



**Generation Interconnection
Feasibility Study Report
for
Queue Project AF2-171
MADISONVILLE 115 KV
90 MW Capacity / 150 MW Energy**

July 2020

Table of Contents

1	Introduction.....	5
2	Preface.....	5
3	General.....	5
4	Point of Interconnection.....	6
5	Cost Summary	6
6	Transmission Owner Scope of Work.....	7
7	Schedule.....	8
8	Transmission Owner Analysis.....	8
8.1	Power Flow Analysis	8
9	Interconnection Customer Requirements.....	8
9.1	System Protection.....	8
9.2	Compliance Issues and Interconnection Customer Requirements	9
9.3	Power Factor Requirements.....	9
10	Revenue Metering and SCADA Requirements	10
10.1	PJM Requirements.....	10
10.1.1	Meteorological Data Reporting Requirements.....	10
10.2	Interconnected Transmission Owner Requirements.....	10
11	Summer Peak - Load Flow Analysis - Primary POI.....	10
11.1	Generation Deliverability	11
11.2	Multiple Facility Contingency	11
11.3	Contribution to Previously Identified Overloads.....	11
11.4	Potential Congestion due to Local Energy Deliverability.....	13
11.5	System Reinforcements - Summer Peak Load Flow - Primary POI.....	15
11.6	Flow Gate Details - Primary POI	18
11.6.1	Index 1	19
11.6.2	Index 2	20
11.6.3	Index 3	23
11.6.4	Index 4	24
11.6.5	Index 5	27
11.6.6	Index 6	30
11.6.7	Index 7	33

11.6.8	Index 8	35
11.6.9	Index 9	38
11.6.10	Index 10	40
11.6.11	Index 11	42
11.6.12	Index 12	45
11.6.13	Index 13	48
11.6.14	Index 14	50
11.6.15	Index 15	52
11.7	Queue Dependencies	54
11.8	Contingency Descriptions - Primary POI.....	56
12	Short Circuit Analysis - Primary POI.....	60
13	Summer Peak - Load Flow Analysis - Secondary POI	60
13.1	Generation Deliverability	61
13.2	Multiple Facility Contingency	61
13.3	Contribution to Previously Identified Overloads.....	61
13.4	Potential Congestion due to Local Energy Deliverability.....	63
13.5	Flow Gate Details - Secondary POI.....	65
13.5.1	Index 1	66
13.5.2	Index 2	67
13.5.3	Index 3	70
13.5.4	Index 4	71
13.5.5	Index 5	74
13.5.6	Index 6	77
13.5.7	Index 7	80
13.5.8	Index 8	82
13.5.9	Index 9	85
13.5.10	Index 10.....	87
13.5.11	Index 11.....	89
13.5.12	Index 12.....	92
13.5.13	Index 13.....	95
13.5.14	Index 14.....	97
13.5.15	Index 15.....	99
13.6	Contingency Descriptions - Secondary POI.....	103

14 Affected Systems 108

 14.1 TVA..... 108

 14.2 Duke Energy Progress..... 108

Attachment 1: One Line Diagram..... 109

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.

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

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

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Prince Edward County, Virginia. The installed facilities will have a total capability of 150 MW with 90 MW of this output being recognized

by PJM as Capacity. The proposed in-service date for this project is March 31, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AF2-171
Project Name	MADISONVILLE 115 KV
State	Virginia
County	Prince Edward
Transmission Owner	Dominion
MFO	150
MWE	150
MWC	90
Fuel	Solar
Basecase Study Year	2023

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

The AF2-171 project will interconnect with the Dominion’s transmission system via the existing Madisonville 115 kV substation. This is the primary Point of Interconnection (POI) chose by the IC with the ITO’s transmission system. The IC is responsible for securing right-of-way, permits and constructing the proposed attachment line from the solar facility site to the existing switching station. Attachment 1 shows a one-line diagram of the proposed interconnection facilities. The IC may not install any facilities on Dominion’s right-of-way without first obtaining the necessary approval from Dominion Energy.

The IC requested that a secondary POI of a single line tap between Pamplin 115 kV substation and Madisonville DP 115 kV substation be reviewed for network impacts. This report does not provide costs for the physical interconnection of the secondary point of interconnection. It was just analyzed for network impacts. Results are shown in the Network Impacts – Secondary Point of Interconnection section of this report.

5 Cost Summary

The AF2-171 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ 8,200,000
Total System Network Upgrade Costs	\$ 533,539,000
Total Costs	\$ 541,739,000

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 88-129. 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.

6 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AF2-171 was evaluated as a 90 MW Capacity (150.0 MW Energy) injection at the Madisonville 115 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2023 AF2 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (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.

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of the AF2-171 generation project to the Dominion Transmission System is detailed in the following sections. The associated one-line with the generation project attachment facilities and primary direct and non-direct connection are 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 phases. 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 is given in the table below:

Description	Total Cost
Attachment Facilities	\$ 1,700,000
Expand the Madisonville 115kV substation	\$ 6,500,000
Total Physical Interconnection Costs	\$ 8,200,000

It is estimated to take 24-30 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. See Attachment One.

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 schedule for the required Network Impact Reinforcements will be more clearly identified in future study phases. The estimate elapsed time to complete each of the required reinforcements is identified in the “System Reinforcements” section of the report.

8 Transmission Owner Analysis

8.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2023 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 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.

10.1.1 Meteorological Data Reporting Requirements

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

- Back Panel temperature (Fahrenheit)
- Irradiance (Watts/meter²)
- Ambient air temperature (Fahrenheit) – (Accepted, not required)
- Wind speed (meters/second) – (Accepted, not required)
- Wind direction (decimal degrees from true north) – (Accepted, not required)

10.2 Interconnected Transmission Owner Requirements

See Section 3.4.6 “Metering and telecommunications” of Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>.

11 Summer Peak - Load Flow Analysis - Primary POI

The Queue Project AF2-171 was evaluated as a 150.0 MW (Capacity 90.0 MW) injection at the Madisonville 115 kV substation in the Dominion area. Project AF2-171 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-171 was studied with a commercial probability of 53%. Potential network impacts were as follows:

11.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
97279600	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P1-2: LN 1012-B	single	205.86000061	78.55	122.27	DC	90.0
96899542	940470	AE2-031 TAP	500.0	DVP	314902	8CARSON	500.0	DVP	1	DVP_P1-2: LN 585-C	single	4070.19995117	99.7	100.07	DC	15.2

11.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
97279361	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P4-2: 15832	breaker	349.0	85.3	128.28	DC	150.0
97279362	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P4-5: FARMVIL L432	breaker	349.0	85.3	128.28	DC	150.0
97279363	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P4-2: 8442	breaker	349.0	61.81	104.79	DC	150.0

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
97986731	313707	6FORK UNION	230.0	DVP	961060	AF2-397 TAP	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	114.27	117.61	DC	22.08
97986732	313707	6FORK UNION	230.0	DVP	961060	AF2-397 TAP	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	114.22	117.56	DC	22.08
97986773	313867	6BREMODIST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	115.11	118.75	DC	24.14
97986774	313867	6BREMODIST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	115.04	118.69	DC	24.14
97754521	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P4-2: 511T591	breaker	699.0	122.14	129.76	DC	60.09
97754522	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P4-2: 556T591	breaker	699.0	122.22	129.84	DC	60.09

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
106018056	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P4-2: 511T556-A	breaker	699.0	122.22	129.84	DC	60.09
106328008	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P1-2: LN 556-B	single	571.520019531	122.24	128.54	DC	36.03
106328009	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	314906 8CLOVER 500 314936 AF1-246 TAP 500 1	single	571.520019531	120.07	126.38	DC	36.03
106328264	314686	6CLOVER	230.0	DVP	934610	AD1-087 TAP	230.0	DVP	1	DVP_P1-2: LN 556-B	single	814.979980469	109.28	110.68	DC	11.36
106328265	314686	6CLOVER	230.0	DVP	934610	AD1-087 TAP	230.0	DVP	1	314906 8CLOVER 500 314936 AF1-246 TAP 500 1	single	814.979980469	105.78	107.18	DC	11.36
97754536	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P4-2: 511T591	breaker	684.0	120.74	128.53	DC	60.1
97754538	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P4-2: 556T591	breaker	684.0	120.83	128.62	DC	60.1
106018061	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P4-2: 511T556-A	breaker	684.0	120.83	128.62	DC	60.1
106328019	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P1-2: LN 556-B	single	559.299987793	121.48	127.92	DC	36.04
106328020	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	314906 8CLOVER 500 314936 AF1-246 TAP 500 1	single	559.299987793	119.27	125.71	DC	36.04
106327949	314697	6SEDGE HILL	230.0	DVP	927250	AC1-221 TAP	230.0	DVP	1	DVP_P1-2: LN 556-B	single	674.91998291	126.53	129.23	DC	21.08
106327950	314697	6SEDGE HILL	230.0	DVP	927250	AC1-221 TAP	230.0	DVP	1	314906 8CLOVER 500 314936 AF1-246 TAP 500 1	single	674.91998291	123.31	126.0	DC	21.08
96899328	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P4-2: 15832	breaker	199.0	116.81	130.72	DC	27.67
96899329	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P4-6: CAROLIN T122	breaker	199.0	120.38	129.57	DC	18.29
96899850	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P7-1: LN 22-90-A	tower	199.0	125.88	134.97	DC	18.07
96899851	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P7-1: LN 22-90-B	tower	199.0	115.84	124.93	DC	18.07
97986753	314747	6BREMO	230.0	DVP	313867	6BREMODIST	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	117.48	121.13	DC	24.14

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/D C	MW IMPACT
97986754	314747	6BREMO	230.0	DVP	313867	6BREMODIST	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	117.4	121.05	DC	24.14
97986706	314765	6MTEAGLE	230.0	DVP	314749	6CHARLVL	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	111.13	114.47	DC	22.08
97986707	314765	6MTEAGLE	230.0	DVP	314749	6CHARLVL	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	111.09	114.42	DC	22.08
107268387	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON230 T	230.0	CPL E	1	DVP_P1-2: LN 556-B	single	718.0	129.66	132.02	DC	21.08
107268388	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON230 T	230.0	CPL E	1	314906 8CLOVER 500 314936 AF1-246 TAP 500 1	single	718.0	126.63	128.99	DC	21.08
106328144	934610	AD1-087 TAP	230.0	DVP	314697	6SEDGE HILL	230.0	DVP	1	DVP_P1-2: LN 556-B	single	814.979980469	119.16	120.55	DC	11.36
106328145	934610	AD1-087 TAP	230.0	DVP	314697	6SEDGE HILL	230.0	DVP	1	314906 8CLOVER 500 314936 AF1-246 TAP 500 1	single	814.979980469	115.66	117.05	DC	11.36
97986660	961060	AF2-397 TAP	230.0	DVP	314765	6MTEAGLE	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	114.26	117.59	DC	22.08
97986661	961060	AF2-397 TAP	230.0	DVP	314765	6MTEAGLE	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	114.21	117.55	DC	22.08

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 PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPA CT
97986727	313707	6FORK UNION	230.0	DVP	961060	AF2-397 TAP	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	130.0	135.57	DC	36.8
97986769	313867	6BREMODI ST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	126.66	132.77	DC	40.23
97986974	314310	6JUDES F	230.0	DVP	314322	6MDLTHA N	230.0	DVP	1	DVP_P 1-2: LN 2028-A	operati on	800.880004883	99.54	103.2	DC	29.31
97986938	314333	6POWHAT N	230.0	DVP	314310	6JUDES F	230.0	DVP	1	DVP_P 1-2: LN 2028-A	operati on	800.880004883	103.35	107.01	DC	29.31
106328005	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	571.520019531	146.51	155.82	DC	60.05
106328262	314686	6CLOVER	230.0	DVP	934610	AD1-087 TAP	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	814.979980469	133.1	134.15	DC	18.94
106328016	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	559.299987793	144.72	154.24	DC	60.06
106327947	314697	6SEGE HILL	230.0	DVP	927250	AC1-221 TAP	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	674.91998291	166.05	168.4	DC	35.13
96899563	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P 1-2: LN 1019	operati on	199.0	103.25	110.8	DC	15.01
97279722	314713	3PAMPLIN	115.0	DVP	314726	3WILLIS	115.0	DVP	1	DVP_P 1-2: LN 1012-B	operati on	331.820007324	60.27	105.48	DC	150.0
97279597	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P 1-2: LN 1012-B	operati on	205.86000061	144.61	217.48	DC	150.0
97279601	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	Base Case	operati on	186.119995117	84.17	128.67	DC	82.81
97986749	314747	6BREMO	230.0	DVP	313867	6BREMODI ST	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	129.03	135.14	DC	40.23
97986702	314765	6MTEAGLE	230.0	DVP	314749	6CHARLV L	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	124.9	130.46	DC	36.8
97279882	924160	AB2-060 TAP	115.0	DVP	314267	3CHASCT Y 2	115.0	DVP	1	DVP_P 1-2: LN 1012-B	operati on	269.779998779	97.29	106.29	DC	24.28
107268384	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON2 30 T	230.0	CPL E	1	DVP_P 1-2: LN 556-B	operati on	718.0	170.02	172.23	DC	35.13
97986968	933500	AC2-165 TAP	230.0	DVP	314333	6POWHAT N	230.0	DVP	1	DVP_P 1-2: LN 2028-A	operati on	800.880004883	100.89	104.55	DC	29.33
106328142	934610	AD1-087 TAP	230.0	DVP	314697	6SEGE HILL	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	814.979980469	145.47	146.52	DC	18.94
97279661	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P 1-2: LN 84	operati on	269.779998779	74.13	129.74	DC	150.0
97279663	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	Base Case	operati on	247.220001221	75.78	102.96	DC	67.19
97986656	961060	AF2-397 TAP	230.0	DVP	314765	6MTEAGLE	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	129.06	134.63	DC	36.8

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
97986774,97986773	5	6BREMODIST 230.0 kV - 6FORK UNION 230.0 kV Ckt 1	<u>DVP</u> dom-202 (1324) : Rebuild 1.63 miles of 230 kV Line 2028 from Fork Union to Bremono Dist with 2-636 ACSR. Project Type : FAC Cost : \$2,445,000 Time Estimate : 30-36 Months	\$2,445,000
106328009,106328008,106018056,97754522,97754521	6	6BUCKING 230.0 kV - 6BREMO 230.0 kV Ckt 1	<u>DVP</u> dom-034 (1123) : Rebuild 15.51 miles of 230 kV Line 298 from Buckingham to Bremono with 2-636 ACSR. Project Type : FAC Cost : \$23,265,000 Time Estimate : 30-36 Months	\$23,265,000
97279600	1	3WILLIS 115.0 kV - 3FARMVIL 115.0 kV Ckt 1	<u>DVP</u> dom-230 (1352) : Reconnector 4.46 miles of 115 kV line 84 from Willis Mountain to Farmville with 768 ACSS. Replace Breaker Switch, Breaker Lead and Line Lead at Farmville 115 kV. Project Type : FAC Cost : \$2,876,000 Time Estimate : 30-36 Months	\$2,876,000
106018061,97754536,106328019,97754538,106328020	8	6FARMVIL 230.0 kV - 6BUCKING 230.0 kV Ckt 1	<u>DVP</u> dom-035 (1124) : Rebuild 12.76 miles of 230 kV Line 298 from Buckingham to Farmville with 2-636 ACSR. Project Type : FAC Cost : \$19,140,000 Time Estimate : 30-36 Months	\$19,140,000
106328144,106328145	14	AD1-087 TAP 230.0 kV - 6SEGE HILL 230.0 kV Ckt 1	<u>DVP</u> dom-081 (1147) : Rebuild 16.71 miles of 230 kV Line 2068 from AD1-087 Tap to Sedge Hill with 2-795 ACSR. Project Type : FAC Cost : \$25,065,000 Time Estimate : 36-40 Months	\$25,065,000
97986706,97986707	12	6MTEAGLE 230.0 kV - 6CHARLVL 230.0 kV Ckt 1	<u>DVP</u> dom-073 (1162) : Rebuild 6.47 miles of 230 kV Line 2028 from Mt Eagle to Charlottesville with 2-636 ACSR. Project Type : FAC Cost : \$16,175,000 Time Estimate : 30-36 Months	\$16,175,000

ID	Idx	Facility	Upgrade Description	Cost
96899850,9689 9851,96899328, 96899329	10	3KERR 115.0 kV - 3GW KING TAP 115.0 kV Ckt 1	<u>CPLE</u> NonPJMArea (944) : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. <u>DVP</u> dom-002 (1091) : For DEV portion, rebuild 4.7 miles of 115 kV Line 45 from Kerr Dam to GW King Tap with 768 ACSS. Project Type : FAC Cost : \$6,123,000 Time Estimate : 30-36 Months	\$6,123,000
97986732,9798 6731	4	6FORK UNION 230.0 kV - AF2- 397 TAP 230.0 kV Ckt 1	dom-198 (1320) : Rebuild 5 miles of 230 kV Line 2028 from Fork Union to AF2-397 Tap with 2-636 ACSR. Project Type : FAC Cost : \$7,500,000 Time Estimate : 30-36 Months	\$7,500,000
106328265,106 328264	7	6CLOVER 230.0 kV - AD1-087 TAP 230.0 kV Ckt 1	<u>DVP</u> No Violation. Dominion Ratings are A: 1046 MVA; B: 1046 MVA; C: 1203 MVA	\$0
107268387,107 268388	13	AC1-221 TAP 230.0 kV - 6PERSON230 T 230.0 kV Ckt 1	<u>CPLE</u> NonPJMArea (939) : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. <u>DVP</u> dom-006 (1072) : For DEV portion, rebuild 2 miles of 230 kV Line 296 from AC1-221 Tap to Persons DEP with 2-636 ACSR. Project Type : FAC Cost : \$3,000,000 Time Estimate : 30-36 Months	\$3,000,000
96899542	2	AE2-031 TAP 500.0 kV - 8CARSON 500.0 kV Ckt 1	<u>DVP</u> dom-183 (1234) : Build new 500 kV Line from Rawlings to Morrisville Substation 110 miles. Project Type : FAC Cost : \$400,000,000 Time Estimate : 60-72 Months	\$400,000,000
106327949,106 327950	9	6SEDGE HILL 230.0 kV - AC1- 221 TAP 230.0 kV Ckt 1	<u>CPLE</u> NonPJMArea (939) : The external (i.e. Non-PJM) Transmission Owner, CPLE, will not evaluate this violation until the impact study phase. <u>DVP</u> No upgrade needed on Dominion system. Need coordination with Duke.	\$0

ID	Idx	Facility	Upgrade Description	Cost
97986661,97986660	15	AF2-397 TAP 230.0 kV - 6MTEAGLE 230.0 kV Ckt 1	<u>DVP</u> dom-245 (1367) : Rebuild 12.1 miles of 230 kV Line 2028 from Mount Eagle to AF2-397 Tap with 2-636 ACSR. Project Type : FAC Cost : \$18,150,000 Time Estimate : 30-36 Months	\$18,150,000
97986754,97986753	11	6BREMO 230.0 kV - 6BREMODIST 230.0 kV Ckt 1	<u>DVP</u> dom-071 (1160) : Rebuild 0.16 miles of Line 2028 from BreMO to BreMO Dist with 2-636 ACSR. Project Type : FAC Cost : \$500,000 Time Estimate : 30-36 Months	\$500,000
97279363,97279362,97279361	3	AD2-063 TAP 115.0 kV - 3CHASCTY 115.0 kV Ckt 1	<u>DVP</u> dom-237 (1359) : Rebuild 6.2 miles of 115 kV Line 1012 from AD2-063 to Chase City to a single circuit 230 kV line with 2-768 ACSR. Will need a CPCN for this project. Project Type : FAC Cost : \$9,300,000 Time Estimate : 36-42 Months	\$9,300,000
			TOTAL COST	\$533,539,000

11.6 Flow Gate Details - Primary POI

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

11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
97279600	314726	3WILLIS	DVP	314691	3FARMVIL	DVP	1	DVP_P1-2: LN 1012-B	single	205.86	78.55	122.27	DC	90.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	5.7000	80/20	5.7000
935221	AD1-157 C	9.0000	80/20	9.0000
936481	AD2-063 C O1	90.0000	80/20	90.0000
938371	AE1-056 C	38.8000	80/20	38.8000
940241	AE2-006	2.9000	80/20	2.9000
942461	AE2-259 C O1	60.0000	80/20	60.0000
958801	AF2-171 C O1	90.0000	80/20	90.0000
959311	AF2-222 C	100.0000	80/20	100.0000

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
96899542	940470	AE2-031 TAP	DVP	314902	8CARSON	DVP	1	DVP_P1-2: LN 585-C	single	4070.2	99.7	100.07	DC	15.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.0933	80/20	0.0933
314429	3JTRSVLE	0.3731	80/20	0.3731
314947	8GREENSVILLE	165.8983	80/20	165.8983
315102	1BRUNSWICKG1	27.5832	80/20	27.5832
315103	1BRUNSWICKG2	27.5832	80/20	27.5832
315104	1BRUNSWICKG3	27.5832	80/20	27.5832
315105	1BRUNSWICKS1	57.3040	80/20	57.3040
315153	1CLOVER1	34.7979	80/20	34.7979
315154	1CLOVER2	34.4511	80/20	34.4511
315158	1KERR 1	0.3886	80/20	0.3886
315159	1KERR 2	1.0879	80/20	1.0879
315160	1KERR 3	1.0879	80/20	1.0879
315161	1KERR 4	1.0879	80/20	1.0879
315162	1KERR 5	1.0879	80/20	1.0879
315163	1KERR 6	1.0879	80/20	1.0879
315164	1KERR 7	1.0879	80/20	1.0879
315266	1PLYWOOD A	2.1042	80/20	2.1042
923831	AB2-022 C	-1.7098	Adder	-2.01
924021	AB2-043 C O1	0.5442	80/20	0.5442
924161	AB2-060 C OP	1.5677	80/20	1.5677
924241	AB2-068 OP	-128.0681	Adder	-150.67
924301	AB2-077 C O1 (Suspended)	2.0339	80/20	2.0339
924311	AB2-078 C O1 (Suspended)	2.0339	80/20	2.0339
924321	AB2-079 C O1 (Suspended)	2.0339	80/20	2.0339
925331	AB2-190 C	-15.2463	Adder	-17.94
925611	AC1-036 C	0.9578	80/20	0.9578
925831	AC1-062	0.0554	80/20	0.0554
925861	AC1-065 C	-2.4191	Adder	-2.85
925991	AC1-075 C	8.3954	80/20	8.3954
926021	AC1-080 C	2.8058	80/20	2.8058
926051	AC1-083 C O1	5.2478	80/20	5.2478
926271	AC1-105 C O1 (Suspended)	9.0580	80/20	9.0580
926661	AC1-147 C	-1.9228	Adder	-2.26
926781	AC1-164 C	-27.3619	Adder	-32.19
927251	AC1-221 C	4.0131	80/20	4.0131
927261	AC1-222 C	6.3188	80/20	6.3188
932761	AC2-100 C	9.2356	80/20	9.2356
932831	AC2-110 C	-0.9676	Adder	-1.14

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933261	AC2-137 C	-1.3882	Adder	-1.63
933731	AC2-196 C	-1.5059	Adder	-1.77
933941	AD1-017 C	1.0496	80/20	1.0496
934311	AD1-055 C	4.3873	80/20	4.3873
934341	AD1-058 C	10.0602	80/20	10.0602
934611	AD1-087 C O1	19.4205	80/20	19.4205
934621	AD1-088 C	19.0767	80/20	19.0767
934991	AD1-131 C	3.2984	80/20	3.2984
935111	AD1-144 C	-1.3609	Adder	-1.6
935171	AD1-152 C O1	19.2998	80/20	19.2998
935221	AD1-157 C	1.5236	80/20	1.5236
936151	AD2-021	-0.1583	Adder	-0.19
936161	AD2-022 C O1	13.3614	80/20	13.3614
936171	AD2-023 C O1	7.7942	80/20	7.7942
936261	AD2-033 C	13.0946	80/20	13.0946
936301	AD2-039 C	-0.9676	Adder	-1.14
936361	AD2-046 C O1	8.3729	80/20	8.3729
936481	AD2-063 C O1	15.0615	80/20	15.0615
937251	AD2-164 (Withdrawn : 06/30/2020)	-3.8227	Adder	-4.5
937481	AD2-202 C O1	5.1466	80/20	5.1466
937541	AD2-215 C	-1.3749	Adder	-1.62
938031	AE1-004 C	-0.9676	Adder	-1.14
938371	AE1-056 C	6.5685	80/20	6.5685
938501	AE1-069 C O1	150.1652	80/20	150.1652
939181	AE1-148 C O1	8.2901	80/20	8.2901
939311	AE1-162 C	-1.7547	Adder	-2.06
940081	AE1-250 C	14.1417	80/20	14.1417
940241	AE2-006	0.4873	80/20	0.4873
940471	AE2-031 C	115.6856	80/20	115.6856
940601	AE2-047 C O1	4.5937	80/20	4.5937
940661	AE2-053 O1	3.0704	80/20	3.0704
941431	AE2-140 C O1	16.8321	80/20	16.8321
941791	AE2-182 C	3.0993	80/20	3.0993
942131	AE2-225 C	-1.6759	Adder	-1.97
942171	AE2-229 C	-1.6759	Adder	-1.97
942451	AE2-258	2.3537	80/20	2.3537
942461	AE2-259 C O1	10.2120	80/20	10.2120
942751	AE2-291 C O1	11.9193	80/20	11.9193
942761	AE2-292 C O1	14.8407	80/20	14.8407
942931	AE2-313 C	125.2596	80/20	125.2596
943811	AF1-049 C O1	11.8350	80/20	11.8350
943901	AF1-058 C	3.5020	80/20	3.5020
945811	AF1-246 C O1	21.5695	80/20	21.5695
946301	AF1-294 C	4.1574	80/20	4.1574
957481	AF2-042 C O1	152.7180	80/20	152.7180
958211	AF2-115 C	2.5350	80/20	2.5350
958801	AF2-171 C O1	15.2046	80/20	15.2046
959311	AF2-222 C	16.8160	80/20	16.8160
959751	AF2-266 O1	22.8465	80/20	22.8465
960061	AF2-297 C O1	14.0078	80/20	14.0078
960811	AF2-372 C	1.2847	80/20	1.2847
960821	AF2-373 C	1.3675	80/20	1.3675

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961081	AF2-399 C	0.3278	80/20	0.3278
WEC	WEC	1.5536	Confirmed LTF	1.5536
LGEE	LGEE	2.9312	Confirmed LTF	2.9312
CPL	CPL	14.6172	Confirmed LTF	14.6172
CBM-W2	CBM-W2	61.6052	Confirmed LTF	61.6052
NY	NY	2.0832	Confirmed LTF	2.0832
CBM-W1	CBM-W1	58.0964	Confirmed LTF	58.0964
TVA	TVA	12.8968	Confirmed LTF	12.8968
CBM-S2	CBM-S2	104.4562	Confirmed LTF	104.4562
CBM-S1	CBM-S1	72.0366	Confirmed LTF	72.0366
MADISON	MADISON	3.5220	Confirmed LTF	3.5220
MEC	MEC	9.3529	Confirmed LTF	9.3529
AA2-074	AA2-074	9.9648	LTF	9.9648

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
97279362	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P4-5: FARMVIL L432	breaker	349.0	85.3	128.28	DC	150.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	5.7000	50/50	5.7000
925612	AC1-036 E	9.3000	50/50	9.3000
935221	AD1-157 C	9.0000	50/50	9.0000
935222	AD1-157 E	6.0000	50/50	6.0000
936481	AD2-063 C O1	90.0000	50/50	90.0000
936482	AD2-063 E O1	59.5000	50/50	59.5000
938371	AE1-056 C	38.8000	50/50	38.8000
938372	AE1-056 E	21.2000	50/50	21.2000
940241	AE2-006	2.9000	50/50	2.9000
942461	AE2-259 C O1	60.0000	50/50	60.0000
942462	AE2-259 E O1	40.0000	50/50	40.0000
958801	AF2-171 C O1	90.0000	50/50	90.0000
958802	AF2-171 E O1	60.0000	50/50	60.0000
959311	AF2-222 C	100.0000	50/50	100.0000
959312	AF2-222 E	67.0000	50/50	67.0000

11.6.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
97986732	313707	6FORK UNION	DVP	961060	AF2-397 TAP	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	114.22	117.56	DC	22.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1363	80/20	0.1363
314429	3JTRSVLE	0.5452	80/20	0.5452
314572	3EMPORIA	0.0219	80/20	0.0219
314677	6BUCKING	1.0694	80/20	1.0694
314704	3LAWRENC	0.1423	80/20	0.1423
315153	1CLOVER1	7.3430	80/20	7.3430
315154	1CLOVER2	7.2698	80/20	7.2698
315158	1KERR 1	0.2422	80/20	0.2422
315159	1KERR 2	0.6782	80/20	0.6782
315160	1KERR 3	0.6782	80/20	0.6782
315161	1KERR 4	0.6782	80/20	0.6782
315162	1KERR 5	0.6782	80/20	0.6782
315163	1KERR 6	0.6782	80/20	0.6782
315164	1KERR 7	0.6782	80/20	0.6782
315191	1BEARGRDN G1	15.0842	80/20	15.0842
315192	1BEARGRDN G2	15.0842	80/20	15.0842
315193	1BEARGRDN S1	31.0443	80/20	31.0443
315266	1PLYWOOD A	0.6953	80/20	0.6953
920291	AA2-127	3.1336	80/20	3.1336
924021	AB2-043 C O1	0.4312	80/20	0.4312
924161	AB2-060 C OP	1.2758	80/20	1.2758
924301	AB2-077 C O1 (Suspended)	1.5499	80/20	1.5499
924311	AB2-078 C O1 (Suspended)	1.5499	80/20	1.5499
924321	AB2-079 C O1 (Suspended)	1.5499	80/20	1.5499
925171	AB2-174 C O1	0.3622	80/20	0.3622
925611	AC1-036 C	1.1045	80/20	1.1045
925781	AC1-054 C O1	3.6512	80/20	3.6512
925831	AC1-062	0.0809	80/20	0.0809
925991	AC1-075 C	2.5684	80/20	2.5684
926021	AC1-080 C	0.8584	80/20	0.8584
926271	AC1-105 C O1 (Suspended)	3.1786	80/20	3.1786
926451	AC1-116 C	-0.9024	Adder	-1.06
927251	AC1-221 C	0.7555	80/20	0.7555
927261	AC1-222 C	1.8244	80/20	1.8244
932511	AC2-071 C	6.1076	80/20	6.1076
932761	AC2-100 C	1.7388	80/20	1.7388

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933501	AC2-165 C	32.1571	80/20	32.1571
934311	AD1-055 C	1.2668	80/20	1.2668
934341	AD1-058 C	1.8940	80/20	1.8940
934611	AD1-087 C O1	4.2050	80/20	4.2050
934621	AD1-088 C	19.9913	80/20	19.9913
934991	AD1-131 C	0.6210	80/20	0.6210
935171	AD1-152 C O1	4.1789	80/20	4.1789
935221	AD1-157 C	2.3854	80/20	2.3854
936261	AD2-033 C	14.2451	80/20	14.2451
936361	AD2-046 C O1	5.4614	80/20	5.4614
936481	AD2-063 C O1	14.0364	80/20	14.0364
937481	AD2-202 C O1	1.1144	80/20	1.1144
938371	AE1-056 C	10.2839	80/20	10.2839
938821	AE1-108 C	35.7983	80/20	35.7983
939181	AE1-148 C O1	5.4713	80/20	5.4713
940241	AE2-006	0.5619	80/20	0.5619
940661	AE2-053 O1	2.0264	80/20	2.0264
941011	AE2-092 C	29.1911	80/20	29.1911
941791	AE2-182 C	3.2479	80/20	3.2479
942451	AE2-258	1.8649	80/20	1.8649
942461	AE2-259 C O1	18.9528	80/20	18.9528
942751	AE2-291 C O1	3.7718	80/20	3.7718
942761	AE2-292 C O1	4.6962	80/20	4.6962
943901	AF1-058 C	0.9984	80/20	0.9984
943911	AF1-059	9.5960	80/20	9.5960
945811	AF1-246 C O1	3.2617	80/20	3.2617
946281	AF1-292 C	0.4551	80/20	0.4551
946291	AF1-293 C O1	47.0478	80/20	47.0478
946301	AF1-294 C	6.0747	80/20	6.0747
946591	AF1-323 C	11.4715	80/20	11.4715
957481	AF2-042 C O1	23.7450	80/20	23.7450
958131	AF2-107 C	6.0592	80/20	6.0592
958211	AF2-115 C	3.7041	80/20	3.7041
958801	AF2-171 C O1	22.0788	80/20	22.0788
959311	AF2-222 C	20.1270	80/20	20.1270
959751	AF2-266 O1	4.8210	80/20	4.8210
960061	AF2-297 C O1	3.9936	80/20	3.9936
960081	AF2-299 C	0.7671	80/20	0.7671
960111	AF2-302 C	4.1714	80/20	4.1714
960811	AF2-372 C	0.9790	80/20	0.9790
960821	AF2-373 C	0.5906	80/20	0.5906
961081	AF2-399 C	0.4779	80/20	0.4779
WEC	WEC	0.1254	Confirmed LTF	0.1254
LGEE	LGEE	0.2482	Confirmed LTF	0.2482
CPL	CPL	2.1704	Confirmed LTF	2.1704
CBM-W2	CBM-W2	6.5766	Confirmed LTF	6.5766
NY	NY	0.4302	Confirmed LTF	0.4302
CBM-W1	CBM-W1	4.4035	Confirmed LTF	4.4035
TVA	TVA	1.4980	Confirmed LTF	1.4980
CBM-S2	CBM-S2	14.4558	Confirmed LTF	14.4558
CBM-S1	CBM-S1	8.1110	Confirmed LTF	8.1110
MADISON	MADISON	0.5443	Confirmed LTF	0.5443

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MEC	MEC	0.8692	Confirmed LTF	0.8692
AA2-074	AA2-074	1.4778	LTF	1.4778

11.6.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
97986774	313867	6BREMODIST	DVP	313707	6FORK UNION	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	115.04	118.69	DC	24.14

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1491	80/20	0.1491
314429	3JTRSVLE	0.5962	80/20	0.5962
314572	3EMPORIA	0.0240	80/20	0.0240
314677	6BUCKING	1.1738	80/20	1.1738
314704	3LAWRENC	0.1552	80/20	0.1552
315153	1CLOVER1	8.0124	80/20	8.0124
315154	1CLOVER2	7.9325	80/20	7.9325
315158	1KERR 1	0.2616	80/20	0.2616
315159	1KERR 2	0.7325	80/20	0.7325
315160	1KERR 3	0.7325	80/20	0.7325
315161	1KERR 4	0.7325	80/20	0.7325
315162	1KERR 5	0.7325	80/20	0.7325
315163	1KERR 6	0.7325	80/20	0.7325
315164	1KERR 7	0.7325	80/20	0.7325
315191	1BEARGRDN G1	16.5646	80/20	16.5646
315192	1BEARGRDN G2	16.5646	80/20	16.5646
315193	1BEARGRDN S1	34.0910	80/20	34.0910
315266	1PLYWOOD A	0.7353	80/20	0.7353
920291	AA2-127	3.4412	80/20	3.4412
923572	AB1-173 C OP	0.7332	80/20	0.7332
923582	AB1-173AC OP	0.7332	80/20	0.7332
923911	AB2-031 C O1	0.7278	80/20	0.7278
923991	AB2-040 C O1	2.3896	80/20	2.3896
924021	AB2-043 C O1	0.4676	80/20	0.4676
924161	AB2-060 C OP	1.3842	80/20	1.3842
924301	AB2-077 C O1 (Suspended)	1.6795	80/20	1.6795
924311	AB2-078 C O1 (Suspended)	1.6795	80/20	1.6795
924321	AB2-079 C O1 (Suspended)	1.6795	80/20	1.6795
925171	AB2-174 C O1	0.3972	80/20	0.3972
925611	AC1-036 C	1.2045	80/20	1.2045
925781	AC1-054 C O1	3.9503	80/20	3.9503
925831	AC1-062	0.0885	80/20	0.0885
925991	AC1-075 C	2.3895	80/20	2.3895
926021	AC1-080 C	0.7986	80/20	0.7986
926271	AC1-105 C O1 (Suspended)	3.3692	80/20	3.3692
926451	AC1-116 C	-0.7531	Adder	-0.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
927251	AC1-221 C	0.7912	80/20	0.7912
927261	AC1-222 C	1.8753	80/20	1.8753
932511	AC2-071 C	6.7040	80/20	6.7040
932761	AC2-100 C	1.8208	80/20	1.8208
933501	AC2-165 C	35.3138	80/20	35.3138
934311	AD1-055 C	1.3021	80/20	1.3021
934341	AD1-058 C	1.9834	80/20	1.9834
934611	AD1-087 C O1	4.5455	80/20	4.5455
934621	AD1-088 C	21.9177	80/20	21.9177
934991	AD1-131 C	0.6503	80/20	0.6503
935171	AD1-152 C O1	4.5173	80/20	4.5173
935221	AD1-157 C	2.6102	80/20	2.6102
936261	AD2-033 C	15.5243	80/20	15.5243
936361	AD2-046 C O1	5.9036	80/20	5.9036
936481	AD2-063 C O1	15.2622	80/20	15.2622
937481	AD2-202 C O1	1.2046	80/20	1.2046
938371	AE1-056 C	11.2528	80/20	11.2528
938821	AE1-108 C	11.6026	80/20	11.6026
939181	AE1-148 C O1	5.9157	80/20	5.9157
940241	AE2-006	0.6128	80/20	0.6128
940661	AE2-053 O1	2.1910	80/20	2.1910
941791	AE2-182 C	3.5609	80/20	3.5609
942451	AE2-258	2.0222	80/20	2.0222
942461	AE2-259 C O1	20.7678	80/20	20.7678
942751	AE2-291 C O1	3.3042	80/20	3.3042
942761	AE2-292 C O1	4.1140	80/20	4.1140
943901	AF1-058 C	1.0482	80/20	1.0482
943911	AF1-059	10.4370	80/20	10.4370
945811	AF1-246 C O1	3.5725	80/20	3.5725
946281	AF1-292 C	0.4998	80/20	0.4998
946291	AF1-293 C O1	6.7728	80/20	6.7728
946301	AF1-294 C	6.6427	80/20	6.6427
946591	AF1-323 C	3.7326	80/20	3.7326
957481	AF2-042 C O1	26.0010	80/20	26.0010
958131	AF2-107 C	2.0323	80/20	2.0323
958211	AF2-115 C	4.0505	80/20	4.0505
958801	AF2-171 C O1	24.1407	80/20	24.1407
959311	AF2-222 C	21.9610	80/20	21.9610
959751	AF2-266 O1	5.2605	80/20	5.2605
960061	AF2-297 C O1	4.1928	80/20	4.1928
960081	AF2-299 C	0.8424	80/20	0.8424
960111	AF2-302 C	1.3573	80/20	1.3573
960811	AF2-372 C	1.0609	80/20	1.0609
960821	AF2-373 C	0.6309	80/20	0.6309
961081	AF2-399 C	0.5225	80/20	0.5225
WEC	WEC	0.0636	Confirmed LTF	0.0636
LGEE	LGEE	0.1278	Confirmed LTF	0.1278
CPL	CPL	2.2326	Confirmed LTF	2.2326
CBM-W2	CBM-W2	5.0614	Confirmed LTF	5.0614
NY	NY	0.4015	Confirmed LTF	0.4015
CBM-W1	CBM-W1	2.0391	Confirmed LTF	2.0391
TVA	TVA	1.2404	Confirmed LTF	1.2404

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-S2	CBM-S2	14.2882	Confirmed LTF	14.2882
CBM-S1	CBM-S1	6.5008	Confirmed LTF	6.5008
MADISON	MADISON	0.5786	Confirmed LTF	0.5786
MEC	MEC	0.5641	Confirmed LTF	0.5641
AA2-074	AA2-074	1.5188	LTF	1.5188

11.6.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
106018056	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 511T556-A	breaker	699.0	122.22	129.84	DC	60.09

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.2225	50/50	0.2225
314429	3JTRSVLE	0.8900	50/50	0.8900
314677	6BUCKING	1.6254	50/50	1.6254
315153	1CLOVER1	22.4660	50/50	22.4660
315154	1CLOVER2	22.2421	50/50	22.2421
924022	AB2-043 E O1	3.2830	Adder	3.86
924032	AB2-045 E	4.3975	50/50	4.3975
924162	AB2-060 E OP	5.0960	Adder	6.0
924301	AB2-077 C O1 (Suspended)	2.2889	Adder	2.69
924302	AB2-077 E O1 (Suspended)	1.5259	Adder	1.8
924311	AB2-078 C O1 (Suspended)	2.2889	Adder	2.69
924312	AB2-078 E O1 (Suspended)	1.5259	Adder	1.8
924321	AB2-079 C O1 (Suspended)	2.2889	Adder	2.69
924322	AB2-079 E O1 (Suspended)	1.5259	Adder	1.8
925611	AC1-036 C	1.8363	50/50	1.8363
925612	AC1-036 E	2.9961	50/50	2.9961
925781	AC1-054 C O1	5.1714	Adder	6.08
925782	AC1-054 E O1	2.3823	Adder	2.8
925831	AC1-062	0.1321	50/50	0.1321
925991	AC1-075 C	4.2224	Adder	4.97
925992	AC1-075 E	2.3923	Adder	2.81
926021	AC1-080 C	1.4111	Adder	1.66
926022	AC1-080 E	0.7938	Adder	0.93
926271	AC1-105 C O1 (Suspended)	5.7567	Adder	6.77
926272	AC1-105 E O1 (Suspended)	2.8657	Adder	3.37
926451	AC1-116 C	-0.3880	Adder	-0.46
927251	AC1-221 C	1.4229	Adder	1.67
927252	AC1-221 E	1.4229	Adder	1.67
927261	AC1-222 C	3.4591	Adder	4.07
927262	AC1-222 E	3.2930	Adder	3.87
932511	AC2-071 C	9.2835	50/50	9.2835
932512	AC2-071 E	4.6767	50/50	4.6767
932761	AC2-100 C	3.2747	Adder	3.85

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932762	AC2-100 E	1.5984	Adder	1.88
934311	AD1-055 C	2.4018	Adder	2.83
934312	AD1-055 E	0.6193	Adder	0.73
934341	AD1-058 C	3.5671	Adder	4.2
934342	AD1-058 E	0.9064	Adder	1.07
934611	AD1-087 C O1	10.2490	Adder	12.06
934612	AD1-087 E O1	4.8168	Adder	5.67
934621	AD1-088 C	35.2759	50/50	35.2759
934622	AD1-088 E	16.6004	50/50	16.6004
934991	AD1-131 C	1.1695	Adder	1.38
934992	AD1-131 E	0.7797	Adder	0.92
935171	AD1-152 C O1	10.1853	Adder	11.98
935172	AD1-152 E O1	6.7902	Adder	7.99
935221	AD1-157 C	3.8759	50/50	3.8759
935222	AD1-157 E	2.5840	50/50	2.5840
936261	AD2-033 C	23.8079	50/50	23.8079
936262	AD2-033 E	15.8720	50/50	15.8720
936361	AD2-046 C O1	7.9875	Adder	9.4
936362	AD2-046 E O1	3.6731	Adder	4.32
936481	AD2-063 C O1	20.2427	Adder	23.81
936482	AD2-063 E O1	13.3827	Adder	15.74
937481	AD2-202 C O1	2.7161	Adder	3.2
937482	AD2-202 E O1	1.5278	Adder	1.8
938371	AE1-056 C	16.7096	50/50	16.7096
938372	AE1-056 E	9.1300	50/50	9.1300
939181	AE1-148 C O1	8.0045	Adder	9.42
939182	AE1-148 E O1	5.3363	Adder	6.28
940241	AE2-006	0.9343	50/50	0.9343
940661	AE2-053 O1	2.9646	Adder	3.49
941791	AE2-182 C	5.7311	50/50	5.7311
941792	AE2-182 E	2.6679	50/50	2.6679
942451	AE2-258	2.7391	Adder	3.22
942461	AE2-259 C O1	30.4818	50/50	30.4818
942462	AE2-259 E O1	20.3212	50/50	20.3212
942751	AE2-291 C O1	5.6712	Adder	6.67
942752	AE2-291 E O1	3.7808	Adder	4.45
942761	AE2-292 C O1	7.0612	Adder	8.31
942762	AE2-292 E O1	4.7075	Adder	5.54
943901	AF1-058 C	1.9498	Adder	2.29
943902	AF1-058 E	1.2999	Adder	1.53
943911	AF1-059	13.3220	Adder	15.67
945811	AF1-246 C O1	10.5311	Adder	12.39
945812	AF1-246 E O1	14.5430	Adder	17.11
946293	AF1-293 BAT	11.0414	Merchant Transmission	11.0414
946301	AF1-294 C	9.9165	50/50	9.9165
946302	AF1-294 E	6.6110	50/50	6.6110
957481	AF2-042 C O1	39.8679	Adder	88.5
957482	AF2-042 E O1	26.5786	Adder	59.0
958211	AF2-115 C	6.0467	50/50	6.0467
958212	AF2-115 E	4.0311	50/50	4.0311
958801	AF2-171 C O1	36.0558	50/50	36.0558
958802	AF2-171 E O1	24.0372	50/50	24.0372

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959311	AF2-222 C	33.3580	50/50	33.3580
959312	AF2-222 E	22.3499	50/50	22.3499
959751	AF2-266 O1	6.6449	Adder	14.75
960061	AF2-297 C O1	4.1336	Adder	9.18
960062	AF2-297 E O1	2.7558	Adder	6.12
960811	AF2-372 C	0.7663	Adder	1.7
960812	AF2-372 E	1.2505	Adder	2.78
960821	AF2-373 C	0.5309	Adder	1.18
960822	AF2-373 E	0.7963	Adder	1.77
961063	AF2-397 BAT	4.0902	Merchant Transmission	4.0902
961081	AF2-399 C	0.7802	50/50	0.7802
961082	AF2-399 E	1.3191	50/50	1.3191
WEC	WEC	0.2974	Confirmed LTF	0.2974
LGEE	LGEE	0.5619	Confirmed LTF	0.5619
CPL	CPL	3.4934	Confirmed LTF	3.4934
CBM-W2	CBM-W2	12.4079	Confirmed LTF	12.4079
NY	NY	0.3932	Confirmed LTF	0.3932
CBM-W1	CBM-W1	11.0588	Confirmed LTF	11.0588
TVA	TVA	2.6432	Confirmed LTF	2.6432
O-066	O-066	5.4835	Confirmed LTF	5.4835
CBM-S2	CBM-S2	23.4437	Confirmed LTF	23.4437
CBM-S1	CBM-S1	14.6544	Confirmed LTF	14.6544
G-007	G-007	0.8549	Confirmed LTF	0.8549
MADISON	MADISON	0.7822	Confirmed LTF	0.7822
MEC	MEC	1.8337	Confirmed LTF	1.8337
AA2-074	AA2-074	2.3805	LTF	2.3805

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
106328264	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 556-B	single	814.98	109.28	110.68	DC	11.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.0707	80/20	0.0707
314333	6POWHATN	0.1384	80/20	0.1384
314429	3JTRSVLE	0.2828	80/20	0.2828
314677	6BUCKING	0.4694	80/20	0.4694
315153	1CLOVER1	51.7091	80/20	51.7091
315154	1CLOVER2	51.1938	80/20	51.1938
315191	1BEARGRDN G1	3.1145	80/20	3.1145
315192	1BEARGRDN G2	3.1145	80/20	3.1145
315193	1BEARGRDN S1	6.4099	80/20	6.4099
920291	AA2-127	0.6470	80/20	0.6470
925611	AC1-036 C	0.3848	80/20	0.3848
925831	AC1-062	0.0420	80/20	0.0420
925991	AC1-075 C	-3.3297	Adder	-3.92
926021	AC1-080 C	-1.1128	Adder	-1.31
926271	AC1-105 C O1 (Suspended)	-3.4045	Adder	-4.01
926451	AC1-116 C	0.2932	80/20	0.2932
927251	AC1-221 C	-1.3047	Adder	-1.53
927261	AC1-222 C	-2.6803	Adder	-3.15
932511	AC2-071 C	2.6809	80/20	2.6809
933501	AC2-165 C	3.8965	80/20	3.8965
934311	AD1-055 C	-1.8610	Adder	-2.19
934341	AD1-058 C	-3.2706	Adder	-3.85
934621	AD1-088 C	29.1619	80/20	29.1619
935221	AD1-157 C	1.3385	80/20	1.3385
936261	AD2-033 C	4.2728	80/20	4.2728
938371	AE1-056 C	5.7703	80/20	5.7703
938561	AE1-075 C	0.7037	80/20	0.7037
938821	AE1-108 C	6.5977	80/20	6.5977
940241	AE2-006	0.1958	80/20	0.1958
941011	AE2-092 C	6.4559	80/20	6.4559
941791	AE2-182 C	4.7378	80/20	4.7378
942461	AE2-259 C O1	12.3990	80/20	12.3990
945811	AF1-246 C O1	28.5180	80/20	28.5180
946291	AF1-293 C O1	9.6964	80/20	9.6964
946301	AF1-294 C	3.1505	80/20	3.1505
946591	AF1-323 C	2.0140	80/20	2.0140
957481	AF2-042 C O1	203.7000	80/20	203.7000
958211	AF2-115 C	1.9211	80/20	1.9211
958501	AF2-144 C	0.5932	80/20	0.5932
958801	AF2-171 C O1	11.3616	80/20	11.3616
959311	AF2-222 C	7.6050	80/20	7.6050

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959531	AF2-244 C	0.5467	80/20	0.5467
959751	AF2-266 O1	33.9495	80/20	33.9495
960111	AF2-302 C	0.7324	80/20	0.7324
961061	AF2-397 C O1	7.4950	80/20	7.4950
961081	AF2-399 C	0.2471	80/20	0.2471
NEWTON	NEWTON	1.4044	Confirmed LTF	1.4044
FARMERCITY	FARMERCITY	0.0797	Confirmed LTF	0.0797
G-007A	G-007A	0.4100	Confirmed LTF	0.4100
VFT	VFT	1.0772	Confirmed LTF	1.0772
CALDERWOOD	CALDERWOOD	1.0760	Confirmed LTF	1.0760
PRAIRIE	PRAIRIE	3.7479	Confirmed LTF	3.7479
CHEOAH	CHEOAH	1.1026	Confirmed LTF	1.1026
EDWARDS	EDWARDS	0.4263	Confirmed LTF	0.4263
TILTON	TILTON	0.7566	Confirmed LTF	0.7566
GIBSON	GIBSON	0.6825	Confirmed LTF	0.6825
BLUEG	BLUEG	2.1162	Confirmed LTF	2.1162
TRIMBLE	TRIMBLE	0.6723	Confirmed LTF	0.6723
CATAWBA	CATAWBA	1.1473	Confirmed LTF	1.1473

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
106018061	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 511T556-A	breaker	684.0	120.83	128.62	DC	60.1

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.2225	50/50	0.2225
314429	3JTRSVLE	0.8902	50/50	0.8902
315153	1CLOVER1	22.4721	50/50	22.4721
315154	1CLOVER2	22.2481	50/50	22.2481
924022	AB2-043 E O1	3.2840	Adder	3.86
924162	AB2-060 E OP	5.0975	Adder	6.0
924301	AB2-077 C O1 (Suspended)	2.2896	Adder	2.69
924302	AB2-077 E O1 (Suspended)	1.5264	Adder	1.8
924311	AB2-078 C O1 (Suspended)	2.2896	Adder	2.69
924312	AB2-078 E O1 (Suspended)	1.5264	Adder	1.8
924321	AB2-079 C O1 (Suspended)	2.2896	Adder	2.69
924322	AB2-079 E O1 (Suspended)	1.5264	Adder	1.8
925611	AC1-036 C	1.8367	50/50	1.8367
925612	AC1-036 E	2.9967	50/50	2.9967
925781	AC1-054 C O1	5.1741	Adder	6.09
925782	AC1-054 E O1	2.3836	Adder	2.8
925831	AC1-062	0.1321	50/50	0.1321
925991	AC1-075 C	4.2247	Adder	4.97
925992	AC1-075 E	2.3936	Adder	2.82
926021	AC1-080 C	1.4119	Adder	1.66
926022	AC1-080 E	0.7942	Adder	0.93
926271	AC1-105 C O1 (Suspended)	5.7587	Adder	6.77
926272	AC1-105 E O1 (Suspended)	2.8667	Adder	3.37
926451	AC1-116 C	-0.3877	Adder	-0.46
927251	AC1-221 C	1.4238	Adder	1.68
927252	AC1-221 E	1.4238	Adder	1.68
927261	AC1-222 C	3.4605	Adder	4.07
927262	AC1-222 E	3.2943	Adder	3.88
932761	AC2-100 C	3.2767	Adder	3.85
932762	AC2-100 E	1.5993	Adder	1.88
934311	AD1-055 C	2.4027	Adder	2.83
934312	AD1-055 E	0.6196	Adder	0.73
934341	AD1-058 C	3.5693	Adder	4.2

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934342	AD1-058 E	0.9069	Adder	1.07
934611	AD1-087 C O1	10.2518	Adder	12.06
934612	AD1-087 E O1	4.8182	Adder	5.67
934621	AD1-088 C	35.2809	50/50	35.2809
934622	AD1-088 E	16.6028	50/50	16.6028
934991	AD1-131 C	1.1702	Adder	1.38
934992	AD1-131 E	0.7802	Adder	0.92
935171	AD1-152 C O1	10.1882	Adder	11.99
935172	AD1-152 E O1	6.7921	Adder	7.99
935221	AD1-157 C	3.8766	50/50	3.8766
935222	AD1-157 E	2.5844	50/50	2.5844
936261	AD2-033 C	23.8134	50/50	23.8134
936262	AD2-033 E	15.8756	50/50	15.8756
936361	AD2-046 C O1	7.9908	Adder	9.4
936362	AD2-046 E O1	3.6746	Adder	4.32
936481	AD2-063 C O1	20.2480	Adder	23.82
936482	AD2-063 E O1	13.3862	Adder	15.75
937481	AD2-202 C O1	2.7168	Adder	3.2
937482	AD2-202 E O1	1.5282	Adder	1.8
938371	AE1-056 C	16.7123	50/50	16.7123
938372	AE1-056 E	9.1315	50/50	9.1315
938561	AE1-075 C	-0.9180	Adder	-1.08
939181	AE1-148 C O1	8.0077	Adder	9.42
939182	AE1-148 E O1	5.3385	Adder	6.28
940241	AE2-006	0.9345	50/50	0.9345
940661	AE2-053 O1	2.9658	Adder	3.49
941791	AE2-182 C	5.7319	50/50	5.7319
941792	AE2-182 E	2.6683	50/50	2.6683
942451	AE2-258	2.7399	Adder	3.22
942461	AE2-259 C O1	30.4860	50/50	30.4860
942462	AE2-259 E O1	20.3240	50/50	20.3240
942751	AE2-291 C O1	5.6749	Adder	6.68
942752	AE2-291 E O1	3.7832	Adder	4.45
942761	AE2-292 C O1	7.0658	Adder	8.31
942762	AE2-292 E O1	4.7105	Adder	5.54
943901	AF1-058 C	1.9505	Adder	2.29
943902	AF1-058 E	1.3004	Adder	1.53
943911	AF1-059	13.3280	Adder	15.68
945811	AF1-246 C O1	10.5336	Adder	12.39
945812	AF1-246 E O1	14.5465	Adder	17.11
946293	AF1-293 BAT	11.0357	Merchant Transmission	11.0357
946301	AF1-294 C	9.9182	50/50	9.9182
946302	AF1-294 E	6.6122	50/50	6.6122
957481	AF2-042 C O1	39.8774	Adder	88.52
957482	AF2-042 E O1	26.5849	Adder	59.01
958211	AF2-115 C	6.0477	50/50	6.0477
958212	AF2-115 E	4.0318	50/50	4.0318
958503	AF2-144 BAT	0.4731	Merchant Transmission	0.4731
958801	AF2-171 C O1	36.0621	50/50	36.0621
958802	AF2-171 E O1	24.0414	50/50	24.0414
959311	AF2-222 C	33.3650	50/50	33.3650
959312	AF2-222 E	22.3545	50/50	22.3545

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959751	AF2-266 O1	6.6467	Adder	14.75
960061	AF2-297 C O1	4.1352	Adder	9.18
960062	AF2-297 E O1	2.7568	Adder	6.12
960811	AF2-372 C	0.7665	Adder	1.7
960812	AF2-372 E	1.2509	Adder	2.78
960821	AF2-373 C	0.5310	Adder	1.18
960822	AF2-373 E	0.7965	Adder	1.77
961063	AF2-397 BAT	4.0883	Merchant Transmission	4.0883
961081	AF2-399 C	0.7803	50/50	0.7803
961082	AF2-399 E	1.3193	50/50	1.3193
WEC	WEC	0.2996	Confirmed LTF	0.2996
LGEE	LGEE	0.5659	Confirmed LTF	0.5659
CPL	CPL	3.4980	Confirmed LTF	3.4980
CBM-W2	CBM-W2	12.4652	Confirmed LTF	12.4652
NY	NY	0.3893	Confirmed LTF	0.3893
CBM-W1	CBM-W1	11.1464	Confirmed LTF	11.1464
TVA	TVA	2.6530	Confirmed LTF	2.6530
O-066	O-066	5.4365	Confirmed LTF	5.4365
CBM-S2	CBM-S2	23.4841	Confirmed LTF	23.4841
CBM-S1	CBM-S1	14.7140	Confirmed LTF	14.7140
G-007	G-007	0.8476	Confirmed LTF	0.8476
MADISON	MADISON	0.7822	Confirmed LTF	0.7822
MEC	MEC	1.8448	Confirmed LTF	1.8448
AA2-074	AA2-074	2.3836	LTF	2.3836

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
106327949	314697	6SEEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556-B	single	674.92	126.53	129.23	DC	21.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1294	80/20	0.1294
314429	3JTRSVLE	0.5174	80/20	0.5174
314677	6BUCKING	0.4258	80/20	0.4258
315153	1CLOVER1	39.4381	80/20	39.4381
315154	1CLOVER2	39.0451	80/20	39.0451
315156	1HALLBR1	1.1309	80/20	1.1309
315158	1KERR 1	0.3659	80/20	0.3659
315159	1KERR 2	1.0244	80/20	1.0244
315160	1KERR 3	1.0244	80/20	1.0244
315161	1KERR 4	1.0244	80/20	1.0244
315162	1KERR 5	1.0244	80/20	1.0244
315163	1KERR 6	1.0244	80/20	1.0244
315164	1KERR 7	1.0244	80/20	1.0244
315192	1BEARGRDN G2	2.8787	80/20	2.8787
315193	1BEARGRDN S1	5.9246	80/20	5.9246
315266	1PLYWOOD A	3.3432	80/20	3.3432
924021	AB2-043 C O1	0.7329	80/20	0.7329
924161	AB2-060 C OP	2.1135	80/20	2.1135
924301	AB2-077 C O1 (Suspended)	2.7328	80/20	2.7328
924311	AB2-078 C O1 (Suspended)	2.7328	80/20	2.7328
924321	AB2-079 C O1 (Suspended)	2.7328	80/20	2.7328
925611	AC1-036 C	1.3105	80/20	1.3105
925661	AC1-042 C	1.3657	Adder	1.61
925781	AC1-054 C O1	5.0298	80/20	5.0298
925831	AC1-062	0.0768	80/20	0.0768
925991	AC1-075 C	11.9864	80/20	11.9864
926021	AC1-080 C	4.0059	80/20	4.0059
926271	AC1-105 C O1 (Suspended)	14.5305	80/20	14.5305
926641	AC1-145 C	1.6258	Adder	1.91
927251	AC1-221 C	-2.4414	Adder	-2.87
927261	AC1-222 C	10.1431	80/20	10.1431
932511	AC2-071 C	2.4320	80/20	2.4320
934311	AD1-055 C	7.0426	80/20	7.0426
934341	AD1-058 C	-6.1203	Adder	-7.2
934611	AD1-087 C O1	27.0094	80/20	27.0094
934621	AD1-088 C	24.0247	80/20	24.0247
935171	AD1-152 C O1	26.8416	80/20	26.8416
935221	AD1-157 C	2.1223	80/20	2.1223

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936261	AD2-033 C	17.8675	80/20	17.8675
936361	AD2-046 C O1	8.4639	80/20	8.4639
936481	AD2-063 C O1	20.4093	80/20	20.4093
937481	AD2-202 C O1	7.1578	80/20	7.1578
938371	AE1-056 C	9.1494	80/20	9.1494
939181	AE1-148 C O1	8.5347	80/20	8.5347
939941	AE1-230 C	0.6161	Adder	0.72
940241	AE2-006	0.6667	80/20	0.6667
940661	AE2-053 O1	3.1610	80/20	3.1610
941791	AE2-182 C	3.9032	80/20	3.9032
941801	AE2-185 C	3.0805	Adder	3.62
941821	AE2-187 C	3.0805	Adder	3.62
942451	AE2-258	3.1698	80/20	3.1698
942461	AE2-259 C O1	14.4012	80/20	14.4012
942671	AE2-283 C	3.3886	Adder	3.99
942751	AE2-291 C O1	15.7260	80/20	15.7260
942761	AE2-292 C O1	19.5804	80/20	19.5804
943901	AF1-058 C	5.7522	80/20	5.7522
943911	AF1-059	14.3780	80/20	14.3780
945081	AF1-173	1.1937	Adder	1.4
945811	AF1-246 C O1	21.7505	80/20	21.7505
946301	AF1-294 C	5.7653	80/20	5.7653
957481	AF2-042 C O1	155.3610	80/20	155.3610
958211	AF2-115 C	3.5154	80/20	3.5154
958801	AF2-171 C O1	21.0762	80/20	21.0762
959311	AF2-222 C	23.0530	80/20	23.0530
959751	AF2-266 O1	25.8930	80/20	25.8930
960061	AF2-297 C O1	23.0088	80/20	23.0088
960811	AF2-372 C	1.7262	80/20	1.7262
960821	AF2-373 C	2.1290	80/20	2.1290
961081	AF2-399 C	0.4546	80/20	0.4546
961121	AF2-403	0.3628	Adder	0.81
NEWTON	NEWTON	1.6150	Confirmed LTF	1.6150
FARMERCITY	FARMERCITY	0.0953	Confirmed LTF	0.0953
G-007A	G-007A	0.4939	Confirmed LTF	0.4939
VFT	VFT	1.3094	Confirmed LTF	1.3094
CALDERWOOD	CALDERWOOD	1.4284	Confirmed LTF	1.4284
PRAIRIE	PRAIRIE	4.4893	Confirmed LTF	4.4893
AC1-131	AC1-131	5.1015	LTF	5.1015
CHEOAH	CHEOAH	1.4720	Confirmed LTF	1.4720
EDWARDS	EDWARDS	0.4816	Confirmed LTF	0.4816
TILTON	TILTON	0.8429	Confirmed LTF	0.8429
GIBSON	GIBSON	0.7671	Confirmed LTF	0.7671
BLUEG	BLUEG	2.3314	Confirmed LTF	2.3314
TRIMBLE	TRIMBLE	0.7379	Confirmed LTF	0.7379
CATAWBA	CATAWBA	1.6961	Confirmed LTF	1.6961

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
96899850	314702	3KERR	DVP	304102	3GW KING TAP	CPL	1	DVP_P7-1: LN 22-90-A	tower	199.0	125.88	134.97	DC	18.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315158	1KERR 1	0.9045	50/50	0.9045
315159	1KERR 2	2.5325	50/50	2.5325
315160	1KERR 3	2.5325	50/50	2.5325
315161	1KERR 4	2.5325	50/50	2.5325
315162	1KERR 5	2.5325	50/50	2.5325
315163	1KERR 6	2.5325	50/50	2.5325
315164	1KERR 7	2.5325	50/50	2.5325
924021	AB2-043 C O1	0.6344	50/50	0.6344
924022	AB2-043 E O1	3.2887	50/50	3.2887
924161	AB2-060 C OP	1.8032	50/50	1.8032
924162	AB2-060 E OP	4.9193	50/50	4.9193
924301	AB2-077 C O1 (Suspended)	2.3771	50/50	2.3771
924302	AB2-077 E O1 (Suspended)	1.5847	50/50	1.5847
924311	AB2-078 C O1 (Suspended)	2.3771	50/50	2.3771
924312	AB2-078 E O1 (Suspended)	1.5847	50/50	1.5847
924321	AB2-079 C O1 (Suspended)	2.3771	50/50	2.3771
924322	AB2-079 E O1 (Suspended)	1.5847	50/50	1.5847
925611	AC1-036 C	0.8793	50/50	0.8793
925612	AC1-036 E	1.4347	50/50	1.4347
925781	AC1-054 C O1	15.5554	50/50	15.5554
925782	AC1-054 E O1	7.1660	50/50	7.1660
926271	AC1-105 C O1 (Suspended)	2.4430	Adder	2.87
926272	AC1-105 E O1 (Suspended)	1.2161	Adder	1.43
935221	AD1-157 C	0.8226	Adder	0.97
935222	AD1-157 E	0.5484	Adder	0.65
936261	AD2-033 C	12.6017	50/50	12.6017
936262	AD2-033 E	8.4011	50/50	8.4011
936361	AD2-046 C O1	17.8275	50/50	17.8275
936362	AD2-046 E O1	8.1981	50/50	8.1981
936481	AD2-063 C O1	16.1154	50/50	16.1154
936482	AD2-063 E O1	10.6541	50/50	10.6541
938371	AE1-056 C	3.5463	Adder	4.17
938372	AE1-056 E	1.9377	Adder	2.28
939181	AE1-148 C O1	17.2082	50/50	17.2082

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939182	AE1-148 E O1	11.4721	50/50	11.4721
940241	AE2-006	0.4474	50/50	0.4474
940661	AE2-053 O1	6.3734	50/50	6.3734
942451	AE2-258	2.7439	50/50	2.7439
942461	AE2-259 C O1	3.7842	Adder	4.45
942462	AE2-259 E O1	2.5228	Adder	2.97
943901	AF1-058 C	0.5680	Adder	0.67
943902	AF1-058 E	0.3787	Adder	0.45
943911	AF1-059	12.3260	50/50	12.3260
946301	AF1-294 C	2.4967	Adder	2.94
946302	AF1-294 E	1.6644	Adder	1.96
958211	AF2-115 C	0.8068	Adder	1.79
958212	AF2-115 E	0.5379	Adder	1.19
958801	AF2-171 C O1	10.8423	50/50	10.8423
958802	AF2-171 E O1	7.2282	50/50	7.2282
959311	AF2-222 C	14.9350	50/50	14.9350
959312	AF2-222 E	10.0065	50/50	10.0065
960061	AF2-297 C O1	1.2042	Adder	2.67
960062	AF2-297 E O1	0.8028	Adder	1.78
960811	AF2-372 C	1.5015	50/50	1.5015
960812	AF2-372 E	2.4504	50/50	2.4504
960821	AF2-373 C	0.2913	Adder	0.65
960822	AF2-373 E	0.4370	Adder	0.97
961081	AF2-399 C	0.2324	50/50	0.2324
961082	AF2-399 E	0.3930	50/50	0.3930
NEWTON	NEWTON	0.4481	Confirmed LTF	0.4481
FARMERCITY	FARMERCITY	0.0260	Confirmed LTF	0.0260
G-007A	G-007A	0.1726	Confirmed LTF	0.1726
VFT	VFT	0.4579	Confirmed LTF	0.4579
CALDERWOOD	CALDERWOOD	0.3713	Confirmed LTF	0.3713
PRAIRIE	PRAIRIE	1.2243	Confirmed LTF	1.2243
CHEOAH	CHEOAH	0.3814	Confirmed LTF	0.3814
EDWARDS	EDWARDS	0.1347	Confirmed LTF	0.1347
TILTON	TILTON	0.2375	Confirmed LTF	0.2375
GIBSON	GIBSON	0.2151	Confirmed LTF	0.2151
BLUEG	BLUEG	0.6597	Confirmed LTF	0.6597
TRIMBLE	TRIMBLE	0.2092	Confirmed LTF	0.2092
CATAWBA	CATAWBA	0.4193	Confirmed LTF	0.4193

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
97986754	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	117.4	121.05	DC	24.14

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1491	80/20	0.1491
314429	3JTRSVLE	0.5962	80/20	0.5962
314572	3EMPORIA	0.0240	80/20	0.0240
314677	6BUCKING	1.1738	80/20	1.1738
314704	3LAWRENC	0.1552	80/20	0.1552
315153	1CLOVER1	8.0124	80/20	8.0124
315154	1CLOVER2	7.9325	80/20	7.9325
315158	1KERR 1	0.2616	80/20	0.2616
315159	1KERR 2	0.7325	80/20	0.7325
315160	1KERR 3	0.7325	80/20	0.7325
315161	1KERR 4	0.7325	80/20	0.7325
315162	1KERR 5	0.7325	80/20	0.7325
315163	1KERR 6	0.7325	80/20	0.7325
315164	1KERR 7	0.7325	80/20	0.7325
315191	1BEARGRDN G1	16.5646	80/20	16.5646
315192	1BEARGRDN G2	16.5646	80/20	16.5646
315193	1BEARGRDN S1	34.0910	80/20	34.0910
315266	1PLYWOOD A	0.7353	80/20	0.7353
920291	AA2-127	3.4412	80/20	3.4412
923572	AB1-173 C OP	0.7332	80/20	0.7332
923582	AB1-173AC OP	0.7332	80/20	0.7332
923911	AB2-031 C O1	0.7278	80/20	0.7278
923991	AB2-040 C O1	2.3896	80/20	2.3896
924021	AB2-043 C O1	0.4676	80/20	0.4676
924161	AB2-060 C OP	1.3842	80/20	1.3842
924301	AB2-077 C O1 (Suspended)	1.6795	80/20	1.6795
924311	AB2-078 C O1 (Suspended)	1.6795	80/20	1.6795
924321	AB2-079 C O1 (Suspended)	1.6795	80/20	1.6795
925171	AB2-174 C O1	0.3972	80/20	0.3972
925611	AC1-036 C	1.2045	80/20	1.2045
925781	AC1-054 C O1	3.9503	80/20	3.9503
925831	AC1-062	0.0885	80/20	0.0885
925991	AC1-075 C	2.3895	80/20	2.3895
926021	AC1-080 C	0.7986	80/20	0.7986
926271	AC1-105 C O1 (Suspended)	3.3692	80/20	3.3692
926451	AC1-116 C	-0.7531	Adder	-0.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
927251	AC1-221 C	0.7912	80/20	0.7912
927261	AC1-222 C	1.8753	80/20	1.8753
932511	AC2-071 C	6.7040	80/20	6.7040
932761	AC2-100 C	1.8208	80/20	1.8208
933501	AC2-165 C	35.3138	80/20	35.3138
934311	AD1-055 C	1.3021	80/20	1.3021
934341	AD1-058 C	1.9834	80/20	1.9834
934611	AD1-087 C O1	4.5455	80/20	4.5455
934621	AD1-088 C	21.9177	80/20	21.9177
934991	AD1-131 C	0.6503	80/20	0.6503
935171	AD1-152 C O1	4.5173	80/20	4.5173
935221	AD1-157 C	2.6102	80/20	2.6102
936261	AD2-033 C	15.5243	80/20	15.5243
936361	AD2-046 C O1	5.9036	80/20	5.9036
936481	AD2-063 C O1	15.2622	80/20	15.2622
937481	AD2-202 C O1	1.2046	80/20	1.2046
938371	AE1-056 C	11.2528	80/20	11.2528
938821	AE1-108 C	11.6026	80/20	11.6026
939181	AE1-148 C O1	5.9157	80/20	5.9157
940241	AE2-006	0.6128	80/20	0.6128
940661	AE2-053 O1	2.1910	80/20	2.1910
941791	AE2-182 C	3.5609	80/20	3.5609
942451	AE2-258	2.0222	80/20	2.0222
942461	AE2-259 C O1	20.7678	80/20	20.7678
942751	AE2-291 C O1	3.3042	80/20	3.3042
942761	AE2-292 C O1	4.1140	80/20	4.1140
943901	AF1-058 C	1.0482	80/20	1.0482
943911	AF1-059	10.4370	80/20	10.4370
945811	AF1-246 C O1	3.5725	80/20	3.5725
946281	AF1-292 C	0.4998	80/20	0.4998
946291	AF1-293 C O1	6.7728	80/20	6.7728
946301	AF1-294 C	6.6427	80/20	6.6427
946591	AF1-323 C	3.7326	80/20	3.7326
957481	AF2-042 C O1	26.0010	80/20	26.0010
958131	AF2-107 C	2.0323	80/20	2.0323
958211	AF2-115 C	4.0505	80/20	4.0505
958801	AF2-171 C O1	24.1407	80/20	24.1407
959311	AF2-222 C	21.9610	80/20	21.9610
959751	AF2-266 O1	5.2605	80/20	5.2605
960061	AF2-297 C O1	4.1928	80/20	4.1928
960081	AF2-299 C	0.8424	80/20	0.8424
960111	AF2-302 C	1.3573	80/20	1.3573
960811	AF2-372 C	1.0609	80/20	1.0609
960821	AF2-373 C	0.6309	80/20	0.6309
961081	AF2-399 C	0.5225	80/20	0.5225
WEC	WEC	0.0636	Confirmed LTF	0.0636
LGEE	LGEE	0.1278	Confirmed LTF	0.1278
CPL	CPL	2.2326	Confirmed LTF	2.2326
CBM-W2	CBM-W2	5.0614	Confirmed LTF	5.0614
NY	NY	0.4015	Confirmed LTF	0.4015
CBM-W1	CBM-W1	2.0391	Confirmed LTF	2.0391
TVA	TVA	1.2404	Confirmed LTF	1.2404

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-S2	CBM-S2	14.2882	Confirmed LTF	14.2882
CBM-S1	CBM-S1	6.5008	Confirmed LTF	6.5008
MADISON	MADISON	0.5786	Confirmed LTF	0.5786
MEC	MEC	0.5641	Confirmed LTF	0.5641
AA2-074	AA2-074	1.5188	LTF	1.5188

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
97986707	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	111.09	114.42	DC	22.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1363	80/20	0.1363
314429	3JTRSVLE	0.5452	80/20	0.5452
314572	3EMPORIA	0.0219	80/20	0.0219
314677	6BUCKING	1.0694	80/20	1.0694
314704	3LAWRENC	0.1423	80/20	0.1423
315153	1CLOVER1	7.3430	80/20	7.3430
315154	1CLOVER2	7.2698	80/20	7.2698
315158	1KERR 1	0.2422	80/20	0.2422
315159	1KERR 2	0.6782	80/20	0.6782
315160	1KERR 3	0.6782	80/20	0.6782
315161	1KERR 4	0.6782	80/20	0.6782
315162	1KERR 5	0.6782	80/20	0.6782
315163	1KERR 6	0.6782	80/20	0.6782
315164	1KERR 7	0.6782	80/20	0.6782
315191	1BEARGRDN G1	15.0842	80/20	15.0842
315192	1BEARGRDN G2	15.0842	80/20	15.0842
315193	1BEARGRDN S1	31.0443	80/20	31.0443
315266	1PLYWOOD A	0.6953	80/20	0.6953
920291	AA2-127	3.1336	80/20	3.1336
924021	AB2-043 C O1	0.4312	80/20	0.4312
924161	AB2-060 C OP	1.2758	80/20	1.2758
924301	AB2-077 C O1 (Suspended)	1.5499	80/20	1.5499
924311	AB2-078 C O1 (Suspended)	1.5499	80/20	1.5499
924321	AB2-079 C O1 (Suspended)	1.5499	80/20	1.5499
925171	AB2-174 C O1	0.3622	80/20	0.3622
925611	AC1-036 C	1.1045	80/20	1.1045
925781	AC1-054 C O1	3.6512	80/20	3.6512
925831	AC1-062	0.0809	80/20	0.0809
925991	AC1-075 C	2.5684	80/20	2.5684
926021	AC1-080 C	0.8584	80/20	0.8584
926271	AC1-105 C O1 (Suspended)	3.1786	80/20	3.1786
926451	AC1-116 C	3.6384	80/20	3.6384
927251	AC1-221 C	0.7555	80/20	0.7555
927261	AC1-222 C	1.8244	80/20	1.8244
932511	AC2-071 C	6.1076	80/20	6.1076
932761	AC2-100 C	1.7388	80/20	1.7388

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933501	AC2-165 C	32.1571	80/20	32.1571
934311	AD1-055 C	1.2668	80/20	1.2668
934341	AD1-058 C	1.8940	80/20	1.8940
934611	AD1-087 C O1	4.2050	80/20	4.2050
934621	AD1-088 C	19.9913	80/20	19.9913
934991	AD1-131 C	0.6210	80/20	0.6210
935171	AD1-152 C O1	4.1789	80/20	4.1789
935221	AD1-157 C	2.3854	80/20	2.3854
936261	AD2-033 C	14.2451	80/20	14.2451
936361	AD2-046 C O1	5.4614	80/20	5.4614
936481	AD2-063 C O1	14.0364	80/20	14.0364
937481	AD2-202 C O1	1.1144	80/20	1.1144
938371	AE1-056 C	10.2839	80/20	10.2839
938821	AE1-108 C	35.7983	80/20	35.7983
939181	AE1-148 C O1	5.4713	80/20	5.4713
940241	AE2-006	0.5619	80/20	0.5619
940661	AE2-053 O1	2.0264	80/20	2.0264
941011	AE2-092 C	29.1911	80/20	29.1911
941791	AE2-182 C	3.2479	80/20	3.2479
942451	AE2-258	1.8649	80/20	1.8649
942461	AE2-259 C O1	18.9528	80/20	18.9528
942751	AE2-291 C O1	3.7718	80/20	3.7718
942761	AE2-292 C O1	4.6962	80/20	4.6962
943901	AF1-058 C	0.9984	80/20	0.9984
943911	AF1-059	9.5960	80/20	9.5960
945811	AF1-246 C O1	3.2617	80/20	3.2617
946281	AF1-292 C	0.4551	80/20	0.4551
946291	AF1-293 C O1	47.0478	80/20	47.0478
946301	AF1-294 C	6.0747	80/20	6.0747
946591	AF1-323 C	11.4715	80/20	11.4715
957481	AF2-042 C O1	23.7450	80/20	23.7450
958131	AF2-107 C	6.0592	80/20	6.0592
958211	AF2-115 C	3.7041	80/20	3.7041
958801	AF2-171 C O1	22.0788	80/20	22.0788
959311	AF2-222 C	20.1270	80/20	20.1270
959751	AF2-266 O1	4.8210	80/20	4.8210
960061	AF2-297 C O1	3.9936	80/20	3.9936
960081	AF2-299 C	0.7671	80/20	0.7671
960111	AF2-302 C	4.1714	80/20	4.1714
960811	AF2-372 C	0.9790	80/20	0.9790
960821	AF2-373 C	0.5906	80/20	0.5906
961061	AF2-397 C O1	49.8186	80/20	49.8186
961081	AF2-399 C	0.4779	80/20	0.4779
WEC	WEC	0.1254	Confirmed LTF	0.1254
LGEE	LGEE	0.2482	Confirmed LTF	0.2482
CPL	CPL	2.1704	Confirmed LTF	2.1704
CBM-W2	CBM-W2	6.5766	Confirmed LTF	6.5766
NY	NY	0.4302	Confirmed LTF	0.4302
CBM-W1	CBM-W1	4.4035	Confirmed LTF	4.4035
TVA	TVA	1.4980	Confirmed LTF	1.4980
CBM-S2	CBM-S2	14.4558	Confirmed LTF	14.4558
CBM-S1	CBM-S1	8.1110	Confirmed LTF	8.1110

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MADISON	MADISON	0.5443	Confirmed LTF	0.5443
MEC	MEC	0.8692	Confirmed LTF	0.8692
AA2-074	AA2-074	1.4778	LTF	1.4778

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
107268387	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPL	1	DVP_P1-2: LN 556-B	single	718.0	129.66	132.02	DC	21.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1294	80/20	0.1294
314429	3JTRSVLE	0.5174	80/20	0.5174
314677	6BUCKING	0.4258	80/20	0.4258
315153	1CLOVER1	39.4381	80/20	39.4381
315154	1CLOVER2	39.0451	80/20	39.0451
315156	1HALLBR1	1.1309	80/20	1.1309
315158	1KERR 1	0.3659	80/20	0.3659
315159	1KERR 2	1.0244	80/20	1.0244
315160	1KERR 3	1.0244	80/20	1.0244
315161	1KERR 4	1.0244	80/20	1.0244
315162	1KERR 5	1.0244	80/20	1.0244
315163	1KERR 6	1.0244	80/20	1.0244
315164	1KERR 7	1.0244	80/20	1.0244
315192	1BEARGRDN G2	2.8787	80/20	2.8787
315193	1BEARGRDN S1	5.9246	80/20	5.9246
315266	1PLYWOOD A	3.3432	80/20	3.3432
924021	AB2-043 C O1	0.7329	80/20	0.7329
924161	AB2-060 C OP	2.1135	80/20	2.1135
924301	AB2-077 C O1 (Suspended)	2.7328	80/20	2.7328
924311	AB2-078 C O1 (Suspended)	2.7328	80/20	2.7328
924321	AB2-079 C O1 (Suspended)	2.7328	80/20	2.7328
925611	AC1-036 C	1.3105	80/20	1.3105
925781	AC1-054 C O1	5.0298	80/20	5.0298
925831	AC1-062	0.0768	80/20	0.0768
925991	AC1-075 C	11.9864	80/20	11.9864
926021	AC1-080 C	4.0059	80/20	4.0059
926271	AC1-105 C O1 (Suspended)	14.5305	80/20	14.5305
927251	AC1-221 C	11.7277	80/20	11.7277
927261	AC1-222 C	10.1431	80/20	10.1431
932511	AC2-071 C	2.4320	80/20	2.4320
932761	AC2-100 C	26.9899	80/20	26.9899
934311	AD1-055 C	7.0426	80/20	7.0426
934341	AD1-058 C	29.3997	80/20	29.3997
934611	AD1-087 C O1	27.0094	80/20	27.0094
934621	AD1-088 C	24.0247	80/20	24.0247
934991	AD1-131 C	9.6392	80/20	9.6392
935171	AD1-152 C O1	26.8416	80/20	26.8416
935221	AD1-157 C	2.1223	80/20	2.1223

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936261	AD2-033 C	17.8675	80/20	17.8675
936361	AD2-046 C O1	8.4639	80/20	8.4639
936481	AD2-063 C O1	20.4093	80/20	20.4093
937481	AD2-202 C O1	7.1578	80/20	7.1578
938371	AE1-056 C	9.1494	80/20	9.1494
939181	AE1-148 C O1	8.5347	80/20	8.5347
940241	AE2-006	0.6667	80/20	0.6667
940661	AE2-053 O1	3.1610	80/20	3.1610
941791	AE2-182 C	3.9032	80/20	3.9032
942451	AE2-258	3.1698	80/20	3.1698
942461	AE2-259 C O1	14.4012	80/20	14.4012
942751	AE2-291 C O1	15.7260	80/20	15.7260
942761	AE2-292 C O1	19.5804	80/20	19.5804
943901	AF1-058 C	5.7522	80/20	5.7522
943911	AF1-059	14.3780	80/20	14.3780
945811	AF1-246 C O1	21.7505	80/20	21.7505
946301	AF1-294 C	5.7653	80/20	5.7653
957481	AF2-042 C O1	155.3610	80/20	155.3610
958211	AF2-115 C	3.5154	80/20	3.5154
958801	AF2-171 C O1	21.0762	80/20	21.0762
959311	AF2-222 C	23.0530	80/20	23.0530
959751	AF2-266 O1	25.8930	80/20	25.8930
960061	AF2-297 C O1	23.0088	80/20	23.0088
960811	AF2-372 C	1.7262	80/20	1.7262
960821	AF2-373 C	2.1290	80/20	2.1290
961081	AF2-399 C	0.4546	80/20	0.4546
NEWTON	NEWTON	1.6150	Confirmed LTF	1.6150
FARMERCITY	FARMERCITY	0.0953	Confirmed LTF	0.0953
G-007A	G-007A	0.4939	Confirmed LTF	0.4939
VFT	VFT	1.3094	Confirmed LTF	1.3094
CALDERWOOD	CALDERWOOD	1.4284	Confirmed LTF	1.4284
PRAIRIE	PRAIRIE	4.4893	Confirmed LTF	4.4893
AC1-131	AC1-131	5.1015	LTF	5.1015
CHEOAH	CHEOAH	1.4720	Confirmed LTF	1.4720
EDWARDS	EDWARDS	0.4816	Confirmed LTF	0.4816
TILTON	TILTON	0.8429	Confirmed LTF	0.8429
GIBSON	GIBSON	0.7671	Confirmed LTF	0.7671
BLUEG	BLUEG	2.3314	Confirmed LTF	2.3314
TRIMBLE	TRIMBLE	0.7379	Confirmed LTF	0.7379
CATAWBA	CATAWBA	1.6961	Confirmed LTF	1.6961

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
106328144	934610	AD1-087 TAP	DVP	314697	6SEEDGE HILL	DVP	1	DVP_P1-2: LN 556-B	single	814.98	119.16	120.55	DC	11.36

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.0707	80/20	0.0707
314333	6POWHATN	0.1384	80/20	0.1384
314429	3JTRSVLE	0.2828	80/20	0.2828
314677	6BUCKING	0.4694	80/20	0.4694
315153	1CLOVER1	51.7091	80/20	51.7091
315154	1CLOVER2	51.1938	80/20	51.1938
315191	1BEARGRDN G1	3.1145	80/20	3.1145
315192	1BEARGRDN G2	3.1145	80/20	3.1145
315193	1BEARGRDN S1	6.4099	80/20	6.4099
920291	AA2-127	0.6470	80/20	0.6470
925611	AC1-036 C	0.3848	80/20	0.3848
925831	AC1-062	0.0420	80/20	0.0420
925991	AC1-075 C	-3.3297	Adder	-3.92
926021	AC1-080 C	-1.1128	Adder	-1.31
926271	AC1-105 C O1 (Suspended)	-3.4045	Adder	-4.01
926451	AC1-116 C	0.2932	80/20	0.2932
927251	AC1-221 C	-1.3047	Adder	-1.53
927261	AC1-222 C	-2.6803	Adder	-3.15
932511	AC2-071 C	2.6809	80/20	2.6809
933501	AC2-165 C	3.8965	80/20	3.8965
934311	AD1-055 C	-1.8610	Adder	-2.19
934341	AD1-058 C	-3.2706	Adder	-3.85
934611	AD1-087 C O1	35.7744	80/20	35.7744
934621	AD1-088 C	29.1619	80/20	29.1619
935171	AD1-152 C O1	35.5522	80/20	35.5522
935221	AD1-157 C	1.3385	80/20	1.3385
936261	AD2-033 C	4.2728	80/20	4.2728
937481	AD2-202 C O1	9.4806	80/20	9.4806
938371	AE1-056 C	5.7703	80/20	5.7703
938561	AE1-075 C	0.7037	80/20	0.7037
938821	AE1-108 C	6.5977	80/20	6.5977
940241	AE2-006	0.1958	80/20	0.1958
941011	AE2-092 C	6.4559	80/20	6.4559
941791	AE2-182 C	4.7378	80/20	4.7378
942461	AE2-259 C O1	12.3990	80/20	12.3990
945811	AF1-246 C O1	28.5180	80/20	28.5180
946291	AF1-293 C O1	9.6964	80/20	9.6964
946301	AF1-294 C	3.1505	80/20	3.1505
946591	AF1-323 C	2.0140	80/20	2.0140
957481	AF2-042 C O1	203.7000	80/20	203.7000
958211	AF2-115 C	1.9211	80/20	1.9211

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958501	AF2-144 C	0.5932	80/20	0.5932
958801	AF2-171 C O1	11.3616	80/20	11.3616
959311	AF2-222 C	7.6050	80/20	7.6050
959531	AF2-244 C	0.5467	80/20	0.5467
959751	AF2-266 O1	33.9495	80/20	33.9495
960111	AF2-302 C	0.7324	80/20	0.7324
961061	AF2-397 C O1	7.4950	80/20	7.4950
961081	AF2-399 C	0.2471	80/20	0.2471
NEWTON	NEWTON	1.4044	Confirmed LTF	1.4044
FARMERCITY	FARMERCITY	0.0797	Confirmed LTF	0.0797
G-007A	G-007A	0.4100	Confirmed LTF	0.4100
VFT	VFT	1.0772	Confirmed LTF	1.0772
CALDERWOOD	CALDERWOOD	1.0760	Confirmed LTF	1.0760
PRAIRIE	PRAIRIE	3.7479	Confirmed LTF	3.7479
CHEOAH	CHEOAH	1.1026	Confirmed LTF	1.1026
EDWARDS	EDWARDS	0.4263	Confirmed LTF	0.4263
TILTON	TILTON	0.7566	Confirmed LTF	0.7566
GIBSON	GIBSON	0.6825	Confirmed LTF	0.6825
BLUEG	BLUEG	2.1162	Confirmed LTF	2.1162
TRIMBLE	TRIMBLE	0.6723	Confirmed LTF	0.6723
CATAWBA	CATAWBA	1.1473	Confirmed LTF	1.1473

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
97986661	961060	AF2-397 TAP	DVP	314765	6MTEAGLE	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	114.21	117.55	DC	22.08

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1363	80/20	0.1363
314429	3JTRSVLE	0.5452	80/20	0.5452
314572	3EMPORIA	0.0219	80/20	0.0219
314677	6BUCKING	1.0694	80/20	1.0694
314704	3LAWRENC	0.1423	80/20	0.1423
315153	1CLOVER1	7.3430	80/20	7.3430
315154	1CLOVER2	7.2698	80/20	7.2698
315158	1KERR 1	0.2422	80/20	0.2422
315159	1KERR 2	0.6782	80/20	0.6782
315160	1KERR 3	0.6782	80/20	0.6782
315161	1KERR 4	0.6782	80/20	0.6782
315162	1KERR 5	0.6782	80/20	0.6782
315163	1KERR 6	0.6782	80/20	0.6782
315164	1KERR 7	0.6782	80/20	0.6782
315191	1BEARGRDN G1	15.0842	80/20	15.0842
315192	1BEARGRDN G2	15.0842	80/20	15.0842
315193	1BEARGRDN S1	31.0443	80/20	31.0443
315266	1PLYWOOD A	0.6953	80/20	0.6953
920291	AA2-127	3.1336	80/20	3.1336
924021	AB2-043 C O1	0.4312	80/20	0.4312
924161	AB2-060 C OP	1.2758	80/20	1.2758
924301	AB2-077 C O1 (Suspended)	1.5499	80/20	1.5499
924311	AB2-078 C O1 (Suspended)	1.5499	80/20	1.5499
924321	AB2-079 C O1 (Suspended)	1.5499	80/20	1.5499
925171	AB2-174 C O1	0.3622	80/20	0.3622
925611	AC1-036 C	1.1045	80/20	1.1045
925781	AC1-054 C O1	3.6512	80/20	3.6512
925831	AC1-062	0.0809	80/20	0.0809
925991	AC1-075 C	2.5684	80/20	2.5684
926021	AC1-080 C	0.8584	80/20	0.8584
926271	AC1-105 C O1 (Suspended)	3.1786	80/20	3.1786
926451	AC1-116 C	-0.9024	Adder	-1.06
927251	AC1-221 C	0.7555	80/20	0.7555
927261	AC1-222 C	1.8244	80/20	1.8244
932511	AC2-071 C	6.1076	80/20	6.1076
932761	AC2-100 C	1.7388	80/20	1.7388

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933501	AC2-165 C	32.1571	80/20	32.1571
934311	AD1-055 C	1.2668	80/20	1.2668
934341	AD1-058 C	1.8940	80/20	1.8940
934611	AD1-087 C O1	4.2050	80/20	4.2050
934621	AD1-088 C	19.9913	80/20	19.9913
934991	AD1-131 C	0.6210	80/20	0.6210
935171	AD1-152 C O1	4.1789	80/20	4.1789
935221	AD1-157 C	2.3854	80/20	2.3854
936261	AD2-033 C	14.2451	80/20	14.2451
936361	AD2-046 C O1	5.4614	80/20	5.4614
936481	AD2-063 C O1	14.0364	80/20	14.0364
937481	AD2-202 C O1	1.1144	80/20	1.1144
938371	AE1-056 C	10.2839	80/20	10.2839
938821	AE1-108 C	35.7983	80/20	35.7983
939181	AE1-148 C O1	5.4713	80/20	5.4713
940241	AE2-006	0.5619	80/20	0.5619
940661	AE2-053 O1	2.0264	80/20	2.0264
941011	AE2-092 C	29.1911	80/20	29.1911
941791	AE2-182 C	3.2479	80/20	3.2479
942451	AE2-258	1.8649	80/20	1.8649
942461	AE2-259 C O1	18.9528	80/20	18.9528
942751	AE2-291 C O1	3.7718	80/20	3.7718
942761	AE2-292 C O1	4.6962	80/20	4.6962
943901	AF1-058 C	0.9984	80/20	0.9984
943911	AF1-059	9.5960	80/20	9.5960
945811	AF1-246 C O1	3.2617	80/20	3.2617
946281	AF1-292 C	0.4551	80/20	0.4551
946291	AF1-293 C O1	47.0478	80/20	47.0478
946301	AF1-294 C	6.0747	80/20	6.0747
946591	AF1-323 C	11.4715	80/20	11.4715
957481	AF2-042 C O1	23.7450	80/20	23.7450
958131	AF2-107 C	6.0592	80/20	6.0592
958211	AF2-115 C	3.7041	80/20	3.7041
958801	AF2-171 C O1	22.0788	80/20	22.0788
959311	AF2-222 C	20.1270	80/20	20.1270
959751	AF2-266 O1	4.8210	80/20	4.8210
960061	AF2-297 C O1	3.9936	80/20	3.9936
960081	AF2-299 C	0.7671	80/20	0.7671
960111	AF2-302 C	4.1714	80/20	4.1714
960811	AF2-372 C	0.9790	80/20	0.9790
960821	AF2-373 C	0.5906	80/20	0.5906
961061	AF2-397 C O1	49.8186	80/20	49.8186
961081	AF2-399 C	0.4779	80/20	0.4779
WEC	WEC	0.1254	Confirmed LTF	0.1254
LGEE	LGEE	0.2482	Confirmed LTF	0.2482
CPL	CPL	2.1704	Confirmed LTF	2.1704
CBM-W2	CBM-W2	6.5766	Confirmed LTF	6.5766
NY	NY	0.4302	Confirmed LTF	0.4302
CBM-W1	CBM-W1	4.4035	Confirmed LTF	4.4035
TVA	TVA	1.4980	Confirmed LTF	1.4980
CBM-S2	CBM-S2	14.4558	Confirmed LTF	14.4558
CBM-S1	CBM-S1	8.1110	Confirmed LTF	8.1110

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MADISON	MADISON	0.5443	Confirmed LTF	0.5443
MEC	MEC	0.8692	Confirmed LTF	0.8692
AA2-074	AA2-074	1.4778	LTF	1.4778

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
AA2-074	CPLP-PJM	Confirmed
AA2-127	Bear Garden 230kV	In Service
AB1-173	Brink-Trego 115kV	Engineering and Procurement
AB1-173A	Brink-Trego 115kV	Engineering and Procurement
AB2-022	Elizabeth City 34.5kV	Engineering and Procurement
AB2-031	Brink-Trego 115kV	Engineering and Procurement
AB2-040	Brink 115kV	Engineering and Procurement
AB2-043	Chase City 115kV	Under Construction
AB2-045	Buckingham 34.5kV	In Service
AB2-060	Chase City-Lunenburg 115kV	Under Construction
AB2-068	Chickahominy 500kV	Engineering and Procurement
AB2-077	Buggs Island-Chase City 115kV	Suspended
AB2-078	Buggs Island-Chase City 115kV	Suspended
AB2-079	Buggs Island-Chase City 115kV	Suspended
AB2-174	Emporia-Trego 115kV	Under Construction
AB2-190	Hopewell-Surry 230kV	Engineering and Procurement
AC1-036	Twittys Creek 34.5kV	Engineering and Procurement
AC1-042	Altavista-Mt. Airy 69kV	Engineering and Procurement
AC1-054	Kerr Dam-Eatons Ferry 115 kV	Engineering and Procurement
AC1-062	Jetersville 34.5kV	In Service
AC1-065	Harmony Village-Shackleford 115kV	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	Suspended
AC1-116	Mount Eagle 34.5kV	Engineering and Procurement
AC1-131	PJM-CPLP	Confirmed
AC1-145	Gretna DP 69 kV	Engineering and Procurement
AC1-147	Grassfield 34.5kV	Engineering and Procurement
AC1-164	Chickahominy 230kV	Engineering and Procurement
AC1-221	Halifax-Person 230kV	Engineering and Procurement
AC1-222	Crystal Hill-Halifax 115kV	Engineering and Procurement
AC2-071	Buckingham 35kV	Engineering and Procurement

Queue Number	Project Name	Status
AC2-100	Halifax-Person 230kV	Active
AC2-110	Harmony Village-Shackleford 115kV	Engineering and Procurement
AC2-137	Elko 34.5kV	Under Construction
AC2-165	Bremo-Powhatan 230kV	Active
AC2-196	Fentress 34.5kV	Engineering and Procurement
AD1-017	Smith Mountain-Bearskin 138 kV	Active
AD1-055	Crystal Hill-Halifax 115 kV	Engineering and Procurement
AD1-058	Halifax-Person 230 kV	Engineering and Procurement
AD1-087	Clover-Sedge Hill 230 kV	Active
AD1-088	Briery-Clover 230 kV	Active
AD1-131	Sedge Hill-Person 230 kV	Active
AD1-144	Kings Fork 34.5 kV	Engineering and Procurement
AD1-152	Clover-Sedge Hill 230 kV	Active
AD1-157	South Creek 34.5 kV	Engineering and Procurement
AD2-021	Elko 34.5 kV	Under Construction
AD2-022	East Danville-Roxborough 230 kV	Active
AD2-023	E. Danville-Roxborough 230 kV	Active
AD2-033	Chase City-Lunenburg 115 kV	Active
AD2-039	Harmony Village-Shackleford 115 kV	Engineering and Procurement
AD2-046	Boydton DP-Kerr Dam 115 kV	Active
AD2-063	Central-Chase City 115kV	Active
AD2-164	Peninsula 34.5kV	Withdrawn
AD2-202	Clover-Sedge Hill 230kV	Active
AD2-215	Kings Fork 34.5 kV	Engineering and Procurement
AE1-004	Harmony Village-Shackleford 115 kV	Engineering and Procurement
AE1-056	Red House-South Creek 115 kV	Active
AE1-069	Carson-Rogers Road 500 kV	Active
AE1-075	Powhatan 34.5 kV	Engineering and Procurement
AE1-108	Bremo-Scottsville 138 kV	Active
AE1-148	Kerr Dam-Ridge Rd 115 kV	Active
AE1-162	Smithfield 34.5 kV	Engineering and Procurement
AE1-230	Shockoe 69 kV	Active
AE1-250	Smith Mountain-E. Danville 138 kV	Active
AE2-006	Twittys Creek 34.5 kV	Engineering and Procurement
AE2-031	Carson-Rawlings 500 kV	Active
AE2-047	Ridgeway-Solite 69 kV	Active
AE2-053	Kerr Dam-Ridge Road 115 kV	Active
AE2-092	Kidds Store-Sherwood 115 kV	Active
AE2-140	Axton-Danville 138 kV	Active
AE2-182	Briery-Clover 230 kV	Active
AE2-185	Gladys DP-Stonemill Switching Station 69 kV	Active
AE2-187	Shockoe DP-Chatham 69 kV	Active
AE2-225	Suffolk 34 kV	Engineering and Procurement
AE2-229	Suffolk 34 kV	Engineering and Procurement
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
AE2-313	Carson-Rawlings 500 kV	Active
AF1-049	Berry Hill 138 kV	Active
AF1-058	Welco 34.5 kV	Engineering and Procurement

Queue Number	Project Name	Status
AF1-059	Brodnax-South Hill 115 kV	Active
AF1-173	Gretna DP-Shockoe DP 69 kV	Active
AF1-246	Clover-Rawlings 500 kV	Active
AF1-292	Fields Crossroads 34.5 kV	Active
AF1-293	Kidds Store-Fort Union 115 kV	Active
AF1-294	Jetersville-Ponton 115 kV	Active
AF1-323	Scottsville-Colleen 138 kV	Active
AF2-042	Clover 500 kV	Active
AF2-107	Clifford 138 kV	Active
AF2-115	Jetersville-Ponton 115 kV	Active
AF2-144	Powhatan 34.5 kV	Active
AF2-171	Madisonville 115 kV	Active
AF2-222	Madisonville DP-Twitty's Creek 115 kV	Active
AF2-244	Powhatan 34.5 kV	Active
AF2-266	Clover 230 kV	Active
AF2-297	Sedge Hill 115 kV	Active
AF2-299	Fields 34.5 kV	Active
AF2-302	Scottsville-Colleen 138 kV	Active
AF2-372	Black Branch 34.5 kV	Active
AF2-373	Mount Laurel 115 kV	Active
AF2-397	Fork Union-Mt. Eagle 230 kV	Active
AF2-399	Crewe 12.5 kV	Active
AF2-403	Shockoe DP-Chatham 69 kV	Active

11.8 Contingency Descriptions - Primary POI

Contingency Name	Contingency Definition
DVP_P4-2: 15832	CONTINGENCY 'DVP_P4-2: 15832' /* FARMVILLE 115 KV OPEN BRANCH FROM BUS 314519 TO BUS 314701 CKT 1 /* 3LONEPINE_1 115.00 - 3LONEPN 115.00 OPEN BRANCH FROM BUS 314691 TO BUS 314707 CKT 1 /* 3FARMVIL 115.00 - 3MORAN 115.00 OPEN BRANCH FROM BUS 314701 TO BUS 314707 CKT 1 /* 3LONEPN 115.00 - 3MORAN 115.00 OPEN BUS 314519 /* ISLAND: 3LONEPINE_1 115.00 OPEN BUS 314707 /* ISLAND: 3MORAN 115.00 OPEN BUS 314691 /* 3FARMVIL 115.00 KV END
DVP_P1-2: LN 1012-B	CONTINGENCY 'DVP_P1-2: LN 1012-B' OPEN BRANCH FROM BUS 936480 TO BUS 314681 CKT 1 /* AD2-063 TAP 115.00 - 3CHASCTY 115.00 END
314906 8CLOVER 500 314936 AF1-246 TAP 500 1	CONTINGENCY '314906 8CLOVER 500 314936 AF1-246 TAP 500 1' OPEN BRANCH FROM BUS 314906 TO BUS 945810 CKT 1 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 556-B	CONTINGENCY 'DVP_P1-2: LN 556-B' OPEN BRANCH FROM BUS 945810 TO BUS 314936 CKT 1 /* AF1-246 TAP 500.00 - 8RAWLINGS 500.00 END
DVP_P1-2: LN 84	CONTINGENCY 'DVP_P1-2: LN 84' OPEN BRANCH FROM BUS 314521 TO BUS 314713 CKT 1 /* 3PAMPL_1 115.00 - 3PAMPLIN 115.00 OPEN BRANCH FROM BUS 314691 TO BUS 314726 CKT 1 /* 3FARMVIL 115.00 - 3WILLIS 115.00 OPEN BRANCH FROM BUS 314713 TO BUS 314726 CKT 1 /* 3PAMPLIN 115.00 - 3WILLIS 115.00 OPEN BUS 314521 /* ISLAND: 3PAMPL_1 115.00 OPEN BUS 314726 /* ISLAND: 3WILLIS 115.00 END
DVP_P7-1: LN 22-90-A	CONTINGENCY 'DVP_P7-1: LN 22-90-A' OPEN BRANCH FROM BUS 314559 TO BUS 314571 CKT 1 /* 3CAROLNA 115.00 - 3EATON F 115.00 OPEN BRANCH FROM BUS 314571 TO BUS 925780 CKT 1 /* 3EATON F 115.00 - AC1- 054 TAP 115.00 OPEN BUS 314571 /* ISLAND: 3EATON F 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314584 CKT 1 /* 3FIVEFORKSDP115.00 - 3LITTLTN 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314673 CKT 1 /* 3FIVEFORKSDP115.00 - 3PALMERSPRNG115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314585 CKT 1 /* 3CAROLNA 115.00 - 3L GASTN 115.00 OPEN BRANCH FROM BUS 314584 TO BUS 314585 CKT 1 /* 3LITTLTN 115.00 - 3L GASTN 115.00 OPEN BUS 314265 /* ISLAND: 3FIVEFORKSDP115.00 OPEN BUS 314584 /* ISLAND: 3LITTLTN 115.00 OPEN BUS 314585 /* ISLAND: 3L GASTN 115.00 END
DVP_P1-2: LN 585-C	CONTINGENCY 'DVP_P1-2: LN 585-C' OPEN BRANCH FROM BUS 938490 TO BUS 314940 CKT 1 /* AE1-068 TAP 500.00 - 8ROGERS RD 500.00 END
DVP_P4-2: 556T591	CONTINGENCY 'DVP_P4-2: 556T591' /* RAWLINGS 500 KV OPEN BRANCH FROM BUS 945810 TO BUS 314936 CKT 1 /* AF1-246 TAP 500.00 - 8RAWLINGS 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 314936 CKT 1 /* 8HERITAGE 500.00 - 8RAWLINGS 500.00 END

Contingency Name	Contingency Definition
DVP_P1-2: LN 1019	CONTINGENCY 'DVP_P1-2: LN 1019' OPEN BRANCH FROM BUS 314673 TO BUS 314702 CKT 1 /* 3PALMERSPRNG115.00 - 3KERR 115.00 END
DVP_P7-1: LN 22-90-B	CONTINGENCY 'DVP_P7-1: LN 22-90-B' OPEN BRANCH FROM BUS 925780 TO BUS 314702 CKT 1 /* AC1-054 TAP 115.00 - 3KERR 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314584 CKT 1 /* 3FIVEFORKSDP115.00 - 3LITTLTN 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314673 CKT 1 /* 3FIVEFORKSDP115.00 - 3PALMERSPRNG115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314585 CKT 1 /* 3CAROLNA 115.00 - 3L GASTN 115.00 OPEN BRANCH FROM BUS 314584 TO BUS 314585 CKT 1 /* 3LITTLTN 115.00 - 3L GASTN 115.00 OPEN BUS 314265 /* ISLAND: 3FIVEFORKSDP115.00 OPEN BUS 314584 /* ISLAND: 3LITTLTN 115.00 OPEN BUS 314585 /* ISLAND: 3L GASTN 115.00 END
Base Case	
DVP_P1-2: LN 2027-B	CONTINGENCY 'DVP_P1-2: LN 2027-B' OPEN BRANCH FROM BUS 933500 TO BUS 314333 CKT 1 /* AC2-165 TAP 230.00 - 6POWHATN 230.00 OPEN BRANCH FROM BUS 314310 TO BUS 314322 CKT 1 /* 6JUDES F 230.00 - 6MDLTHAN 230.00 OPEN BRANCH FROM BUS 314310 TO BUS 314333 CKT 1 /* 6JUDES F 230.00 - 6POWHATN 230.00 OPEN BUS 314310 /* ISLAND: 6JUDES F 230.00 OPEN BUS 314333 /* ISLAND: 6POWHATN 230.00 OPEN BUS 923862 /* ISLAND: AB2-026 E 230.00 END

Contingency Name	Contingency Definition
DVP_P4-6: CAROLIN T122	CONTINGENCY 'DVP_P4-6: CAROLIN T122' /* CAROLINA 115 KV OPEN BRANCH FROM BUS 314559 TO BUS 315126 CKT 1 /* 3CAROLNA 115.00 - 1ROARAP2 14.400 OPEN BRANCH FROM BUS 314559 TO BUS 315128 CKT 1 /* 3CAROLNA 115.00 - 1ROARAP4 14.400 OPEN BUS 315126 /* ISLAND: 1ROARAP2 14.400 OPEN BUS 315128 /* ISLAND: 1ROARAP4 14.400 OPEN BRANCH FROM BUS 314559 TO BUS 314571 CKT 1 /* 3CAROLNA 115.00 - 3EATON F 115.00 OPEN BRANCH FROM BUS 313722 TO BUS 314559 CKT 1 /* 3OCCONEECHEE115.00 - 3CAROLNA 115.00 OPEN BRANCH FROM BUS 314259 TO BUS 314559 CKT Z1 /* 3CAROL56_1 115.00 - 3CAROLNA 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314578 CKT 1 /* 3CAROLNA 115.00 - 3HORNRTN 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314585 CKT 1 /* 3CAROLNA 115.00 - 3L GASTN 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314600 CKT 1 /* 3CAROLNA 115.00 - 3PLHITP 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314561 CKT 1 /* 3CAROLNA 115.00 - 6CAROLNA 230.00 OPEN BUS 314559 /* 3CAROLNA 115.00 KV END
DVP_P1-2: LN 2028-A	CONTINGENCY 'DVP_P1-2: LN 2028-A' OPEN BRANCH FROM BUS 961060 TO BUS 314765 CKT 1 /* AF2-397 TAP 230.00 - 6MTEAGLE 230.00 OPEN BRANCH FROM BUS 314749 TO BUS 314765 CKT 1 /* 6CHARLVL 230.00 - 6MTEAGLE 230.00 OPEN BUS 314765 /* ISLAND: 6MTEAGLE 230.00 OPEN BUS 926451 /* ISLAND: AC1-116 C 230.00 OPEN BUS 926452 /* ISLAND: AC1-116 E 230.00 END
DVP_P4-2: 511T591	CONTINGENCY 'DVP_P4-2: 511T591' /* RAWLINGS 500 KV OPEN BRANCH FROM BUS 940470 TO BUS 314936 CKT 1 /* AE2-031 TAP 500.00 - 8RAWLINGS 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 314936 CKT 1 /* 8HERITAGE 500.00 - 8RAWLINGS 500.00 END
DVP_P4-2: 8442	CONTINGENCY 'DVP_P4-2: 8442' /* PAMPLIN 115 KV OPEN BRANCH FROM BUS 314521 TO BUS 314713 CKT 1 /* 3PAMPL_1 115.00 - 3PAMPLIN 115.00 OPEN BRANCH FROM BUS 314691 TO BUS 314726 CKT 1 /* 3FARMVIL 115.00 - 3WILLIS 115.00 OPEN BRANCH FROM BUS 314713 TO BUS 314726 CKT 1 /* 3PAMPLIN 115.00 - 3WILLIS 115.00 OPEN BUS 314521 /* ISLAND: 3PAMPL_1 115.00 OPEN BUS 314726 /* ISLAND: 3WILLIS 115.00 CHANGE BUS 314713 LOAD BY -100 PERCENT END

Contingency Name	Contingency Definition
DVP_P4-5: FARMVIL L432	CONTINGENCY 'DVP_P4-5: FARMVIL L432' /* FARMVILLE 115 KV OPEN BRANCH FROM BUS 313802 TO BUS 314268 CKT 1 /* 6PRINCE EDW 230.00 - 6BRIERY 230.00 OPEN BRANCH FROM BUS 313802 TO BUS 314692 CKT 1 /* 6PRINCE EDW 230.00 - 6FARMVIL 230.00 OPEN BRANCH FROM BUS 314268 TO BUS 934620 CKT 1 /* 6BRIERY 230.00 - AD1- 088 TAP 230.00 OPEN BRANCH FROM BUS 314691 TO BUS 314692 CKT 1 /* 3FARMVIL 115.00 - 6FARMVIL 230.00 OPEN BUS 313802 /* ISLAND: 6PRINCE EDW 230.00 OPEN BUS 314268 /* ISLAND: 6BRIERY 230.00 OPEN BUS 314691 /* 3FARMVIL 115.00 KV END
DVP_P4-2: 511T556-A	CONTINGENCY 'DVP_P4-2: 511T556-A' /* RAWLINGS 500 KV OPEN BRANCH FROM BUS 940470 TO BUS 314936 CKT 1 /* AE2-031 TAP 500.00 - 8RAWLINGS 500.00 OPEN BRANCH FROM BUS 945810 TO BUS 314936 CKT 1 /* AF1-246 TAP 500.00 - 8RAWLINGS 500.00 END
314333 6POWHATN 230 933500 AC2-165 TAP 230 1	CONTINGENCY '314333 6POWHATN 230 933500 AC2-165 TAP 230 1' OPEN BRANCH FROM BUS 314333 TO BUS 933500 CKT 1 END

12 Short Circuit Analysis - Primary POI

Short circuit analysis will be provided in the System Impact Study report.

13 Summer Peak - Load Flow Analysis - Secondary POI

The Queue Project AF2-171 was evaluated as a 150.0 MW (Capacity 90.0 MW) injection tapping the Madisonville to Pamplin 115 kV line in the Dominion area. Project AF2-171 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-171 was studied with a commercial probability of 53%. Potential network impacts were as follows:

13.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
97279600	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P1-2: LN 1012-B	single	205.86000061	78.55	122.27	DC	90.0
96899542	940470	AE2-031 TAP	500.0	DVP	314902	8CARSON	500.0	DVP	1	DVP_P1-2: LN 585-C	single	4070.19995117	99.73	100.11	DC	15.21

13.2 Multiple Facility Contingency

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
97279361	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P4-2: 15832	breaker	349.0	85.3	128.28	DC	150.0
97279362	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P4-5: FARMVIL L432	breaker	349.0	85.3	128.28	DC	150.0
97279363	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCT Y	115.0	DVP	1	DVP_P4-2: 8442	breaker	349.0	61.81	104.79	DC	150.0

13.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC D C	MW IMPACT
149083721	313707	6FORK UNION	230.0	DVP	314765	6MTEAGLE	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	114.2	117.61	DC	22.55
149083722	313707	6FORK UNION	230.0	DVP	314765	6MTEAGLE	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	114.14	117.55	DC	22.55
97986773	313867	6BREMODIST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	115.03	118.76	DC	24.66
97986774	313867	6BREMODIST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	114.96	118.68	DC	24.66
97754521	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P4-2: 511T591	breaker	699.0	133.29	141.4	DC	61.29
97754522	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P4-2: 556T591	breaker	699.0	133.38	141.49	DC	61.29

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/D C	MW IMPACT
97754523	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P4-2: 511T556	breaker	699.0	133.38	141.49	DC	61.29
106328008	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P1-2: LN 556-B	single	571.520019531	122.24	128.67	DC	36.75
106328010	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P1-2: LN 556-A	single	571.520019531	104.62	111.05	DC	36.75
149083534	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	3149068CLOVER 500 945810 AF1-246 TAP 500 1	single	571.520019531	104.62	111.05	DC	36.75
106328264	314686	6CLOVER	230.0	DVP	934610	AD1-087 TAP	230.0	DVP	1	DVP_P1-2: LN 556-B	single	814.979980469	109.28	110.74	DC	11.9
97754536	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P4-2: 511T591	breaker	684.0	132.14	140.43	DC	61.3
97754537	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P4-2: 511T556	breaker	684.0	132.23	140.52	DC	61.3
97754538	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P4-2: 556T591	breaker	684.0	132.23	140.52	DC	61.3
106328019	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P1-2: LN 556-B	single	559.299987793	121.48	128.05	DC	36.76
106328021	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P1-2: LN 556-A	single	559.299987793	103.48	110.05	DC	36.76
149083544	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	3149068CLOVER 500 945810 AF1-246 TAP 500 1	single	559.299987793	103.48	110.05	DC	36.76
106327949	314697	6SEDGE HILL	230.0	DVP	927250	AC1-221 TAP	230.0	DVP	1	DVP_P1-2: LN 556-B	single	674.91998291	126.6	129.31	DC	21.11
96899328	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P4-2: 15832	breaker	199.0	116.81	130.72	DC	27.67
96899329	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P4-6: CAROLIN T122	breaker	199.0	120.38	124.41	DC	17.76
96899850	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P7-1: LN 22-90-A	tower	199.0	125.88	129.86	DC	17.56
96899851	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P7-1: LN 22-90-B	tower	199.0	115.84	119.82	DC	17.56
97986753	314747	6BREMO	230.0	DVP	313867	6BREMODI ST	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	117.4	121.13	DC	24.66
97986754	314747	6BREMO	230.0	DVP	313867	6BREMODI ST	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	117.33	121.06	DC	24.66
97986706	314765	6MTEAGLE	230.0	DVP	314749	6CHARLVL	230.0	DVP	1	DVP_P1-2: LN 2027-B	single	661.760009766	111.06	114.47	DC	22.55

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 LOADI NG %	POST PROJE CT LOADI NG %	AC D C	MW IMPA CT
97986707	314765	6MTEAGLE	230.0	DVP	314749	6CHARLVL	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	single	661.760009766	111.02	114.43	DC	22.55
96899430	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON2 30 T	230.0	CPL E	1	DVP_P1-2: LN 570	single	718.0	113.31	114.92	DC	11.54
107268387	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON2 30 T	230.0	CPL E	1	DVP_P1-2: LN 556-B	single	718.0	129.75	132.14	DC	21.11
106328144	934610	AD1-087 TAP	230.0	DVP	314697	6SEDGE HILL	230.0	DVP	1	DVP_P1-2: LN 556-B	single	814.979980469	119.16	120.62	DC	11.9
97664421	940480	AE2-033 TAP	230.0	DVP	314435	6SAPONY	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	830.0	120.07	120.86	DC	14.47

13.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJE CT LOADI NG %	POST PROJE CT LOADI NG %	AC D C	MW IMPA CT
149083717	313707	6FORK UNION	230.0	DVP	314765	6MTEAGLE	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	129.3	134.98	DC	37.58
97986769	313867	6BREMODI ST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operati on	661.760009766	126.6	132.84	DC	41.1
149084085	314310	6JUDES F	230.0	DVP	314322	6MDLTHA N	230.0	DVP	1	DVP_P 1-2: LN 2028	operati on	800.880004883	99.54	103.29	DC	30.01
149084035	314333	6POWHAT N	230.0	DVP	314310	6JUDES F	230.0	DVP	1	DVP_P 1-2: LN 2028	operati on	800.880004883	103.35	107.1	DC	30.01
106328005	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	571.520019531	160.12	170.03	DC	61.25
106328262	314686	6CLOVER	230.0	DVP	934610	AD1-087 TAP	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	814.979980469	133.08	135.51	DC	19.83
106328016	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	559.299987793	158.64	168.77	DC	61.26
106327947	314697	6SEDGE HILL	230.0	DVP	927250	AC1-221 TAP	230.0	DVP	1	DVP_P 1-2: LN 556-B	operati on	674.91998291	166.03	171.25	DC	35.19

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC DC	MW IMPACT
145407091	314702	3KERR	115.0	DVP	304102	3GW KING TAP	115.0	CPL E	1	DVP_P 1-2: LN 154-B	operation	199.0	96.28	107.95	DC	23.21
97279722	314713	3PAMPLIN	115.0	DVP	314726	3WILLIS	115.0	DVP	1	DVP_P 1-2: LN 1012-B	operation	331.820007324	60.27	105.48	DC	150.0
97279597	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P 1-2: LN 1012-B	operation	205.86000061	144.61	217.48	DC	150.0
97279601	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	Base Case	operation	186.119995117	84.17	130.35	DC	85.94
97986749	314747	6BREMO	230.0	DVP	313867	6BREMODI ST	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operation	661.760009766	128.97	135.21	DC	41.1
97986702	314765	6MTEAGLE	230.0	DVP	314749	6CHARLV L	230.0	DVP	1	DVP_P 1-2: LN 2027-B	operation	661.760009766	126.85	132.53	DC	37.58
97279882	924160	AB2-060 TAP	115.0	DVP	314267	3CHASCTY 2	115.0	DVP	1	DVP_P 1-2: LN 1012-B	operation	269.779998779	97.29	106.29	DC	24.28
107268384	927250	AC1-221 TAP	230.0	DVP	304070	6PERSON2 30 T	230.0	CPL E	1	DVP_P 1-2: LN 556-B	operation	718.0	170.01	174.91	DC	35.19
149084077	933500	AC2-165 TAP	230.0	DVP	314333	6POWHAT N	230.0	DVP	1	DVP_P 1-2: LN 2028	operation	800.880004883	100.89	104.63	DC	30.02
106328142	934610	AD1-087 TAP	230.0	DVP	314697	6SEGE HILL	230.0	DVP	1	DVP_P 1-2: LN 556-B	operation	814.979980469	145.45	147.88	DC	19.83
97279661	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCTY	115.0	DVP	1	DVP_P 1-2: LN 84	operation	269.779998779	74.13	129.74	DC	150.0
97279663	936480	AD2-063 TAP	115.0	DVP	314681	3CHASCTY	115.0	DVP	1	Base Case	operation	247.220001221	75.78	101.69	DC	64.07

13.5 Flow Gate Details - Secondary POI

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

13.5.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
97279600	314726	3WILLIS	DVP	314691	3FARMVIL	DVP	1	DVP_P1-2: LN 1012-B	single	205.86	78.55	122.27	DC	90.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	5.7000	80/20	5.7000
935221	AD1-157 C	9.0000	80/20	9.0000
936481	AD2-063 C O1	90.0000	80/20	90.0000
938371	AE1-056 C	38.8000	80/20	38.8000
940241	AE2-006	2.9000	80/20	2.9000
942461	AE2-259 C O1	60.0000	80/20	60.0000
958801	AF2-171 C O2	90.0000	80/20	90.0000
959311	AF2-222 C	100.0000	80/20	100.0000

13.5.2 Index 2

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
96899542	940470	AE2-031 TAP	DVP	314902	8CARSON	DVP	1	DVP_P1-2: LN 585-C	single	4070.2	99.73	100.11	DC	15.21

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.0933	80/20	0.0933
314429	3JTRSVLE	0.3731	80/20	0.3731
314947	8GREENSVILLE	165.8983	80/20	165.8983
315102	1BRUNSWICKG1	27.5832	80/20	27.5832
315103	1BRUNSWICKG2	27.5832	80/20	27.5832
315104	1BRUNSWICKG3	27.5832	80/20	27.5832
315105	1BRUNSWICKS1	57.3040	80/20	57.3040
315153	1CLOVER1	34.7979	80/20	34.7979
315154	1CLOVER2	34.4511	80/20	34.4511
315158	1KERR 1	0.3886	80/20	0.3886
315159	1KERR 2	1.0879	80/20	1.0879
315160	1KERR 3	1.0879	80/20	1.0879
315161	1KERR 4	1.0879	80/20	1.0879
315162	1KERR 5	1.0879	80/20	1.0879
315163	1KERR 6	1.0879	80/20	1.0879
315164	1KERR 7	1.0879	80/20	1.0879
315266	1PLYWOOD A	2.1042	80/20	2.1042
923831	AB2-022 C	-1.7098	Adder	-2.01
924021	AB2-043 C O1	0.5442	80/20	0.5442
924161	AB2-060 C OP	1.5677	80/20	1.5677
924241	AB2-068 OP	-128.0681	Adder	-150.67
924301	AB2-077 C O1 (Suspended)	2.0339	80/20	2.0339
924311	AB2-078 C O1 (Suspended)	2.0339	80/20	2.0339
924321	AB2-079 C O1 (Suspended)	2.0339	80/20	2.0339
925331	AB2-190 C	-15.2463	Adder	-17.94
925611	AC1-036 C	0.9578	80/20	0.9578
925831	AC1-062	0.0554	80/20	0.0554
925861	AC1-065 C	-2.4191	Adder	-2.85
925991	AC1-075 C	8.3954	80/20	8.3954
926021	AC1-080 C	2.8058	80/20	2.8058
926051	AC1-083 C O1	5.2478	80/20	5.2478
926271	AC1-105 C O1 (Suspended)	9.0580	80/20	9.0580
926661	AC1-147 C	-1.9228	Adder	-2.26
926781	AC1-164 C	-27.3619	Adder	-32.19
927251	AC1-221 C	4.0131	80/20	4.0131
927261	AC1-222 C	6.3188	80/20	6.3188
932761	AC2-100 C	9.2356	80/20	9.2356
932831	AC2-110 C	-0.9676	Adder	-1.14

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933261	AC2-137 C	-1.3882	Adder	-1.63
933731	AC2-196 C	-1.5059	Adder	-1.77
933941	AD1-017 C	1.0496	80/20	1.0496
934311	AD1-055 C	4.3873	80/20	4.3873
934341	AD1-058 C	10.0602	80/20	10.0602
934611	AD1-087 C O1	19.4205	80/20	19.4205
934621	AD1-088 C	19.0767	80/20	19.0767
934991	AD1-131 C	3.2984	80/20	3.2984
935111	AD1-144 C	-1.3609	Adder	-1.6
935171	AD1-152 C O1	19.2998	80/20	19.2998
935221	AD1-157 C	1.5236	80/20	1.5236
936151	AD2-021	-0.1583	Adder	-0.19
936161	AD2-022 C O1	13.3614	80/20	13.3614
936171	AD2-023 C O1	7.7942	80/20	7.7942
936261	AD2-033 C	13.0946	80/20	13.0946
936301	AD2-039 C	-0.9676	Adder	-1.14
936361	AD2-046 C O1	8.3729	80/20	8.3729
936481	AD2-063 C O1	15.0615	80/20	15.0615
937251	AD2-164 (Withdrawn : 06/30/2020)	-3.8227	Adder	-4.5
937481	AD2-202 C O1	5.1466	80/20	5.1466
937541	AD2-215 C	-1.3749	Adder	-1.62
938031	AE1-004 C	-0.9676	Adder	-1.14
938371	AE1-056 C	6.5685	80/20	6.5685
938501	AE1-069 C O1	150.1652	80/20	150.1652
939181	AE1-148 C O1	8.2901	80/20	8.2901
939311	AE1-162 C	-1.7547	Adder	-2.06
940081	AE1-250 C	14.1417	80/20	14.1417
940241	AE2-006	0.4873	80/20	0.4873
940471	AE2-031 C	115.6856	80/20	115.6856
940601	AE2-047 C O1	4.5937	80/20	4.5937
940661	AE2-053 O1	3.0704	80/20	3.0704
941431	AE2-140 C O1	16.8321	80/20	16.8321
941791	AE2-182 C	3.0993	80/20	3.0993
942131	AE2-225 C	-1.6759	Adder	-1.97
942171	AE2-229 C	-1.6759	Adder	-1.97
942451	AE2-258	2.3537	80/20	2.3537
942461	AE2-259 C O1	10.2120	80/20	10.2120
942751	AE2-291 C O1	11.9193	80/20	11.9193
942761	AE2-292 C O1	14.8407	80/20	14.8407
942931	AE2-313 C	125.2596	80/20	125.2596
943811	AF1-049 C O1	11.8350	80/20	11.8350
943901	AF1-058 C	3.5020	80/20	3.5020
945811	AF1-246 C O1	21.5695	80/20	21.5695
946301	AF1-294 C	4.1574	80/20	4.1574
957481	AF2-042 C O2	154.0680	80/20	154.0680
958211	AF2-115 C	2.5350	80/20	2.5350
958801	AF2-171 C O2	15.2127	80/20	15.2127
959311	AF2-222 C	16.8160	80/20	16.8160
959751	AF2-266 O2	25.6780	80/20	25.6780
960061	AF2-297 C O2	16.6670	80/20	16.6670
960811	AF2-372 C	1.2847	80/20	1.2847
960821	AF2-373 C	1.3675	80/20	1.3675

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961081	AF2-399 C	0.3278	80/20	0.3278
WEC	WEC	1.5536	Confirmed LTF	1.5536
LGEE	LGEE	2.9312	Confirmed LTF	2.9312
CPL	CPL	14.6172	Confirmed LTF	14.6172
CBM-W2	CBM-W2	61.6052	Confirmed LTF	61.6052
NY	NY	2.0832	Confirmed LTF	2.0832
CBM-W1	CBM-W1	58.0964	Confirmed LTF	58.0964
TVA	TVA	12.8968	Confirmed LTF	12.8968
CBM-S2	CBM-S2	104.4562	Confirmed LTF	104.4562
CBM-S1	CBM-S1	72.0366	Confirmed LTF	72.0366
MADISON	MADISON	3.5220	Confirmed LTF	3.5220
MEC	MEC	9.3529	Confirmed LTF	9.3529
AA2-074	AA2-074	9.9648	LTF	9.9648

13.5.3 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
97279362	936480	AD2-063 TAP	DVP	314681	3CHASCTY	DVP	1	DVP_P4-5: FARMVIL L432	breaker	349.0	85.3	128.28	DC	150.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	5.7000	50/50	5.7000
925612	AC1-036 E	9.3000	50/50	9.3000
935221	AD1-157 C	9.0000	50/50	9.0000
935222	AD1-157 E	6.0000	50/50	6.0000
936481	AD2-063 C O1	90.0000	50/50	90.0000
936482	AD2-063 E O1	59.5000	50/50	59.5000
938371	AE1-056 C	38.8000	50/50	38.8000
938372	AE1-056 E	21.2000	50/50	21.2000
940241	AE2-006	2.9000	50/50	2.9000
942461	AE2-259 C O1	60.0000	50/50	60.0000
942462	AE2-259 E O1	40.0000	50/50	40.0000
958801	AF2-171 C O2	90.0000	50/50	90.0000
958802	AF2-171 E O2	60.0000	50/50	60.0000
959311	AF2-222 C	100.0000	50/50	100.0000
959312	AF2-222 E	67.0000	50/50	67.0000

13.5.4 Index 4

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
149083722	313707	6FORK UNION	DVP	314765	6MTEAGLE	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	114.14	117.55	DC	22.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1363	80/20	0.1363
314429	3JTRSVLE	0.5452	80/20	0.5452
314572	3EMPORIA	0.0219	80/20	0.0219
314677	6BUCKING	1.0694	80/20	1.0694
314704	3LAWRENC	0.1423	80/20	0.1423
315153	1CLOVER1	7.3430	80/20	7.3430
315154	1CLOVER2	7.2698	80/20	7.2698
315158	1KERR 1	0.2422	80/20	0.2422
315159	1KERR 2	0.6782	80/20	0.6782
315160	1KERR 3	0.6782	80/20	0.6782
315161	1KERR 4	0.6782	80/20	0.6782
315162	1KERR 5	0.6782	80/20	0.6782
315163	1KERR 6	0.6782	80/20	0.6782
315164	1KERR 7	0.6782	80/20	0.6782
315191	1BEARGRDN G1	15.0842	80/20	15.0842
315192	1BEARGRDN G2	15.0842	80/20	15.0842
315193	1BEARGRDN S1	31.0443	80/20	31.0443
315266	1PLYWOOD A	0.6953	80/20	0.6953
920291	AA2-127	3.1336	80/20	3.1336
924021	AB2-043 C O1	0.4312	80/20	0.4312
924161	AB2-060 C OP	1.2758	80/20	1.2758
924301	AB2-077 C O1 (Suspended)	1.5499	80/20	1.5499
924311	AB2-078 C O1 (Suspended)	1.5499	80/20	1.5499
924321	AB2-079 C O1 (Suspended)	1.5499	80/20	1.5499
925171	AB2-174 C O1	0.3622	80/20	0.3622
925611	AC1-036 C	1.1045	80/20	1.1045
925781	AC1-054 C O1	3.6512	80/20	3.6512
925831	AC1-062	0.0809	80/20	0.0809
925991	AC1-075 C	2.5684	80/20	2.5684
926021	AC1-080 C	0.8584	80/20	0.8584
926271	AC1-105 C O1 (Suspended)	3.1786	80/20	3.1786
926451	AC1-116 C	-0.9024	Adder	-1.06
927251	AC1-221 C	0.7555	80/20	0.7555
927261	AC1-222 C	1.8244	80/20	1.8244
932511	AC2-071 C	6.1076	80/20	6.1076
932761	AC2-100 C	1.7388	80/20	1.7388

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933501	AC2-165 C	32.1571	80/20	32.1571
934311	AD1-055 C	1.2668	80/20	1.2668
934341	AD1-058 C	1.8940	80/20	1.8940
934611	AD1-087 C O1	4.2050	80/20	4.2050
934621	AD1-088 C	19.9913	80/20	19.9913
934991	AD1-131 C	0.6210	80/20	0.6210
935171	AD1-152 C O1	4.1789	80/20	4.1789
935221	AD1-157 C	2.3854	80/20	2.3854
936261	AD2-033 C	14.2459	80/20	14.2459
936361	AD2-046 C O1	5.4614	80/20	5.4614
936481	AD2-063 C O1	14.0364	80/20	14.0364
937481	AD2-202 C O1	1.1144	80/20	1.1144
938371	AE1-056 C	10.2839	80/20	10.2839
938821	AE1-108 C	35.7983	80/20	35.7983
939181	AE1-148 C O1	5.4713	80/20	5.4713
940241	AE2-006	0.5619	80/20	0.5619
940661	AE2-053 O1	2.0264	80/20	2.0264
941011	AE2-092 C	29.1911	80/20	29.1911
941791	AE2-182 C	3.2479	80/20	3.2479
942451	AE2-258	1.8649	80/20	1.8649
942461	AE2-259 C O1	18.9528	80/20	18.9528
942751	AE2-291 C O1	3.7718	80/20	3.7718
942761	AE2-292 C O1	4.6962	80/20	4.6962
943901	AF1-058 C	0.9984	80/20	0.9984
943911	AF1-059	9.5960	80/20	9.5960
945811	AF1-246 C O1	3.2617	80/20	3.2617
946281	AF1-292 C	0.4551	80/20	0.4551
946291	AF1-293 C O1	47.0478	80/20	47.0478
946301	AF1-294 C	6.0747	80/20	6.0747
946591	AF1-323 C	11.4715	80/20	11.4715
957481	AF2-042 C O2	23.2980	80/20	23.2980
958131	AF2-107 C	6.0592	80/20	6.0592
958211	AF2-115 C	3.7041	80/20	3.7041
958801	AF2-171 C O2	22.5495	80/20	22.5495
959311	AF2-222 C	20.1270	80/20	20.1270
959751	AF2-266 O2	3.8830	80/20	3.8830
960061	AF2-297 C O2	3.7296	80/20	3.7296
960081	AF2-299 C	0.7671	80/20	0.7671
960111	AF2-302 C	4.1714	80/20	4.1714
960811	AF2-372 C	0.9790	80/20	0.9790
960821	AF2-373 C	0.5906	80/20	0.5906
961061	AF2-397 C O2	38.1787	80/20	38.1787
961081	AF2-399 C	0.4779	80/20	0.4779
WEC	WEC	0.1254	Confirmed LTF	0.1254
LGEE	LGEE	0.2482	Confirmed LTF	0.2482
CPL	CPL	2.1704	Confirmed LTF	2.1704
CBM-W2	CBM-W2	6.5766	Confirmed LTF	6.5766
NY	NY	0.4302	Confirmed LTF	0.4302
CBM-W1	CBM-W1	4.4035	Confirmed LTF	4.4035
TVA	TVA	1.4980	Confirmed LTF	1.4980
CBM-S2	CBM-S2	14.4558	Confirmed LTF	14.4558
CBM-S1	CBM-S1	8.1110	Confirmed LTF	8.1110

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MADISON	MADISON	0.5443	Confirmed LTF	0.5443
MEC	MEC	0.8692	Confirmed LTF	0.8692
AA2-074	AA2-074	1.4778	LTF	1.4778

13.5.5 Index 5

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
97986774	313867	6BREMODIST	DVP	313707	6FORK UNION	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	114.96	118.68	DC	24.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1491	80/20	0.1491
314429	3JTRSVLE	0.5962	80/20	0.5962
314572	3EMPORIA	0.0240	80/20	0.0240
314677	6BUCKING	1.1738	80/20	1.1738
314704	3LAWRENC	0.1552	80/20	0.1552
315153	1CLOVER1	8.0124	80/20	8.0124
315154	1CLOVER2	7.9325	80/20	7.9325
315158	1KERR 1	0.2616	80/20	0.2616
315159	1KERR 2	0.7325	80/20	0.7325
315160	1KERR 3	0.7325	80/20	0.7325
315161	1KERR 4	0.7325	80/20	0.7325
315162	1KERR 5	0.7325	80/20	0.7325
315163	1KERR 6	0.7325	80/20	0.7325
315164	1KERR 7	0.7325	80/20	0.7325
315191	1BEARGRDN G1	16.5646	80/20	16.5646
315192	1BEARGRDN G2	16.5646	80/20	16.5646
315193	1BEARGRDN S1	34.0910	80/20	34.0910
315266	1PLYWOOD A	0.7353	80/20	0.7353
920291	AA2-127	3.4412	80/20	3.4412
923572	AB1-173 C OP	0.7332	80/20	0.7332
923582	AB1-173AC OP	0.7332	80/20	0.7332
923911	AB2-031 C O1	0.7278	80/20	0.7278
923991	AB2-040 C O1	2.3896	80/20	2.3896
924021	AB2-043 C O1	0.4676	80/20	0.4676
924161	AB2-060 C OP	1.3842	80/20	1.3842
924301	AB2-077 C O1 (Suspended)	1.6795	80/20	1.6795
924311	AB2-078 C O1 (Suspended)	1.6795	80/20	1.6795
924321	AB2-079 C O1 (Suspended)	1.6795	80/20	1.6795
925171	AB2-174 C O1	0.3972	80/20	0.3972
925611	AC1-036 C	1.2045	80/20	1.2045
925781	AC1-054 C O1	3.9503	80/20	3.9503
925831	AC1-062	0.0885	80/20	0.0885
925991	AC1-075 C	2.3895	80/20	2.3895
926021	AC1-080 C	0.7986	80/20	0.7986
926271	AC1-105 C O1 (Suspended)	3.3692	80/20	3.3692
926451	AC1-116 C	-0.7531	Adder	-0.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
927251	AC1-221 C	0.7912	80/20	0.7912
927261	AC1-222 C	1.8753	80/20	1.8753
932511	AC2-071 C	6.7040	80/20	6.7040
932761	AC2-100 C	1.8208	80/20	1.8208
933501	AC2-165 C	35.3138	80/20	35.3138
934311	AD1-055 C	1.3021	80/20	1.3021
934341	AD1-058 C	1.9834	80/20	1.9834
934611	AD1-087 C O1	4.5455	80/20	4.5455
934621	AD1-088 C	21.9177	80/20	21.9177
934991	AD1-131 C	0.6503	80/20	0.6503
935171	AD1-152 C O1	4.5173	80/20	4.5173
935221	AD1-157 C	2.6102	80/20	2.6102
936261	AD2-033 C	15.5243	80/20	15.5243
936361	AD2-046 C O1	5.9036	80/20	5.9036
936481	AD2-063 C O1	15.2622	80/20	15.2622
937481	AD2-202 C O1	1.2046	80/20	1.2046
938371	AE1-056 C	11.2528	80/20	11.2528
938821	AE1-108 C	11.6026	80/20	11.6026
939181	AE1-148 C O1	5.9157	80/20	5.9157
940241	AE2-006	0.6128	80/20	0.6128
940661	AE2-053 O1	2.1910	80/20	2.1910
941791	AE2-182 C	3.5609	80/20	3.5609
942451	AE2-258	2.0222	80/20	2.0222
942461	AE2-259 C O1	20.7678	80/20	20.7678
942751	AE2-291 C O1	3.3042	80/20	3.3042
942761	AE2-292 C O1	4.1140	80/20	4.1140
943901	AF1-058 C	1.0482	80/20	1.0482
943911	AF1-059	10.4370	80/20	10.4370
945811	AF1-246 C O1	3.5725	80/20	3.5725
946281	AF1-292 C	0.4998	80/20	0.4998
946291	AF1-293 C O1	6.7728	80/20	6.7728
946301	AF1-294 C	6.6427	80/20	6.6427
946591	AF1-323 C	3.7326	80/20	3.7326
957481	AF2-042 C O2	25.5180	80/20	25.5180
958131	AF2-107 C	2.0323	80/20	2.0323
958211	AF2-115 C	4.0505	80/20	4.0505
958801	AF2-171 C O2	24.6609	80/20	24.6609
959311	AF2-222 C	21.9610	80/20	21.9610
959751	AF2-266 O2	4.2530	80/20	4.2530
960061	AF2-297 C O2	3.9840	80/20	3.9840
960081	AF2-299 C	0.8424	80/20	0.8424
960111	AF2-302 C	1.3573	80/20	1.3573
960811	AF2-372 C	1.0609	80/20	1.0609
960821	AF2-373 C	0.6309	80/20	0.6309
961061	AF2-397 C O2	12.2920	80/20	12.2920
961081	AF2-399 C	0.5225	80/20	0.5225
WEC	WEC	0.0636	Confirmed LTF	0.0636
LGEE	LGEE	0.1278	Confirmed LTF	0.1278
CPL	CPL	2.2326	Confirmed LTF	2.2326
CBM-W2	CBM-W2	5.0614	Confirmed LTF	5.0614
NY	NY	0.4015	Confirmed LTF	0.4015
CBM-W1	CBM-W1	2.0391	Confirmed LTF	2.0391

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
TVA	TVA	1.2404	Confirmed LTF	1.2404
CBM-S2	CBM-S2	14.2882	Confirmed LTF	14.2882
CBM-S1	CBM-S1	6.5008	Confirmed LTF	6.5008
MADISON	MADISON	0.5786	Confirmed LTF	0.5786
MEC	MEC	0.5641	Confirmed LTF	0.5641
AA2-074	AA2-074	1.5188	LTF	1.5188

13.5.6 Index 6

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
97754523	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P4-2: 511T556	breaker	699.0	133.38	141.49	DC	61.29

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.2225	50/50	0.2225
314429	3JTRSVLE	0.8900	50/50	0.8900
314677	6BUCKING	1.6254	50/50	1.6254
315153	1CLOVER1	22.4668	50/50	22.4668
315154	1CLOVER2	22.2429	50/50	22.2429
924022	AB2-043 E O1	3.2830	Adder	3.86
924032	AB2-045 E	4.3975	50/50	4.3975
924162	AB2-060 E OP	5.0960	Adder	6.0
924301	AB2-077 C O1 (Suspended)	2.2889	Adder	2.69
924302	AB2-077 E O1 (Suspended)	1.5259	Adder	1.8
924311	AB2-078 C O1 (Suspended)	2.2889	Adder	2.69
924312	AB2-078 E O1 (Suspended)	1.5259	Adder	1.8
924321	AB2-079 C O1 (Suspended)	2.2889	Adder	2.69
924322	AB2-079 E O1 (Suspended)	1.5259	Adder	1.8
925611	AC1-036 C	1.8363	50/50	1.8363
925612	AC1-036 E	2.9961	50/50	2.9961
925781	AC1-054 C O1	5.1714	Adder	6.08
925782	AC1-054 E O1	2.3823	Adder	2.8
925831	AC1-062	0.1321	50/50	0.1321
925991	AC1-075 C	4.2224	Adder	4.97
925992	AC1-075 E	2.3923	Adder	2.81
926021	AC1-080 C	1.4111	Adder	1.66
926022	AC1-080 E	0.7938	Adder	0.93
926271	AC1-105 C O1 (Suspended)	5.7567	Adder	6.77
926272	AC1-105 E O1 (Suspended)	2.8657	Adder	3.37
926451	AC1-116 C	-0.3880	Adder	-0.46
927251	AC1-221 C	1.4229	Adder	1.67
927252	AC1-221 E	1.4229	Adder	1.67
927261	AC1-222 C	3.4591	Adder	4.07
927262	AC1-222 E	3.2930	Adder	3.87
932511	AC2-071 C	9.2835	50/50	9.2835
932512	AC2-071 E	4.6767	50/50	4.6767
932761	AC2-100 C	3.2747	Adder	3.85
932762	AC2-100 E	1.5984	Adder	1.88

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934311	AD1-055 C	2.4018	Adder	2.83
934312	AD1-055 E	0.6193	Adder	0.73
934341	AD1-058 C	3.5671	Adder	4.2
934342	AD1-058 E	0.9064	Adder	1.07
934611	AD1-087 C O1	10.2490	Adder	12.06
934612	AD1-087 E O1	4.8168	Adder	5.67
934621	AD1-088 C	35.2759	50/50	35.2759
934622	AD1-088 E	16.6004	50/50	16.6004
934991	AD1-131 C	1.1695	Adder	1.38
934992	AD1-131 E	0.7797	Adder	0.92
935171	AD1-152 C O1	10.1853	Adder	11.98
935172	AD1-152 E O1	6.7902	Adder	7.99
935221	AD1-157 C	3.8759	50/50	3.8759
935222	AD1-157 E	2.5840	50/50	2.5840
936261	AD2-033 C	23.8079	50/50	23.8079
936262	AD2-033 E	15.8720	50/50	15.8720
936361	AD2-046 C O1	7.9875	Adder	9.4
936362	AD2-046 E O1	3.6731	Adder	4.32
936481	AD2-063 C O1	20.2427	Adder	23.81
936482	AD2-063 E O1	13.3827	Adder	15.74
937481	AD2-202 C O1	2.7161	Adder	3.2
937482	AD2-202 E O1	1.5278	Adder	1.8
938371	AE1-056 C	16.7096	50/50	16.7096
938372	AE1-056 E	9.1300	50/50	9.1300
939181	AE1-148 C O1	8.0045	Adder	9.42
939182	AE1-148 E O1	5.3363	Adder	6.28
940241	AE2-006	0.9343	50/50	0.9343
940661	AE2-053 O1	2.9646	Adder	3.49
941791	AE2-182 C	5.7311	50/50	5.7311
941792	AE2-182 E	2.6679	50/50	2.6679
942451	AE2-258	2.7391	Adder	3.22
942461	AE2-259 C O1	30.4818	50/50	30.4818
942462	AE2-259 E O1	20.3212	50/50	20.3212
942751	AE2-291 C O1	5.6712	Adder	6.67
942752	AE2-291 E O1	3.7808	Adder	4.45
942761	AE2-292 C O1	7.0612	Adder	8.31
942762	AE2-292 E O1	4.7075	Adder	5.54
943901	AF1-058 C	1.9498	Adder	2.29
943902	AF1-058 E	1.2999	Adder	1.53
943911	AF1-059	13.3220	Adder	15.67
945811	AF1-246 C O1	10.5311	Adder	12.39
945812	AF1-246 E O1	17.1094	50/50	17.1094
946293	AF1-293 BAT	11.0414	Merchant Transmission	11.0414
946301	AF1-294 C	9.9165	50/50	9.9165
946302	AF1-294 E	6.6110	50/50	6.6110
957481	AF2-042 C O2	88.4970	50/50	88.4970
957482	AF2-042 E O2	58.9980	50/50	58.9980
958211	AF2-115 C	6.0467	50/50	6.0467
958212	AF2-115 E	4.0311	50/50	4.0311
958801	AF2-171 C O2	36.7731	50/50	36.7731
958802	AF2-171 E O2	24.5154	50/50	24.5154
959311	AF2-222 C	33.3580	50/50	33.3580

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959312	AF2-222 E	22.3499	50/50	22.3499
959751	AF2-266 O2	6.6446	Adder	14.75
960061	AF2-297 C O2	4.4171	Adder	9.8
960062	AF2-297 E O2	2.9448	Adder	6.54
960811	AF2-372 C	0.7663	Adder	1.7
960812	AF2-372 E	1.2505	Adder	2.78
960821	AF2-373 C	0.5309	Adder	1.18
960822	AF2-373 E	0.7963	Adder	1.77
961063	AF2-397 BAT	4.1525	Merchant Transmission	4.1525
961081	AF2-399 C	0.7802	50/50	0.7802
961082	AF2-399 E	1.3191	50/50	1.3191
WEC	WEC	0.2974	Confirmed LTF	0.2974
LGEE	LGEE	0.5619	Confirmed LTF	0.5619
CPL	CPL	3.4934	Confirmed LTF	3.4934
CBM-W2	CBM-W2	12.4079	Confirmed LTF	12.4079
NY	NY	0.3932	Confirmed LTF	0.3932
CBM-W1	CBM-W1	11.0588	Confirmed LTF	11.0588
TVA	TVA	2.6432	Confirmed LTF	2.6432
O-066	O-066	5.4835	Confirmed LTF	5.4835
CBM-S2	CBM-S2	23.4437	Confirmed LTF	23.4437
CBM-S1	CBM-S1	14.6544	Confirmed LTF	14.6544
G-007	G-007	0.8549	Confirmed LTF	0.8549
MADISON	MADISON	0.7822	Confirmed LTF	0.7822
MEC	MEC	1.8337	Confirmed LTF	1.8337
AA2-074	AA2-074	2.3805	LTF	2.3805

13.5.7 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
106328264	314686	6CLOVER	DVP	934610	AD1-087 TAP	DVP	1	DVP_P1-2: LN 556-B	single	814.98	109.28	110.74	DC	11.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.0707	80/20	0.0707
314333	6POWHATN	0.1384	80/20	0.1384
314429	3JTRSVLE	0.2828	80/20	0.2828
314677	6BUCKING	0.4694	80/20	0.4694
315153	1CLOVER1	51.7091	80/20	51.7091
315154	1CLOVER2	51.1938	80/20	51.1938
315191	1BEARGRDN G1	3.1145	80/20	3.1145
315192	1BEARGRDN G2	3.1145	80/20	3.1145
315193	1BEARGRDN S1	6.4099	80/20	6.4099
920291	AA2-127	0.6470	80/20	0.6470
925611	AC1-036 C	0.3848	80/20	0.3848
925831	AC1-062	0.0420	80/20	0.0420
925991	AC1-075 C	-3.3297	Adder	-3.92
926021	AC1-080 C	-1.1128	Adder	-1.31
926271	AC1-105 C O1 (Suspended)	-3.4045	Adder	-4.01
926451	AC1-116 C	0.2932	80/20	0.2932
927251	AC1-221 C	-1.3047	Adder	-1.53
927261	AC1-222 C	-2.6803	Adder	-3.15
932511	AC2-071 C	2.6809	80/20	2.6809
933501	AC2-165 C	3.8965	80/20	3.8965
934311	AD1-055 C	-1.8610	Adder	-2.19
934341	AD1-058 C	-3.2706	Adder	-3.85
934621	AD1-088 C	29.1619	80/20	29.1619
935221	AD1-157 C	1.3385	80/20	1.3385
936261	AD2-033 C	4.2728	80/20	4.2728
938371	AE1-056 C	5.7703	80/20	5.7703
938561	AE1-075 C	0.7037	80/20	0.7037
938821	AE1-108 C	6.5977	80/20	6.5977
940241	AE2-006	0.1958	80/20	0.1958
941011	AE2-092 C	6.4559	80/20	6.4559
941791	AE2-182 C	4.7378	80/20	4.7378
942461	AE2-259 C O1	12.3990	80/20	12.3990
945811	AF1-246 C O1	28.5180	80/20	28.5180
946291	AF1-293 C O1	9.6964	80/20	9.6964
946301	AF1-294 C	3.1505	80/20	3.1505
946591	AF1-323 C	2.0140	80/20	2.0140
957481	AF2-042 C O2	203.7000	80/20	203.7000
958211	AF2-115 C	1.9211	80/20	1.9211
958501	AF2-144 C	0.5932	80/20	0.5932
958801	AF2-171 C O2	11.8980	80/20	11.8980
959311	AF2-222 C	7.6050	80/20	7.6050

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
959531	AF2-244 C	0.5467	80/20	0.5467
959751	AF2-266 O2	33.9500	80/20	33.9500
960111	AF2-302 C	0.7324	80/20	0.7324
961061	AF2-397 C O2	7.5925	80/20	7.5925
961081	AF2-399 C	0.2471	80/20	0.2471
NEWTON	NEWTON	1.4044	Confirmed LTF	1.4044
FARMERCITY	FARMERCITY	0.0797	Confirmed LTF	0.0797
G-007A	G-007A	0.4100	Confirmed LTF	0.4100
VFT	VFT	1.0772	Confirmed LTF	1.0772
CALDERWOOD	CALDERWOOD	1.0760	Confirmed LTF	1.0760
PRAIRIE	PRAIRIE	3.7479	Confirmed LTF	3.7479
CHEOAH	CHEOAH	1.1026	Confirmed LTF	1.1026
EDWARDS	EDWARDS	0.4263	Confirmed LTF	0.4263
TILTON	TILTON	0.7566	Confirmed LTF	0.7566
GIBSON	GIBSON	0.6825	Confirmed LTF	0.6825
BLUEG	BLUEG	2.1162	Confirmed LTF	2.1162
TRIMBLE	TRIMBLE	0.6723	Confirmed LTF	0.6723
CATAWBA	CATAWBA	1.1473	Confirmed LTF	1.1473

13.5.8 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
97754538	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P4-2: 556T591	breaker	684.0	132.23	140.52	DC	61.3

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.2225	50/50	0.2225
314429	3JTRSVLE	0.8902	50/50	0.8902
315153	1CLOVER1	22.4721	50/50	22.4721
315154	1CLOVER2	22.2481	50/50	22.2481
924022	AB2-043 E O1	3.2840	Adder	3.86
924162	AB2-060 E OP	5.0975	Adder	6.0
924301	AB2-077 C O1 (Suspended)	2.2896	Adder	2.69
924302	AB2-077 E O1 (Suspended)	1.5264	Adder	1.8
924311	AB2-078 C O1 (Suspended)	2.2896	Adder	2.69
924312	AB2-078 E O1 (Suspended)	1.5264	Adder	1.8
924321	AB2-079 C O1 (Suspended)	2.2896	Adder	2.69
924322	AB2-079 E O1 (Suspended)	1.5264	Adder	1.8
925611	AC1-036 C	1.8367	50/50	1.8367
925612	AC1-036 E	2.9967	50/50	2.9967
925781	AC1-054 C O1	5.1741	Adder	6.09
925782	AC1-054 E O1	2.3836	Adder	2.8
925831	AC1-062	0.1321	50/50	0.1321
925991	AC1-075 C	4.2247	Adder	4.97
925992	AC1-075 E	2.3936	Adder	2.82
926021	AC1-080 C	1.4119	Adder	1.66
926022	AC1-080 E	0.7942	Adder	0.93
926271	AC1-105 C O1 (Suspended)	5.7587	Adder	6.77
926272	AC1-105 E O1 (Suspended)	2.8667	Adder	3.37
926451	AC1-116 C	-0.3877	Adder	-0.46
927251	AC1-221 C	1.4238	Adder	1.68
927252	AC1-221 E	1.4238	Adder	1.68
927261	AC1-222 C	3.4605	Adder	4.07
927262	AC1-222 E	3.2943	Adder	3.88
932761	AC2-100 C	3.2767	Adder	3.85
932762	AC2-100 E	1.5993	Adder	1.88
934311	AD1-055 C	2.4027	Adder	2.83
934312	AD1-055 E	0.6196	Adder	0.73
934341	AD1-058 C	3.5693	Adder	4.2
934342	AD1-058 E	0.9069	Adder	1.07

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
934611	AD1-087 C O1	10.2518	Adder	12.06
934612	AD1-087 E O1	4.8182	Adder	5.67
934621	AD1-088 C	35.2809	50/50	35.2809
934622	AD1-088 E	16.6028	50/50	16.6028
934991	AD1-131 C	1.1702	Adder	1.38
934992	AD1-131 E	0.7802	Adder	0.92
935171	AD1-152 C O1	10.1882	Adder	11.99
935172	AD1-152 E O1	6.7921	Adder	7.99
935221	AD1-157 C	3.8766	50/50	3.8766
935222	AD1-157 E	2.5844	50/50	2.5844
936261	AD2-033 C	23.8134	50/50	23.8134
936262	AD2-033 E	15.8756	50/50	15.8756
936361	AD2-046 C O1	7.9908	Adder	9.4
936362	AD2-046 E O1	3.6746	Adder	4.32
936481	AD2-063 C O1	20.2480	Adder	23.82
936482	AD2-063 E O1	13.3862	Adder	15.75
937481	AD2-202 C O1	2.7168	Adder	3.2
937482	AD2-202 E O1	1.5282	Adder	1.8
938371	AE1-056 C	16.7123	50/50	16.7123
938372	AE1-056 E	9.1315	50/50	9.1315
938561	AE1-075 C	-0.9180	Adder	-1.08
939181	AE1-148 C O1	8.0077	Adder	9.42
939182	AE1-148 E O1	5.3385	Adder	6.28
940241	AE2-006	0.9345	50/50	0.9345
940661	AE2-053 O1	2.9658	Adder	3.49
941791	AE2-182 C	5.7319	50/50	5.7319
941792	AE2-182 E	2.6683	50/50	2.6683
942451	AE2-258	2.7399	Adder	3.22
942461	AE2-259 C O1	30.4860	50/50	30.4860
942462	AE2-259 E O1	20.3240	50/50	20.3240
942751	AE2-291 C O1	5.6749	Adder	6.68
942752	AE2-291 E O1	3.7832	Adder	4.45
942761	AE2-292 C O1	7.0658	Adder	8.31
942762	AE2-292 E O1	4.7105	Adder	5.54
943901	AF1-058 C	1.9505	Adder	2.29
943902	AF1-058 E	1.3004	Adder	1.53
943911	AF1-059	13.3280	Adder	15.68
945811	AF1-246 C O1	10.5336	Adder	12.39
945812	AF1-246 E O1	17.1135	50/50	17.1135
946293	AF1-293 BAT	11.0357	Merchant Transmission	11.0357
946301	AF1-294 C	9.9182	50/50	9.9182
946302	AF1-294 E	6.6122	50/50	6.6122
957481	AF2-042 C O2	88.5180	50/50	88.5180
957482	AF2-042 E O2	59.0120	50/50	59.0120
958211	AF2-115 C	6.0477	50/50	6.0477
958212	AF2-115 E	4.0318	50/50	4.0318
958503	AF2-144 BAT	0.4731	Merchant Transmission	0.4731
958801	AF2-171 C O2	36.7794	50/50	36.7794
958802	AF2-171 E O2	24.5196	50/50	24.5196
959311	AF2-222 C	33.3650	50/50	33.3650
959312	AF2-222 E	22.3545	50/50	22.3545
959751	AF2-266 O2	6.6462	Adder	14.75

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960061	AF2-297 C O2	4.4186	Adder	9.81
960062	AF2-297 E O2	2.9458	Adder	6.54
960811	AF2-372 C	0.7665	Adder	1.7
960812	AF2-372 E	1.2509	Adder	2.78
960821	AF2-373 C	0.5310	Adder	1.18
960822	AF2-373 E	0.7965	Adder	1.77
961063	AF2-397 BAT	4.1505	Merchant Transmission	4.1505
961081	AF2-399 C	0.7803	50/50	0.7803
961082	AF2-399 E	1.3193	50/50	1.3193
WEC	WEC	0.2996	Confirmed LTF	0.2996
LGEE	LGEE	0.5659	Confirmed LTF	0.5659
CPL	CPL	3.4980	Confirmed LTF	3.4980
CBM-W2	CBM-W2	12.4652	Confirmed LTF	12.4652
NY	NY	0.3893	Confirmed LTF	0.3893
CBM-W1	CBM-W1	11.1464	Confirmed LTF	11.1464
TVA	TVA	2.6530	Confirmed LTF	2.6530
O-066	O-066	5.4365	Confirmed LTF	5.4365
CBM-S2	CBM-S2	23.4841	Confirmed LTF	23.4841
CBM-S1	CBM-S1	14.7140	Confirmed LTF	14.7140
G-007	G-007	0.8476	Confirmed LTF	0.8476
MADISON	MADISON	0.7822	Confirmed LTF	0.7822
MEC	MEC	1.8448	Confirmed LTF	1.8448
AA2-074	AA2-074	2.3836	LTF	2.3836

13.5.9 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
106327949	314697	6SEEDGE HILL	DVP	927250	AC1-221 TAP	DVP	1	DVP_P1-2: LN 556-B	single	674.92	126.6	129.31	DC	21.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1294	80/20	0.1294
314429	3JTRSVLE	0.5174	80/20	0.5174
314677	6BUCKING	0.4258	80/20	0.4258
315153	1CLOVER1	39.4381	80/20	39.4381
315154	1CLOVER2	39.0451	80/20	39.0451
315156	1HALLBR1	1.1309	80/20	1.1309
315158	1KERR 1	0.3659	80/20	0.3659
315159	1KERR 2	1.0244	80/20	1.0244
315160	1KERR 3	1.0244	80/20	1.0244
315161	1KERR 4	1.0244	80/20	1.0244
315162	1KERR 5	1.0244	80/20	1.0244
315163	1KERR 6	1.0244	80/20	1.0244
315164	1KERR 7	1.0244	80/20	1.0244
315192	1BEARGRDN G2	2.8787	80/20	2.8787
315193	1BEARGRDN S1	5.9246	80/20	5.9246
315266	1PLYWOOD A	3.3432	80/20	3.3432
924021	AB2-043 C O1	0.7329	80/20	0.7329
924161	AB2-060 C OP	2.1135	80/20	2.1135
924301	AB2-077 C O1 (Suspended)	2.7328	80/20	2.7328
924311	AB2-078 C O1 (Suspended)	2.7328	80/20	2.7328
924321	AB2-079 C O1 (Suspended)	2.7328	80/20	2.7328
925611	AC1-036 C	1.3105	80/20	1.3105
925661	AC1-042 C	1.3657	Adder	1.61
925781	AC1-054 C O1	5.0298	80/20	5.0298
925831	AC1-062	0.0768	80/20	0.0768
925991	AC1-075 C	11.9864	80/20	11.9864
926021	AC1-080 C	4.0059	80/20	4.0059
926271	AC1-105 C O1 (Suspended)	14.5305	80/20	14.5305
926641	AC1-145 C	1.6258	Adder	1.91
927251	AC1-221 C	-2.4414	Adder	-2.87
927261	AC1-222 C	10.1431	80/20	10.1431
932511	AC2-071 C	2.4320	80/20	2.4320
934311	AD1-055 C	7.0426	80/20	7.0426
934341	AD1-058 C	-6.1203	Adder	-7.2
934611	AD1-087 C O1	27.0094	80/20	27.0094
934621	AD1-088 C	24.0247	80/20	24.0247
935171	AD1-152 C O1	26.8416	80/20	26.8416
935221	AD1-157 C	2.1223	80/20	2.1223

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936261	AD2-033 C	17.8675	80/20	17.8675
936361	AD2-046 C O1	8.4639	80/20	8.4639
936481	AD2-063 C O1	20.4093	80/20	20.4093
937481	AD2-202 C O1	7.1578	80/20	7.1578
938371	AE1-056 C	9.1494	80/20	9.1494
939181	AE1-148 C O1	8.5347	80/20	8.5347
939941	AE1-230 C	0.6161	Adder	0.72
940241	AE2-006	0.6667	80/20	0.6667
940661	AE2-053 O1	3.1610	80/20	3.1610
941791	AE2-182 C	3.9032	80/20	3.9032
941801	AE2-185 C	3.0805	Adder	3.62
941821	AE2-187 C	3.0805	Adder	3.62
942451	AE2-258	3.1698	80/20	3.1698
942461	AE2-259 C O1	14.4012	80/20	14.4012
942671	AE2-283 C	3.3886	Adder	3.99
942751	AE2-291 C O1	15.7260	80/20	15.7260
942761	AE2-292 C O1	19.5804	80/20	19.5804
943901	AF1-058 C	5.7522	80/20	5.7522
943911	AF1-059	14.3780	80/20	14.3780
945081	AF1-173	1.1937	Adder	1.4
945811	AF1-246 C O1	21.7505	80/20	21.7505
946301	AF1-294 C	5.7653	80/20	5.7653
957481	AF2-042 C O2	155.3610	80/20	155.3610
958211	AF2-115 C	3.5154	80/20	3.5154
958801	AF2-171 C O2	21.1149	80/20	21.1149
959311	AF2-222 C	23.0530	80/20	23.0530
959751	AF2-266 O2	25.8935	80/20	25.8935
960061	AF2-297 C O2	28.8259	80/20	28.8259
960811	AF2-372 C	1.7262	80/20	1.7262
960821	AF2-373 C	2.1290	80/20	2.1290
961081	AF2-399 C	0.4546	80/20	0.4546
961121	AF2-403	0.3628	Adder	0.81
NEWTON	NEWTON	1.6150	Confirmed LTF	1.6150
FARMERCITY	FARMERCITY	0.0953	Confirmed LTF	0.0953
G-007A	G-007A	0.4939	Confirmed LTF	0.4939
VFT	VFT	1.3094	Confirmed LTF	1.3094
CALDERWOOD	CALDERWOOD	1.4284	Confirmed LTF	1.4284
PRAIRIE	PRAIRIE	4.4893	Confirmed LTF	4.4893
AC1-131	AC1-131	5.1015	LTF	5.1015
CHEOAH	CHEOAH	1.4720	Confirmed LTF	1.4720
EDWARDS	EDWARDS	0.4816	Confirmed LTF	0.4816
TILTON	TILTON	0.8429	Confirmed LTF	0.8429
GIBSON	GIBSON	0.7671	Confirmed LTF	0.7671
BLUEG	BLUEG	2.3314	Confirmed LTF	2.3314
TRIMBLE	TRIMBLE	0.7379	Confirmed LTF	0.7379
CATAWBA	CATAWBA	1.6961	Confirmed LTF	1.6961

13.5.10 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
96899328	314702	3KERR	DVP	304102	3GW KING TAP	CPL	1	DVP_P4-2: 15832	breaker	199.0	116.81	130.72	DC	27.67

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315158	1KERR 1	0.7167	50/50	0.7167
315159	1KERR 2	2.0066	50/50	2.0066
315160	1KERR 3	2.0066	50/50	2.0066
315161	1KERR 4	2.0066	50/50	2.0066
315162	1KERR 5	2.0066	50/50	2.0066
315163	1KERR 6	2.0066	50/50	2.0066
315164	1KERR 7	2.0066	50/50	2.0066
918492	AA1-063AE OP	1.2854	Adder	1.51
919692	AA2-053 E OP	1.2775	Adder	1.5
920672	AA2-174 E OP	0.1476	Adder	0.17
923572	AB1-173 C OP	0.7847	Adder	0.92
923573	AB1-173 E OP	0.3662	Adder	0.43
923582	AB1-173AC OP	0.7847	Adder	0.92
923583	AB1-173AE OP	0.3662	Adder	0.43
923911	AB2-031 C O1	0.7788	Adder	0.92
923912	AB2-031 E O1	0.3836	Adder	0.45
923991	AB2-040 C O1	2.5574	Adder	3.01
923992	AB2-040 E O1	2.0924	Adder	2.46
924021	AB2-043 C O1	0.6015	50/50	0.6015
924022	AB2-043 E O1	3.1179	50/50	3.1179
924162	AB2-060 E OP	4.0141	Adder	4.72
924301	AB2-077 C O1 (Suspended)	2.2216	50/50	2.2216
924302	AB2-077 E O1 (Suspended)	1.4810	50/50	1.4810
924311	AB2-078 C O1 (Suspended)	2.2216	50/50	2.2216
924312	AB2-078 E O1 (Suspended)	1.4810	50/50	1.4810
924321	AB2-079 C O1 (Suspended)	2.2216	50/50	2.2216
924322	AB2-079 E O1 (Suspended)	1.4810	50/50	1.4810
925172	AB2-174 E O1	2.1618	Adder	2.54
925611	AC1-036 C	1.0516	50/50	1.0516
925612	AC1-036 E	1.7158	50/50	1.7158
925781	AC1-054 C O1	10.0708	50/50	10.0708
925782	AC1-054 E O1	4.6394	50/50	4.6394
926271	AC1-105 C O1 (Suspended)	2.1895	Adder	2.58
926272	AC1-105 E O1 (Suspended)	1.0899	Adder	1.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
935221	AD1-157 C	1.6605	50/50	1.6605
935222	AD1-157 E	1.1070	50/50	1.1070
936261	AD2-033 C	12.2310	Adder	14.39
936262	AD2-033 E	8.1540	Adder	9.59
936361	AD2-046 C O1	14.3861	50/50	14.3861
936362	AD2-046 E O1	6.6155	50/50	6.6155
936481	AD2-063 C O1	16.6050	50/50	16.6050
936482	AD2-063 E O1	10.9778	50/50	10.9778
938371	AE1-056 C	7.1586	50/50	7.1586
938372	AE1-056 E	3.9114	50/50	3.9114
939181	AE1-148 C O1	13.9612	50/50	13.9612
939182	AE1-148 E O1	9.3074	50/50	9.3074
940241	AE2-006	0.5350	50/50	0.5350
940661	AE2-053 O1	5.1708	50/50	5.1708
942451	AE2-258	2.6013	50/50	2.6013
942461	AE2-259 C O1	11.0706	50/50	11.0706
942462	AE2-259 E O1	7.3804	50/50	7.3804
943911	AF1-059	11.0653	Adder	13.02
946281	AF1-292 C	0.4774	Adder	0.56
946282	AF1-292 E	0.3219	Adder	0.38
946301	AF1-294 C	3.8575	Adder	4.54
946302	AF1-294 E	2.5717	Adder	3.03
958211	AF2-115 C	1.2466	Adder	2.77
958212	AF2-115 E	0.8311	Adder	1.84
958801	AF2-171 C O2	16.6050	50/50	16.6050
958802	AF2-171 E O2	11.0700	50/50	11.0700
959311	AF2-222 C	18.4500	50/50	18.4500
959312	AF2-222 E	12.3615	50/50	12.3615
960081	AF2-299 C	0.4265	Adder	0.95
960082	AF2-299 E	0.2843	Adder	0.63
960811	AF2-372 C	1.4033	50/50	1.4033
960812	AF2-372 E	2.2901	50/50	2.2901
960821	AF2-373 C	0.2680	Adder	0.59
960822	AF2-373 E	0.4019	Adder	0.89
961081	AF2-399 C	0.1612	Adder	0.36
961082	AF2-399 E	0.2726	Adder	0.61
NEWTON	NEWTON	0.4803	Confirmed LTF	0.4803
FARMERCITY	FARMERCITY	0.0274	Confirmed LTF	0.0274
G-007A	G-007A	0.1822	Confirmed LTF	0.1822
VFT	VFT	0.4773	Confirmed LTF	0.4773
CALDERWOOD	CALDERWOOD	0.3762	Confirmed LTF	0.3762
PRAIRIE	PRAIRIE	1.2889	Confirmed LTF	1.2889
CHEOAH	CHEOAH	0.3859	Confirmed LTF	0.3859
EDWARDS	EDWARDS	0.1456	Confirmed LTF	0.1456
TILTON	TILTON	0.2577	Confirmed LTF	0.2577
GIBSON	GIBSON	0.2326	Confirmed LTF	0.2326
BLUEG	BLUEG	0.7187	Confirmed LTF	0.7187
TRIMBLE	TRIMBLE	0.2282	Confirmed LTF	0.2282
CATAWBA	CATAWBA	0.4116	Confirmed LTF	0.4116

13.5.11 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
97986754	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	117.33	121.06	DC	24.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1491	80/20	0.1491
314429	3JTRSVLE	0.5962	80/20	0.5962
314572	3EMPORIA	0.0240	80/20	0.0240
314677	6BUCKING	1.1738	80/20	1.1738
314704	3LAWRENC	0.1552	80/20	0.1552
315153	1CLOVER1	8.0124	80/20	8.0124
315154	1CLOVER2	7.9325	80/20	7.9325
315158	1KERR 1	0.2616	80/20	0.2616
315159	1KERR 2	0.7325	80/20	0.7325
315160	1KERR 3	0.7325	80/20	0.7325
315161	1KERR 4	0.7325	80/20	0.7325
315162	1KERR 5	0.7325	80/20	0.7325
315163	1KERR 6	0.7325	80/20	0.7325
315164	1KERR 7	0.7325	80/20	0.7325
315191	1BEARGRDN G1	16.5646	80/20	16.5646
315192	1BEARGRDN G2	16.5646	80/20	16.5646
315193	1BEARGRDN S1	34.0910	80/20	34.0910
315266	1PLYWOOD A	0.7353	80/20	0.7353
920291	AA2-127	3.4412	80/20	3.4412
923572	AB1-173 C OP	0.7332	80/20	0.7332
923582	AB1-173AC OP	0.7332	80/20	0.7332
923911	AB2-031 C O1	0.7278	80/20	0.7278
923991	AB2-040 C O1	2.3896	80/20	2.3896
924021	AB2-043 C O1	0.4676	80/20	0.4676
924161	AB2-060 C OP	1.3842	80/20	1.3842
924301	AB2-077 C O1 (Suspended)	1.6795	80/20	1.6795
924311	AB2-078 C O1 (Suspended)	1.6795	80/20	1.6795
924321	AB2-079 C O1 (Suspended)	1.6795	80/20	1.6795
925171	AB2-174 C O1	0.3972	80/20	0.3972
925611	AC1-036 C	1.2045	80/20	1.2045
925781	AC1-054 C O1	3.9503	80/20	3.9503
925831	AC1-062	0.0885	80/20	0.0885
925991	AC1-075 C	2.3895	80/20	2.3895
926021	AC1-080 C	0.7986	80/20	0.7986
926271	AC1-105 C O1 (Suspended)	3.3692	80/20	3.3692
926451	AC1-116 C	-0.7531	Adder	-0.89

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
927251	AC1-221 C	0.7912	80/20	0.7912
927261	AC1-222 C	1.8753	80/20	1.8753
932511	AC2-071 C	6.7040	80/20	6.7040
932761	AC2-100 C	1.8208	80/20	1.8208
933501	AC2-165 C	35.3138	80/20	35.3138
934311	AD1-055 C	1.3021	80/20	1.3021
934341	AD1-058 C	1.9834	80/20	1.9834
934611	AD1-087 C O1	4.5455	80/20	4.5455
934621	AD1-088 C	21.9177	80/20	21.9177
934991	AD1-131 C	0.6503	80/20	0.6503
935171	AD1-152 C O1	4.5173	80/20	4.5173
935221	AD1-157 C	2.6102	80/20	2.6102
936261	AD2-033 C	15.5243	80/20	15.5243
936361	AD2-046 C O1	5.9036	80/20	5.9036
936481	AD2-063 C O1	15.2622	80/20	15.2622
937481	AD2-202 C O1	1.2046	80/20	1.2046
938371	AE1-056 C	11.2528	80/20	11.2528
938821	AE1-108 C	11.6026	80/20	11.6026
939181	AE1-148 C O1	5.9157	80/20	5.9157
940241	AE2-006	0.6128	80/20	0.6128
940661	AE2-053 O1	2.1910	80/20	2.1910
941791	AE2-182 C	3.5609	80/20	3.5609
942451	AE2-258	2.0222	80/20	2.0222
942461	AE2-259 C O1	20.7678	80/20	20.7678
942751	AE2-291 C O1	3.3042	80/20	3.3042
942761	AE2-292 C O1	4.1140	80/20	4.1140
943901	AF1-058 C	1.0482	80/20	1.0482
943911	AF1-059	10.4370	80/20	10.4370
945811	AF1-246 C O1	3.5725	80/20	3.5725
946281	AF1-292 C	0.4998	80/20	0.4998
946291	AF1-293 C O1	6.7728	80/20	6.7728
946301	AF1-294 C	6.6427	80/20	6.6427
946591	AF1-323 C	3.7326	80/20	3.7326
957481	AF2-042 C O2	25.5180	80/20	25.5180
958131	AF2-107 C	2.0323	80/20	2.0323
958211	AF2-115 C	4.0505	80/20	4.0505
958801	AF2-171 C O2	24.6609	80/20	24.6609
959311	AF2-222 C	21.9610	80/20	21.9610
959751	AF2-266 O2	4.2530	80/20	4.2530
960061	AF2-297 C O2	3.9840	80/20	3.9840
960081	AF2-299 C	0.8424	80/20	0.8424
960111	AF2-302 C	1.3573	80/20	1.3573
960811	AF2-372 C	1.0609	80/20	1.0609
960821	AF2-373 C	0.6309	80/20	0.6309
961061	AF2-397 C O2	12.2920	80/20	12.2920
961081	AF2-399 C	0.5225	80/20	0.5225
WEC	WEC	0.0636	Confirmed LTF	0.0636
LGEE	LGEE	0.1278	Confirmed LTF	0.1278
CPL	CPL	2.2326	Confirmed LTF	2.2326
CBM-W2	CBM-W2	5.0614	Confirmed LTF	5.0614
NY	NY	0.4015	Confirmed LTF	0.4015
CBM-W1	CBM-W1	2.0391	Confirmed LTF	2.0391

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
TVA	TVA	1.2404	Confirmed LTF	1.2404
CBM-S2	CBM-S2	14.2882	Confirmed LTF	14.2882
CBM-S1	CBM-S1	6.5008	Confirmed LTF	6.5008
MADISON	MADISON	0.5786	Confirmed LTF	0.5786
MEC	MEC	0.5641	Confirmed LTF	0.5641
AA2-074	AA2-074	1.5188	LTF	1.5188

13.5.12 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
97986707	314765	6MTEAGLE	DVP	314749	6CHARLVL	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	111.02	114.43	DC	22.55

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1363	80/20	0.1363
314429	3JTRSVLE	0.5452	80/20	0.5452
314572	3EMPORIA	0.0219	80/20	0.0219
314677	6BUCKING	1.0694	80/20	1.0694
314704	3LAWRENC	0.1423	80/20	0.1423
315153	1CLOVER1	7.3430	80/20	7.3430
315154	1CLOVER2	7.2698	80/20	7.2698
315158	1KERR 1	0.2422	80/20	0.2422
315159	1KERR 2	0.6782	80/20	0.6782
315160	1KERR 3	0.6782	80/20	0.6782
315161	1KERR 4	0.6782	80/20	0.6782
315162	1KERR 5	0.6782	80/20	0.6782
315163	1KERR 6	0.6782	80/20	0.6782
315164	1KERR 7	0.6782	80/20	0.6782
315191	1BEARGRDN G1	15.0842	80/20	15.0842
315192	1BEARGRDN G2	15.0842	80/20	15.0842
315193	1BEARGRDN S1	31.0443	80/20	31.0443
315266	1PLYWOOD A	0.6953	80/20	0.6953
920291	AA2-127	3.1336	80/20	3.1336
924021	AB2-043 C O1	0.4312	80/20	0.4312
924161	AB2-060 C OP	1.2758	80/20	1.2758
924301	AB2-077 C O1 (Suspended)	1.5499	80/20	1.5499
924311	AB2-078 C O1 (Suspended)	1.5499	80/20	1.5499
924321	AB2-079 C O1 (Suspended)	1.5499	80/20	1.5499
925171	AB2-174 C O1	0.3622	80/20	0.3622
925611	AC1-036 C	1.1045	80/20	1.1045
925781	AC1-054 C O1	3.6512	80/20	3.6512
925831	AC1-062	0.0809	80/20	0.0809
925991	AC1-075 C	2.5684	80/20	2.5684
926021	AC1-080 C	0.8584	80/20	0.8584
926271	AC1-105 C O1 (Suspended)	3.1786	80/20	3.1786
926451	AC1-116 C	3.6384	80/20	3.6384
927251	AC1-221 C	0.7555	80/20	0.7555
927261	AC1-222 C	1.8244	80/20	1.8244
932511	AC2-071 C	6.1076	80/20	6.1076
932761	AC2-100 C	1.7388	80/20	1.7388

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933501	AC2-165 C	32.1571	80/20	32.1571
934311	AD1-055 C	1.2668	80/20	1.2668
934341	AD1-058 C	1.8940	80/20	1.8940
934611	AD1-087 C O1	4.2050	80/20	4.2050
934621	AD1-088 C	19.9913	80/20	19.9913
934991	AD1-131 C	0.6210	80/20	0.6210
935171	AD1-152 C O1	4.1789	80/20	4.1789
935221	AD1-157 C	2.3854	80/20	2.3854
936261	AD2-033 C	14.2459	80/20	14.2459
936361	AD2-046 C O1	5.4614	80/20	5.4614
936481	AD2-063 C O1	14.0364	80/20	14.0364
937481	AD2-202 C O1	1.1144	80/20	1.1144
938371	AE1-056 C	10.2839	80/20	10.2839
938821	AE1-108 C	35.7983	80/20	35.7983
939181	AE1-148 C O1	5.4713	80/20	5.4713
940241	AE2-006	0.5619	80/20	0.5619
940661	AE2-053 O1	2.0264	80/20	2.0264
941011	AE2-092 C	29.1911	80/20	29.1911
941791	AE2-182 C	3.2479	80/20	3.2479
942451	AE2-258	1.8649	80/20	1.8649
942461	AE2-259 C O1	18.9528	80/20	18.9528
942751	AE2-291 C O1	3.7718	80/20	3.7718
942761	AE2-292 C O1	4.6962	80/20	4.6962
943901	AF1-058 C	0.9984	80/20	0.9984
943911	AF1-059	9.5960	80/20	9.5960
945811	AF1-246 C O1	3.2617	80/20	3.2617
946281	AF1-292 C	0.4551	80/20	0.4551
946291	AF1-293 C O1	47.0478	80/20	47.0478
946301	AF1-294 C	6.0747	80/20	6.0747
946591	AF1-323 C	11.4715	80/20	11.4715
957481	AF2-042 C O2	23.2980	80/20	23.2980
958131	AF2-107 C	6.0592	80/20	6.0592
958211	AF2-115 C	3.7041	80/20	3.7041
958801	AF2-171 C O2	22.5495	80/20	22.5495
959311	AF2-222 C	20.1270	80/20	20.1270
959751	AF2-266 O2	3.8830	80/20	3.8830
960061	AF2-297 C O2	3.7296	80/20	3.7296
960081	AF2-299 C	0.7671	80/20	0.7671
960111	AF2-302 C	4.1714	80/20	4.1714
960811	AF2-372 C	0.9790	80/20	0.9790
960821	AF2-373 C	0.5906	80/20	0.5906
961061	AF2-397 C O2	38.1787	80/20	38.1787
961081	AF2-399 C	0.4779	80/20	0.4779
WEC	WEC	0.1254	Confirmed LTF	0.1254
LGEE	LGEE	0.2482	Confirmed LTF	0.2482
CPL	CPL	2.1704	Confirmed LTF	2.1704
CBM-W2	CBM-W2	6.5766	Confirmed LTF	6.5766
NY	NY	0.4302	Confirmed LTF	0.4302
CBM-W1	CBM-W1	4.4035	Confirmed LTF	4.4035
TVA	TVA	1.4980	Confirmed LTF	1.4980
CBM-S2	CBM-S2	14.4558	Confirmed LTF	14.4558
CBM-S1	CBM-S1	8.1110	Confirmed LTF	8.1110

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
MADISON	MADISON	0.5443	Confirmed LTF	0.5443
MEC	MEC	0.8692	Confirmed LTF	0.8692
AA2-074	AA2-074	1.4778	LTF	1.4778

13.5.13 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
107268387	927250	AC1-221 TAP	DVP	304070	6PERSON230 T	CPL	1	DVP_P1-2: LN 556-B	single	718.0	129.75	132.14	DC	21.11

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.1294	80/20	0.1294
314429	3JTRSVLE	0.5174	80/20	0.5174
314677	6BUCKING	0.4258	80/20	0.4258
315153	1CLOVER1	39.4381	80/20	39.4381
315154	1CLOVER2	39.0451	80/20	39.0451
315156	1HALLBR1	1.1309	80/20	1.1309
315158	1KERR 1	0.3659	80/20	0.3659
315159	1KERR 2	1.0244	80/20	1.0244
315160	1KERR 3	1.0244	80/20	1.0244
315161	1KERR 4	1.0244	80/20	1.0244
315162	1KERR 5	1.0244	80/20	1.0244
315163	1KERR 6	1.0244	80/20	1.0244
315164	1KERR 7	1.0244	80/20	1.0244
315192	1BEARGRDN G2	2.8787	80/20	2.8787
315193	1BEARGRDN S1	5.9246	80/20	5.9246
315266	1PLYWOOD A	3.3432	80/20	3.3432
924021	AB2-043 C O1	0.7329	80/20	0.7329
924161	AB2-060 C OP	2.1135	80/20	2.1135
924301	AB2-077 C O1 (Suspended)	2.7328	80/20	2.7328
924311	AB2-078 C O1 (Suspended)	2.7328	80/20	2.7328
924321	AB2-079 C O1 (Suspended)	2.7328	80/20	2.7328
925611	AC1-036 C	1.3105	80/20	1.3105
925781	AC1-054 C O1	5.0298	80/20	5.0298
925831	AC1-062	0.0768	80/20	0.0768
925991	AC1-075 C	11.9864	80/20	11.9864
926021	AC1-080 C	4.0059	80/20	4.0059
926271	AC1-105 C O1 (Suspended)	14.5305	80/20	14.5305
927251	AC1-221 C	11.7277	80/20	11.7277
927261	AC1-222 C	10.1431	80/20	10.1431
932511	AC2-071 C	2.4320	80/20	2.4320
932761	AC2-100 C	26.9899	80/20	26.9899
934311	AD1-055 C	7.0426	80/20	7.0426
934341	AD1-058 C	29.3997	80/20	29.3997
934611	AD1-087 C O1	27.0094	80/20	27.0094
934621	AD1-088 C	24.0247	80/20	24.0247
934991	AD1-131 C	9.6392	80/20	9.6392
935171	AD1-152 C O1	26.8416	80/20	26.8416
935221	AD1-157 C	2.1223	80/20	2.1223

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936261	AD2-033 C	17.8675	80/20	17.8675
936361	AD2-046 C O1	8.4639	80/20	8.4639
936481	AD2-063 C O1	20.4093	80/20	20.4093
937481	AD2-202 C O1	7.1578	80/20	7.1578
938371	AE1-056 C	9.1494	80/20	9.1494
939181	AE1-148 C O1	8.5347	80/20	8.5347
940241	AE2-006	0.6667	80/20	0.6667
940661	AE2-053 O1	3.1610	80/20	3.1610
941791	AE2-182 C	3.9032	80/20	3.9032
942451	AE2-258	3.1698	80/20	3.1698
942461	AE2-259 C O1	14.4012	80/20	14.4012
942751	AE2-291 C O1	15.7260	80/20	15.7260
942761	AE2-292 C O1	19.5804	80/20	19.5804
943901	AF1-058 C	5.7522	80/20	5.7522
943911	AF1-059	14.3780	80/20	14.3780
945811	AF1-246 C O1	21.7505	80/20	21.7505
946301	AF1-294 C	5.7653	80/20	5.7653
957481	AF2-042 C O2	155.3610	80/20	155.3610
958211	AF2-115 C	3.5154	80/20	3.5154
958801	AF2-171 C O2	21.1149	80/20	21.1149
959311	AF2-222 C	23.0530	80/20	23.0530
959751	AF2-266 O2	25.8935	80/20	25.8935
960061	AF2-297 C O2	28.8259	80/20	28.8259
960811	AF2-372 C	1.7262	80/20	1.7262
960821	AF2-373 C	2.1290	80/20	2.1290
961081	AF2-399 C	0.4546	80/20	0.4546
NEWTON	NEWTON	1.6150	Confirmed LTF	1.6150
FARMERCITY	FARMERCITY	0.0953	Confirmed LTF	0.0953
G-007A	G-007A	0.4939	Confirmed LTF	0.4939
VFT	VFT	1.3094	Confirmed LTF	1.3094
CALDERWOOD	CALDERWOOD	1.4284	Confirmed LTF	1.4284
PRAIRIE	PRAIRIE	4.4893	Confirmed LTF	4.4893
AC1-131	AC1-131	5.1015	LTF	5.1015
CHEOAH	CHEOAH	1.4720	Confirmed LTF	1.4720
EDWARDS	EDWARDS	0.4816	Confirmed LTF	0.4816
TILTON	TILTON	0.8429	Confirmed LTF	0.8429
GIBSON	GIBSON	0.7671	Confirmed LTF	0.7671
BLUEG	BLUEG	2.3314	Confirmed LTF	2.3314
TRIMBLE	TRIMBLE	0.7379	Confirmed LTF	0.7379
CATAWBA	CATAWBA	1.6961	Confirmed LTF	1.6961

13.5.14 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
106328144	934610	AD1-087 TAP	DVP	314697	6SEEDGE HILL	DVP	1	DVP_P1-2: LN 556-B	single	814.98	119.16	120.62	DC	11.9

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313853	3PONTONDP	0.0707	80/20	0.0707
314333	6POWHATN	0.1384	80/20	0.1384
314429	3JTRSVLE	0.2828	80/20	0.2828
314677	6BUCKING	0.4694	80/20	0.4694
315153	1CLOVER1	51.7091	80/20	51.7091
315154	1CLOVER2	51.1938	80/20	51.1938
315191	1BEARGRDN G1	3.1145	80/20	3.1145
315192	1BEARGRDN G2	3.1145	80/20	3.1145
315193	1BEARGRDN S1	6.4099	80/20	6.4099
920291	AA2-127	0.6470	80/20	0.6470
925611	AC1-036 C	0.3848	80/20	0.3848
925831	AC1-062	0.0420	80/20	0.0420
925991	AC1-075 C	-3.3297	Adder	-3.92
926021	AC1-080 C	-1.1128	Adder	-1.31
926271	AC1-105 C O1 (Suspended)	-3.4045	Adder	-4.01
926451	AC1-116 C	0.2932	80/20	0.2932
927251	AC1-221 C	-1.3047	Adder	-1.53
927261	AC1-222 C	-2.6803	Adder	-3.15
932511	AC2-071 C	2.6809	80/20	2.6809
933501	AC2-165 C	3.8965	80/20	3.8965
934311	AD1-055 C	-1.8610	Adder	-2.19
934341	AD1-058 C	-3.2706	Adder	-3.85
934611	AD1-087 C O1	35.7744	80/20	35.7744
934621	AD1-088 C	29.1619	80/20	29.1619
935171	AD1-152 C O1	35.5522	80/20	35.5522
935221	AD1-157 C	1.3385	80/20	1.3385
936261	AD2-033 C	4.2728	80/20	4.2728
937481	AD2-202 C O1	9.4806	80/20	9.4806
938371	AE1-056 C	5.7703	80/20	5.7703
938561	AE1-075 C	0.7037	80/20	0.7037
938821	AE1-108 C	6.5977	80/20	6.5977
940241	AE2-006	0.1958	80/20	0.1958
941011	AE2-092 C	6.4559	80/20	6.4559
941791	AE2-182 C	4.7378	80/20	4.7378
942461	AE2-259 C O1	12.3990	80/20	12.3990
945811	AF1-246 C O1	28.5180	80/20	28.5180
946291	AF1-293 C O1	9.6964	80/20	9.6964
946301	AF1-294 C	3.1505	80/20	3.1505
946591	AF1-323 C	2.0140	80/20	2.0140
957481	AF2-042 C O2	203.7000	80/20	203.7000
958211	AF2-115 C	1.9211	80/20	1.9211

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
958501	AF2-144 C	0.5932	80/20	0.5932
958801	AF2-171 C O2	11.8980	80/20	11.8980
959311	AF2-222 C	7.6050	80/20	7.6050
959531	AF2-244 C	0.5467	80/20	0.5467
959751	AF2-266 O2	33.9500	80/20	33.9500
960111	AF2-302 C	0.7324	80/20	0.7324
961061	AF2-397 C O2	7.5925	80/20	7.5925
961081	AF2-399 C	0.2471	80/20	0.2471
NEWTON	NEWTON	1.4044	Confirmed LTF	1.4044
FARMERCITY	FARMERCITY	0.0797	Confirmed LTF	0.0797
G-007A	G-007A	0.4100	Confirmed LTF	0.4100
VFT	VFT	1.0772	Confirmed LTF	1.0772
CALDERWOOD	CALDERWOOD	1.0760	Confirmed LTF	1.0760
PRAIRIE	PRAIRIE	3.7479	Confirmed LTF	3.7479
CHEOAH	CHEOAH	1.1026	Confirmed LTF	1.1026
EDWARDS	EDWARDS	0.4263	Confirmed LTF	0.4263
TILTON	TILTON	0.7566	Confirmed LTF	0.7566
GIBSON	GIBSON	0.6825	Confirmed LTF	0.6825
BLUEG	BLUEG	2.1162	Confirmed LTF	2.1162
TRIMBLE	TRIMBLE	0.6723	Confirmed LTF	0.6723
CATAWBA	CATAWBA	1.1473	Confirmed LTF	1.1473

13.5.15 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
97664421	940480	AE2-033 TAP	DVP	314435	6SAPONY	DVP	1	DVP_P2-2: BREMO B1	bus	830.0	120.07	120.86	DC	14.47

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314541	3WATKINS	0.3631	Adder	0.43
314572	3EMPORIA	0.1710	50/50	0.1710
314704	3LAWRENC	0.6380	50/50	0.6380
315126	1ROARAP2	2.1826	50/50	2.1826
315136	1ROSEMG1	3.9613	50/50	3.9613
315137	1ROSEMS1	2.4564	50/50	2.4564
315138	1ROSEMG2	1.8565	50/50	1.8565
315139	1GASTONA	6.0666	50/50	6.0666
315141	1GASTONB	6.0666	50/50	6.0666
315294	1DOMTR10	5.5890	Adder	6.58
900672	V4-068 E	0.2322	Adder	0.27
917332	Z2-043 E	0.9768	Adder	1.15
917342	Z2-044 E	0.5005	Adder	0.59
917512	Z2-088 E OP1	2.8501	Adder	3.35
918492	AA1-063AE OP	4.3476	Adder	5.11
918512	AA1-065 E OP	2.8174	Adder	3.31
918532	AA1-067 E	0.4709	Adder	0.55
919692	AA2-053 E OP	4.4795	Adder	5.27
919702	AA2-057 E OP	3.1124	Adder	3.66
920042	AA2-088 E OP	7.7843	Adder	9.16
920592	AA2-165 E	0.4278	Adder	0.5
920672	AA2-174 E OP	0.5176	Adder	0.61
922922	AB1-081 C OP	7.3333	Adder	8.63
922923	AB1-081 E OP	3.1428	Adder	3.7
923262	AB1-132 C OP (Suspended)	26.8573	50/50	26.8573
923263	AB1-132 E OP (Suspended)	11.5103	50/50	11.5103
923572	AB1-173 C OP	4.6506	50/50	4.6506
923573	AB1-173 E OP	2.1703	50/50	2.1703
923582	AB1-173AC OP	4.6506	50/50	4.6506
923583	AB1-173AE OP	2.1703	50/50	2.1703
923801	AB2-015 C OP	4.1999	Adder	4.94
923802	AB2-015 E OP	3.4439	Adder	4.05
923911	AB2-031 C O1	4.6162	50/50	4.6162
923912	AB2-031 E O1	2.2736	50/50	2.2736
923991	AB2-040 C O1	15.1576	50/50	15.1576
923992	AB2-040 E O1	12.4016	50/50	12.4016
924022	AB2-043 E O1	2.0268	Adder	2.38
924152	AB2-059 E OP	4.4523	Adder	5.24
924162	AB2-060 E OP	3.0381	Adder	3.57

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924301	AB2-077 C O1 (Suspended)	1.4185	Adder	1.67
924302	AB2-077 E O1 (Suspended)	0.9457	Adder	1.11
924311	AB2-078 C O1 (Suspended)	1.4185	Adder	1.67
924312	AB2-078 E O1 (Suspended)	0.9457	Adder	1.11
924321	AB2-079 C O1 (Suspended)	1.4185	Adder	1.67
924322	AB2-079 E O1 (Suspended)	0.9457	Adder	1.11
924501	AB2-099 C (Suspended)	0.4599	Adder	0.54
924502	AB2-099 E (Suspended)	0.1971	Adder	0.23
924511	AB2-100 C	5.9782	50/50	5.9782
924512	AB2-100 E	17.0702	50/50	17.0702
925122	AB2-169 E	3.2243	Adder	3.79
925171	AB2-174 C O1	2.6409	50/50	2.6409
925172	AB2-174 E O1	13.8521	50/50	13.8521
925591	AC1-034 C	5.5982	Adder	6.59
925592	AC1-034 E	4.2232	Adder	4.97
925611	AC1-036 C	0.5712	Adder	0.67
925612	AC1-036 E	0.9320	Adder	1.1
925781	AC1-054 C O1	6.5717	Adder	7.73
925782	AC1-054 E O1	3.0274	Adder	3.56
926071	AC1-086 C	39.5506	50/50	39.5506
926072	AC1-086 E	18.0008	50/50	18.0008
926201	AC1-098 C	5.7768	Adder	6.8
926202	AC1-098 E	3.4415	Adder	4.05
926211	AC1-099 C	1.9358	Adder	2.28
926212	AC1-099 E	1.1369	Adder	1.34
927021	AC1-189 C	6.0959	Adder	7.17
927022	AC1-189 E	3.0365	Adder	3.57
927141	AC1-208 C	9.1571	Adder	10.77
927142	AC1-208 E	4.0662	Adder	4.78
932631	AC2-084 C	8.2350	Adder	9.69
932632	AC2-084 E	4.0560	Adder	4.77
933991	AD1-023 C	7.0265	Adder	8.27
933992	AD1-023 E	3.8253	Adder	4.5
934331	AD1-057 C O1	11.8898	Adder	13.99
934332	AD1-057 E O1	6.3425	Adder	7.46
934521	AD1-076 C	25.9401	Adder	30.52
934522	AD1-076 E	13.2087	Adder	15.54
935221	AD1-157 C	0.6962	Adder	0.82
935222	AD1-157 E	0.4642	Adder	0.55
936261	AD2-033 C	8.0906	Adder	9.52
936262	AD2-033 E	5.3937	Adder	6.35
936361	AD2-046 C O1	6.8305	Adder	8.04
936362	AD2-046 E O1	3.1410	Adder	3.7
936401	AD2-051 C O1	6.3697	Adder	7.49
936402	AD2-051 E O1	2.7351	Adder	3.22
936481	AD2-063 C O1	10.1095	Adder	11.89
936482	AD2-063 E O1	6.6835	Adder	7.86

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938171	AE1-026 C O1	18.2157	Adder	21.43
938172	AE1-026 E O1	4.8057	Adder	5.65
938221	AE1-035 C	1.5731	Adder	1.85
938222	AE1-035 E	0.7748	Adder	0.91
938371	AE1-056 C	3.0015	Adder	3.53
938372	AE1-056 E	1.6400	Adder	1.93
939181	AE1-148 C O1	6.7170	Adder	7.9
939182	AE1-148 E O1	4.4780	Adder	5.27
940241	AE2-006	0.2906	Adder	0.34
940481	AE2-033 C	63.2559	50/50	63.2559
940482	AE2-033 E	42.6444	50/50	42.6444
940571	AE2-044 C	3.6666	Adder	4.31
940572	AE2-044 E	1.5714	Adder	1.85
940661	AE2-053 O1	2.4878	Adder	2.93
941541	AE2-151 C	0.8546	Adder	1.01
941542	AE2-151 E	0.4602	Adder	0.54
942451	AE2-258	1.6910	Adder	1.99
942471	AE2-260 C O1	44.8209	50/50	44.8209
942472	AE2-260 E O1	63.5731	50/50	63.5731
943171	AE2-346 C	1.1038	Adder	1.3
943172	AE2-346 E	0.4731	Adder	0.56
943911	AF1-059	26.4730	50/50	26.4730
944141	AF1-082	2.3571	Adder	2.77
946011	AF1-266	52.9501	50/50	52.9501
946281	AF1-292 C	3.7148	50/50	3.7148
946282	AF1-292 E	2.5043	50/50	2.5043
946301	AF1-294 C	2.0452	Adder	2.41
946302	AF1-294 E	1.3635	Adder	1.6
957521	AF2-046 C	6.9423	Adder	15.41
957522	AF2-046 E	3.4920	Adder	7.75
957861	AF2-080 C	2.9344	Adder	6.51
957862	AF2-080 E	1.3008	Adder	2.89
958211	AF2-115 C	0.6610	Adder	1.47
958212	AF2-115 E	0.4406	Adder	0.98
958801	AF2-171 C O2	3.9118	Adder	8.68
958802	AF2-171 E O2	2.6079	Adder	5.79
959231	AF2-214 C	4.1989	Adder	9.32
959232	AF2-214 E	6.2949	Adder	13.97
959311	AF2-222 C	5.1835	Adder	11.51
959312	AF2-222 E	3.4729	Adder	7.71
959511	AF2-242	2.4606	Adder	5.46
959731	AF2-264 C	0.9327	Adder	2.07
959732	AF2-264 E	0.4594	Adder	1.02
960081	AF2-299 C	6.2609	50/50	6.2609
960082	AF2-299 E	4.1739	50/50	4.1739
960121	AF2-303 C O2	8.1120	Adder	18.01
960122	AF2-303 E O2	5.2904	Adder	11.74
960331	AF2-324 C O2	3.4159	Adder	7.58
960332	AF2-324 E O2	1.8340	Adder	4.07
960351	AF2-326 C (Withdrawn : 07/22/2020)	1.1063	Adder	2.46
960352	AF2-326 E (Withdrawn : 07/22/2020)	0.2766	Adder	0.61

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
960811	AF2-372 C	0.4749	Adder	1.05
960812	AF2-372 E	0.7750	Adder	1.72
960831	AF2-374 C	0.6203	Adder	1.38
960832	AF2-374 E	1.0120	Adder	2.25
961081	AF2-399 C	0.0857	Adder	0.19
961082	AF2-399 E	0.1449	Adder	0.32
961091	AF2-400 C	0.1202	Adder	0.27
961092	AF2-400 E	0.1972	Adder	0.44
WEC	WEC	0.2753	Confirmed LTF	0.2753
LGEE	LGEE	0.5186	Confirmed LTF	0.5186
CPL	CPL	3.1434	Confirmed LTF	3.1434
CBM-W2	CBM-W2	10.9009	Confirmed LTF	10.9009
NY	NY	0.3440	Confirmed LTF	0.3440
CBM-W1	CBM-W1	10.3082	Confirmed LTF	10.3082
TVA	TVA	2.2778	Confirmed LTF	2.2778
O-066	O-066	4.9258	Confirmed LTF	4.9258
CBM-S2	CBM-S2	19.7040	Confirmed LTF	19.7040
CBM-S1	CBM-S1	12.7289	Confirmed LTF	12.7289
G-007	G-007	0.7696	Confirmed LTF	0.7696
MADISON	MADISON	0.6229	Confirmed LTF	0.6229
MEC	MEC	1.6557	Confirmed LTF	1.6557
AA2-074	AA2-074	2.1420	LTF	2.1420

13.6 Contingency Descriptions - Secondary POI

Contingency Name	Contingency Definition
DVP_P2-2: BREMO B1	CONTINGENCY 'DVP_P2-2: BREMO B1' /* BREMO 230 KV OPEN BRANCH FROM BUS 314326 TO BUS 314747 CKT 1 /* 6BEARGRDN 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 314326 TO BUS 315191 CKT 1 /* 6BEARGRDN 230.00 - 1BEARGRDN G118.000 OPEN BUS 315191 /* ISLAND: 1BEARGRDN G118.000 OPEN BRANCH FROM BUS 314326 TO BUS 314747 CKT 2 /* 6BEARGRDN 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 314326 TO BUS 315192 CKT 1 /* 6BEARGRDN 230.00 - 1BEARGRDN G218.000 OPEN BRANCH FROM BUS 314326 TO BUS 315193 CKT 1 /* 6BEARGRDN 230.00 - 1BEARGRDN S122.000 OPEN BUS 315192 /* ISLAND: 1BEARGRDN G218.000 OPEN BUS 315193 /* ISLAND: 1BEARGRDN S122.000 OPEN BRANCH FROM BUS 314677 TO BUS 314747 CKT 1 /* 6BUCKING 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 313868 TO BUS 314747 CKT 1 /* 6CARTERV 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 313867 TO BUS 314747 CKT 1 /* 6BREMOMODIST 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 314744 TO BUS 314747 CKT 1 /* 3BREMO 115.00 - 6BREMO 230.00 OPEN BUS 314747 /* 6BREMO 230.00 KV OPEN BUS 314326 /* ISLAND: 6BEARGRDN 230.00 END
DVP_P4-6: CAROLIN T122	CONTINGENCY 'DVP_P4-6: CAROLIN T122' /* CAROLINA 115 KV OPEN BRANCH FROM BUS 314559 TO BUS 315126 CKT 1 /* 3CAROLNA 115.00 - 1ROARAP2 14.400 OPEN BRANCH FROM BUS 314559 TO BUS 315128 CKT 1 /* 3CAROLNA 115.00 - 1ROARAP4 14.400 OPEN BUS 315126 /* ISLAND: 1ROARAP2 14.400 OPEN BUS 315128 /* ISLAND: 1ROARAP4 14.400 OPEN BRANCH FROM BUS 314559 TO BUS 314571 CKT 1 /* 3CAROLNA 115.00 - 3EATON F 115.00 OPEN BRANCH FROM BUS 313722 TO BUS 314559 CKT 1 /* 3OCCONEECHEE115.00 - 3CAROLNA 115.00 OPEN BRANCH FROM BUS 314259 TO BUS 314559 CKT Z1 /* 3CAROL56_1 115.00 - 3CAROLNA 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314578 CKT 1 /* 3CAROLNA 115.00 - 3HORNRTN 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314585 CKT 1 /* 3CAROLNA 115.00 - 3L GASTN 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314600 CKT 1 /* 3CAROLNA 115.00 - 3PLHITP 115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314561 CKT 1 /* 3CAROLNA 115.00 - 6CAROLNA 230.00 OPEN BUS 314559 /* 3CAROLNA 115.00 KV END

Contingency Name	Contingency Definition
DVP_P4-2: 511T591	CONTINGENCY 'DVP_P4-2: 511T591' /* RAWLINGS 500 KV OPEN BRANCH FROM BUS 940470 TO BUS 314936 CKT 1 /* AE2-031 TAP 500.00 - 8RAWLINGS 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 314936 CKT 1 /* 8HERITAGE 500.00 - 8RAWLINGS 500.00 END
314906 8CLOVER 500 945810 AF1-246 TAP 500 1	CONTINGENCY '314906 8CLOVER 500 945810 AF1-246 TAP 500 1' OPEN BRANCH FROM BUS 314906 TO BUS 945810 CKT 1 END
DVP_P1-2: LN 2027-B	CONTINGENCY 'DVP_P1-2: LN 2027-B' OPEN BRANCH FROM BUS 933500 TO BUS 314333 CKT 1 /* AC2-165 TAP 230.00 - 6POWHATN 230.00 OPEN BRANCH FROM BUS 314310 TO BUS 314322 CKT 1 /* 6JUDES F 230.00 - 6MDLTHAN 230.00 OPEN BRANCH FROM BUS 314310 TO BUS 314333 CKT 1 /* 6JUDES F 230.00 - 6POWHATN 230.00 OPEN BUS 314310 /* ISLAND: 6JUDES F 230.00 OPEN BUS 314333 /* ISLAND: 6POWHATN 230.00 OPEN BUS 923862 /* ISLAND: AB2-026 E 230.00 END
DVP_P1-2: LN 570	CONTINGENCY 'DVP_P1-2: LN 570' OPEN BRANCH FROM BUS 304183 TO BUS 314935 CKT 1 /* 8WAKE 500 TT500.00 - 8HERITAGE 500.00 END
DVP_P4-2: 8442	CONTINGENCY 'DVP_P4-2: 8442' /* PAMPLIN 115 KV OPEN BRANCH FROM BUS 314521 TO BUS 314713 CKT 1 /* 3PAMPL_1 115.00 - 3PAMPLIN 115.00 OPEN BRANCH FROM BUS 314691 TO BUS 314726 CKT 1 /* 3FARMVIL 115.00 - 3WILLIS 115.00 OPEN BRANCH FROM BUS 314713 TO BUS 314726 CKT 1 /* 3PAMPLIN 115.00 - 3WILLIS 115.00 OPEN BUS 314521 /* ISLAND: 3PAMPL_1 115.00 OPEN BUS 314726 /* ISLAND: 3WILLIS 115.00 CHANGE BUS 314713 LOAD BY -100 PERCENT END

Contingency Name	Contingency Definition
DVP_P4-5: FARMVIL L432	CONTINGENCY 'DVP_P4-5: FARMVIL L432' /* FARMVILLE 115 KV OPEN BRANCH FROM BUS 313802 TO BUS 314268 CKT 1 /* 6PRINCE EDW 230.00 - 6BRIERY 230.00 OPEN BRANCH FROM BUS 313802 TO BUS 314692 CKT 1 /* 6PRINCE EDW 230.00 - 6FARMVIL 230.00 OPEN BRANCH FROM BUS 314268 TO BUS 934620 CKT 1 /* 6BRIERY 230.00 - AD1-088 TAP 230.00 OPEN BRANCH FROM BUS 314691 TO BUS 314692 CKT 1 /* 3FARMVIL 115.00 - 6FARMVIL 230.00 OPEN BUS 313802 /* ISLAND: 6PRINCE EDW 230.00 OPEN BUS 314268 /* ISLAND: 6BRIERY 230.00 OPEN BUS 314691 /* 3FARMVIL 115.00 KV END
DVP_P1-2: LN 1012-B	CONTINGENCY 'DVP_P1-2: LN 1012-B' OPEN BRANCH FROM BUS 936480 TO BUS 314681 CKT 1 /* AD2-063 TAP 115.00 - 3CHASCTY 115.00 END
DVP_P1-2: LN 84	CONTINGENCY 'DVP_P1-2: LN 84' OPEN BRANCH FROM BUS 314521 TO BUS 314713 CKT 1 /* 3PAMPL_1 115.00 - 3PAMPLIN 115.00 OPEN BRANCH FROM BUS 314691 TO BUS 314726 CKT 1 /* 3FARMVIL 115.00 - 3WILLIS 115.00 OPEN BRANCH FROM BUS 314713 TO BUS 314726 CKT 1 /* 3PAMPLIN 115.00 - 3WILLIS 115.00 OPEN BUS 314521 /* ISLAND: 3PAMPL_1 115.00 OPEN BUS 314726 /* ISLAND: 3WILLIS 115.00 END
DVP_P7-1: LN 22-90-A	CONTINGENCY 'DVP_P7-1: LN 22-90-A' OPEN BRANCH FROM BUS 314559 TO BUS 314571 CKT 1 /* 3CAROLNA 115.00 - 3EATON F 115.00 OPEN BRANCH FROM BUS 314571 TO BUS 925780 CKT 1 /* 3EATON F 115.00 - AC1-054 TAP 115.00 OPEN BUS 314571 /* ISLAND: 3EATON F 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314584 CKT 1 /* 3FIVEFORKSDP115.00 - 3LITTLTN 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314673 CKT 1 /* 3FIVEFORKSDP115.00 - 3PALMERSPRNG115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314585 CKT 1 /* 3CAROLNA 115.00 - 3L GASTN 115.00 OPEN BRANCH FROM BUS 314584 TO BUS 314585 CKT 1 /* 3LITTLTN 115.00 - 3L GASTN 115.00 OPEN BUS 314265 /* ISLAND: 3FIVEFORKSDP115.00 OPEN BUS 314584 /* ISLAND: 3LITTLTN 115.00 OPEN BUS 314585 /* ISLAND: 3L GASTN 115.00 END

Contingency Name	Contingency Definition
DVP_P4-2: 556T591	CONTINGENCY 'DVP_P4-2: 556T591' /* RAWLINGS 500 KV OPEN BRANCH FROM BUS 945810 TO BUS 314936 CKT 1 /* AF1-246 TAP 500.00 - 8RAWLINGS 500.00 OPEN BRANCH FROM BUS 314935 TO BUS 314936 CKT 1 /* 8HERITAGE 500.00 - 8RAWLINGS 500.00 END
DVP_P7-1: LN 22-90-B	CONTINGENCY 'DVP_P7-1: LN 22-90-B' OPEN BRANCH FROM BUS 925780 TO BUS 314702 CKT 1 /* AC1-054 TAP 115.00 - 3KERR 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314584 CKT 1 /* 3FIVEFORKSDP115.00 - 3LITTLTN 115.00 OPEN BRANCH FROM BUS 314265 TO BUS 314673 CKT 1 /* 3FIVEFORKSDP115.00 - 3PALMERSPRNG115.00 OPEN BRANCH FROM BUS 314559 TO BUS 314585 CKT 1 /* 3CAROLNA 115.00 - 3L GASTN 115.00 OPEN BRANCH FROM BUS 314584 TO BUS 314585 CKT 1 /* 3LITTLTN 115.00 - 3L GASTN 115.00 OPEN BUS 314265 /* ISLAND: 3FIVEFORKSDP115.00 OPEN BUS 314584 /* ISLAND: 3LITTLTN 115.00 OPEN BUS 314585 /* ISLAND: 3L GASTN 115.00 END
314333 6POWHATN 230 933500 AC2-165 TAP 230 1	CONTINGENCY '314333 6POWHATN 230 933500 AC2-165 TAP 230 1' OPEN BRANCH FROM BUS 314333 TO BUS 933500 CKT 1 END
Base Case	
DVP_P1-2: LN 2028	CONTINGENCY 'DVP_P1-2: LN 2028' OPEN BRANCH FROM BUS 313707 TO BUS 314765 CKT 1 /* 6FORK UNION 230.00 - 6MTEAGLE 230.00 OPEN BRANCH FROM BUS 314749 TO BUS 314765 CKT 1 /* 6CHARLVL 230.00 - 6MTEAGLE 230.00 OPEN BUS 314765 /* ISLAND: 6MTEAGLE 230.00 OPEN BUS 926451 /* ISLAND: AC1-116 C 230.00 OPEN BUS 926452 /* ISLAND: AC1-116 E 230.00 END
DVP_P4-2: 15832	CONTINGENCY 'DVP_P4-2: 15832' /* FARMVILLE 115 KV OPEN BRANCH FROM BUS 314519 TO BUS 314701 CKT 1 /* 3LONEPINE_1 115.00 - 3LONEPN 115.00 OPEN BRANCH FROM BUS 314691 TO BUS 314707 CKT 1 /* 3FARMVIL 115.00 - 3MORAN 115.00 OPEN BRANCH FROM BUS 314701 TO BUS 314707 CKT 1 /* 3LONEPN 115.00 - 3MORAN 115.00 OPEN BUS 314519 /* ISLAND: 3LONEPINE_1 115.00 OPEN BUS 314707 /* ISLAND: 3MORAN 115.00 OPEN BUS 314691 /* 3FARMVIL 115.00 KV END

Contingency Name	Contingency Definition
DVP_P1-2: LN 556-A	CONTINGENCY 'DVP_P1-2: LN 556-A' OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 1 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 2 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314686 TO BUS 314906 CKT 3 /* 6CLOVER 230.00 - 8CLOVER 500.00 OPEN BRANCH FROM BUS 314906 TO BUS 945810 CKT 1 /* 8CLOVER 500.00 - AF1- 246 TAP 500.00 OPEN BUS 314906 /* ISLAND: 8CLOVER 500.00 OPEN BUS 314915 /* ISLAND: 8CLOVER_STC 500.00 END
DVP_P1-2: LN 556-B	CONTINGENCY 'DVP_P1-2: LN 556-B' OPEN BRANCH FROM BUS 945810 TO BUS 314936 CKT 1 /* AF1-246 TAP 500.00 - 8RAWLINGS 500.00 END
DVP_P1-2: LN 585-C	CONTINGENCY 'DVP_P1-2: LN 585-C' OPEN BRANCH FROM BUS 938490 TO BUS 314940 CKT 1 /* AE1-068 TAP 500.00 - 8ROGERS RD 500.00 END
DVP_P4-2: 511T556	CONTINGENCY 'DVP_P4-2: 511T556' /* RAWLINGS 500 KV OPEN BRANCH FROM BUS 940470 TO BUS 314936 CKT 1 /* AE2-031 TAP 500.00 - 8RAWLINGS 500.00 OPEN BRANCH FROM BUS 945810 TO BUS 314936 CKT 1 /* AF1-246 TAP 500.00 - 8RAWLINGS 500.00 END
DVP_P1-2: LN 154-B	CONTINGENCY 'DVP_P1-2: LN 154-B' OPEN BRANCH FROM BUS 314713 TO BUS 958800 CKT 1 /* 3PAMPLIN 115.00 - AF2- 171 TAP 115.00 END

14 Affected Systems

14.1 TVA

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

14.2 Duke Energy Progress

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

Attachment 1: One Line Diagram