3.7282
941802	AE2-185 E	2.4854	50/50	2.4854
941821	AE2-187 C	3.7282	50/50	3.7282
941822	AE2-187 E	1.6570	50/50	1.6570
942671	AE2-283 C	4.1010	50/50	4.1010
942672	AE2-283 E	2.1540	50/50	2.1540
942751	AE2-291 C	3.4203	Adder	4.02
942752	AE2-291 E	2.2802	Adder	2.68
942761	AE2-292 C O1	4.2586	Adder	5.01
942762	AE2-292 E O1	2.8391	Adder	3.34
945081	AF1-173	1.4447	50/50	1.4447
961121	AF2-403	0.8285	50/50	0.8285
963601	AG1-209 C	0.2900	50/50	0.2900
963602	AG1-209 E	0.4350	50/50	0.4350
964141	AG1-275 C	1.2427	50/50	1.2427

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964142	AG1-275 E	0.8285	50/50	0.8285
964151	AG1-276 C	1.2427	50/50	1.2427
964152	AG1-276 E	0.8285	50/50	0.8285
964251	AG1-286 C	0.6214	50/50	0.6214
964252	AG1-286 E	0.4142	50/50	0.4142
964531	AG1-316 C O1	49.4419	50/50	49.4419
964532	AG1-316 E O1	12.3605	50/50	12.3605
966253	AG1-494 BAT	2.2424	Merchant Transmission	2.2424
966691	AG1-539 C	0.9479	Adder	2.1
966692	AG1-539 E	1.2737	Adder	2.83
966761	AG1-547 C	3.3698	50/50	3.3698
966762	AG1-547 E	1.8082	50/50	1.8082
CPL	CPL	0.6825	Confirmed LTF	0.6825
NY	NY	0.0476	Confirmed LTF	0.0476
PRAIRIE	PRAIRIE	0.1627	Confirmed LTF	0.1627
TVA	TVA	0.0602	Confirmed LTF	0.0602
O-066	O-066	0.5115	Confirmed LTF	0.5115
CBM-S2	CBM-S2	6.4310	Confirmed LTF	6.4310
CBM-S1	CBM-S1	0.0038	Confirmed LTF	0.0038
G-007	G-007	0.0788	Confirmed LTF	0.0788
GIBSON	GIBSON	0.0682	Confirmed LTF	0.0682
BLUEG	BLUEG	0.2448	Confirmed LTF	0.2448
TRIMBLE	TRIMBLE	0.0801	Confirmed LTF	0.0801
LAGN	LAGN	0.0962	Confirmed LTF	0.0962

11.6.5 Index 5

ID	FROM BUS#	FROM BUS	FRO M BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Ratin g MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
161956230	242687	05JOHNM T	AEP	242734	05NEWLD N	AEP	1	AEP_P2-2_#13260_05SKIMM R 69.0_1	bus	240.0	158.18	166.0	DC	18.78

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.1693	50/50	1.1693
246844	05SMG2	3.1786	50/50	3.1786
246845	05SMG3	1.9928	50/50	1.9928
246846	05SMG4	3.1292	50/50	3.1292
246847	05SMG5	1.2187	50/50	1.2187
247284	05LEESVG	1.8564	50/50	1.8564
315156	1HALLBR1	2.9223	50/50	2.9223
316118	AC1-105 C	1.8331	Adder	2.16
316123	AC1-075 C	1.2269	50/50	1.2269
925661	AC1-042 C	5.9959	50/50	5.9959
925662	AC1-042 E	9.7827	50/50	9.7827
925997	AC1-075 E	4.4060	50/50	4.4060
926023	AC1-080 C	0.4100	50/50	0.4100
926024	AC1-080 E	1.4619	50/50	1.4619
926051	AC1-083 C O1	2.5478	Adder	3.0
926052	AC1-083 E O1	4.1570	Adder	4.89
926274	AC1-105 E	0.9006	Adder	1.06
926645	AC1-145 C	1.1261	50/50	1.1261
926646	AC1-145 E	6.4053	50/50	6.4053
927261	AC1-222 C	1.9259	Adder	2.27
927262	AC1-222 E	1.8334	Adder	2.16
933941	AD1-017 C	0.5096	Adder	0.6
933942	AD1-017 E	0.8314	Adder	0.98
934311	AD1-055 C	1.3372	Adder	1.57
934312	AD1-055 E	0.3448	Adder	0.41
938451	AE1-064 C	4.7778	Adder	5.62
938452	AE1-064 E	2.4705	Adder	2.91
939941	AE1-230 C	2.7049	50/50	2.7049
939942	AE1-230 E	4.8087	50/50	4.8087
941801	AE2-185 C	13.5245	50/50	13.5245
941802	AE2-185 E	9.0163	50/50	9.0163
941821	AE2-187 C	13.5245	50/50	13.5245
941822	AE2-187 E	6.0109	50/50	6.0109
942671	AE2-283 C	14.8769	50/50	14.8769
942672	AE2-283 E	7.8141	50/50	7.8141
942751	AE2-291 C	15.1898	50/50	15.1898
942752	AE2-291 E	10.1266	50/50	10.1266
942761	AE2-292 C O1	18.9128	50/50	18.9128
942762	AE2-292 E O1	12.6086	50/50	12.6086
943901	AF1-058 C	0.7117	Adder	0.84
943902	AF1-058 E	0.4744	Adder	0.56

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
945081	AF1-173	5.2407	50/50	5.2407
960061	AF2-297 C	2.8466	Adder	3.35
960062	AF2-297 E	1.8977	Adder	2.23
961121	AF2-403	3.0054	50/50	3.0054
962441	AG1-093 C O1	2.5908	Adder	5.75
962442	AG1-093 E O1	0.7885	Adder	1.75
963601	AG1-209 C	1.0519	50/50	1.0519
963602	AG1-209 E	1.5779	50/50	1.5779
964141	AG1-275 C	4.5082	50/50	4.5082
964142	AG1-275 E	3.0054	50/50	3.0054
964151	AG1-276 C	4.5082	50/50	4.5082
964152	AG1-276 E	3.0054	50/50	3.0054
964251	AG1-286 C	3.3401	50/50	3.3401
964252	AG1-286 E	2.2268	50/50	2.2268
964261	AG1-287 C	0.2829	Adder	0.63
964262	AG1-287 E	0.1886	Adder	0.42
964471	AG1-310 C	1.4850	50/50	1.4850
964472	AG1-310 E	0.7314	50/50	0.7314
964533	AG1-316 BAT	1.6207	Merchant Transmission	1.6207
966253	AG1-494 BAT	2.5943	Merchant Transmission	2.5943
966691	AG1-539 C	7.9424	50/50	7.9424
966692	AG1-539 E	10.6726	50/50	10.6726
966761	AG1-547 C	12.2246	50/50	12.2246
966762	AG1-547 E	6.5594	50/50	6.5594
CPL	CPL	0.9111	Confirmed LTF	0.9111
NY	NY	0.0210	Confirmed LTF	0.0210
PRAIRIE	PRAIRIE	0.4288	Confirmed LTF	0.4288
O-066	O-066	0.0673	Confirmed LTF	0.0673
CBM-S2	CBM-S2	8.1014	Confirmed LTF	8.1014
COTTONWOOD	COTTONWOOD	0.0105	Confirmed LTF	0.0105
G-007	G-007	0.0084	Confirmed LTF	0.0084
GIBSON	GIBSON	0.1381	Confirmed LTF	0.1381
BLUEG	BLUEG	0.4826	Confirmed LTF	0.4826
TRIMBLE	TRIMBLE	0.1564	Confirmed LTF	0.1564

11.6.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
161956317	242701	05LEESV I	AEP	242802	05SMITHMT N	AEP	1	AEP_P2-2_#10292_05NEWLD N 138_1	bus	255.0	109.45	120.58	DC	28.37

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247284	05LEESVG	5.6315	50/50	5.6315
315156	1HALLBR1	4.2676	50/50	4.2676
316123	AC1-075 C	1.7607	50/50	1.7607
925661	AC1-042 C	9.0567	50/50	9.0567
925662	AC1-042 E	14.7767	50/50	14.7767
925997	AC1-075 E	6.3232	50/50	6.3232
926023	AC1-080 C	0.5884	50/50	0.5884
926024	AC1-080 E	2.0980	50/50	2.0980
926645	AC1-145 C	1.7010	50/50	1.7010
926646	AC1-145 E	9.6752	50/50	9.6752
927261	AC1-222 C	3.1105	50/50	3.1105
927262	AC1-222 E	2.9611	50/50	2.9611
934311	AD1-055 C	2.1597	50/50	2.1597
934312	AD1-055 E	0.5569	50/50	0.5569
939941	AE1-230 C	4.0857	50/50	4.0857
939942	AE1-230 E	7.2635	50/50	7.2635
941801	AE2-185 C	20.4286	50/50	20.4286
941802	AE2-185 E	13.6190	50/50	13.6190
941821	AE2-187 C	20.4286	50/50	20.4286
941822	AE2-187 E	9.0794	50/50	9.0794
942671	AE2-283 C	22.4714	50/50	22.4714
942672	AE2-283 E	11.8032	50/50	11.8032
942751	AE2-291 C	21.9635	50/50	21.9635
942752	AE2-291 E	14.6423	50/50	14.6423
942761	AE2-292 C O1	27.3467	50/50	27.3467
942762	AE2-292 E O1	18.2311	50/50	18.2311
943901	AF1-058 C	0.9408	Adder	1.11
943902	AF1-058 E	0.6272	Adder	0.74
945081	AF1-173	7.9161	50/50	7.9161
960061	AF2-297 C	3.7634	Adder	4.43
960062	AF2-297 E	2.5089	Adder	2.95
961121	AF2-403	4.5397	50/50	4.5397
963601	AG1-209 C	1.5889	50/50	1.5889
963602	AG1-209 E	2.3833	50/50	2.3833
964141	AG1-275 C	6.8095	50/50	6.8095
964142	AG1-275 E	4.5397	50/50	4.5397
964151	AG1-276 C	6.8095	50/50	6.8095
964152	AG1-276 E	4.5397	50/50	4.5397
964251	AG1-286 C	3.4048	50/50	3.4048
964252	AG1-286 E	2.2698	50/50	2.2698
964261	AG1-287 C	0.3740	Adder	0.83

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964262	AG1-287 E	0.2493	Adder	0.55
964471	AG1-310 C	2.0581	50/50	2.0581
964472	AG1-310 E	1.0137	50/50	1.0137
966691	AG1-539 C	11.4842	50/50	11.4842
966692	AG1-539 E	15.4318	50/50	15.4318
966761	AG1-547 C	18.4651	50/50	18.4651
966762	AG1-547 E	9.9079	50/50	9.9079
CPLE	CPLE	0.3999	Confirmed LTF	0.3999
G-007A	G-007A	0.2685	Confirmed LTF	0.2685
VFT	VFT	0.7159	Confirmed LTF	0.7159
CALDERWOOD	CALDERWOOD	0.0830	Confirmed LTF	0.0830
PRAIRIE	PRAIRIE	0.6793	Confirmed LTF	0.6793
CBM-S2	CBM-S2	2.5265	Confirmed LTF	2.5265
CHEOAH	CHEOAH	0.0781	Confirmed LTF	0.0781
CBM-N	CBM-N	0.1284	Confirmed LTF	0.1284
COTTONWOOD	COTTONWOOD	0.3843	Confirmed LTF	0.3843
GIBSON	GIBSON	0.1676	Confirmed LTF	0.1676
BLUEG	BLUEG	0.5625	Confirmed LTF	0.5625
TRIMBLE	TRIMBLE	0.1814	Confirmed LTF	0.1814

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
161956225	242741	05OTTER	AEP	242687	05JOHNMT	AEP	1	AEP_P2-2_#13260_05SKIMMR69.0_1	bus	245.0	158.48	166.15	DC	18.78

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.1693	50/50	1.1693
246844	05SMG2	3.1786	50/50	3.1786
246845	05SMG3	1.9928	50/50	1.9928
246846	05SMG4	3.1292	50/50	3.1292
246847	05SMG5	1.2187	50/50	1.2187
247284	05LEESVG	1.8564	50/50	1.8564
315156	1HALLBR1	2.9223	50/50	2.9223
316118	AC1-105 C	1.8331	Adder	2.16
316123	AC1-075 C	1.2269	50/50	1.2269
925661	AC1-042 C	5.9959	50/50	5.9959
925662	AC1-042 E	9.7827	50/50	9.7827
925997	AC1-075 E	4.4060	50/50	4.4060
926023	AC1-080 C	0.4100	50/50	0.4100
926024	AC1-080 E	1.4619	50/50	1.4619
926051	AC1-083 C O1	2.5478	Adder	3.0
926052	AC1-083 E O1	4.1570	Adder	4.89
926274	AC1-105 E	0.9006	Adder	1.06
926645	AC1-145 C	1.1261	50/50	1.1261
926646	AC1-145 E	6.4053	50/50	6.4053
927261	AC1-222 C	1.9259	Adder	2.27
927262	AC1-222 E	1.8334	Adder	2.16
933941	AD1-017 C	0.5096	Adder	0.6
933942	AD1-017 E	0.8314	Adder	0.98
934311	AD1-055 C	1.3372	Adder	1.57
934312	AD1-055 E	0.3448	Adder	0.41
938451	AE1-064 C	4.7778	Adder	5.62
938452	AE1-064 E	2.4705	Adder	2.91
939941	AE1-230 C	2.7049	50/50	2.7049
939942	AE1-230 E	4.8087	50/50	4.8087
940081	AE1-250 C	4.5831	Adder	5.39
940082	AE1-250 E	3.0554	Adder	3.59
941801	AE2-185 C	13.5245	50/50	13.5245
941802	AE2-185 E	9.0163	50/50	9.0163
941821	AE2-187 C	13.5245	50/50	13.5245
941822	AE2-187 E	6.0109	50/50	6.0109
942671	AE2-283 C	14.8769	50/50	14.8769
942672	AE2-283 E	7.8141	50/50	7.8141
942751	AE2-291 C	15.1898	50/50	15.1898
942752	AE2-291 E	10.1266	50/50	10.1266
942761	AE2-292 C O1	18.9128	50/50	18.9128
942762	AE2-292 E O1	12.6086	50/50	12.6086

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
943901	AF1-058 C	0.7117	Adder	0.84
943902	AF1-058 E	0.4744	Adder	0.56
945081	AF1-173	5.2407	50/50	5.2407
960061	AF2-297 C	2.8466	Adder	3.35
960062	AF2-297 E	1.8977	Adder	2.23
961121	AF2-403	3.0054	50/50	3.0054
962441	AG1-093 C O1	2.5908	Adder	5.75
962442	AG1-093 E O1	0.7885	Adder	1.75
963601	AG1-209 C	1.0519	50/50	1.0519
963602	AG1-209 E	1.5779	50/50	1.5779
964141	AG1-275 C	4.5082	50/50	4.5082
964142	AG1-275 E	3.0054	50/50	3.0054
964151	AG1-276 C	4.5082	50/50	4.5082
964152	AG1-276 E	3.0054	50/50	3.0054
964261	AG1-287 C	0.2829	Adder	0.63
964262	AG1-287 E	0.1886	Adder	0.42
964471	AG1-310 C	1.4850	50/50	1.4850
964472	AG1-310 E	0.7314	50/50	0.7314
964533	AG1-316 BAT	1.6207	Merchant Transmission	1.6207
966253	AG1-494 BAT	2.5943	Merchant Transmission	2.5943
966691	AG1-539 C	7.9424	50/50	7.9424
966692	AG1-539 E	10.6726	50/50	10.6726
966761	AG1-547 C	12.2246	50/50	12.2246
966762	AG1-547 E	6.5594	50/50	6.5594
CPL	CPL	0.9111	Confirmed LTF	0.9111
NY	NY	0.0210	Confirmed LTF	0.0210
PRAIRIE	PRAIRIE	0.4288	Confirmed LTF	0.4288
O-066	O-066	0.0673	Confirmed LTF	0.0673
CBM-S2	CBM-S2	8.1014	Confirmed LTF	8.1014
COTTONWOOD	COTTONWOOD	0.0105	Confirmed LTF	0.0105
G-007	G-007	0.0084	Confirmed LTF	0.0084
GIBSON	GIBSON	0.1381	Confirmed LTF	0.1381
BLUEG	BLUEG	0.4826	Confirmed LTF	0.4826
TRIMBLE	TRIMBLE	0.1564	Confirmed LTF	0.1564

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
163938910	314667	4ALTVSTA	DVP	242741	05OTTER	AEP	1	Base Case	single	167.0	152.33	158.96	DC	11.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.0628	80/20	1.0628
246844	05SMG2	2.8890	80/20	2.8890
246845	05SMG3	1.8113	80/20	1.8113
246846	05SMG4	2.8441	80/20	2.8441
246847	05SMG5	1.1077	80/20	1.1077
247284	05LEESVG	1.6819	80/20	1.6819
315156	1HALLBR1	2.5326	80/20	2.5326
315266	1PLYWOOD A	0.3932	80/20	0.3932
316118	AC1-105 C	1.8744	80/20	1.8744
316123	AC1-075 C	1.0637	80/20	1.0637
925661	AC1-042 C	5.4272	80/20	5.4272
926023	AC1-080 C	0.3555	80/20	0.3555
926051	AC1-083 C O1	2.7208	80/20	2.7208
926645	AC1-145 C	1.0193	80/20	1.0193
927261	AC1-222 C	1.9669	80/20	1.9669
933941	AD1-017 C	0.5442	80/20	0.5442
934311	AD1-055 C	1.3657	80/20	1.3657
938451	AE1-064 C	5.1128	80/20	5.1128
939941	AE1-230 C	2.4484	80/20	2.4484
940081	AE1-250 C	4.8870	80/20	4.8870
941801	AE2-185 C	12.2418	80/20	12.2418
941821	AE2-187 C	12.2418	80/20	12.2418
942671	AE2-283 C	13.4660	80/20	13.4660
942751	AE2-291 C	13.1678	80/20	13.1678
942761	AE2-292 C O1	16.3952	80/20	16.3952
943901	AF1-058 C	0.7274	80/20	0.7274
945081	AF1-173	4.7437	80/20	4.7437
960061	AF2-297 C	2.9098	80/20	2.9098
961121	AF2-403	2.7204	80/20	2.7204
962441	AG1-093 C O1	4.9984	80/20	4.9984
963601	AG1-209 C	0.9521	80/20	0.9521
964141	AG1-275 C	4.0806	80/20	4.0806
964151	AG1-276 C	4.0806	80/20	4.0806
964261	AG1-287 C	0.5456	80/20	0.5456
964471	AG1-310 C	1.2888	80/20	1.2888
966691	AG1-539 C	6.8851	80/20	6.8851
966761	AG1-547 C	11.0652	80/20	11.0652
CPL	CPL	0.8026	Confirmed LTF	0.8026
NY	NY	0.0194	Confirmed LTF	0.0194
PRAIRIE	PRAIRIE	0.3771	Confirmed LTF	0.3771
CBM-S2	CBM-S2	7.1514	Confirmed LTF	7.1514
COTTONWOOD	COTTONWOOD	0.0084	Confirmed LTF	0.0084

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
GIBSON	GIBSON	0.1212	Confirmed LTF	0.1212
BLUEG	BLUEG	0.4236	Confirmed LTF	0.4236
TRIMBLE	TRIMBLE	0.1375	Confirmed LTF	0.1375

11.6.9 Index 9

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
164142195	314667	4ALTVSTA	DVP	314666	3ALTVSTA	DVP	2	AEP_P2-2_#10292_05NEWLDN138_1	bus	146.6	113.22	122.31	DC	13.33

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
247284	05LEESVG	1.3809	50/50	1.3809
925661	AC1-042 C	4.2551	50/50	4.2551
925662	AC1-042 E	6.9425	50/50	6.9425
926051	AC1-083 C O1	2.0730	Adder	2.44
926052	AC1-083 E O1	3.3823	Adder	3.98
926522	AC1-123 E O1	1.2579	Adder	1.48
926645	AC1-145 C	0.7992	50/50	0.7992
926646	AC1-145 E	4.5457	50/50	4.5457
927261	AC1-222 C	-1.6354	Adder	-1.92
933941	AD1-017 C	0.4146	Adder	0.49
933942	AD1-017 E	0.6765	Adder	0.8
934311	AD1-055 C	-1.1355	Adder	-1.34
938451	AE1-064 C	4.3075	Adder	5.07
938452	AE1-064 E	2.2274	Adder	2.62
939941	AE1-230 C	1.9196	50/50	1.9196
939942	AE1-230 E	3.4126	50/50	3.4126
941801	AE2-185 C	9.5980	50/50	9.5980
941802	AE2-185 E	6.3986	50/50	6.3986
941821	AE2-187 C	9.5980	50/50	9.5980
941822	AE2-187 E	4.2658	50/50	4.2658
942671	AE2-283 C	10.5578	50/50	10.5578
942672	AE2-283 E	5.5455	50/50	5.5455
943901	AF1-058 C	-0.5827	Adder	-0.69
945081	AF1-173	3.7192	50/50	3.7192
961121	AF2-403	2.1329	50/50	2.1329
962443	AG1-093 BAT	1.3486	Merchant Transmission	1.3486
963601	AG1-209 C	0.7465	50/50	0.7465
963602	AG1-209 E	1.1198	50/50	1.1198
964141	AG1-275 C	3.1993	50/50	3.1993
964142	AG1-275 E	2.1329	50/50	2.1329
964151	AG1-276 C	3.1993	50/50	3.1993
964152	AG1-276 E	2.1329	50/50	2.1329
964251	AG1-286 C	1.5997	50/50	1.5997
964252	AG1-286 E	1.0664	50/50	1.0664
966693	AG1-539 BAT	16.6215	50/50	16.6215
966761	AG1-547 C	8.6755	50/50	8.6755
966762	AG1-547 E	4.6550	50/50	4.6550
WEC	WEC	0.0501	Confirmed LTF	0.0501
LGEE	LGEE	0.1112	Confirmed LTF	0.1112
CBM-W2	CBM-W2	1.0752	Confirmed LTF	1.0752
NY	NY	0.0371	Confirmed LTF	0.0371

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
TVA	TVA	0.1442	Confirmed LTF	0.1442
O-066	O-066	0.6057	Confirmed LTF	0.6057
SIGE	SIGE	0.0268	Confirmed LTF	0.0268
CBM-S1	CBM-S1	0.0441	Confirmed LTF	0.0441
G-007	G-007	0.0956	Confirmed LTF	0.0956
HAMLET	HAMLET	0.1559	Confirmed LTF	0.1559
MEC	MEC	0.2320	Confirmed LTF	0.2320
LAGN	LAGN	0.1593	Confirmed LTF	0.1593
CATAWBA	CATAWBA	0.0388	Confirmed LTF	0.0388
CBM-W1	CBM-W1	2.1591	Confirmed LTF	2.1591

11.6.10 Index 10

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
169290895	314670	2ALTVSTA	DVP	314667	4ALTVSTA	DVP	1	DVP_P1-2: LN 173-A	single	134.04	122.79	147.06	DC	32.54

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925661	AC1-042 C	15.9584	80/20	15.9584
926645	AC1-145 C	2.9973	80/20	2.9973
939941	AE1-230 C	7.1993	80/20	7.1993
941801	AE2-185 C	35.9964	80/20	35.9964
941821	AE2-187 C	35.9964	80/20	35.9964
942671	AE2-283 C	39.5960	80/20	39.5960
945081	AF1-173	13.9486	80/20	13.9486
961121	AF2-403	7.9992	80/20	7.9992
963601	AG1-209 C	2.7997	80/20	2.7997
964141	AG1-275 C	11.9988	80/20	11.9988
964151	AG1-276 C	11.9988	80/20	11.9988
966761	AG1-547 C	32.5367	80/20	32.5367
CALDERWOOD	CALDERWOOD	0.0050	Confirmed LTF	0.0050
NY	NY	0.0055	Confirmed LTF	0.0055
PRAIRIE	PRAIRIE	0.0258	Confirmed LTF	0.0258
CHEOAH	CHEOAH	0.0050	Confirmed LTF	0.0050
COTTONWOOD	COTTONWOOD	0.0210	Confirmed LTF	0.0210
HAMLET	HAMLET	0.0058	Confirmed LTF	0.0058
GIBSON	GIBSON	0.0055	Confirmed LTF	0.0055
BLUEG	BLUEG	0.0174	Confirmed LTF	0.0174
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0035	Confirmed LTF	0.0035

11.6.11 Index 11

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
164142268	314688	3CRSTL HILL	DVP	927260	AC1-222 TAP	DVP	1	AEP_P2-2_#10292_05NEWLDN138_1	bus	350.0	103.92	108.1	DC	14.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.1989	50/50	1.1989
246844	05SMG2	3.2590	50/50	3.2590
246845	05SMG3	2.0432	50/50	2.0432
246846	05SMG4	3.2083	50/50	3.2083
246847	05SMG5	1.2496	50/50	1.2496
247284	05LEESVG	1.5504	50/50	1.5504
315156	1HALLBR1	2.6935	50/50	2.6935
316123	AC1-075 C	3.7321	50/50	3.7321
925661	AC1-042 C	4.6705	50/50	4.6705
925662	AC1-042 E	7.6203	50/50	7.6203
925997	AC1-075 E	13.4028	50/50	13.4028
926023	AC1-080 C	1.2473	50/50	1.2473
926024	AC1-080 E	4.4470	50/50	4.4470
926051	AC1-083 C O1	2.4135	Adder	2.84
926052	AC1-083 E O1	3.9377	Adder	4.63
926522	AC1-123 E O1	1.8452	Adder	2.17
926645	AC1-145 C	0.8772	50/50	0.8772
926646	AC1-145 E	4.9895	50/50	4.9895
927261	AC1-222 C	-3.5121	Adder	-4.13
933941	AD1-017 C	0.4827	Adder	0.57
933942	AD1-017 E	0.7875	Adder	0.93
934311	AD1-055 C	-2.4385	Adder	-2.87
938451	AE1-064 C	5.2257	Adder	6.15
938452	AE1-064 E	2.7021	Adder	3.18
939941	AE1-230 C	2.1070	50/50	2.1070
939942	AE1-230 E	3.7458	50/50	3.7458
941801	AE2-185 C	10.5350	50/50	10.5350
941802	AE2-185 E	7.0234	50/50	7.0234
941821	AE2-187 C	10.5350	50/50	10.5350
941822	AE2-187 E	4.6822	50/50	4.6822
942671	AE2-283 C	11.5885	50/50	11.5885
942672	AE2-283 E	6.0869	50/50	6.0869
942751	AE2-291 C	32.4378	50/50	32.4378
942752	AE2-291 E	21.6252	50/50	21.6252
942761	AE2-292 C O1	40.3883	50/50	40.3883
942762	AE2-292 E O1	26.9255	50/50	26.9255
943901	AF1-058 C	-1.2633	Adder	-1.49
945081	AF1-173	4.0823	50/50	4.0823
961121	AF2-403	2.3411	50/50	2.3411
962443	AG1-093 BAT	5.5265	50/50	5.5265
963601	AG1-209 C	0.8194	50/50	0.8194

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963602	AG1-209 E	1.2291	50/50	1.2291
964141	AG1-275 C	3.5117	50/50	3.5117
964142	AG1-275 E	2.3411	50/50	2.3411
964151	AG1-276 C	3.5117	50/50	3.5117
964152	AG1-276 E	2.3411	50/50	2.3411
964251	AG1-286 C	1.7558	50/50	1.7558
964252	AG1-286 E	1.1706	50/50	1.1706
964471	AG1-310 C	10.6732	50/50	10.6732
964472	AG1-310 E	5.2570	50/50	5.2570
964793	AG1-342 BAT	0.4630	Merchant Transmission	0.4630
966691	AG1-539 C	16.9610	50/50	16.9610
966692	AG1-539 E	22.7913	50/50	22.7913
966761	AG1-547 C	9.5225	50/50	9.5225
966762	AG1-547 E	5.1095	50/50	5.1095
WEC	WEC	0.0961	Confirmed LTF	0.0961
LGEE	LGEE	0.2193	Confirmed LTF	0.2193
CBM-W2	CBM-W2	1.6397	Confirmed LTF	1.6397
NY	NY	0.0835	Confirmed LTF	0.0835
TVA	TVA	0.1750	Confirmed LTF	0.1750
O-066	O-066	1.3393	Confirmed LTF	1.3393
SIGE	SIGE	0.0541	Confirmed LTF	0.0541
CBM-S1	CBM-S1	0.0627	Confirmed LTF	0.0627
G-007	G-007	0.2121	Confirmed LTF	0.2121
HAMLET	HAMLET	0.5151	Confirmed LTF	0.5151
MEC	MEC	0.4211	Confirmed LTF	0.4211
LAGN	LAGN	0.1715	Confirmed LTF	0.1715
CATAWBA	CATAWBA	0.1711	Confirmed LTF	0.1711
CBM-W1	CBM-W1	4.1499	Confirmed LTF	4.1499

11.6.12 Index 12

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
169290904	314696	3SEEDGE HILL	DVP	314697	6SEEDGE HILL	DVP	1	DVP_P1-3: 6SEEDGE HILL-TX#2	single	226.73	183.78	185.73	DC	4.43

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	0.5805	80/20	0.5805
246844	05SMG2	1.5779	80/20	1.5779
246845	05SMG3	0.9892	80/20	0.9892
246846	05SMG4	1.5534	80/20	1.5534
246847	05SMG5	0.6050	80/20	0.6050
247284	05LEESVG	0.7296	80/20	0.7296
313527	AB2-043 C	0.6460	80/20	0.6460
314429	3JTRSVLE	0.2980	80/20	0.2980
314704	3LAWRENC	0.1696	80/20	0.1696
315156	1HALLBR1	1.3548	80/20	1.3548
315158	1KERR 1	0.3699	80/20	0.3699
315159	1KERR 2	1.0357	80/20	1.0357
315160	1KERR 3	1.0357	80/20	1.0357
315161	1KERR 4	1.0357	80/20	1.0357
315162	1KERR 5	1.0357	80/20	1.0357
315163	1KERR 6	1.0357	80/20	1.0357
315164	1KERR 7	1.0357	80/20	1.0357
315266	1PLYWOOD A	3.6058	80/20	3.6058
316118	AC1-105 C	17.1934	80/20	17.1934
316123	AC1-075 C	2.2966	80/20	2.2966
316129	AC1-054 C	4.6827	80/20	4.6827
316131	AB2-060 C	1.8286	80/20	1.8286
924301	AB2-077 C O1 (Suspended)	2.6800	80/20	2.6800
924311	AB2-078 C O1 (Suspended)	2.6800	80/20	2.6800
924321	AB2-079 C O1 (Suspended)	2.6800	80/20	2.6800
925611	AC1-036 C	0.2218	80/20	0.2218
925661	AC1-042 C	2.1728	80/20	2.1728
926023	AC1-080 C	0.7675	80/20	0.7675
926645	AC1-145 C	0.4081	80/20	0.4081
927261	AC1-222 C	12.1290	80/20	12.1290
934311	AD1-055 C	8.4214	80/20	8.4214
935221	AD1-157 C (Withdrawn : 01/26/2021)	0.1446	80/20	0.1446
936265	AD2-033 C	13.5587	80/20	13.5587
936361	AD2-046 C O1	9.1138	80/20	9.1138
936485	AD2-063 C	17.6553	80/20	17.6553
938371	AE1-056 C	3.9510	80/20	3.9510

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939181	AE1-148 C	9.0914	80/20	9.0914
939941	AE1-230 C	0.9802	80/20	0.9802
940661	AE2-053 O1	3.3672	80/20	3.3672
941801	AE2-185 C	4.9010	80/20	4.9010
941821	AE2-187 C	4.9010	80/20	4.9010
942451	AE2-258	3.0548	80/20	3.0548
942461	AE2-259 C O1	3.4716	80/20	3.4716
942671	AE2-283 C	5.3911	80/20	5.3911
942751	AE2-291 C	19.2878	80/20	19.2878
942761	AE2-292 C O1	24.0152	80/20	24.0152
943901	AF1-058 C	6.8587	80/20	6.8587
943911	AF1-059	14.0170	80/20	14.0170
945081	AF1-173	1.8992	80/20	1.8992
946301	AF1-294 C	3.0108	80/20	3.0108
958211	AF2-115 C	1.7711	80/20	1.7711
958801	AF2-171 C	10.7010	80/20	10.7010
959311	AF2-222 C	15.7000	80/20	15.7000
960061	AF2-297 C	27.4349	80/20	27.4349
961121	AF2-403	1.0891	80/20	1.0891
961791	AG1-021 C	1.4168	80/20	1.4168
961891	AG1-030 C	12.0555	80/20	12.0555
962041	AG1-048 C	8.8552	80/20	8.8552
962441	AG1-093 C O1	45.8491	80/20	45.8491
963171	AG1-166 C	1.4168	80/20	1.4168
963181	AG1-167 C	1.4168	80/20	1.4168
963191	AG1-168 C	1.4168	80/20	1.4168
963201	AG1-169 C	1.4168	80/20	1.4168
963211	AG1-170 C	1.4168	80/20	1.4168
963301	AG1-179 C	3.7689	80/20	3.7689
963311	AG1-180	1.8363	80/20	1.8363
963321	AG1-181 C O1	17.3096	80/20	17.3096
963361	AG1-185 O1	8.3749	80/20	8.3749
963601	AG1-209 C	0.3812	80/20	0.3812
963641	AG1-215 C	0.6612	80/20	0.6612
964111	AG1-272 C	2.5210	80/20	2.5210
964121	AG1-273 C	2.5210	80/20	2.5210
964131	AG1-274 C	2.5210	80/20	2.5210
964141	AG1-275 C	1.6337	80/20	1.6337
964151	AG1-276 C	1.6337	80/20	1.6337
964241	AG1-285 C O1	15.1590	80/20	15.1590
964251	AG1-286 C	0.6223	80/20	0.6223
964261	AG1-287 C	5.1440	80/20	5.1440
964471	AG1-310 C	6.8684	80/20	6.8684
964791	AG1-342 C	10.6934	80/20	10.6934
964821	AG1-345 C	0.5693	80/20	0.5693
965191	AG1-384 C	2.5210	80/20	2.5210
965281	AG1-393 C	1.4168	80/20	1.4168
965451	AG1-413 C O1	5.8922	80/20	5.8922
965591	AG1-427 C	14.2996	80/20	14.2996
965601	AG1-428 C O1	3.1464	80/20	3.1464
965641	AG1-432 C O1	6.9432	80/20	6.9432
965721	AG1-440 C	6.1934	80/20	6.1934

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965731	AG1-441 C	6.1934	80/20	6.1934
965771	AG1-445	3.5784	80/20	3.5784
965781	AG1-446	3.5784	80/20	3.5784
965831	AG1-451	1.1572	80/20	1.1572
966691	AG1-539 C	10.0851	80/20	10.0851
966751	AG1-546 C	9.6117	80/20	9.6117
966761	AG1-547 C	4.4300	80/20	4.4300
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	0.6943	80/20	0.6943
WEC	WEC	0.0164	Confirmed LTF	0.0164
LGEE	LGEE	0.0509	Confirmed LTF	0.0509
CALDERWOOD	CALDERWOOD	0.1387	Confirmed LTF	0.1387
NY	NY	0.0547	Confirmed LTF	0.0547
PRAIRIE	PRAIRIE	0.0827	Confirmed LTF	0.0827
SIGE	SIGE	0.0181	Confirmed LTF	0.0181
CHEOAH	CHEOAH	0.1496	Confirmed LTF	0.1496
COTTONWOOD	COTTONWOOD	0.4284	Confirmed LTF	0.4284
HAMLET	HAMLET	0.6809	Confirmed LTF	0.6809
CATAWBA	CATAWBA	0.3041	Confirmed LTF	0.3041
CBM-W1	CBM-W1	0.7290	Confirmed LTF	0.7290

11.6.13 Index 13

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
169290920	314696	3SEEDGE HILL	DVP	314697	6SEEDGE HILL	DVP	2	DVP_P1-3: 6SEEDGE HILL-TX#1	single	256.06	162.24	163.96	DC	4.42

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	0.5788	80/20	0.5788
246844	05SMG2	1.5733	80/20	1.5733
246845	05SMG3	0.9864	80/20	0.9864
246846	05SMG4	1.5489	80/20	1.5489
246847	05SMG5	0.6032	80/20	0.6032
247284	05LEESVG	0.7274	80/20	0.7274
313527	AB2-043 C	0.6441	80/20	0.6441
314429	3JTRSVLE	0.2972	80/20	0.2972
314704	3LAWRENC	0.1691	80/20	0.1691
315156	1HALLBR1	1.3508	80/20	1.3508
315158	1KERR 1	0.3688	80/20	0.3688
315159	1KERR 2	1.0326	80/20	1.0326
315160	1KERR 3	1.0326	80/20	1.0326
315161	1KERR 4	1.0326	80/20	1.0326
315162	1KERR 5	1.0326	80/20	1.0326
315163	1KERR 6	1.0326	80/20	1.0326
315164	1KERR 7	1.0326	80/20	1.0326
315266	1PLYWOOD A	3.5951	80/20	3.5951
316118	AC1-105 C	17.1420	80/20	17.1420
316123	AC1-075 C	2.2897	80/20	2.2897
316129	AC1-054 C	4.6689	80/20	4.6689
316131	AB2-060 C	1.8231	80/20	1.8231
924301	AB2-077 C O1 (Suspended)	2.6719	80/20	2.6719
924311	AB2-078 C O1 (Suspended)	2.6719	80/20	2.6719
924321	AB2-079 C O1 (Suspended)	2.6719	80/20	2.6719
925611	AC1-036 C	0.2212	80/20	0.2212
925661	AC1-042 C	2.1663	80/20	2.1663
926023	AC1-080 C	0.7652	80/20	0.7652
926645	AC1-145 C	0.4069	80/20	0.4069
927261	AC1-222 C	12.0926	80/20	12.0926
934311	AD1-055 C	8.3962	80/20	8.3962
935221	AD1-157 C (Withdrawn : 01/26/2021)	0.1442	80/20	0.1442
936265	AD2-033 C	13.5182	80/20	13.5182
936361	AD2-046 C O1	9.0864	80/20	9.0864
936485	AD2-063 C	17.6022	80/20	17.6022
938371	AE1-056 C	3.9394	80/20	3.9394

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939181	AE1-148 C	9.0639	80/20	9.0639
939941	AE1-230 C	0.9773	80/20	0.9773
940661	AE2-053 O1	3.3570	80/20	3.3570
941801	AE2-185 C	4.8863	80/20	4.8863
941821	AE2-187 C	4.8863	80/20	4.8863
942451	AE2-258	3.0456	80/20	3.0456
942461	AE2-259 C O1	3.4614	80/20	3.4614
942671	AE2-283 C	5.3749	80/20	5.3749
942751	AE2-291 C	19.2303	80/20	19.2303
942761	AE2-292 C O1	23.9436	80/20	23.9436
943901	AF1-058 C	6.8382	80/20	6.8382
943911	AF1-059	13.9753	80/20	13.9753
945081	AF1-173	1.8934	80/20	1.8934
946301	AF1-294 C	3.0019	80/20	3.0019
958211	AF2-115 C	1.7658	80/20	1.7658
958801	AF2-171 C	10.6686	80/20	10.6686
959311	AF2-222 C	15.6530	80/20	15.6530
960061	AF2-297 C	27.3528	80/20	27.3528
961121	AF2-403	1.0858	80/20	1.0858
961791	AG1-021 C	1.4126	80/20	1.4126
961891	AG1-030 C	12.0195	80/20	12.0195
962041	AG1-048 C	8.8290	80/20	8.8290
962441	AG1-093 C O1	45.7120	80/20	45.7120
963171	AG1-166 C	1.4126	80/20	1.4126
963181	AG1-167 C	1.4126	80/20	1.4126
963191	AG1-168 C	1.4126	80/20	1.4126
963201	AG1-169 C	1.4126	80/20	1.4126
963211	AG1-170 C	1.4126	80/20	1.4126
963301	AG1-179 C	3.7578	80/20	3.7578
963311	AG1-180	1.8309	80/20	1.8309
963321	AG1-181 C O1	17.2581	80/20	17.2581
963361	AG1-185 O1	8.3499	80/20	8.3499
963601	AG1-209 C	0.3800	80/20	0.3800
963641	AG1-215 C	0.6592	80/20	0.6592
964111	AG1-272 C	2.5135	80/20	2.5135
964121	AG1-273 C	2.5135	80/20	2.5135
964131	AG1-274 C	2.5135	80/20	2.5135
964141	AG1-275 C	1.6288	80/20	1.6288
964151	AG1-276 C	1.6288	80/20	1.6288
964241	AG1-285 C O1	15.1132	80/20	15.1132
964251	AG1-286 C	0.6204	80/20	0.6204
964261	AG1-287 C	5.1287	80/20	5.1287
964471	AG1-310 C	6.8479	80/20	6.8479
964791	AG1-342 C	10.6614	80/20	10.6614
964821	AG1-345 C	0.5676	80/20	0.5676
965191	AG1-384 C	2.5135	80/20	2.5135
965281	AG1-393 C	1.4126	80/20	1.4126
965451	AG1-413 C O1	5.8747	80/20	5.8747
965591	AG1-427 C	14.2570	80/20	14.2570
965601	AG1-428 C O1	3.1371	80/20	3.1371
965641	AG1-432 C O1	6.9228	80/20	6.9228
965721	AG1-440 C	6.1749	80/20	6.1749

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965731	AG1-441 C	6.1749	80/20	6.1749
965771	AG1-445	3.5677	80/20	3.5677
965781	AG1-446	3.5677	80/20	3.5677
965831	AG1-451	1.1538	80/20	1.1538
966691	AG1-539 C	10.0550	80/20	10.0550
966751	AG1-546 C	9.5834	80/20	9.5834
966761	AG1-547 C	4.4167	80/20	4.4167
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	0.6923	80/20	0.6923
WEC	WEC	0.0161	Confirmed LTF	0.0161
LGEE	LGEE	0.0503	Confirmed LTF	0.0503
CALDERWOOD	CALDERWOOD	0.1387	Confirmed LTF	0.1387
NY	NY	0.0553	Confirmed LTF	0.0553
PRAIRIE	PRAIRIE	0.0827	Confirmed LTF	0.0827
SIGE	SIGE	0.0180	Confirmed LTF	0.0180
CHEOAH	CHEOAH	0.1496	Confirmed LTF	0.1496
COTTONWOOD	COTTONWOOD	0.4284	Confirmed LTF	0.4284
HAMLET	HAMLET	0.6791	Confirmed LTF	0.6791
CATAWBA	CATAWBA	0.3035	Confirmed LTF	0.3035
CBM-W1	CBM-W1	0.7150	Confirmed LTF	0.7150

11.6.14 Index 14

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
164142263	314714	3PERTH	DVP	964470	AG1-310 TAP	DVP	1	AEP_P2-2_#10292_05NEWLDN138_1	bus	350.0	104.28	108.46	DC	14.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.1989	50/50	1.1989
246844	05SMG2	3.2590	50/50	3.2590
246845	05SMG3	2.0432	50/50	2.0432
246846	05SMG4	3.2083	50/50	3.2083
246847	05SMG5	1.2496	50/50	1.2496
247284	05LEESVG	1.5504	50/50	1.5504
315156	1HALLBR1	2.6935	50/50	2.6935
316123	AC1-075 C	3.7321	50/50	3.7321
925661	AC1-042 C	4.6705	50/50	4.6705
925662	AC1-042 E	7.6203	50/50	7.6203
925997	AC1-075 E	13.4028	50/50	13.4028
926023	AC1-080 C	1.2473	50/50	1.2473
926024	AC1-080 E	4.4470	50/50	4.4470
926051	AC1-083 C O1	2.4135	Adder	2.84
926052	AC1-083 E O1	3.9377	Adder	4.63
926522	AC1-123 E O1	1.8452	Adder	2.17
926645	AC1-145 C	0.8772	50/50	0.8772
926646	AC1-145 E	4.9895	50/50	4.9895
927261	AC1-222 C	-3.5121	Adder	-4.13
933941	AD1-017 C	0.4827	Adder	0.57
933942	AD1-017 E	0.7875	Adder	0.93
934311	AD1-055 C	-2.4385	Adder	-2.87
938451	AE1-064 C	5.2257	Adder	6.15
938452	AE1-064 E	2.7021	Adder	3.18
939941	AE1-230 C	2.1070	50/50	2.1070
939942	AE1-230 E	3.7458	50/50	3.7458
941801	AE2-185 C	10.5350	50/50	10.5350
941802	AE2-185 E	7.0234	50/50	7.0234
941821	AE2-187 C	10.5350	50/50	10.5350
941822	AE2-187 E	4.6822	50/50	4.6822
942671	AE2-283 C	11.5885	50/50	11.5885
942672	AE2-283 E	6.0869	50/50	6.0869
942751	AE2-291 C	32.4378	50/50	32.4378
942752	AE2-291 E	21.6252	50/50	21.6252
942761	AE2-292 C O1	40.3883	50/50	40.3883
942762	AE2-292 E O1	26.9255	50/50	26.9255
943901	AF1-058 C	-1.2633	Adder	-1.49
945081	AF1-173	4.0823	50/50	4.0823
961121	AF2-403	2.3411	50/50	2.3411
962443	AG1-093 BAT	5.5265	50/50	5.5265
963601	AG1-209 C	0.8194	50/50	0.8194

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963602	AG1-209 E	1.2291	50/50	1.2291
964141	AG1-275 C	3.5117	50/50	3.5117
964142	AG1-275 E	2.3411	50/50	2.3411
964151	AG1-276 C	3.5117	50/50	3.5117
964152	AG1-276 E	2.3411	50/50	2.3411
964251	AG1-286 C	1.7558	50/50	1.7558
964252	AG1-286 E	1.1706	50/50	1.1706
964793	AG1-342 BAT	0.4630	Merchant Transmission	0.4630
966691	AG1-539 C	16.9610	50/50	16.9610
966692	AG1-539 E	22.7913	50/50	22.7913
966761	AG1-547 C	9.5225	50/50	9.5225
966762	AG1-547 E	5.1095	50/50	5.1095
WEC	WEC	0.0961	Confirmed LTF	0.0961
LGEE	LGEE	0.2193	Confirmed LTF	0.2193
CBM-W2	CBM-W2	1.6397	Confirmed LTF	1.6397
NY	NY	0.0835	Confirmed LTF	0.0835
TVA	TVA	0.1750	Confirmed LTF	0.1750
O-066	O-066	1.3393	Confirmed LTF	1.3393
SIGE	SIGE	0.0541	Confirmed LTF	0.0541
CBM-S1	CBM-S1	0.0627	Confirmed LTF	0.0627
G-007	G-007	0.2121	Confirmed LTF	0.2121
HAMLET	HAMLET	0.5151	Confirmed LTF	0.5151
MEC	MEC	0.4211	Confirmed LTF	0.4211
LAGN	LAGN	0.1715	Confirmed LTF	0.1715
CATAWBA	CATAWBA	0.1711	Confirmed LTF	0.1711
CBM-W1	CBM-W1	4.1499	Confirmed LTF	4.1499

11.6.15 Index 15

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
169290851	314730	2STONE MIL	DVP	314670	2ALTVSTA	DVP	1	DVP_P1-2: LN 173-A	single	101.52	162.12	194.17	DC	32.54

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925661	AC1-042 C	15.9584	80/20	15.9584
926645	AC1-145 C	2.9973	80/20	2.9973
939941	AE1-230 C	7.1993	80/20	7.1993
941801	AE2-185 C	35.9964	80/20	35.9964
941821	AE2-187 C	35.9964	80/20	35.9964
942671	AE2-283 C	39.5960	80/20	39.5960
945081	AF1-173	13.9486	80/20	13.9486
961121	AF2-403	7.9992	80/20	7.9992
963601	AG1-209 C	2.7997	80/20	2.7997
964141	AG1-275 C	11.9988	80/20	11.9988
964151	AG1-276 C	11.9988	80/20	11.9988
966761	AG1-547 C	32.5367	80/20	32.5367
CALDERWOOD	CALDERWOOD	0.0050	Confirmed LTF	0.0050
NY	NY	0.0055	Confirmed LTF	0.0055
PRAIRIE	PRAIRIE	0.0258	Confirmed LTF	0.0258
CHEOAH	CHEOAH	0.0050	Confirmed LTF	0.0050
COTTONWOOD	COTTONWOOD	0.0210	Confirmed LTF	0.0210
HAMLET	HAMLET	0.0058	Confirmed LTF	0.0058
GIBSON	GIBSON	0.0055	Confirmed LTF	0.0055
BLUEG	BLUEG	0.0174	Confirmed LTF	0.0174
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0035	Confirmed LTF	0.0035

11.6.16 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
163939106	314861	3SKIMMER	DVP	242886	05SKIMMR	AEP	1	DVP_P1-3: 3SKIMMER- 3SKIMMER_CK2	single	53.0	113.29	117.42	DC	2.19

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315156	1HALLBR1	0.7351	80/20	0.7351
316123	AC1-075 C	0.3077	80/20	0.3077
925661	AC1-042 C	1.0730	80/20	1.0730
926023	AC1-080 C	0.1028	80/20	0.1028
926645	AC1-145 C	0.2015	80/20	0.2015
939941	AE1-230 C	0.4841	80/20	0.4841
941801	AE2-185 C	2.4203	80/20	2.4203
941821	AE2-187 C	2.4203	80/20	2.4203
942671	AE2-283 C	2.6623	80/20	2.6623
942751	AE2-291 C	3.8146	80/20	3.8146
942761	AE2-292 C O1	4.7495	80/20	4.7495
945081	AF1-173	0.9379	80/20	0.9379
961121	AF2-403	0.5378	80/20	0.5378
963601	AG1-209 C	0.1882	80/20	0.1882
964141	AG1-275 C	0.8068	80/20	0.8068
964151	AG1-276 C	0.8068	80/20	0.8068
966691	AG1-539 C	1.9946	80/20	1.9946
966761	AG1-547 C	2.1877	80/20	2.1877
CPLE	CPLE	0.2034	Confirmed LTF	0.2034
G-007A	G-007A	0.0048	Confirmed LTF	0.0048
VFT	VFT	0.0064	Confirmed LTF	0.0064
NY	NY	0.0033	Confirmed LTF	0.0033
PRAIRIE	PRAIRIE	0.1007	Confirmed LTF	0.1007
CBM-S2	CBM-S2	1.7957	Confirmed LTF	1.7957
CBM-N	CBM-N	0.0012	Confirmed LTF	0.0012
COTTONWOOD	COTTONWOOD	0.0063	Confirmed LTF	0.0063
GIBSON	GIBSON	0.0322	Confirmed LTF	0.0322
BLUEG	BLUEG	0.1111	Confirmed LTF	0.1111
TRIMBLE	TRIMBLE	0.0362	Confirmed LTF	0.0362

11.6.17 Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
161956341	926520	AC1-123 TAP	AEP	242575	05CAMDLM	AEP	1	AEP_P2-2_#10292_05NEWLDN138_1	bus	255.0	115.92	117.95	DC	5.18

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.9399	50/50	1.9399
246844	05SMG2	5.2732	50/50	5.2732
246845	05SMG3	3.3060	50/50	3.3060
246846	05SMG4	5.1913	50/50	5.1913
246847	05SMG5	2.0219	50/50	2.0219
247284	05LEESVG	1.0979	50/50	1.0979
925661	AC1-042 C	1.6528	50/50	1.6528
925662	AC1-042 E	2.6967	50/50	2.6967
925997	AC1-075 E	1.0121	Adder	1.19
926024	AC1-080 E	0.3358	Adder	0.4
926051	AC1-083 C O1	4.8651	50/50	4.8651
926052	AC1-083 E O1	7.9379	50/50	7.9379
926521	AC1-123 C O1	3.6473	50/50	3.6473
926522	AC1-123 E O1	10.8777	50/50	10.8777
926645	AC1-145 C	0.3104	50/50	0.3104
926646	AC1-145 E	1.7657	50/50	1.7657
933941	AD1-017 C	0.9730	50/50	0.9730
933942	AD1-017 E	1.5876	50/50	1.5876
938451	AE1-064 C	9.5344	50/50	9.5344
938452	AE1-064 E	4.9301	50/50	4.9301
939011	AE1-130 C	3.6885	Adder	4.34
939012	AE1-130 E	1.8476	Adder	2.17
939941	AE1-230 C	0.7456	50/50	0.7456
939942	AE1-230 E	1.3256	50/50	1.3256
940081	AE1-250 C	7.2262	Adder	8.5
940082	AE1-250 E	4.8175	Adder	5.67
941801	AE2-185 C	3.7282	50/50	3.7282
941802	AE2-185 E	2.4854	50/50	2.4854
941821	AE2-187 C	3.7282	50/50	3.7282
941822	AE2-187 E	1.6570	50/50	1.6570
942671	AE2-283 C	4.1010	50/50	4.1010
942672	AE2-283 E	2.1540	50/50	2.1540
942751	AE2-291 C	3.4203	Adder	4.02
942752	AE2-291 E	2.2802	Adder	2.68
942761	AE2-292 C O1	4.2586	Adder	5.01
942762	AE2-292 E O1	2.8391	Adder	3.34
945081	AF1-173	1.4447	50/50	1.4447
961121	AF2-403	0.8285	50/50	0.8285
963601	AG1-209 C	0.2900	50/50	0.2900
963602	AG1-209 E	0.4350	50/50	0.4350
964141	AG1-275 C	1.2427	50/50	1.2427

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964142	AG1-275 E	0.8285	50/50	0.8285
964151	AG1-276 C	1.2427	50/50	1.2427
964152	AG1-276 E	0.8285	50/50	0.8285
964251	AG1-286 C	0.6214	50/50	0.6214
964252	AG1-286 E	0.4142	50/50	0.4142
964533	AG1-316 BAT	9.0988	50/50	9.0988
966253	AG1-494 BAT	2.2424	Merchant Transmission	2.2424
966691	AG1-539 C	0.9479	Adder	2.1
966692	AG1-539 E	1.2737	Adder	2.83
966761	AG1-547 C	3.3698	50/50	3.3698
966762	AG1-547 E	1.8082	50/50	1.8082
CPLE	CPLE	0.6825	Confirmed LTF	0.6825
NY	NY	0.0476	Confirmed LTF	0.0476
PRAIRIE	PRAIRIE	0.1627	Confirmed LTF	0.1627
TVA	TVA	0.0602	Confirmed LTF	0.0602
O-066	O-066	0.5115	Confirmed LTF	0.5115
CBM-S2	CBM-S2	6.4310	Confirmed LTF	6.4310
CBM-S1	CBM-S1	0.0038	Confirmed LTF	0.0038
G-007	G-007	0.0788	Confirmed LTF	0.0788
GIBSON	GIBSON	0.0682	Confirmed LTF	0.0682
BLUEG	BLUEG	0.2448	Confirmed LTF	0.2448
TRIMBLE	TRIMBLE	0.0801	Confirmed LTF	0.0801
LAGN	LAGN	0.0962	Confirmed LTF	0.0962

11.6.18 Index 18

ID	FROM BUS#	FRO M BUS	FRO M BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CK T ID	CONT NAME	Type	Ratin g MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPAC T
167235114	946590	AF1-323 TAP	AEP	242792	05SCOTS V	AEP	1	AEP_P4_#3174_05CLOVR D	break er	167.0	110.93	112.06	DC	4.17

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
242889	05REUSENS	0.0886	50/50	0.0886
925661	AC1-042 C	1.1325	Adder	1.33
925662	AC1-042 E	1.8477	Adder	2.17
926522	AC1-123 E O1	1.9010	Adder	2.24
926646	AC1-145 E	1.2098	Adder	1.42
935241	AD1-161 C	4.2712	50/50	4.2712
935242	AD1-161 E	3.5075	50/50	3.5075
938451	AE1-064 C	2.8963	Adder	3.41
938452	AE1-064 E	1.4976	Adder	1.76
939941	AE1-230 C	0.5109	Adder	0.6
939942	AE1-230 E	0.9083	Adder	1.07
941801	AE2-185 C	2.5545	Adder	3.01
941802	AE2-185 E	1.7030	Adder	2.0
941821	AE2-187 C	2.5545	Adder	3.01
941822	AE2-187 E	1.1353	Adder	1.34
942671	AE2-283 C	2.8099	Adder	3.31
942672	AE2-283 E	1.4759	Adder	1.74
942751	AE2-291 C	2.8039	Adder	3.3
942752	AE2-291 E	1.8693	Adder	2.2
942761	AE2-292 C O1	3.4911	Adder	4.11
942762	AE2-292 E O1	2.3274	Adder	2.74
945081	AF1-173	0.9899	Adder	1.16
946293	AF1-293 BAT	7.1870	Merchant Transmission	7.1870
946591	AF1-323 C	21.2411	50/50	21.2411
946592	AF1-323 E	14.1607	50/50	14.1607
958131	AF2-107 C	10.8586	50/50	10.8586
958132	AF2-107 E	5.9504	50/50	5.9504
960111	AF2-302 C	7.7240	50/50	7.7240
960112	AF2-302 E	5.1494	50/50	5.1494
961121	AF2-403	0.5677	Adder	0.67
961801	AG1-022 C	7.7240	50/50	7.7240
961802	AG1-022 E	5.1494	50/50	5.1494
962741	AG1-123 C O1	9.2117	50/50	9.2117
962742	AG1-123 E O1	6.4190	50/50	6.4190
962751	AG1-124 C O1	11.0708	50/50	11.0708
962752	AG1-124 E O1	7.7252	50/50	7.7252
963601	AG1-209 C	0.1053	Adder	0.23
963602	AG1-209 E	0.1580	Adder	0.35
964141	AG1-275 C	0.4513	Adder	1.0
964142	AG1-275 E	0.3009	Adder	0.67
964151	AG1-276 C	0.4513	Adder	1.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964152	AG1-276 E	0.3009	Adder	0.67
964251	AG1-286 C	0.6222	50/50	0.6222
964252	AG1-286 E	0.4148	50/50	0.4148
964531	AG1-316 C O1	8.2368	50/50	8.2368
964532	AG1-316 E O1	2.0592	50/50	2.0592
965582	AG1-426 BAT	5.7196	50/50	5.7196
966251	AG1-494 C	4.5632	50/50	4.5632
966252	AG1-494 E	6.8448	50/50	6.8448
966691	AG1-539 C	0.7770	Adder	1.72
966692	AG1-539 E	1.0441	Adder	2.32
966761	AG1-547 C	1.2238	Adder	2.72
966762	AG1-547 E	0.6566	Adder	1.46
WEC	WEC	0.1310	Confirmed LTF	0.1310
LGEE	LGEE	0.2821	Confirmed LTF	0.2821
CPL	CPL	0.2382	Confirmed LTF	0.2382
CBM-W2	CBM-W2	4.0947	Confirmed LTF	4.0947
NY	NY	0.1134	Confirmed LTF	0.1134
TVA	TVA	0.6832	Confirmed LTF	0.6832
O-066	O-066	1.7094	Confirmed LTF	1.7094
SIGE	SIGE	0.0733	Confirmed LTF	0.0733
CBM-S2	CBM-S2	4.6145	Confirmed LTF	4.6145
CBM-S1	CBM-S1	0.1828	Confirmed LTF	0.1828
G-007	G-007	0.2699	Confirmed LTF	0.2699
MEC	MEC	0.6849	Confirmed LTF	0.6849
LAGN	LAGN	0.8225	Confirmed LTF	0.8225
CBM-W1	CBM-W1	5.5800	Confirmed LTF	5.5800

11.6.19 Index 19

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
164142239	964470	AG1-310 TAP	DVP	314688	3CRSTL HILL	DVP	1	AEP_P2-2_#10292_05NEWLDN138_1	bus	350.0	108.83	113.01	DC	14.63

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
246843	05SMG1	1.1989	50/50	1.1989
246844	05SMG2	3.2590	50/50	3.2590
246845	05SMG3	2.0432	50/50	2.0432
246846	05SMG4	3.2083	50/50	3.2083
246847	05SMG5	1.2496	50/50	1.2496
247284	05LEESVG	1.5504	50/50	1.5504
315156	1HALLBR1	2.6935	50/50	2.6935
316123	AC1-075 C	3.7321	50/50	3.7321
925661	AC1-042 C	4.6705	50/50	4.6705
925662	AC1-042 E	7.6203	50/50	7.6203
925997	AC1-075 E	13.4028	50/50	13.4028
926023	AC1-080 C	1.2473	50/50	1.2473
926024	AC1-080 E	4.4470	50/50	4.4470
926051	AC1-083 C O1	2.4135	Adder	2.84
926052	AC1-083 E O1	3.9377	Adder	4.63
926522	AC1-123 E O1	1.8452	Adder	2.17
926645	AC1-145 C	0.8772	50/50	0.8772
926646	AC1-145 E	4.9895	50/50	4.9895
927261	AC1-222 C	-3.5121	Adder	-4.13
933941	AD1-017 C	0.4827	Adder	0.57
933942	AD1-017 E	0.7875	Adder	0.93
934311	AD1-055 C	-2.4385	Adder	-2.87
938451	AE1-064 C	5.2257	Adder	6.15
938452	AE1-064 E	2.7021	Adder	3.18
939941	AE1-230 C	2.1070	50/50	2.1070
939942	AE1-230 E	3.7458	50/50	3.7458
941801	AE2-185 C	10.5350	50/50	10.5350
941802	AE2-185 E	7.0234	50/50	7.0234
941821	AE2-187 C	10.5350	50/50	10.5350
941822	AE2-187 E	4.6822	50/50	4.6822
942671	AE2-283 C	11.5885	50/50	11.5885
942672	AE2-283 E	6.0869	50/50	6.0869
942751	AE2-291 C	32.4378	50/50	32.4378
942752	AE2-291 E	21.6252	50/50	21.6252
942761	AE2-292 C O1	40.3883	50/50	40.3883
942762	AE2-292 E O1	26.9255	50/50	26.9255
943901	AF1-058 C	-1.2633	Adder	-1.49
945081	AF1-173	4.0823	50/50	4.0823
961121	AF2-403	2.3411	50/50	2.3411
962443	AG1-093 BAT	5.5265	50/50	5.5265
963601	AG1-209 C	0.8194	50/50	0.8194

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963602	AG1-209 E	1.2291	50/50	1.2291
964141	AG1-275 C	3.5117	50/50	3.5117
964142	AG1-275 E	2.3411	50/50	2.3411
964151	AG1-276 C	3.5117	50/50	3.5117
964152	AG1-276 E	2.3411	50/50	2.3411
964251	AG1-286 C	1.7558	50/50	1.7558
964252	AG1-286 E	1.1706	50/50	1.1706
964471	AG1-310 C	10.6732	50/50	10.6732
964472	AG1-310 E	5.2570	50/50	5.2570
964793	AG1-342 BAT	0.4630	Merchant Transmission	0.4630
966691	AG1-539 C	16.9610	50/50	16.9610
966692	AG1-539 E	22.7913	50/50	22.7913
966761	AG1-547 C	9.5225	50/50	9.5225
966762	AG1-547 E	5.1095	50/50	5.1095
WEC	WEC	0.0961	Confirmed LTF	0.0961
LGEE	LGEE	0.2193	Confirmed LTF	0.2193
CBM-W2	CBM-W2	1.6397	Confirmed LTF	1.6397
NY	NY	0.0835	Confirmed LTF	0.0835
TVA	TVA	0.1750	Confirmed LTF	0.1750
O-066	O-066	1.3393	Confirmed LTF	1.3393
SIGE	SIGE	0.0541	Confirmed LTF	0.0541
CBM-S1	CBM-S1	0.0627	Confirmed LTF	0.0627
G-007	G-007	0.2121	Confirmed LTF	0.2121
HAMLET	HAMLET	0.5151	Confirmed LTF	0.5151
MEC	MEC	0.4211	Confirmed LTF	0.4211
LAGN	LAGN	0.1715	Confirmed LTF	0.1715
CATAWBA	CATAWBA	0.1711	Confirmed LTF	0.1711
CBM-W1	CBM-W1	4.1499	Confirmed LTF	4.1499

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
AB2-043	Chase City 115kV	Under Construction
AB2-060	Chase City-Lunenburg 115kV	In Service
AB2-077	Buggs Island-Chase City 115kV	Suspended
AB2-078	Buggs Island-Chase City 115kV	Suspended
AB2-079	Buggs Island-Chase City 115kV	Suspended
AC1-036	Twittys Creek 34.5kV	Partially in Service - Under Construction
AC1-042	Altavista-Mt. Airy 69kV	Engineering and Procurement
AC1-054	Kerr Dam-Eatons Ferry 115 kV	Engineering and Procurement
AC1-075	Perth-Hickory Grove 115kV	Engineering and Procurement
AC1-080	Perth-Hickory Grove 115kV	Engineering and Procurement
AC1-083	Smith Mountain-Bearskin 138kV	Active
AC1-105	Halifax-Mt. Laurel 115kV	Engineering and Procurement
AC1-123	Smith Mountain-Candler's Mountain 138kV	Under Construction
AC1-145	Gretna DP 69 kV	Engineering and Procurement
AC1-222	Crystal Hill-Halifax 115kV	Engineering and Procurement
AD1-017	Smith Mountain-Bearskin 138 kV	Active
AD1-055	Crystal Hill-Halifax 115 kV	Engineering and Procurement
AD1-157	South Creek 34.5 kV	Withdrawn
AD1-161	Stonewall-Long Mountain 69 kV	Active
AD2-033	Chase City-Lunenburg 115 kV	Active
AD2-046	Boydton DP-Kerr Dam 115 kV	Active
AD2-063	Central-Chase City 115kV	Active
AE1-056	Red House-South Creek 115 kV	Active
AE1-064	Rockcastle 138 kV	Active
AE1-130	Meads Store 138 kV	Active
AE1-148	Kerr Dam-Ridge Rd 115 kV	Active
AE1-230	Shockoe 69 kV	Active
AE1-250	Smith Mountain-E. Danville 138 kV	Active
AE2-053	Kerr Dam-Ridge Road 115 kV	Active
AE2-185	Gladys DP-Stonemill Switching Station 69 kV	Active
AE2-187	Shockoe DP-Chatham 69 kV	Active
AE2-258	Chase City 115 kV	Active
AE2-259	Curdsville-Willis Mtn 115 kV	Active
AE2-283	Gladys-Stone Mill 69 kV	Active
AE2-291	Grit DP-Perth 115 kV	Active
AE2-292	Grit DP-Perth 115 kV	Active
AF1-058	Welco 34.5 kV	Engineering and Procurement
AF1-059	Brodnax-South Hill 115 kV	Active
AF1-173	Gretna DP-Shockoe DP 69 kV	Active

Queue Number	Project Name	Status
AF1-293	Kidds Store-Fort Union 115 kV	Active
AF1-294	Jetersville-Ponton 115 kV	Active
AF1-323	Scottsville-Colleen 138 kV	Active
AF2-107	Clifford 138 kV	Active
AF2-115	Jetersville-Ponton 115 kV	Active
AF2-171	Madisonville 115 kV	Active
AF2-222	Madisonville DP-Twitty's Creek 115 kV	Active
AF2-297	Sedge Hill 115 kV	Active
AF2-302	Scottsville-Colleen 138 kV	Active
AF2-403	Shockoe DP-Chatham 69 kV	Active
AG1-021	Jetersville-Ponton 115 kV	Active
AG1-022	Scottsville-Colleen 138 kV	Active
AG1-030	Victoria DP-Martin DP 115 kV	Active
AG1-048	Jetersville-Ponton 115 kV	Active
AG1-093	Halifax-Chase City 115 kV	Active
AG1-123	Amherst-Riverville 138 kV	Active
AG1-124	Gladstone 138 kV	Active
AG1-166	Lone Pine 115 kV	Active
AG1-167	Lone Pine 115 kV	Active
AG1-168	Lone Pine 115 kV	Active
AG1-169	Lone Pine 115 kV	Active
AG1-170	Lone Pine 115 kV	Active
AG1-179	Brunswick 69 kV	Active
AG1-180	Brunswick 69 kV	Active
AG1-181	Pamplin-Chase City 115 kV	Active
AG1-185	Pamplin-Chase City 115 kV	Active
AG1-209	Gretna 12.5 kV	Active
AG1-215	Fort Pickett 13.2 kV	Active
AG1-272	Twitty's Creek 115 kV	Active
AG1-273	Twitty's Creek 115 kV	Active
AG1-274	Twitty's Creek 115 kV	Active
AG1-275	Gladys DP-Stone Mill 69 kV	Active
AG1-276	Gladys DP-Stone Mill 69 kV	Active
AG1-285	Chase City-Central 115 kV	Active
AG1-286	Johnson Mountain 138 kV	Active
AG1-287	South Boston 12.5 kV	Active
AG1-310	Crystal Hill-Perth 115 kV	Active
AG1-316	Rustburg 138 kV	Active
AG1-342	Dryburg 115 kV	Active
AG1-345	Crewe 12.5 kV	Active
AG1-384	Twitty's Creek 115 kV	Active
AG1-393	Fort Pickett DP 34.5 kV	Active
AG1-413	South Hill-Bordnax 115 kV	Active
AG1-426	Bremo-Scottsville 138 kV	Active
AG1-427	Chase City-Drakes Branch 115 kV	Active
AG1-428	Danieltown 69 kV	Active
AG1-432	Curdsville DP-Willis Mt. 115 kV	Active
AG1-440	Palmer Springs 115 kV	Active
AG1-441	Palmer Springs 115 kV	Active
AG1-445	Palmer Spring 115 kV	Active
AG1-446	Palmer Springs 115 kV	Active
AG1-451	Curdsville DP-Willis Mt. 115 kV	Active

Queue Number	Project Name	Status
AG1-494	Boxwood-Riverville 138 kV	Active
AG1-539	Grit DP-Perth 115 kV	Active
AG1-546	Ebony-Elams Road 115 kV	Active
AG1-547	Mount Airy-Chatham 69 kV	Active
AG1-557	Curdsville DP 115 kV	Withdrawn

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
AEP_P2-1_242549 05BANSTR 138 940080 AE1-250 TAP 138 1-A	CONTINGENCY 'AEP_P2-1_242549 05BANSTR 138 940080 AE1-250 TAP 138 1-A' OPEN BRANCH FROM BUS 242549 TO BUS 940080 CKT 1 END
DVP_P1-2: LN 173-A	CONTINGENCY 'DVP_P1-2: LN 173-A' OPEN BRANCH FROM BUS 314680 TO BUS 941820 CKT 1 /* 2CHATHAM 69.000 - AE2-187 TAP 69.000 OPEN BUS 314680 /* ISLAND: 2CHATHAM 69.000 END
AEP_P4_#3174_05CLOVRD	CONTINGENCY "'AEP_P4_#3174_05CLOVRD' 765_AA2" / 1543 OPEN BRANCH FROM BUS 242512 TO BUS 242515 CKT 1 / 242512 05CLOVRD 765 242515 05JOSHUA 765 1 END
AEP_P2-1_242575 05CAMDLM 138 242737 05OPOSSUMCK 138 1	CONTINGENCY 'AEP_P2-1_242575 05CAMDLM 138 242737 05OPOSSUMCK 138 1' OPEN BRANCH FROM BUS 242575 TO BUS 242737 CKT 1 END
AEP_P2-1_242741 05OTTER 138 314667 4ALTVSTA 138 1	CONTINGENCY 'AEP_P2-1_242741 05OTTER 138 314667 4ALTVSTA 138 1' OPEN BRANCH FROM BUS 242741 TO BUS 314667 CKT 1 END
DVP_P1-2: LN 1016-A	CONTINGENCY 'DVP_P1-2: LN 1016-A' OPEN BRANCH FROM BUS 314688 TO BUS 927260 CKT 1 /* 3CRSTL HILL 115.00 - AC1-222 TAP 115.00 OPEN BUS 314688 /* ISLAND: 3CRSTL HILL 115.00 END
AEP_P2-1_242687 05JOHNMT 138 242734 05NEWLDN 138 1	CONTINGENCY 'AEP_P2-1_242687 05JOHNMT 138 242734 05NEWLDN 138 1' OPEN BRANCH FROM BUS 242687 TO BUS 242734 CKT 1 END
AEP_P2-1_247670 05JOSHUA_XFL 138 247669 05JOSHUA 1EQ 999 1	CONTINGENCY 'AEP_P2-1_247670 05JOSHUA_XFL 138 247669 05JOSHUA 1EQ 999 1' OPEN BRANCH FROM BUS 247670 TO BUS 247669 CKT 1 END

Contingency Name	Contingency Definition
AEP_P2-2_#1372_05JOSHUA 765_1	CONTINGENCY 'AEP_P2-2_#1372_05JOSHUA 765_1' OPEN BRANCH FROM BUS 242515 TO BUS 247669 CKT 1 / 242515 05JOSHUA 765 247669 05JOSHUA 1EQ 999 1 OPEN BRANCH FROM BUS 247669 TO BUS 247670 CKT 1 / 247669 05JOSHUA 1EQ 999 247670 05JOSHUA_XFL 138 1 OPEN BRANCH FROM BUS 242688 TO BUS 247670 CKT 1 / 242688 05JOSHUA 138 247670 05JOSHUA_XFL 138 1 END
AEP_P4_#311_05CLOVRD	CONTINGENCY "'AEP_P4_#311_05CLOVRD' 765_CC2" / 1395 OPEN BRANCH FROM BUS 242512 TO BUS 242514 CKT 1 / 242512 05CLOVRD 765 242514 05J.FERR 765 1 END
AEP_P2-1_242515 05JOSHUA 765 247669 05JOSHUA 1EQ 999 1	CONTINGENCY 'AEP_P2-1_242515 05JOSHUA 765 247669 05JOSHUA 1EQ 999 1' OPEN BRANCH FROM BUS 242515 TO BUS 247669 CKT 1 END
AEP_P1-2_#375_5201	CONTINGENCY 'AEP_P1-2_#375_5201' OPEN BRANCH FROM BUS 242687 TO BUS 242734 CKT 1 / 242687 05JOHNMT 138 242734 05NEWLDN 138 1 OPEN BRANCH FROM BUS 242687 TO BUS 242741 CKT 1 / 242687 05JOHNMT 138 242741 05OTTER 138 1 OPEN BRANCH FROM BUS 242741 TO BUS 314667 CKT 1 / 242741 05OTTER 138 314667 4ALTVSTA 138 1 END
DVP_P1-3: 6SEEDGE HILL-TX#1	CONTINGENCY 'DVP_P1-3: 6SEEDGE HILL-TX#1' OPEN BRANCH FROM BUS 314696 TO BUS 314697 CKT 1 /* 3SEEDGE HILL 115.00 - 6SEEDGE HILL 230.00 END
DVP_P1-3: 6SEEDGE HILL-TX#2	CONTINGENCY 'DVP_P1-3: 6SEEDGE HILL-TX#2' OPEN BRANCH FROM BUS 314696 TO BUS 314697 CKT 2 /* 3SEEDGE HILL 115.00 - 6SEEDGE HILL 230.00 END
AEP_P2-1_242688 05JOSHUA 138 247670 05JOSHUA_XFL 138 1	CONTINGENCY 'AEP_P2-1_242688 05JOSHUA 138 247670 05JOSHUA_XFL 138 1' OPEN BRANCH FROM BUS 242688 TO BUS 247670 CKT 1 END

Contingency Name	Contingency Definition
AEP_P2-2_#13260_05SKIMMR 69.0_1	CONTINGENCY 'AEP_P2-2_#13260_05SKIMMR 69.0_1' OPEN BRANCH FROM BUS 242886 TO BUS 314861 CKT 1 / 242886 05SKIMMR 69.0 314861 3SKIMMR 115 1 OPEN BRANCH FROM BUS 242886 TO BUS 314861 CKT 2 / 242886 05SKIMMR 69.0 314861 3SKIMMR 115 2 OPEN BRANCH FROM BUS 242860 TO BUS 242886 CKT 1 / 242860 05ABERT 69.0 242886 05SKIMMR 69.0 1 OPEN BRANCH FROM BUS 242884 TO BUS 242886 CKT 1 / 242884 05S.LYNCHB 69.0 242886 05SKIMMR 69.0 1 REMOVE SWSHUNT FROM BUS 242886 / 242886 05SKIMMR 69.0 END
AEP_P2-2_#10292_05NEWLDN 138_1	CONTINGENCY 'AEP_P2-2_#10292_05NEWLDN 138_1' OPEN BRANCH FROM BUS 242569 TO BUS 242734 CKT 1 / 242569 05BRUSHT 138 242734 05NEWLDN 138 1 OPEN BRANCH FROM BUS 242641 TO BUS 242734 CKT 1 / 242641 05FOREST 138 242734 05NEWLDN 138 1 OPEN BRANCH FROM BUS 242687 TO BUS 242734 CKT 1 / 242687 05JOHNMT 138 242734 05NEWLDN 138 1 END
DVP_P1-3: 3SKIMMR-3SKIMMR	CONTINGENCY 'DVP_P1-3: 3SKIMMR-3SKIMMR' OPEN BRANCH FROM BUS 242886 TO BUS 314861 CKT 1 /* 05SKIMMR 69.000 - 3SKIMMR 115.00 END
AEP_P2-1_242720 05MONETA 138 242775 05ROCKCAS SS 138 1	CONTINGENCY 'AEP_P2-1_242720 05MONETA 138 242775 05ROCKCAS SS 138 1' OPEN BRANCH FROM BUS 242720 TO BUS 242775 CKT 1 END
AEP_P1-2_#5366_42-A	CONTINGENCY 'AEP_P1-2_#5366_42-A' OPEN BRANCH FROM BUS 242549 TO BUS 940080 CKT 1 / 242549 05BANSTR 138 940080 AE1-250 TAP 138 1 OPEN BRANCH FROM BUS 242549 TO BUS 242632 CKT 1 / 242549 05BANSTR 138 242632 05EDAN 2 138 1 OPEN BRANCH FROM BUS 242549 TO BUS 314668 CKT Z1 / 242549 05BANSTR 138 314668 4BANISTR 138 Z1 END
AEP_P2-1_242569 05BRUSHT 138 242734 05NEWLDN 138 1	CONTINGENCY 'AEP_P2-1_242569 05BRUSHT 138 242734 05NEWLDN 138 1' OPEN BRANCH FROM BUS 242569 TO BUS 242734 CKT 1 END
Base Case	

Contingency Name	Contingency Definition
AEP_P4_#2914_05J.FERR	CONTINGENCY "'AEP_P4_#2914_05J.FERR' 765_B2" / 1487 OPEN BRANCH FROM BUS 242512 TO BUS 242514 CKT 1 / 242512 05CLOVRD 765 242514 05J.FERR 765 1 OPEN BRANCH FROM BUS 242514 TO BUS 245993 CKT 4 / 242514 05J.FERR 765 245993 05J.FERR SVS 20.6 4 REMOVE SWSHUNT FROM BUS 242514 /* 242514 05J.FERR 765 END
AEP_P2-1_242641 05FOREST 138 242734 05NEWLDN 138 1	CONTINGENCY 'AEP_P2-1_242641 05FOREST 138 242734 05NEWLDN 138 1' OPEN BRANCH FROM BUS 242641 TO BUS 242734 CKT 1 END
AEP_P1-2_#3174_6	CONTINGENCY 'AEP_P1-2_#3174_6' OPEN BRANCH FROM BUS 242512 TO BUS 242515 CKT 1 / 242512 05CLOVRD 765 242515 05JOSHUA 765 1 END
AEP_P1-3_#1372_05JOSHUA 765_1	CONTINGENCY 'AEP_P1-3_#1372_05JOSHUA 765_1' OPEN BRANCH FROM BUS 242515 TO BUS 247669 CKT 1 / 242515 05JOSHUA 765 247669 05JOSHUA 1EQ 999 1 OPEN BRANCH FROM BUS 247669 TO BUS 247670 CKT 1 / 247669 05JOSHUA 1EQ 999 247670 05JOSHUA_XFL 138 1 OPEN BRANCH FROM BUS 242688 TO BUS 247670 CKT 1 / 242688 05JOSHUA 138 247670 05JOSHUA_XFL 138 1 END
AEP_P7-1_#10778	CONTINGENCY 'AEP_P7-1_#10778' OPEN BRANCH FROM BUS 242531 TO BUS 304094 CKT 1 / 242531 05EDANV2 230 304094 6YANCY TAP 230 1 OPEN BRANCH FROM BUS 242531 TO BUS 242632 CKT 4 / 242531 05EDANV2 230 242632 05EDAN 2 138 4 OPEN BRANCH FROM BUS 242549 TO BUS 242632 CKT 1 / 242549 05BANSTR 138 242632 05EDAN 2 138 1 OPEN BRANCH FROM BUS 242629 TO BUS 242632 CKT 1 / 242629 05E.MONU 138 242632 05EDAN 2 138 1 OPEN BRANCH FROM BUS 242629 TO BUS 242770 CKT 1 / 242629 05E.MONU 138 242770 05RIGIS 138 1 OPEN BRANCH FROM BUS 242631 TO BUS 242632 CKT Z1 / 242631 05EDAN 1 138 242632 05EDAN 2 138 Z1 OPEN BRANCH FROM BUS 242629 TO BUS 243948 CKT 1 / 242629 05E.MONU 138 243948 05BRANTLY 69.0 1 OPEN BRANCH FROM BUS 242770 TO BUS 243988 CKT 1 / 242770 05RIGIS 138 243988 05RIGIS 69.0 1 OPEN BRANCH FROM BUS 243974 TO BUS 243988 CKT 1 / 243974 05GOODYEAR 69.0 243988 05RIGIS 69.0 1 END

Contingency Name	Contingency Definition
AEP_P1-2_#5419_105	CONTINGENCY 'AEP_P1-2_#5419_105' OPEN BRANCH FROM BUS 242607 TO BUS 243892 CKT 1 / 242607 05CLOVRD 138 243892 05MEADS8 138 1 OPEN BRANCH FROM BUS 242720 TO BUS 243892 CKT 1 / 242720 05MONETA 138 243892 05MEADS8 138 1 OPEN BRANCH FROM BUS 242720 TO BUS 242775 CKT 1 / 242720 05MONETA 138 242775 05ROCKCAS SS 138 1 OPEN BRANCH FROM BUS 242775 TO BUS 242802 CKT 1 / 242775 05ROCKCAS SS 138 242802 05SMITHMTN 138 1 OPEN BRANCH FROM BUS 242775 TO BUS 245675 CKT Z1 / 242775 05ROCKCAS SS 138 245675 05WHITEHOUS8 138 Z1 OPEN BRANCH FROM BUS 243892 TO BUS 243893 CKT Z1 / 243892 05MEADS8 138 243893 05MEADS 8 24.9 Z1 REMOVE LOAD C1 FROM BUS 242775 / 242775 05ROCKCAS SS 138 C1 END
DVP_P1-3: 3SKIMMER-3SKIMMER_CK2	CONTINGENCY 'DVP_P1-3: 3SKIMMER-3SKIMMER_CK2' OPEN BRANCH FROM BUS 242886 TO BUS 314861 CKT 2 /* 05SKIMMR 69.000 - 3SKIMMER 115.00 END
AEP_P2-2_#10163_05EDAN 2 138_2	CONTINGENCY 'AEP_P2-2_#10163_05EDAN 2 138_2' OPEN BRANCH FROM BUS 242531 TO BUS 304094 CKT 1 / 242531 05EDANV2 230 304094 6YANCY TAP 230 1 OPEN BRANCH FROM BUS 242531 TO BUS 242632 CKT 4 / 242531 05EDANV2 230 242632 05EDAN 2 138 4 OPEN BRANCH FROM BUS 242549 TO BUS 242632 CKT 1 / 242549 05BANSTR 138 242632 05EDAN 2 138 1 OPEN BRANCH FROM BUS 242629 TO BUS 242632 CKT 1 / 242629 05E.MONU 138 242632 05EDAN 2 138 1 OPEN BRANCH FROM BUS 242631 TO BUS 242632 CKT Z1 / 242631 05EDAN 1 138 242632 05EDAN 2 138 Z1 END
DVP_P1-3: 4ALTVSTA-TX#4	CONTINGENCY 'DVP_P1-3: 4ALTVSTA-TX#4' OPEN BRANCH FROM BUS 314666 TO BUS 314667 CKT 2 /* 3ALTVSTA 115.00 - 4ALTVSTA 138.00 END
AEP_P7-1_#10830	CONTINGENCY 'AEP_P7-1_#10830' OPEN BRANCH FROM BUS 242555 TO BUS 242843 CKT 1 / 242555 05BLAINE 138 242843 05WLAKE 138 1 OPEN BRANCH FROM BUS 242748 TO BUS 243951 CKT 1 / 242748 05PENHOK 138 243951 05REDWOOD 138 1 OPEN BRANCH FROM BUS 242748 TO BUS 242802 CKT 1 / 242748 05PENHOK 138 242802 05SMITHMTN 138 1 OPEN BRANCH FROM BUS 242843 TO BUS 243951 CKT 1 / 242843 05WLAKE 138 243951 05REDWOOD 138 1 END

Contingency Name	Contingency Definition
AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1	CONTINGENCY 'AEP_P2-1_242607 05CLOVRD 138 243892 05MEADS8 138 1' OPEN BRANCH FROM BUS 242607 TO BUS 243892 CKT 1 END

12 Short Circuit Analysis

The following Breakers are overdutied:

None.

12.1 System Reinforcements - Short Circuit

None.

13 Affected Systems

13.1 TVA

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

13.2 Duke Energy Progress

Duke Energy Progress Impacts to be determined during later study phases (as applicable).

14 Attachment 1: One Line Diagram