



# **Generation Interconnection**

## **Feasibility Study Report**

**for**

### **Queue Project AG1-451**

**CURDSVILLE DP-WILLIS MT. 115 KV**

**20 MW Capacity / 20 MW Energy**

January 2021

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## 1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is 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.

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 an update to a planned Solar generating facility located in Buckingham, Virginia. This project is an increase to the Interconnection Customer's AE2-259 project, which will share the same point of interconnection. The AG1-451 queue position is a 20 MW Battery Storage update (20 MW Capacity update) to the previous project. The total installed facilities will have a capability of 120 MW with 80 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this update project is December 31, 2022. This study does not imply a TO commitment to this in-service date.

<b>Queue Number</b>	<b>AG1-451</b>
<b>Project Name</b>	CURDSVILLE DP-WILLIS MT. 115 KV
<b>State</b>	Virginia
<b>County</b>	Buckingham
<b>Transmission Owner</b>	Dominion
<b>MFO</b>	120
<b>MWE</b>	20
<b>MWC</b>	20
<b>Fuel</b>	Storage
<b>Basecase Study Year</b>	2024

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

## 4 Point of Interconnection

AG1-451 "Curdsville DP-Willis Mt. 115 kV" will interconnect with the Dominion transmission system as an uprate to AE2-259, sharing the POI and Attachment Facilities.

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

Costs provided are contingent on the AE2-259 project being built. Should the AE2-259 project withdraw from the Interconnection Queue, the AG1-451 project will assume the Attachment, Direct Connection, and Non-Direct Connection costs identified in the AE2-259 study report for connection to the Dominion system.

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

## 5 Cost Summary

The AG1-451 project will be responsible for the following costs:

Description	Total Cost
<b>Total Physical Interconnection Costs</b>	\$0
<b>Total System Network Upgrade Costs</b>	\$324,930,000 <sup>1</sup>
<b>Total Costs</b>	\$324,930,000

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 2016-36, 2016-25 I.R.B. (6/20/2016). If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

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<sup>1</sup> This project currently causes and/or contributes to overloads of the Transmission System (see Summer Peak Load Flow Analysis section below) and therefore has potential to have cost allocation for the system reinforcements listed in the report. This will be re-evaluated in the System Impact phase. The results may vary with queue customers withdrawing from the queue and other generators deactivating over time. If a customer is the first to cause the need for a project (causes loading to exceed 100% of rating), then the customer is responsible. If a customer contributes to a facility that is already overloaded by a prior queue, then they may receive cost allocation.

## 6 Transmission Owner Scope of Work

The required Attachment Facilities, Direct Connection and Non-Direct Connection work for the interconnection of AG1-451 to the Dominion Transmission System is detailed in the following sections. The associated one-line showing the generation project attachment facilities and primary direct and non-direct connection is shown in Attachment 1.

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

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

Description	Total Cost
<b>Total Physical Interconnection Costs</b>	\$0

AG1-451 "Curdsville DP-Willis Mt. 115 kV" will interconnect with the Dominion transmission system as an uprate to AE2-259, sharing the POI and Attachment Facilities.

As AG1-451 is sharing the POI and Attachment Facilities with AE2-259, there are no associated interconnection costs for this project. Should the AE2-259 project withdraw from the Interconnection Queue, the AG1-451 project will assume the Attachment, Direct Connection, and Non-Direct Connection costs identified in the AE2-259 study report for connection to the Dominion system.

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

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

## 7 Schedule

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

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

These schedules will be more clearly identified in future study phases.

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

## 8 Transmission Owner Analysis

Dominion assessed the impact of the proposed AG1-451 for compliance with NERC Reliability Criteria on the Dominion Transmission System. The system was assessed using the summer 2024 AG1 case provided to Dominion by PJM.

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

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

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

## 8.1 Power Flow Analysis

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

## 9 Interconnection Customer Requirements

### 9.1 System Protection

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

<https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. Preliminary Protection requirements will be provided as part of the Facilities Study. Detailed Protection Requirements will be provided once the project enters the construction phase.

### 9.2 Compliance Issues and Interconnection Customer Requirements

The proposed Customer Facilities must be designed in accordance with Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>. In particular, the IC is responsible for the following:

1. The purchase and installation of a fully rated protection device (circuit breaker, circuit switcher, fuse) to protect the IC’s GSU transformer(s).
2. The purchase and installation of the minimum required Dominion generation interconnection relaying and control facilities as described in the System Protection section noted above. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.
3. The purchase and installation of supervisory control and data acquisition (“SCADA”) equipment to provide information in a compatible format to the Dominion Transmission System Control Center.
4. Compliance with the Dominion and PJM generator power factor and voltage control requirements.

The GSU(s) associated with the IC queue request shall meet the grounding requirements as noted in Dominion’s “Dominion’s Facility Interconnection Requirements” document located at: <https://www.dominionenergy.com/company/moving-energy/electric-transmission-access>.

The IC will also be required to meet all PJM, SERC, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and SERC audits. Failure to comply with

these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the Dominion system.

### **9.3 Power Factor Requirements**

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

## **10 Revenue Metering and SCADA Requirements**

### **10.1 PJM Requirements**

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

### **10.2 Interconnected Transmission Owner Requirements**

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

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

## 11 Summer Peak - Load Flow Analysis

The Queue Project AG1-451 was evaluated as a 20.0 MW (Capacity 20.0 MW) injection as an uprate to AE2-259 which is a direct connection to the Willis Mountain 115 kV substation in the Dominion area. Project AG1-451 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-451 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

### 11.1 Generation Deliverability

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

None

### 11.2 Multiple Facility Contingency

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

None

### 11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/D C	MW IMPACT
163355934	313802	6PRINCE EDW	230.0	DVP	314268	6BRIERY	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	112.9	114.67	DC	12.45
168532281	313867	6BREMODIST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	3143336POWHATN 230 933500 AC2-165 TAP 230 1	single	661.760009766	163.42	164.44	DC	6.77
168532282	313867	6BREMODIST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	DVP_P1-2: LN 2027	single	661.760009766	159.25	160.27	DC	6.77
168532217	313898	3BUTCHER CRK	115.0	DVP	314267	3CHASCTY2	115.0	DVP	1	DVP_P1-2: LN 298	single	269.779998779	116.21	117.71	DC	4.05
163355936	314268	6BRIERY	230.0	DVP	964840	AG1-347 TAP	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	112.01	113.79	DC	12.45
169253727	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P1-2: LN 556-C	single	571.520019531	233.99	235.75	DC	10.06
169253728	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P1-2: LN 556-B	single	571.520019531	227.7	229.46	DC	10.06
169253730	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	Base Case	single	571.520019531	140.56	142.08	DC	8.68
169253685	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	DVP_P1-2: LN 235-A	single	182.641998291	324.49	331.21	DC	12.28
169253687	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	DVP_P1-2: LN 1045	single	182.641998291	210.06	214.94	DC	8.92

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/D C	MW IMPAC T
169253688	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	Base Case	single	176.81401062	198.09	202.65	DC	8.06
169253696	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	1	DVP_P1-2: LN 298	single	198.057998657	223.23	228.87	DC	11.15
169253698	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	1	DVP_P1-2: LN 1045	single	198.057998657	150.34	153.96	DC	7.18
169253699	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	1	Base Case	single	193.734008789	141.83	145.19	DC	6.5
163355933	314692	6FARMVIL	230.0	DVP	313802	6PRINCE EDW	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	112.92	114.7	DC	12.45
169253706	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P1-2: LN 556-C	single	559.299987793	235.85	237.65	DC	10.06
169253707	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P1-2: LN 556-B	single	559.299987793	229.44	231.24	DC	10.06
169253709	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	Base Case	single	559.299987793	140.92	142.47	DC	8.68
169253692	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P1-2: LN 1012-B	single	205.86000061	284.9	294.61	DC	20.0
169253693	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	Base Case	single	186.119995117	215.49	224.45	DC	16.68
169469107	314747	6BREMO	230.0	DVP	313867	6BREMODIST	230.0	DVP	1	3143336POWHATN 230933500AC2-165TAP 2301	single	661.760009766	165.58	166.6	DC	6.77
169469108	314747	6BREMO	230.0	DVP	313867	6BREMODIST	230.0	DVP	1	DVP_P1-2: LN 2027	single	661.760009766	161.41	162.44	DC	6.77
169469124	314747	6BREMO	230.0	DVP	314744	3BREMO	115.0	DVP	1	DVP_P1-2: LN 2193	single	269.779998779	152.46	153.55	DC	2.94
163355855	934620	AD1-088 TAP	230.0	DVP	962490	AG1-098 TAP	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	156.31	158.09	DC	12.45
169760392	934620	AD1-088 TAP	230.0	DVP	962490	AG1-098 TAP	230.0	DVP	1	DVP_P1-2: LN 298	single	571.520019531	108.5	110.45	DC	11.15
169760292	936480	AD2-063 TAP	115.0	DVP	965590	AG1-427 TAP	115.0	DVP	1	Base Case	single	247.220001221	144.21	145.55	DC	3.31
163355800	962490	AG1-098 TAP	230.0	DVP	314686	6CLOVER	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	172.69	174.47	DC	12.45
169253828	962490	AG1-098 TAP	230.0	DVP	314686	6CLOVER	230.0	DVP	1	DVP_P1-2: LN 298	single	571.520019531	120.61	122.57	DC	11.15
163355876	963270	AG1-176 TAP	230.0	DVP	934620	AD1-088 TAP	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	142.81	144.59	DC	12.45
169760313	963320	AG1-181 TAP	115.0	DVP	936480	AD2-063 TAP	115.0	DVP	1	DVP_P1-2: LN 298	single	269.779998779	122.94	124.72	DC	4.79
169760314	963320	AG1-181 TAP	115.0	DVP	936480	AD2-063 TAP	115.0	DVP	1	Base Case	single	247.220001221	115.0	116.34	DC	3.31
170041651	964240	AG1-285 TAP	115.0	DVP	314681	3CHASCTY	115.0	DVP	1	Base Case	single	247.220001221	193.13	194.47	DC	3.31
163355912	964840	AG1-347 TAP	230.0	DVP	963270	AG1-176 TAP	230.0	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	124.14	125.92	DC	12.45
170041686	965590	AG1-427 TAP	115.0	DVP	964240	AG1-285 TAP	115.0	DVP	1	Base Case	single	247.220001221	167.95	169.29	DC	3.31

## 11.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADIN G %	POST PROJECT LOADIN G %	AC/D C	MW IMPAC T
168532198	313755	3FLAT CREEK	115.0	DVP	314707	3MORAN	115.0	DVP	1	Base Case	operati on	203.979995728	187.18	188.22	DC	2.12
168532478	313755	3FLAT CREEK	115.0	DVP	314701	3LONEPN	115.0	DVP	1	DVP_P1-2: LN 1012-E	operati on	203.979995728	130.78	132.36	DC	3.21
168532531	313802	6PRINCE EDW	230.0	DVP	314268	6BRIERY	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	121.51	123.46	DC	11.15
168532279	313867	6BREMODI ST	230.0	DVP	313707	6FORK UNION	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	operati on	661.760009766	194.84	195.87	DC	6.77
168837879	314268	6BRIERY	230.0	DVP	964840	AG1-347 TAP	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	120.43	122.38	DC	11.15
169253725	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	DVP_P1-2: LN 556-C	operati on	571.520019531	318.19	319.95	DC	10.06
169253729	314677	6BUCKING	230.0	DVP	314747	6BREMO	230.0	DVP	1	Base Case	operati on	571.520019531	196.11	197.63	DC	8.68
169253874	314679	3CENTRAL	115.0	DVP	963320	AG1-181 TAP	115.0	DVP	1	Base Case	operati on	247.220001221	135.42	136.76	DC	3.31
169253683	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	DVP_P1-2: LN 235-A	operati on	182.641998291	481.81	488.53	DC	12.28
169253686	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	Base Case	operati on	176.81401062	304.29	308.85	DC	8.06
169253694	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	1	DVP_P1-2: LN 298	operati on	198.057998657	360.24	365.86	DC	11.15
169253697	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	1	Base Case	operati on	193.734008789	223.65	227.01	DC	6.5
169253933	314691	3FARMVIL	115.0	DVP	314707	3MORAN	115.0	DVP	1	DVP_P1-2: LN 1012-E	operati on	203.979995728	134.17	135.74	DC	3.21
169254086	314691	3FARMVIL	115.0	DVP	314726	3WILLIS	115.0	DVP	1	DVP_P1-2: LN 1045	operati on	205.86000061	93.36	101.18	DC	16.11
168532529	314692	6FARMVIL	230.0	DVP	313802	6PRINCE EDW	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	121.55	123.5	DC	11.15
169253704	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	DVP_P1-2: LN 556-C	operati on	559.299987793	323.06	324.86	DC	10.06
169253708	314692	6FARMVIL	230.0	DVP	314677	6BUCKING	230.0	DVP	1	Base Case	operati on	559.299987793	195.7	197.25	DC	8.68
169254080	314692	6FARMVIL	230.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P1-2: LN 298	operati on	198.057998657	97.93	103.6	DC	11.15

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/D C	MW IMPACT
168532193	314701	3LONEPN	115.0	DVP	313755	3FLAT CREEK	115.0	DVP	1	Base Case	operati on	203.979995728	187.18	188.22	DC	2.12
168532481	314707	3MORAN	115.0	DVP	313755	3FLAT CREEK	115.0	DVP	1	DVP_P1-2: LN 1012-E	operati on	203.979995728	130.78	132.36	DC	3.21
169253722	314707	3MORAN	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	Base Case	operati on	203.979995728	183.75	184.79	DC	2.12
169253763	314713	3PAMPLIN	115.0	DVP	314726	3WILLIS	115.0	DVP	1	Base Case	operati on	331.820007324	108.21	109.21	DC	3.32
169253768	314715	3MADSON V	115.0	DVP	314713	3PAMPLIN	115.0	DVP	1	Base Case	operati on	331.820007324	105.05	106.05	DC	3.32
169253869	314722	3TWITTYS	115.0	DVP	314679	3CENTRAL	115.0	DVP	1	Base Case	operati on	247.220001221	136.95	138.29	DC	3.31
169253689	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P1-2: LN 1012-B	operati on	205.86000061	434.24	443.96	DC	20.0
169253691	314726	3WILLIS	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	Base Case	operati on	186.119995117	314.83	323.79	DC	16.68
169469105	314747	6BREMO	230.0	DVP	313867	6BREMODI ST	230.0	DVP	1	314333 6POWHA TN 230 933500 AC2-165 TAP 230 1	operati on	661.760009766	197.01	198.03	DC	6.77
169469123	314747	6BREMO	230.0	DVP	314744	3BREMO	115.0	DVP	1	DVP_P1-2: LN 2193	operati on	269.779998779	188.64	189.73	DC	2.94
169760390	934620	AD1-088 TAP	230.0	DVP	962490	AG1-098 TAP	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	173.33	175.28	DC	11.15
169760289	936480	AD2-063 TAP	115.0	DVP	965590	AG1-427 TAP	115.0	DVP	1	Base Case	operati on	247.220001221	211.13	212.47	DC	3.31
169253997	959310	AF2-222 TAP	115.0	DVP	314722	3TWITTYS	115.0	DVP	1	DVP_P1-2: LN 1045	operati on	331.820007324	126.04	127.21	DC	3.89
169253949	961890	AG1-030 TAP	115.0	DVP	314706	3MARTIN TAP	115.0	DVP	1	DVP_P1-2: LN 154-A	operati on	269.779998779	133.86	135.05	DC	3.21
169253826	962490	AG1-098 TAP	230.0	DVP	314686	6CLOVER	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	193.57	195.52	DC	11.15
169253829	962490	AG1-098 TAP	230.0	DVP	314686	6CLOVER	230.0	DVP	1	Base Case	operati on	571.520019531	109.87	110.9	DC	5.88
169760438	963270	AG1-176 TAP	230.0	DVP	934620	AD1-088 TAP	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	156.59	158.54	DC	11.15
169760311	963320	AG1-181 TAP	115.0	DVP	936480	AD2-063 TAP	115.0	DVP	1	Base Case	operati on	247.220001221	162.44	163.78	DC	3.31
170041648	964240	AG1-285 TAP	115.0	DVP	314681	3CHASCTY	115.0	DVP	1	Base Case	operati on	247.220001221	292.69	294.03	DC	3.31
170042083	964240	AG1-285 TAP	115.0	DVP	965590	AG1-427 TAP	115.0	DVP	1	DVP_P1-2: LN 158	operati on	269.779998779	102.1	103.55	DC	3.89
170041951	964840	AG1-347 TAP	230.0	DVP	963270	AG1-176 TAP	230.0	DVP	1	DVP_P1-2: LN 298	operati on	571.520019531	133.41	135.35	DC	11.15
169760725	965590	AG1-427 TAP	115.0	DVP	936480	AD2-063 TAP	115.0	DVP	1	DVP_P1-2: LN 158	operati on	269.779998779	111.11	112.56	DC	3.89
170041683	965590	AG1-427 TAP	115.0	DVP	964240	AG1-285 TAP	115.0	DVP	1	Base Case	operati on	247.220001221	250.73	252.07	DC	3.31

## 11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
169253696,169253698,169253699	7	3FARMVIL 115.0 kV - 6FARMVIL 230.0 kV Ckt 1	<u>DVP</u> dom-089 (1606) : Add additional 230/115 kV transformer at Farmville substation Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
169253688,169253687,169253685	6	3FARMVIL 115.0 kV - 6FARMVIL 230.0 kV Ckt 2	<u>DVP</u> dom-089 (1606) : Add additional 230/115 kV transformer at Farmville substation Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months	\$6,000,000
168532282,168532281	2	6BREMODIST 230.0 kV - 6FORK UNION 230.0 kV Ckt 1	<u>DVP</u> dom-202 (1760) : Rebuild 1.63 miles of 230 kV Line 2028 from Fork Union to Brema Dist with 2-636 ACSR. Project Type : FAC Cost : \$2,445,000 Time Estimate : 30-36 Months  dom-276 (1834) : Rebuild 1.63 miles of 230 kV Line 2028 from Fork Union to Brema Dist with 2-795 ACSR (26/7) 150 C Project Type : FAC Cost : \$2,445,000 Time Estimate : 30-36 Months	\$4,890,000
163355934	1	6PRINCE EDW 230.0 kV - 6BRIERY 230.0 kV Ckt 1	<u>DVP</u> dom-272 (1830) : Rebuild 5.7 miles of 230 kV Line 235 from Prince EDW to Briery with 2-636 ACSR 150 C. Project Type : FAC Cost : \$14,250,000 Time Estimate : 36-40 Months	\$14,250,000
169253709,169253706,169253707	9	6FARMVIL 230.0 kV - 6BUCKING 230.0 kV Ckt 1	<u>DVP</u> n6245 (1543) : 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  dom-346 (1904) : Rebuild 12.76 miles of 230 kV Line 298 from Buckingham to Farmville with 2-768.2 ACSS 250 C. Replace Line Lead, Line Switch, Relay (CT), Wave trap at Farmville terminal Project Type : FAC Cost : \$19,710,000 Time Estimate : 36-40 Months	\$38,850,000
163355876	16	AG1-176 TAP 230.0 kV - AD1- 088 TAP 230.0 kV Ckt 1	<u>DVP</u> dom-392 (1950) : Rebuild 2.729 miles of 230 kV line 235 from AD1-088 Tap to AG1-176 Tap with 2-636 ACSR 150 C. Project Type : FAC Cost : \$6,822,500 Time Estimate : 30-36 Months	\$6,822,500

ID	Idx	Facility	Upgrade Description	Cost
163355912	19	AG1-347 TAP 230.0 kV - AG1-176 TAP 230.0 kV Ckt 1	<u>DVP</u> dom-415 (1973) : Rebuild 0.17 mi miles of 230 kV Line 235 from AG1-347 Tap to AG1-176 Tap with 2-636 ACSR 150 C Project Type : FAC Cost : \$255,000 Time Estimate : 30-36 Months	\$255,000
169253692,169 253693	10	3WILLIS 115.0 kV - 3FARMVIL 115.0 kV Ckt 1	<u>DVP</u> dom-271 (1829) : Rebuild 70 miles of 115 kV lines (158, 84, 154, 1012) from Chase City to Lone Pine with 2-636 ACSR 150 C. Line 84: - Willis Mountain terminal: Replace Line Switch - Farmville terminal: Replace Breaker Switch, Breaker Lead, Line Lead, Wave Trap - Pamplin terminal: Replace Wave Trap, Line Lead and Relay (Secondary CT) Line 154: - Twittys Creek terminal: Replace Wave Trap and Line Lead - Madisonville terminal: Replace Line Switch - Pamplin terminal: Replace Wave Trap and Line Lead Line 158: - Farmville terminal: Replace Breaker Switch, Breaker Lead - Moran DP terminal: Replace Line Switch - Lone Pine terminal: Replace Wave Trap Line 1012: - Chase City terminal: Replace Breaker, Breaker switch, Breaker Lead and Wave Trap - Central terminal: Replace Line Switch - Twitty's Creek terminal: Replace Wave Trap Project Type : FAC Cost : \$109,470,000 Time Estimate : 60-72 Months	\$109,470,000
170041686	20	AG1-427 TAP 115.0 kV - AG1-285 TAP 115.0 kV Ckt 1		
169760314,169 760313	17	AG1-181 TAP 115.0 kV - AD2-063 TAP 115.0 kV Ckt 1		
170041651	18	AG1-285 TAP 115.0 kV - 3CHASCTY 115.0 kV Ckt 1		
169760292	14	AD2-063 TAP 115.0 kV - AG1-427 TAP 115.0 kV Ckt 1		
169469124	12	6BREMO 230.0 kV - 3BREMO 115.0 kV Ckt 1	<u>DVP</u> b2989 (1491) : PJM Baseline Upgrade b2989. Install a second 230 -115 kV Transformer(224 MVA) approximately 1 mile north of BreMO and tie 230 kV Line #2028(Bremo Charlottesville) and 115 kV Line #91 (BreMO-Sherwood) together. A three breaker 230 kV ring bus will split Line #2028 into two lines and Line #91 will also be split into two lines with a new three breaker 115 kV ring bus. Install a temporary 230-115 kV transformer at BreMO substation for the interim until the new substation is complete. The baseline project has an projected in-service date of 10/31/2019. Project Type : CON Cost : \$0	\$0
163355936	4	6BRIERY 230.0 kV - AG1-347 TAP 230.0 kV Ckt 1	<u>DVP</u> dom-297 (1855) : Rebuild 16.821 mi miles of 230 kV Line 235 from Briery DP to AG1-347 Tap with 2-636 ACSR 150 C Project Type : FAC Cost : \$42,052,500 Time Estimate : 36-40 Months	\$42,052,500

ID	Idx	Facility	Upgrade Description	Cost
169253828,163 355800	15	AG1-098 TAP 230.0 kV - 6CLOVER 230.0 kV Ckt 1	<u>DVP</u> dom-343 (1901) : Rebuild 6.534 miles of 230 kV Line 235 from Clover to AG1-098 with 2-795 ACSR 150 C. Replace Relay (Secondary CT) at Clover terminal Project Type : FAC Cost : \$16,455,000 Time Estimate : 36-40 Months	\$16,455,000
168532217	3	3BUTCHER CRK 115.0 kV - 3CHASCTY2 115.0 kV Ckt 1	<u>DVP</u> dom-279 (1837) : Rebuild 1.17 miles of 115 kV line 1045 from Butcher Creek to Chase City with 2-636 ACSR 150 C. Replace Breaker Switch at Chase City terminal Project Type : FAC Cost : \$2,005,000 Time Estimate : 30-36 Months	\$2,005,000
169253728,169 253730,169253 727	5	6BUCKING 230.0 kV - 6BREMO 230.0 kV Ckt 1	<u>DVP</u> n6219 (1541) : Rebuild 15.51 miles of 230 kV Line 298 from Buckingham to BreMO with 2-636 ACSR. Project Type : FAC Cost : \$23,265,000 Time Estimate : 30-36 Months  <u>DVP</u> dom-337 (1895) : Rebuild 15.51 miles of 230 kV Line 298 from Buckingham to BreMO with 2-768.2 ACSS 250 C. Replace Breaker, Breaker Switch, Breaker Lead, Wave Trap, Relay (Secondary CT), Relay Trip at BreMO terminal. Replace Line Switch at Buckingham terminal Project Type : FAC Cost : \$25,285,000 Time Estimate : 36-40 Months	\$48,550,000
169469107,169 469108	11	6BREMO 230.0 kV - 6BREMODIST 230.0 kV Ckt 1	<u>DVP</u> n5873 (1709) : 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  <u>DVP</u> dom-363 (1921) : Rebuild 0.16 miles of Line 2028 from BreMO to BreMO Dist with 2-795 ACSR 150 C. Replace Breaker, Breaker Switch, Breaker Lead, Line Lead at BreMO terminal Project Type : FAC Cost : \$1,690,000 Time Estimate : 30-36 Months	\$2,190,000

ID	Idx	Facility	Upgrade Description	Cost
163355855,169 760392	13	AD1-088 TAP 230.0 kV - AG1- 098 TAP 230.0 kV Ckt 1	<u>DVP</u> dom-391 (1949) : Rebuild 8.936 miles of 230 kV line 235 from AD1-088 Tap to AG1-098 Tap with 2-636 ACSR 150 C Project Type : FAC Cost : \$22,340,000 Time Estimate : 36-40 Months	\$22,340,000
163355933	8	6FARMVIL 230.0 kV - 6PRINCE EDW 230.0 kV Ckt 1	<u>DVP</u> dom-199 (1757) : Rebuild 7.2 miles of 230 kV Line 235 from Prince EDW to Farmville with 2-636 ACSR. Project Type : FAC Cost : \$10,800,000 Time Estimate : 30-36 Months	\$10,800,000
			TOTAL COST	\$324,930,000

## 11.6 Flow Gate Details

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

### 11.6.1 Index 1

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
163355934	313802	6PRINCE EDW	DVP	314268	6BRIERY	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	112.9	114.67	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018
964822	AG1-345 E	1.4679	50/50	1.4679
964843	AG1-347 BAT	2.5360	50/50	2.5360
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2539	Confirmed LTF	0.2539
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

## 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
168532281	313867	6BREMODIST	DVP	313707	6FORK UNION	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	163.42	164.44	DC	6.77

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	2.1780	80/20	2.1780
313527	AB2-043 C	0.4243	80/20	0.4243
314429	3JTRSVLE	0.6669	80/20	0.6669
314572	3EMPORIA	0.1382	80/20	0.1382
314677	6BUCKING	1.0571	80/20	1.0571
314704	3LAWRENC	0.1410	80/20	0.1410
315126	1ROARAP2	0.4085	80/20	0.4085
315128	1ROARAP4	0.3898	80/20	0.3898
315153	1CLOVER1	7.5116	80/20	7.5116
315154	1CLOVER2	7.4368	80/20	7.4368
315158	1KERR 1	0.2345	80/20	0.2345
315159	1KERR 2	0.6567	80/20	0.6567
315160	1KERR 3	0.6567	80/20	0.6567
315161	1KERR 4	0.6567	80/20	0.6567
315162	1KERR 5	0.6567	80/20	0.6567
315163	1KERR 6	0.6567	80/20	0.6567
315164	1KERR 7	0.6567	80/20	0.6567
315191	1BEARGRDN G1	18.4998	80/20	18.4998
315192	1BEARGRDN G2	18.4998	80/20	18.4998
315193	1BEARGRDN S1	23.9239	80/20	23.9239
315266	1PLYWOOD A	0.6737	80/20	0.6737
316087	AB2-174 C	0.3606	80/20	0.3606
316118	AC1-105 C	3.4200	80/20	3.4200
316123	AC1-075 C	0.3763	80/20	0.3763
316129	AC1-054 C	3.4710	80/20	3.4710
316131	AB2-060 C	1.2610	80/20	1.2610
923991	AB2-040 C O1	2.3720	80/20	2.3720
924301	AB2-077 C O1 (Suspended)	1.6661	80/20	1.6661
924311	AB2-078 C O1 (Suspended)	1.6661	80/20	1.6661
924321	AB2-079 C O1 (Suspended)	1.6661	80/20	1.6661
925611	AC1-036 C	0.2822	80/20	0.2822
926023	AC1-080 C	0.1258	80/20	0.1258
927251	AC1-221 C	0.7947	80/20	0.7947
927261	AC1-222 C	1.8844	80/20	1.8844
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.0415	80/20	1.0415
932761	AC2-100 C	1.8288	80/20	1.8288

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
933501	AC2-165 C	34.9923	80/20	34.9923
934311	AD1-055 C	1.3084	80/20	1.3084
934341	AD1-058 C	1.9921	80/20	1.9921
934615	AD1-087 C	4.7030	80/20	4.7030
934625	AD1-088 C	15.3924	80/20	15.3924
934991	AD1-131 C	0.6532	80/20	0.6532
935171	AD1-152 C O1	5.1658	80/20	5.1658
935221	AD1-157 C	0.4035	80/20	0.4035
936265	AD2-033 C	15.2365	80/20	15.2365
936361	AD2-046 C O1	5.8230	80/20	5.8230
936485	AD2-063 C	15.0849	80/20	15.0849
937481	AD2-202 C O1	1.3775	80/20	1.3775
938371	AE1-056 C	11.0262	80/20	11.0262
938821	AE1-108 C O1	11.0132	80/20	11.0132
939181	AE1-148 C	5.8169	80/20	5.8169
940661	AE2-053 O1	2.1544	80/20	2.1544
941791	AE2-182 C	2.5007	80/20	2.5007
942451	AE2-258	2.0064	80/20	2.0064
942461	AE2-259 C O1	20.3100	80/20	20.3100
942751	AE2-291 C	3.2791	80/20	3.2791
942761	AE2-292 C O1	4.0828	80/20	4.0828
943901	AF1-058 C	1.0548	80/20	1.0548
943911	AF1-059	10.2781	80/20	10.2781
945811	AF1-246 C O1	3.6616	80/20	3.6616
946281	AF1-292 C	0.4969	80/20	0.4969
946291	AF1-293 C O1	6.2287	80/20	6.2287
946301	AF1-294 C	6.7368	80/20	6.7368
946591	AF1-323 C	3.5356	80/20	3.5356
957481	AF2-042 C	26.1540	80/20	26.1540
958131	AF2-107 C	1.6496	80/20	1.6496
958211	AF2-115 C	3.9629	80/20	3.9629
958801	AF2-171 C	23.6781	80/20	23.6781
959311	AF2-222 C	21.6010	80/20	21.6010
959751	AF2-266	5.3920	80/20	5.3920
960061	AF2-297 C	4.2192	80/20	4.2192
960081	AF2-299 C	0.8375	80/20	0.8375
960111	AF2-302 C	1.2857	80/20	1.2857
961791	AG1-021 C	3.1703	80/20	3.1703
961801	AG1-022 C	1.2857	80/20	1.2857
961891	AG1-030 C	22.0131	80/20	22.0131
962041	AG1-048 C	19.8142	80/20	19.8142
962441	AG1-093 C O1	9.1200	80/20	9.1200
962491	AG1-098 C O1	12.3900	80/20	12.3900
962561	AG1-105 C O1	6.1674	80/20	6.1674
963171	AG1-166 C	3.1703	80/20	3.1703
963181	AG1-167 C	3.1703	80/20	3.1703
963191	AG1-168 C	3.1703	80/20	3.1703
963201	AG1-169 C	3.1703	80/20	3.1703
963211	AG1-170 C	3.1703	80/20	3.1703
963271	AG1-176 C O1	20.7171	80/20	20.7171
963301	AG1-179 C	2.9803	80/20	2.9803
963311	AG1-180	1.4521	80/20	1.4521

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963321	AG1-181 C O1	20.0593	80/20	20.0593
963361	AG1-185 O1	9.7052	80/20	9.7052
963641	AG1-215 C	1.4795	80/20	1.4795
964111	AG1-272 C	3.2072	80/20	3.2072
964121	AG1-273 C	3.2072	80/20	3.2072
964131	AG1-274 C	3.2072	80/20	3.2072
964231	AG1-284 C O1	2.9513	80/20	2.9513
964241	AG1-285 C O1	12.0195	80/20	12.0195
964261	AG1-287 C	0.7911	80/20	0.7911
964471	AG1-310 C	1.0720	80/20	1.0720
964791	AG1-342 C	2.7843	80/20	2.7843
964821	AG1-345 C	1.2648	80/20	1.2648
964841	AG1-347 C	12.9875	80/20	12.9875
964931	AG1-357 C	8.6556	80/20	8.6556
965191	AG1-384 C	3.2072	80/20	3.2072
965281	AG1-393 C	3.1703	80/20	3.1703
965451	AG1-413 C O1	4.3205	80/20	4.3205
965581	AG1-426	2.3994	80/20	2.3994
965591	AG1-427 C	11.4819	80/20	11.4819
965601	AG1-428 C O1	2.4880	80/20	2.4880
965641	AG1-432 C O1	40.6200	80/20	40.6200
965721	AG1-440 C	4.1121	80/20	4.1121
965731	AG1-441 C	4.1121	80/20	4.1121
965771	AG1-445	2.3759	80/20	2.3759
965781	AG1-446	2.3759	80/20	2.3759
965831	AG1-451	6.7700	80/20	6.7700
966361	AG1-505 C	4.9734	80/20	4.9734
966371	AG1-506 C	4.9734	80/20	4.9734
966621	AG1-532 C	0.4522	80/20	0.4522
966691	AG1-539 C	1.7146	80/20	1.7146
966751	AG1-546 C	7.3410	80/20	7.3410
966811	AG1-552 C	0.6485	80/20	0.6485
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	4.0620	80/20	4.0620
WEC	WEC	0.0699	Confirmed LTF	0.0699
LGEE	LGEE	0.1483	Confirmed LTF	0.1483
CPL	CPL	2.3396	Confirmed LTF	2.3396
CBM-W2	CBM-W2	5.8061	Confirmed LTF	5.8061
NY	NY	0.4076	Confirmed LTF	0.4076
TVA	TVA	1.2558	Confirmed LTF	1.2558
SIGE	SIGE	0.1120	Confirmed LTF	0.1120
CBM-S2	CBM-S2	25.9121	Confirmed LTF	25.9121
CBM-S1	CBM-S1	0.2953	Confirmed LTF	0.2953
MEC	MEC	0.5863	Confirmed LTF	0.5863
LAGN	LAGN	1.5645	Confirmed LTF	1.5645
AA2-074	AA2-074	1.5426	LTF	1.5426
CBM-W1	CBM-W1	2.5236	Confirmed LTF	2.5236

### 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
168532217	313898	3BUTCHER CRK	DVP	314267	3CHASCTY2	DVP	1	DVP_P1-2: LN 298	single	269.78	116.21	117.71	DC	4.05

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	1.3113	80/20	1.3113
316131	AB2-060 C	7.6090	80/20	7.6090
934625	AD1-088 C	4.1455	80/20	4.1455
935221	AD1-157 C	0.1688	80/20	0.1688
936265	AD2-033 C	57.3284	80/20	57.3284
938371	AE1-056 C	4.6129	80/20	4.6129
941791	AE2-182 C	0.6735	80/20	0.6735
942461	AE2-259 C O1	12.1362	80/20	12.1362
946301	AF1-294 C	13.2465	80/20	13.2465
958211	AF2-115 C	7.7921	80/20	7.7921
958801	AF2-171 C	7.7868	80/20	7.7868
961791	AG1-021 C	6.2336	80/20	6.2336
961891	AG1-030 C	52.2747	80/20	52.2747
962041	AG1-048 C	38.9602	80/20	38.9602
963171	AG1-166 C	6.2336	80/20	6.2336
963181	AG1-167 C	6.2336	80/20	6.2336
963191	AG1-168 C	6.2336	80/20	6.2336
963201	AG1-169 C	6.2336	80/20	6.2336
963211	AG1-170 C	6.2336	80/20	6.2336
963271	AG1-176 C O1	5.6995	80/20	5.6995
963641	AG1-215 C	2.9090	80/20	2.9090
964821	AG1-345 C	2.5035	80/20	2.5035
964841	AG1-347 C	3.5773	80/20	3.5773
965281	AG1-393 C	6.2336	80/20	6.2336
965641	AG1-432 C O1	24.2724	80/20	24.2724
965831	AG1-451	4.0454	80/20	4.0454
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	2.4272	80/20	2.4272
G-007A	G-007A	0.0048	Confirmed LTF	0.0048
VFT	VFT	0.0129	Confirmed LTF	0.0129
CALDERWOOD	CALDERWOOD	0.0581	Confirmed LTF	0.0581
NY	NY	0.0022	Confirmed LTF	0.0022
PRAIRIE	PRAIRIE	0.2325	Confirmed LTF	0.2325
CHEOAH	CHEOAH	0.0591	Confirmed LTF	0.0591
CBM-N	CBM-N	0.0012	Confirmed LTF	0.0012
COTTONWOOD	COTTONWOOD	0.2226	Confirmed LTF	0.2226
HAMLET	HAMLET	0.0964	Confirmed LTF	0.0964
GIBSON	GIBSON	0.0448	Confirmed LTF	0.0448
BLUEG	BLUEG	0.1406	Confirmed LTF	0.1406
TRIMBLE	TRIMBLE	0.0445	Confirmed LTF	0.0445
CATAWBA	CATAWBA	0.0539	Confirmed LTF	0.0539

#### 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
163355936	314268	6BRIERY	DVP	964840	AG1-347 TAP	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	112.01	113.79	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018
964822	AG1-345 E	1.4679	50/50	1.4679
964843	AG1-347 BAT	2.5360	50/50	2.5360
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPLE	CPLE	0.2539	Confirmed LTF	0.2539
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

### 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
169253727	314677	6BUCKING	DVP	314747	6BREMO	DVP	1	DVP_P1-2: LN 556-C	single	571.52	233.99	235.75	DC	10.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	2.6684	80/20	2.6684
313527	AB2-043 C	0.6826	80/20	0.6826
313719	3CHESTNUT	0.3600	80/20	0.3600
314429	3JTRSVLE	1.0076	80/20	1.0076
314572	3EMPORIA	0.1683	80/20	0.1683
314623	3WITAKRS	0.0667	80/20	0.0667
314677	6BUCKING	1.4768	80/20	1.4768
314704	3LAWRENC	0.1998	80/20	0.1998
315126	1ROARAP2	0.5063	80/20	0.5063
315128	1ROARAP4	0.4832	80/20	0.4832
315153	1CLOVER1	20.9369	80/20	20.9369
315154	1CLOVER2	20.7283	80/20	20.7283
315156	1HALLBR1	0.4996	80/20	0.4996
315158	1KERR 1	0.3755	80/20	0.3755

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315159	1KERR 2	1.0513	80/20	1.0513
315160	1KERR 3	1.0513	80/20	1.0513
315161	1KERR 4	1.0513	80/20	1.0513
315162	1KERR 5	1.0513	80/20	1.0513
315163	1KERR 6	1.0513	80/20	1.0513
315164	1KERR 7	1.0513	80/20	1.0513
315266	1PLYWOOD A	1.3866	80/20	1.3866
315606	3AA2-053SOLA	0.5091	80/20	0.5091
315607	3AA1-063SOLA	0.4357	80/20	0.4357
316087	AB2-174 C	0.4407	80/20	0.4407
316118	AC1-105 C	6.9131	80/20	6.9131
316123	AC1-075 C	0.7898	80/20	0.7898
316129	AC1-054 C	5.1900	80/20	5.1900
316131	AB2-060 C	2.0201	80/20	2.0201
920591	AA2-165 C	0.0483	80/20	0.0483
923991	AB2-040 C O1	2.9062	80/20	2.9062
924301	AB2-077 C O1 (Suspended)	2.6962	80/20	2.6962
924311	AB2-078 C O1 (Suspended)	2.6962	80/20	2.6962
924321	AB2-079 C O1 (Suspended)	2.6962	80/20	2.6962
925611	AC1-036 C	0.4351	80/20	0.4351
925661	AC1-042 C	0.8262	80/20	0.8262
926023	AC1-080 C	0.2640	80/20	0.2640
926645	AC1-145 C	0.1552	80/20	0.1552
927145	AC1-208 C	2.9573	80/20	2.9573
927251	AC1-221 C	1.6710	80/20	1.6710
927261	AC1-222 C	4.1067	80/20	4.1067
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.4549	80/20	1.4549
932761	AC2-100 C	3.8455	80/20	3.8455
934311	AD1-055 C	2.8513	80/20	2.8513
934341	AD1-058 C	4.1889	80/20	4.1889
934615	AD1-087 C	13.0965	80/20	13.0965
934625	AD1-088 C	29.0477	80/20	29.0477
934991	AD1-131 C	1.3734	80/20	1.3734
935171	AD1-152 C O1	14.3851	80/20	14.3851
935221	AD1-157 C	0.6064	80/20	0.6064
936161	AD2-022 C O1	4.1004	80/20	4.1004
936171	AD2-023 C O1	2.3919	80/20	2.3919
936265	AD2-033 C	23.6348	80/20	23.6348
936361	AD2-046 C O1	9.3324	80/20	9.3324
936485	AD2-063 C	23.7834	80/20	23.7834
937481	AD2-202 C O1	3.8360	80/20	3.8360
938371	AE1-056 C	16.5711	80/20	16.5711
939181	AE1-148 C	9.3242	80/20	9.3242
939941	AE1-230 C	0.3727	80/20	0.3727
940661	AE2-053 O1	3.4534	80/20	3.4534
941791	AE2-182 C	4.7192	80/20	4.7192
941801	AE2-185 C	1.8637	80/20	1.8637
941821	AE2-187 C	1.8637	80/20	1.8637
942451	AE2-258	3.2276	80/20	3.2276

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
942461	AE2-259 C O1	30.1788	80/20	30.1788
942671	AE2-283 C	2.0501	80/20	2.0501
942751	AE2-291 C	6.7081	80/20	6.7081
942761	AE2-292 C O1	8.3523	80/20	8.3523
943901	AF1-058 C	2.3154	80/20	2.3154
943911	AF1-059	15.5565	80/20	15.5565
945081	AF1-173	0.7222	80/20	0.7222
945811	AF1-246 C O1	12.6239	80/20	12.6239
946281	AF1-292 C	0.6035	80/20	0.6035
946301	AF1-294 C	10.1788	80/20	10.1788
957481	AF2-042 C	90.1710	80/20	90.1710
958211	AF2-115 C	5.9876	80/20	5.9876
958801	AF2-171 C	35.7867	80/20	35.7867
959311	AF2-222 C	33.1870	80/20	33.1870
959751	AF2-266	15.0290	80/20	15.0290
960061	AF2-297 C	9.2616	80/20	9.2616
960081	AF2-299 C	1.0172	80/20	1.0172
961121	AF2-403	0.4142	80/20	0.4142
961791	AG1-021 C	4.7900	80/20	4.7900
961891	AG1-030 C	33.4611	80/20	33.4611
962041	AG1-048 C	29.9378	80/20	29.9378
962441	AG1-093 C O1	18.4350	80/20	18.4350
962491	AG1-098 C O1	26.7862	80/20	26.7862
962561	AG1-105 C O1	16.8312	80/20	16.8312
963171	AG1-166 C	4.7900	80/20	4.7900
963181	AG1-167 C	4.7900	80/20	4.7900
963191	AG1-168 C	4.7900	80/20	4.7900
963201	AG1-169 C	4.7900	80/20	4.7900
963211	AG1-170 C	4.7900	80/20	4.7900
963271	AG1-176 C O1	37.8534	80/20	37.8534
963301	AG1-179 C	4.3337	80/20	4.3337
963311	AG1-180	2.1115	80/20	2.1115
963321	AG1-181 C O1	31.0660	80/20	31.0660
963361	AG1-185 O1	15.0305	80/20	15.0305
963601	AG1-209 C	0.1450	80/20	0.1450
963641	AG1-215 C	2.2354	80/20	2.2354
964111	AG1-272 C	4.9447	80/20	4.9447
964121	AG1-273 C	4.9447	80/20	4.9447
964131	AG1-274 C	4.9447	80/20	4.9447
964141	AG1-275 C	0.6212	80/20	0.6212
964151	AG1-276 C	0.6212	80/20	0.6212
964241	AG1-285 C O1	19.0492	80/20	19.0492
964261	AG1-287 C	1.7365	80/20	1.7365
964471	AG1-310 C	2.3287	80/20	2.3287
964501	AG1-313 C O1	1.4714	80/20	1.4714
964791	AG1-342 C	5.2388	80/20	5.2388
964821	AG1-345 C	1.9116	80/20	1.9116
964841	AG1-347 C	23.6846	80/20	23.6846
964931	AG1-357 C	36.0672	80/20	36.0672
965191	AG1-384 C	4.9447	80/20	4.9447
965281	AG1-393 C	4.7900	80/20	4.7900
965451	AG1-413 C O1	6.5394	80/20	6.5394

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965591	AG1-427 C	18.1810	80/20	18.1810
965601	AG1-428 C O1	3.6179	80/20	3.6179
965641	AG1-432 C O1	60.3576	80/20	60.3576
965721	AG1-440 C	6.4480	80/20	6.4480
965731	AG1-441 C	6.4480	80/20	6.4480
965771	AG1-445	3.7255	80/20	3.7255
965781	AG1-446	3.7255	80/20	3.7255
965831	AG1-451	10.0596	80/20	10.0596
966621	AG1-532 C	0.5493	80/20	0.5493
966691	AG1-539 C	3.5075	80/20	3.5075
966751	AG1-546 C	10.8417	80/20	10.8417
966761	AG1-547 C	1.6846	80/20	1.6846
966811	AG1-552 C	0.8039	80/20	0.8039
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	6.0358	80/20	6.0358
WEC	WEC	0.2939	Confirmed LTF	0.2939
LGEE	LGEE	0.6051	Confirmed LTF	0.6051
CPL	CPL	3.6248	Confirmed LTF	3.6248
CBM-W2	CBM-W2	13.4490	Confirmed LTF	13.4490
NY	NY	0.4020	Confirmed LTF	0.4020
TVA	TVA	2.5732	Confirmed LTF	2.5732
SIGE	SIGE	0.1956	Confirmed LTF	0.1956
CBM-S2	CBM-S2	41.5512	Confirmed LTF	41.5512
CBM-S1	CBM-S1	0.6380	Confirmed LTF	0.6380
MEC	MEC	1.7940	Confirmed LTF	1.7940
LAGN	LAGN	3.1955	Confirmed LTF	3.1955
AA2-074	AA2-074	2.3936	LTF	2.3936
CBM-W1	CBM-W1	12.2254	Confirmed LTF	12.2254

### 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
169253685	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	single	182.64	324.49	331.21	DC	12.28

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	2.1970	80/20	2.1970
313527	AB2-043 C	0.6200	80/20	0.6200
314429	3JTRSVLE	1.1615	80/20	1.1615
314572	3EMPORIA	0.1428	80/20	0.1428
314704	3LAWRENC	0.1773	80/20	0.1773
315158	1KERR 1	0.3023	80/20	0.3023
315159	1KERR 2	0.8464	80/20	0.8464
315160	1KERR 3	0.8464	80/20	0.8464
315161	1KERR 4	0.8464	80/20	0.8464

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315162	1KERR 5	0.8464	80/20	0.8464
315163	1KERR 6	0.8464	80/20	0.8464
315164	1KERR 7	0.8464	80/20	0.8464
315266	1PLYWOOD A	0.5826	80/20	0.5826
316087	AB2-174 C	0.3670	80/20	0.3670
316118	AC1-105 C	3.1833	80/20	3.1833
316129	AC1-054 C	4.1416	80/20	4.1416
316131	AB2-060 C	1.8663	80/20	1.8663
923991	AB2-040 C O1	2.3927	80/20	2.3927
924301	AB2-077 C O1 (Suspended)	2.4036	80/20	2.4036
924311	AB2-078 C O1 (Suspended)	2.4036	80/20	2.4036
924321	AB2-079 C O1 (Suspended)	2.4036	80/20	2.4036
925611	AC1-036 C	0.4665	80/20	0.4665
927261	AC1-222 C	1.3197	80/20	1.3197
934311	AD1-055 C	0.9163	80/20	0.9163
935221	AD1-157 C	0.7121	80/20	0.7121
936265	AD2-033 C	24.7775	80/20	24.7775
936361	AD2-046 C O1	7.7284	80/20	7.7284
936485	AD2-063 C	23.4252	80/20	23.4252
938371	AE1-056 C	19.4582	80/20	19.4582
939181	AE1-148 C	7.7609	80/20	7.7609
940661	AE2-053 O1	2.8744	80/20	2.8744
942451	AE2-258	2.9317	80/20	2.9317
942461	AE2-259 C O1	36.8346	80/20	36.8346
943901	AF1-058 C	0.7463	80/20	0.7463
943911	AF1-059	13.9793	80/20	13.9793
946281	AF1-292 C	0.5181	80/20	0.5181
946301	AF1-294 C	11.7333	80/20	11.7333
958211	AF2-115 C	6.9020	80/20	6.9020
958801	AF2-171 C	41.2074	80/20	41.2074
959311	AF2-222 C	36.0450	80/20	36.0450
960061	AF2-297 C	2.9851	80/20	2.9851
960081	AF2-299 C	0.8732	80/20	0.8732
961791	AG1-021 C	5.5216	80/20	5.5216
961891	AG1-030 C	37.7604	80/20	37.7604
962041	AG1-048 C	34.5098	80/20	34.5098
962441	AG1-093 C O1	8.4888	80/20	8.4888
963171	AG1-166 C	5.5216	80/20	5.5216
963181	AG1-167 C	5.5216	80/20	5.5216
963191	AG1-168 C	5.5216	80/20	5.5216
963201	AG1-169 C	5.5216	80/20	5.5216
963211	AG1-170 C	5.5216	80/20	5.5216
963301	AG1-179 C	3.8659	80/20	3.8659
963311	AG1-180	1.8835	80/20	1.8835
963321	AG1-181 C O1	32.7592	80/20	32.7592
963361	AG1-185 O1	15.8498	80/20	15.8498
963641	AG1-215 C	2.5767	80/20	2.5767
964111	AG1-272 C	5.3022	80/20	5.3022
964121	AG1-273 C	5.3022	80/20	5.3022
964131	AG1-274 C	5.3022	80/20	5.3022

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964241	AG1-285 C O1	18.3810	80/20	18.3810
964261	AG1-287 C	0.5597	80/20	0.5597
964471	AG1-310 C	0.7473	80/20	0.7473
964791	AG1-342 C	3.0915	80/20	3.0915
964821	AG1-345 C	2.2020	80/20	2.2020
965191	AG1-384 C	5.3022	80/20	5.3022
965281	AG1-393 C	5.5216	80/20	5.5216
965451	AG1-413 C O1	5.8764	80/20	5.8764
965591	AG1-427 C	17.6058	80/20	17.6058
965601	AG1-428 C O1	3.2273	80/20	3.2273
965641	AG1-432 C O1	73.6692	80/20	73.6692
965721	AG1-440 C	5.1777	80/20	5.1777
965731	AG1-441 C	5.1777	80/20	5.1777
965771	AG1-445	2.9916	80/20	2.9916
965781	AG1-446	2.9916	80/20	2.9916
965831	AG1-451	12.2782	80/20	12.2782
966621	AG1-532 C	0.4715	80/20	0.4715
966751	AG1-546 C	8.6364	80/20	8.6364
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.3669	80/20	7.3669
WEC	WEC	0.0813	Confirmed LTF	0.0813
LGEE	LGEE	0.1659	Confirmed LTF	0.1659
CPL	CPL	1.2422	Confirmed LTF	1.2422
CBM-W2	CBM-W2	4.0768	Confirmed LTF	4.0768
NY	NY	0.1233	Confirmed LTF	0.1233
TVA	TVA	0.7980	Confirmed LTF	0.7980
SIGE	SIGE	0.0565	Confirmed LTF	0.0565
CBM-S2	CBM-S2	13.8748	Confirmed LTF	13.8748
CBM-S1	CBM-S1	0.1953	Confirmed LTF	0.1953
MEC	MEC	0.5180	Confirmed LTF	0.5180
LAGN	LAGN	0.9958	Confirmed LTF	0.9958
CBM-W1	CBM-W1	3.3508	Confirmed LTF	3.3508

### 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
169253696	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	1	DVP_P1-2: LN 298	single	198.06	223.23	228.87	DC	11.15

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5190	80/20	0.5190
314429	3JTRSVLE	1.0409	80/20	1.0409
314704	3LAWRENC	0.1400	80/20	0.1400
315158	1KERR 1	0.2388	80/20	0.2388
315159	1KERR 2	0.6685	80/20	0.6685

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315160	1KERR 3	0.6685	80/20	0.6685
315161	1KERR 4	0.6685	80/20	0.6685
315162	1KERR 5	0.6685	80/20	0.6685
315163	1KERR 6	0.6685	80/20	0.6685
315164	1KERR 7	0.6685	80/20	0.6685
316118	AC1-105 C	1.9644	80/20	1.9644
316129	AC1-054 C	3.1577	80/20	3.1577
316131	AB2-060 C	1.5710	80/20	1.5710
924301	AB2-077 C O1 (Suspended)	2.0004	80/20	2.0004
924311	AB2-078 C O1 (Suspended)	2.0004	80/20	2.0004
924321	AB2-079 C O1 (Suspended)	2.0004	80/20	2.0004
925611	AC1-036 C	0.4104	80/20	0.4104
935221	AD1-157 C	0.6410	80/20	0.6410
936265	AD2-033 C	21.6637	80/20	21.6637
936361	AD2-046 C O1	6.1935	80/20	6.1935
936485	AD2-063 C	20.1177	80/20	20.1177
938371	AE1-056 C	17.5166	80/20	17.5166
939181	AE1-148 C	6.2354	80/20	6.2354
940661	AE2-053 O1	2.3094	80/20	2.3094
942451	AE2-258	2.4541	80/20	2.4541
942461	AE2-259 C O1	33.4608	80/20	33.4608
943911	AF1-059	11.3951	80/20	11.3951
946301	AF1-294 C	10.5152	80/20	10.5152
958211	AF2-115 C	6.1854	80/20	6.1854
958801	AF2-171 C	36.9198	80/20	36.9198
959311	AF2-222 C	31.8180	80/20	31.8180
961791	AG1-021 C	4.9483	80/20	4.9483
961891	AG1-030 C	33.6627	80/20	33.6627
962041	AG1-048 C	30.9270	80/20	30.9270
962441	AG1-093 C O1	5.2385	80/20	5.2385
963171	AG1-166 C	4.9483	80/20	4.9483
963181	AG1-167 C	4.9483	80/20	4.9483
963191	AG1-168 C	4.9483	80/20	4.9483
963201	AG1-169 C	4.9483	80/20	4.9483
963211	AG1-170 C	4.9483	80/20	4.9483
963301	AG1-179 C	3.0910	80/20	3.0910
963311	AG1-180	1.5060	80/20	1.5060
963321	AG1-181 C O1	28.6883	80/20	28.6883
963361	AG1-185 O1	13.8802	80/20	13.8802
963641	AG1-215 C	2.3092	80/20	2.3092
964111	AG1-272 C	4.6644	80/20	4.6644
964121	AG1-273 C	4.6644	80/20	4.6644
964131	AG1-274 C	4.6644	80/20	4.6644
964241	AG1-285 C O1	15.6870	80/20	15.6870
964791	AG1-342 C	2.2108	80/20	2.2108
964821	AG1-345 C	1.9730	80/20	1.9730
965191	AG1-384 C	4.6644	80/20	4.6644
965281	AG1-393 C	4.9483	80/20	4.9483
965451	AG1-413 C O1	4.7901	80/20	4.7901
965591	AG1-427 C	15.0419	80/20	15.0419

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
965601	AG1-428 C O1	2.5804	80/20	2.5804
965641	AG1-432 C O1	66.9216	80/20	66.9216
965721	AG1-440 C	4.0478	80/20	4.0478
965731	AG1-441 C	4.0478	80/20	4.0478
965771	AG1-445	2.3387	80/20	2.3387
965781	AG1-446	2.3387	80/20	2.3387
965831	AG1-451	11.1536	80/20	11.1536
966751	AG1-546 C	6.5405	80/20	6.5405
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	6.6922	80/20	6.6922
WEC	WEC	0.0236	Confirmed LTF	0.0236
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2361	Confirmed LTF	0.2361
CBM-W2	CBM-W2	0.9498	Confirmed LTF	0.9498
NY	NY	0.0321	Confirmed LTF	0.0321
TVA	TVA	0.1736	Confirmed LTF	0.1736
SIGE	SIGE	0.0158	Confirmed LTF	0.0158
CBM-S2	CBM-S2	2.5056	Confirmed LTF	2.5056
CBM-S1	CBM-S1	0.0441	Confirmed LTF	0.0441
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2135	Confirmed LTF	0.2135
CBM-W1	CBM-W1	0.9954	Confirmed LTF	0.9954

### 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
163355933	314692	6FARMVIL	DVP	313802	6PRINCE EDW	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	112.92	114.7	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018
964822	AG1-345 E	1.4679	50/50	1.4679
964843	AG1-347 BAT	2.5360	50/50	2.5360
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2539	Confirmed LTF	0.2539
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

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
169253706	314692	6FARMVIL	DVP	314677	6BUCKING	DVP	1	DVP_P1-2: LN 556-C	single	559.3	235.85	237.65	DC	10.06

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	2.6741	80/20	2.6741
313527	AB2-043 C	0.6830	80/20	0.6830
313719	3CHESTNUT	0.3610	80/20	0.3610
314429	3JTRSVLE	1.0080	80/20	1.0080
314572	3EMPORIA	0.1686	80/20	0.1686
314623	3WITAKRS	0.0669	80/20	0.0669
314704	3LAWRENC	0.2000	80/20	0.2000
315126	1ROARAP2	0.5074	80/20	0.5074
315128	1ROARAP4	0.4842	80/20	0.4842
315153	1CLOVER1	20.9467	80/20	20.9467
315154	1CLOVER2	20.7379	80/20	20.7379
315156	1HALLBR1	0.5007	80/20	0.5007
315158	1KERR 1	0.3758	80/20	0.3758
315159	1KERR 2	1.0523	80/20	1.0523
315160	1KERR 3	1.0523	80/20	1.0523
315161	1KERR 4	1.0523	80/20	1.0523
315162	1KERR 5	1.0523	80/20	1.0523
315163	1KERR 6	1.0523	80/20	1.0523
315164	1KERR 7	1.0523	80/20	1.0523
315266	1PLYWOOD A	1.3876	80/20	1.3876
315606	3AA2-053SOLA	0.5104	80/20	0.5104
315607	3AA1-063SOLA	0.4369	80/20	0.4369
316087	AB2-174 C	0.4416	80/20	0.4416
316118	AC1-105 C	6.9179	80/20	6.9179
316123	AC1-075 C	0.7907	80/20	0.7907
316129	AC1-054 C	5.1963	80/20	5.1963
316131	AB2-060 C	2.0213	80/20	2.0213
920591	AA2-165 C	0.0485	80/20	0.0485
923991	AB2-040 C O1	2.9124	80/20	2.9124
924301	AB2-077 C O1 (Suspended)	2.6978	80/20	2.6978
924311	AB2-078 C O1 (Suspended)	2.6978	80/20	2.6978
924321	AB2-079 C O1 (Suspended)	2.6978	80/20	2.6978
925611	AC1-036 C	0.4353	80/20	0.4353
925661	AC1-042 C	0.8285	80/20	0.8285
926023	AC1-080 C	0.2642	80/20	0.2642
926645	AC1-145 C	0.1556	80/20	0.1556
927145	AC1-208 C	2.9650	80/20	2.9650
927251	AC1-221 C	1.6730	80/20	1.6730
927261	AC1-222 C	4.1099	80/20	4.1099

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932761	AC2-100 C	3.8502	80/20	3.8502
934311	AD1-055 C	2.8536	80/20	2.8536
934341	AD1-058 C	4.1940	80/20	4.1940
934615	AD1-087 C	13.1026	80/20	13.1026
934625	AD1-088 C	29.0577	80/20	29.0577
934991	AD1-131 C	1.3751	80/20	1.3751
935171	AD1-152 C O1	14.3918	80/20	14.3918
935221	AD1-157 C	0.6066	80/20	0.6066
936161	AD2-022 C O1	4.1088	80/20	4.1088
936171	AD2-023 C O1	2.3968	80/20	2.3968
936265	AD2-033 C	23.6457	80/20	23.6457
936361	AD2-046 C O1	9.3407	80/20	9.3407
936485	AD2-063 C	23.7960	80/20	23.7960
937481	AD2-202 C O1	3.8378	80/20	3.8378
938371	AE1-056 C	16.5765	80/20	16.5765
939181	AE1-148 C	9.3317	80/20	9.3317
939941	AE1-230 C	0.3738	80/20	0.3738
940661	AE2-053 O1	3.4562	80/20	3.4562
941791	AE2-182 C	4.7209	80/20	4.7209
941801	AE2-185 C	1.8688	80/20	1.8688
941821	AE2-187 C	1.8688	80/20	1.8688
942451	AE2-258	3.2296	80/20	3.2296
942461	AE2-259 C O1	30.1872	80/20	30.1872
942671	AE2-283 C	2.0556	80/20	2.0556
942751	AE2-291 C	6.7167	80/20	6.7167
942761	AE2-292 C O1	8.3629	80/20	8.3629
943901	AF1-058 C	2.3171	80/20	2.3171
943911	AF1-059	15.5704	80/20	15.5704
945081	AF1-173	0.7241	80/20	0.7241
945811	AF1-246 C O1	12.6298	80/20	12.6298
946281	AF1-292 C	0.6048	80/20	0.6048
946301	AF1-294 C	10.1827	80/20	10.1827
957481	AF2-042 C	90.2130	80/20	90.2130
958211	AF2-115 C	5.9898	80/20	5.9898
958801	AF2-171 C	35.7993	80/20	35.7993
959311	AF2-222 C	33.2020	80/20	33.2020
959751	AF2-266	15.0360	80/20	15.0360
960061	AF2-297 C	9.2683	80/20	9.2683
960081	AF2-299 C	1.0193	80/20	1.0193
961121	AF2-403	0.4153	80/20	0.4153
961791	AG1-021 C	4.7918	80/20	4.7918
961891	AG1-030 C	33.4746	80/20	33.4746
962041	AG1-048 C	29.9490	80/20	29.9490
962441	AG1-093 C O1	18.4478	80/20	18.4478
962491	AG1-098 C O1	26.7967	80/20	26.7967
962561	AG1-105 C O1	16.8396	80/20	16.8396
963171	AG1-166 C	4.7918	80/20	4.7918
963181	AG1-167 C	4.7918	80/20	4.7918
963191	AG1-168 C	4.7918	80/20	4.7918
963201	AG1-169 C	4.7918	80/20	4.7918
963211	AG1-170 C	4.7918	80/20	4.7918
963271	AG1-176 C O1	37.8660	80/20	37.8660

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963301	AG1-179 C	4.3384	80/20	4.3384
963311	AG1-180	2.1138	80/20	2.1138
963321	AG1-181 C O1	31.0801	80/20	31.0801
963361	AG1-185 O1	15.0374	80/20	15.0374
963601	AG1-209 C	0.1453	80/20	0.1453
963641	AG1-215 C	2.2362	80/20	2.2362
964111	AG1-272 C	4.9469	80/20	4.9469
964121	AG1-273 C	4.9469	80/20	4.9469
964131	AG1-274 C	4.9469	80/20	4.9469
964141	AG1-275 C	0.6229	80/20	0.6229
964151	AG1-276 C	0.6229	80/20	0.6229
964241	AG1-285 C O1	19.0605	80/20	19.0605
964261	AG1-287 C	1.7378	80/20	1.7378
964471	AG1-310 C	2.3305	80/20	2.3305
964501	AG1-313 C O1	1.4752	80/20	1.4752
964791	AG1-342 C	5.2424	80/20	5.2424
964821	AG1-345 C	1.9122	80/20	1.9122
964841	AG1-347 C	23.6925	80/20	23.6925
964931	AG1-357 C	36.0840	80/20	36.0840
965191	AG1-384 C	4.9469	80/20	4.9469
965281	AG1-393 C	4.7918	80/20	4.7918
965451	AG1-413 C O1	6.5452	80/20	6.5452
965591	AG1-427 C	18.1909	80/20	18.1909
965601	AG1-428 C O1	3.6218	80/20	3.6218
965641	AG1-432 C O1	60.3744	80/20	60.3744
965721	AG1-440 C	6.4543	80/20	6.4543
965731	AG1-441 C	6.4543	80/20	6.4543
965771	AG1-445	3.7292	80/20	3.7292
965781	AG1-446	3.7292	80/20	3.7292
965831	AG1-451	10.0624	80/20	10.0624
966621	AG1-532 C	0.5504	80/20	0.5504
966691	AG1-539 C	3.5120	80/20	3.5120
966751	AG1-546 C	10.8553	80/20	10.8553
966761	AG1-547 C	1.6892	80/20	1.6892
966811	AG1-552 C	0.8056	80/20	0.8056
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	6.0374	80/20	6.0374
WEC	WEC	0.2983	Confirmed LTF	0.2983
LGEE	LGEE	0.6138	Confirmed LTF	0.6138
CPL	CPL	3.6343	Confirmed LTF	3.6343
CBM-W2	CBM-W2	13.5744	Confirmed LTF	13.5744
NY	NY	0.3943	Confirmed LTF	0.3943
TVA	TVA	2.5928	Confirmed LTF	2.5928
SIGE	SIGE	0.1956	Confirmed LTF	0.1956
CBM-S2	CBM-S2	41.6974	Confirmed LTF	41.6974
CBM-S1	CBM-S1	0.6433	Confirmed LTF	0.6433
MEC	MEC	1.8162	Confirmed LTF	1.8162
LAGN	LAGN	3.2200	Confirmed LTF	3.2200
AA2-074	AA2-074	2.3999	LTF	2.3999
CBM-W1	CBM-W1	12.4217	Confirmed LTF	12.4217

### 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
169253692	314726	3WILLIS	DVP	314691	3FARMVIL	DVP	1	DVP_P1-2: LN 1012-B	single	205.86	284.9	294.61	DC	20.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	1.3567	80/20	1.3567
935221	AD1-157 C	1.4198	80/20	1.4198
938371	AE1-056 C	38.7965	80/20	38.7965
942461	AE2-259 C O1	59.9946	80/20	59.9946
958801	AF2-171 C	89.9919	80/20	89.9919
959311	AF2-222 C	99.9910	80/20	99.9910
963321	AG1-181 C O1	101.0809	80/20	101.0809
963361	AG1-185 O1	48.9056	80/20	48.9056
964111	AG1-272 C	15.4186	80/20	15.4186
964121	AG1-273 C	15.4186	80/20	15.4186
964131	AG1-274 C	15.4186	80/20	15.4186
965191	AG1-384 C	15.4186	80/20	15.4186
965641	AG1-432 C O1	119.9892	80/20	119.9892
965831	AG1-451	19.9982	80/20	19.9982
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	11.9989	80/20	11.9989
CALDERWOOD	CALDERWOOD	0.0045	Confirmed LTF	0.0045
NY	NY	0.0050	Confirmed LTF	0.0050
PRAIRIE	PRAIRIE	0.0232	Confirmed LTF	0.0232
CHEOAH	CHEOAH	0.0045	Confirmed LTF	0.0045
COTTONWOOD	COTTONWOOD	0.0189	Confirmed LTF	0.0189
HAMLET	HAMLET	0.0052	Confirmed LTF	0.0052
GIBSON	GIBSON	0.0049	Confirmed LTF	0.0049
BLUEG	BLUEG	0.0156	Confirmed LTF	0.0156
TRIMBLE	TRIMBLE	0.0050	Confirmed LTF	0.0050
CATAWBA	CATAWBA	0.0032	Confirmed LTF	0.0032

### 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
169469107	314747	6BREMO	DVP	313867	6BREMODIST	DVP	1	314333 6POWHATN 230 933500 AC2-165 TAP 230 1	single	661.76	165.58	166.6	DC	6.77

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313506	AB1-173 C OP	2.1780	80/20	2.1780
313527	AB2-043 C	0.4243	80/20	0.4243
314429	3JTRSVLE	0.6669	80/20	0.6669
314572	3EMPORIA	0.1382	80/20	0.1382
314677	6BUCKING	1.0571	80/20	1.0571
314704	3LAWRENC	0.1410	80/20	0.1410
315126	1ROARAP2	0.4085	80/20	0.4085
315128	1ROARAP4	0.3898	80/20	0.3898
315153	1CLOVER1	7.5116	80/20	7.5116
315154	1CLOVER2	7.4368	80/20	7.4368
315158	1KERR 1	0.2345	80/20	0.2345
315159	1KERR 2	0.6567	80/20	0.6567
315160	1KERR 3	0.6567	80/20	0.6567
315161	1KERR 4	0.6567	80/20	0.6567
315162	1KERR 5	0.6567	80/20	0.6567
315163	1KERR 6	0.6567	80/20	0.6567
315164	1KERR 7	0.6567	80/20	0.6567
315191	1BEARGRDN G1	18.4998	80/20	18.4998
315192	1BEARGRDN G2	18.4998	80/20	18.4998
315193	1BEARGRDN S1	23.9239	80/20	23.9239
315266	1PLYWOOD A	0.6737	80/20	0.6737
316087	AB2-174 C	0.3606	80/20	0.3606
316118	AC1-105 C	3.4200	80/20	3.4200
316123	AC1-075 C	0.3763	80/20	0.3763
316129	AC1-054 C	3.4710	80/20	3.4710
316131	AB2-060 C	1.2610	80/20	1.2610
923991	AB2-040 C O1	2.3720	80/20	2.3720
924301	AB2-077 C O1 (Suspended)	1.6661	80/20	1.6661
924311	AB2-078 C O1 (Suspended)	1.6661	80/20	1.6661
924321	AB2-079 C O1 (Suspended)	1.6661	80/20	1.6661
925611	AC1-036 C	0.2822	80/20	0.2822
926023	AC1-080 C	0.1258	80/20	0.1258
927251	AC1-221 C	0.7947	80/20	0.7947
927261	AC1-222 C	1.8844	80/20	1.8844
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.0415	80/20	1.0415
932761	AC2-100 C	1.8288	80/20	1.8288
933501	AC2-165 C	34.9923	80/20	34.9923
934311	AD1-055 C	1.3084	80/20	1.3084
934341	AD1-058 C	1.9921	80/20	1.9921
934615	AD1-087 C	4.7030	80/20	4.7030
934625	AD1-088 C	15.3924	80/20	15.3924
934991	AD1-131 C	0.6532	80/20	0.6532
935171	AD1-152 C O1	5.1658	80/20	5.1658
935221	AD1-157 C	0.4035	80/20	0.4035
936265	AD2-033 C	15.2365	80/20	15.2365
936361	AD2-046 C O1	5.8230	80/20	5.8230
936485	AD2-063 C	15.0849	80/20	15.0849
937481	AD2-202 C O1	1.3775	80/20	1.3775
938371	AE1-056 C	11.0262	80/20	11.0262

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938821	AE1-108 C O1	11.0132	80/20	11.0132
939181	AE1-148 C	5.8169	80/20	5.8169
940661	AE2-053 O1	2.1544	80/20	2.1544
941791	AE2-182 C	2.5007	80/20	2.5007
942451	AE2-258	2.0064	80/20	2.0064
942461	AE2-259 C O1	20.3100	80/20	20.3100
942751	AE2-291 C	3.2791	80/20	3.2791
942761	AE2-292 C O1	4.0828	80/20	4.0828
943901	AF1-058 C	1.0548	80/20	1.0548
943911	AF1-059	10.2781	80/20	10.2781
945811	AF1-246 C O1	3.6616	80/20	3.6616
946281	AF1-292 C	0.4969	80/20	0.4969
946291	AF1-293 C O1	6.2287	80/20	6.2287
946301	AF1-294 C	6.7368	80/20	6.7368
946591	AF1-323 C	3.5356	80/20	3.5356
957481	AF2-042 C	26.1540	80/20	26.1540
958131	AF2-107 C	1.6496	80/20	1.6496
958211	AF2-115 C	3.9629	80/20	3.9629
958801	AF2-171 C	23.6781	80/20	23.6781
959311	AF2-222 C	21.6010	80/20	21.6010
959751	AF2-266	5.3920	80/20	5.3920
960061	AF2-297 C	4.2192	80/20	4.2192
960081	AF2-299 C	0.8375	80/20	0.8375
960111	AF2-302 C	1.2857	80/20	1.2857
961791	AG1-021 C	3.1703	80/20	3.1703
961801	AG1-022 C	1.2857	80/20	1.2857
961891	AG1-030 C	22.0131	80/20	22.0131
962041	AG1-048 C	19.8142	80/20	19.8142
962441	AG1-093 C O1	9.1200	80/20	9.1200
962491	AG1-098 C O1	12.3900	80/20	12.3900
962561	AG1-105 C O1	6.1674	80/20	6.1674
963171	AG1-166 C	3.1703	80/20	3.1703
963181	AG1-167 C	3.1703	80/20	3.1703
963191	AG1-168 C	3.1703	80/20	3.1703
963201	AG1-169 C	3.1703	80/20	3.1703
963211	AG1-170 C	3.1703	80/20	3.1703
963271	AG1-176 C O1	20.7171	80/20	20.7171
963301	AG1-179 C	2.9803	80/20	2.9803
963311	AG1-180	1.4521	80/20	1.4521
963321	AG1-181 C O1	20.0593	80/20	20.0593
963361	AG1-185 O1	9.7052	80/20	9.7052
963641	AG1-215 C	1.4795	80/20	1.4795
964111	AG1-272 C	3.2072	80/20	3.2072
964121	AG1-273 C	3.2072	80/20	3.2072
964131	AG1-274 C	3.2072	80/20	3.2072
964231	AG1-284 C O1	2.9513	80/20	2.9513
964241	AG1-285 C O1	12.0195	80/20	12.0195
964261	AG1-287 C	0.7911	80/20	0.7911
964471	AG1-310 C	1.0720	80/20	1.0720
964791	AG1-342 C	2.7843	80/20	2.7843
964821	AG1-345 C	1.2648	80/20	1.2648
964841	AG1-347 C	12.9875	80/20	12.9875

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964931	AG1-357 C	8.6556	80/20	8.6556
965191	AG1-384 C	3.2072	80/20	3.2072
965281	AG1-393 C	3.1703	80/20	3.1703
965451	AG1-413 C O1	4.3205	80/20	4.3205
965581	AG1-426	2.3994	80/20	2.3994
965591	AG1-427 C	11.4819	80/20	11.4819
965601	AG1-428 C O1	2.4880	80/20	2.4880
965641	AG1-432 C O1	40.6200	80/20	40.6200
965721	AG1-440 C	4.1121	80/20	4.1121
965731	AG1-441 C	4.1121	80/20	4.1121
965771	AG1-445	2.3759	80/20	2.3759
965781	AG1-446	2.3759	80/20	2.3759
965831	AG1-451	6.7700	80/20	6.7700
966361	AG1-505 C	4.9734	80/20	4.9734
966371	AG1-506 C	4.9734	80/20	4.9734
966621	AG1-532 C	0.4522	80/20	0.4522
966691	AG1-539 C	1.7146	80/20	1.7146
966751	AG1-546 C	7.3410	80/20	7.3410
966811	AG1-552 C	0.6485	80/20	0.6485
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	4.0620	80/20	4.0620
WEC	WEC	0.0699	Confirmed LTF	0.0699
LGEE	LGEE	0.1483	Confirmed LTF	0.1483
CPL	CPL	2.3396	Confirmed LTF	2.3396
CBM-W2	CBM-W2	5.8061	Confirmed LTF	5.8061
NY	NY	0.4076	Confirmed LTF	0.4076
TVA	TVA	1.2558	Confirmed LTF	1.2558
SIGE	SIGE	0.1120	Confirmed LTF	0.1120
CBM-S2	CBM-S2	25.9121	Confirmed LTF	25.9121
CBM-S1	CBM-S1	0.2953	Confirmed LTF	0.2953
MEC	MEC	0.5863	Confirmed LTF	0.5863
LAGN	LAGN	1.5645	Confirmed LTF	1.5645
AA2-074	AA2-074	1.5426	LTF	1.5426
CBM-W1	CBM-W1	2.5236	Confirmed LTF	2.5236

### 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
169469124	314747	6BREMO	DVP	314744	3BREMO	DVP	1	DVP_P1-2: LN 2193	single	269.78	152.46	153.55	DC	2.94

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.1964	80/20	0.1964
314333	6POWHATN	0.2978	80/20	0.2978
314429	3JTRSVLE	0.2939	80/20	0.2939

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314677	6BUCKING	0.4512	80/20	0.4512
315153	1CLOVER1	3.8255	80/20	3.8255
315154	1CLOVER2	3.7873	80/20	3.7873
315191	1BEARGRDN G1	7.8222	80/20	7.8222
315192	1BEARGRDN G2	7.8222	80/20	7.8222
315193	1BEARGRDN S1	10.1156	80/20	10.1156
316131	AB2-060 C	0.5816	80/20	0.5816
924301	AB2-077 C O1 (Suspended)	0.7721	80/20	0.7721
924311	AB2-078 C O1 (Suspended)	0.7721	80/20	0.7721
924321	AB2-079 C O1 (Suspended)	0.7721	80/20	0.7721
925611	AC1-036 C	0.1263	80/20	0.1263
932511	AC2-071 C (Withdrawn : 01/22/2021)	0.4445	80/20	0.4445
932854	AC2-112 C	-5.0776	Adder	-5.97
933501	AC2-165 C	9.0146	80/20	9.0146
934615	AD1-087 C	2.3943	80/20	2.3943
934625	AD1-088 C	7.0229	80/20	7.0229
935171	AD1-152 C O1	2.6299	80/20	2.6299
935221	AD1-157 C	0.1771	80/20	0.1771
936265	AD2-033 C	6.8523	80/20	6.8523
936361	AD2-046 C O1	2.8074	80/20	2.8074
936485	AD2-063 C	6.8715	80/20	6.8715
937481	AD2-202 C O1	0.7013	80/20	0.7013
938371	AE1-056 C	4.8384	80/20	4.8384
938561	AE1-075 C	0.2589	80/20	0.2589
939181	AE1-148 C	2.7983	80/20	2.7983
940661	AE2-053 O1	1.0364	80/20	1.0364
941791	AE2-182 C	1.1410	80/20	1.1410
942451	AE2-258	0.9286	80/20	0.9286
942461	AE2-259 C O1	8.8338	80/20	8.8338
943911	AF1-059	5.2100	80/20	5.2100
946301	AF1-294 C	2.9685	80/20	2.9685
957911	AF2-085	1.1020	80/20	1.1020
958211	AF2-115 C	1.7462	80/20	1.7462
958501	AF2-144 C	1.3951	80/20	1.3951
958801	AF2-171 C	10.4355	80/20	10.4355
959311	AF2-222 C	9.6430	80/20	9.6430
959531	AF2-244 C (Withdrawn : 01/06/2021)	1.2856	80/20	1.2856
959751	AF2-266	2.7460	80/20	2.7460
961791	AG1-021 C	1.3969	80/20	1.3969
961891	AG1-030 C	9.7452	80/20	9.7452
962041	AG1-048 C	8.7308	80/20	8.7308
962491	AG1-098 C O1	5.8538	80/20	5.8538
962561	AG1-105 C O1	3.1146	80/20	3.1146
963171	AG1-166 C	1.3969	80/20	1.3969
963181	AG1-167 C	1.3969	80/20	1.3969
963191	AG1-168 C	1.3969	80/20	1.3969
963201	AG1-169 C	1.3969	80/20	1.3969
963211	AG1-170 C	1.3969	80/20	1.3969

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963271	AG1-176 C O1	9.3799	80/20	9.3799
963321	AG1-181 C O1	9.0112	80/20	9.0112
963361	AG1-185 O1	4.3598	80/20	4.3598
963641	AG1-215 C	0.6519	80/20	0.6519
964111	AG1-272 C	1.4356	80/20	1.4356
964121	AG1-273 C	1.4356	80/20	1.4356
964131	AG1-274 C	1.4356	80/20	1.4356
964241	AG1-285 C O1	5.4983	80/20	5.4983
964791	AG1-342 C	1.2713	80/20	1.2713
964821	AG1-345 C	0.5574	80/20	0.5574
964841	AG1-347 C	5.8772	80/20	5.8772
965191	AG1-384 C	1.4356	80/20	1.4356
965281	AG1-393 C	1.3969	80/20	1.3969
965451	AG1-413 C O1	2.1901	80/20	2.1901
965591	AG1-427 C	5.2486	80/20	5.2486
965641	AG1-432 C O1	17.6676	80/20	17.6676
965831	AG1-451	2.9446	80/20	2.9446
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	1.7668	80/20	1.7668
CPL	CPL	1.1821	Confirmed LTF	1.1821
NY	NY	0.0879	Confirmed LTF	0.0879
PRAIRIE	PRAIRIE	0.5734	Confirmed LTF	0.5734
CBM-S2	CBM-S2	10.8576	Confirmed LTF	10.8576
GIBSON	GIBSON	0.1900	Confirmed LTF	0.1900
BLUEG	BLUEG	0.6562	Confirmed LTF	0.6562
TRIMBLE	TRIMBLE	0.2137	Confirmed LTF	0.2137
LAGN	LAGN	0.0263	Confirmed LTF	0.0263

### 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
163355855	934620	AD1-088 TAP	DVP	962490	AG1-098 TAP	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	156.31	158.09	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
934625	AD1-088 C	63.1640	50/50	63.1640
934626	AD1-088 E	16.5430	50/50	16.5430
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
941791	AE2-182 C	10.2619	50/50	10.2619
941792	AE2-182 E	4.7771	50/50	4.7771
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963271	AG1-176 C O1	78.3861	50/50	78.3861
963272	AG1-176 E O1	52.2574	50/50	52.2574
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018
964822	AG1-345 E	1.4679	50/50	1.4679
964841	AG1-347 C	48.8992	50/50	48.8992
964842	AG1-347 E	38.4208	50/50	38.4208
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2539	Confirmed LTF	0.2539
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

#### 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
169760292	936480	AD2-063 TAP	DVP	965590	AG1-427 TAP	DVP	1	Base Case	single	247.22	144.21	145.55	DC	3.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	0.8847	80/20	0.8847
935221	AD1-157 C	0.5228	80/20	0.5228
936485	AD2-063 C	72.2304	80/20	72.2304
938371	AE1-056 C	14.2854	80/20	14.2854
942461	AE2-259 C O1	9.9450	80/20	9.9450
958801	AF2-171 C	40.2093	80/20	40.2093
959311	AF2-222 C	62.2180	80/20	62.2180
963321	AG1-181 C O1	69.5206	80/20	69.5206
963361	AG1-185 O1	33.6359	80/20	33.6359
964111	AG1-272 C	10.0549	80/20	10.0549
964121	AG1-273 C	10.0549	80/20	10.0549
964131	AG1-274 C	10.0549	80/20	10.0549
965191	AG1-384 C	10.0549	80/20	10.0549
965641	AG1-432 C O1	19.8900	80/20	19.8900
965831	AG1-451	3.3150	80/20	3.3150
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	1.9890	80/20	1.9890
G-007A	G-007A	0.1846	Confirmed LTF	0.1846
VFT	VFT	0.4966	Confirmed LTF	0.4966
CALDERWOOD	CALDERWOOD	0.1158	Confirmed LTF	0.1158
PRAIRIE	PRAIRIE	0.3487	Confirmed LTF	0.3487
CHEOAH	CHEOAH	0.1191	Confirmed LTF	0.1191
CBM-N	CBM-N	0.0912	Confirmed LTF	0.0912
COTTONWOOD	COTTONWOOD	0.4137	Confirmed LTF	0.4137
HAMLET	HAMLET	0.2732	Confirmed LTF	0.2732
GIBSON	GIBSON	0.0568	Confirmed LTF	0.0568
BLUEG	BLUEG	0.1719	Confirmed LTF	0.1719
TRIMBLE	TRIMBLE	0.0540	Confirmed LTF	0.0540
CATAWBA	CATAWBA	0.1365	Confirmed LTF	0.1365



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
163355800	962490	AG1-098 TAP	DVP	314686	6CLOVER	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	172.69	174.47	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
934625	AD1-088 C	63.1640	50/50	63.1640
934626	AD1-088 E	16.5430	50/50	16.5430
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
941791	AE2-182 C	10.2619	50/50	10.2619
941792	AE2-182 E	4.7771	50/50	4.7771
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
962491	AG1-098 C O1	68.9970	50/50	68.9970
962492	AG1-098 E O1	45.9980	50/50	45.9980
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963271	AG1-176 C O1	78.3861	50/50	78.3861
963272	AG1-176 E O1	52.2574	50/50	52.2574
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964822	AG1-345 E	1.4679	50/50	1.4679
964841	AG1-347 C	48.8992	50/50	48.8992
964842	AG1-347 E	38.4208	50/50	38.4208
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2539	Confirmed LTF	0.2539
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

### 11.6.16 Index 16

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
163355876	963270	AG1-176 TAP	DVP	934620	AD1-088 TAP	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	142.81	144.59	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963271	AG1-176 C O1	78.3861	50/50	78.3861
963272	AG1-176 E O1	52.2574	50/50	52.2574
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018
964822	AG1-345 E	1.4679	50/50	1.4679
964841	AG1-347 C	48.8992	50/50	48.8992
964842	AG1-347 E	38.4208	50/50	38.4208
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2539	Confirmed LTF	0.2539

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

### 11.6.17 Index 17

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/DC	MW IMPACT
169760313	963320	AG1-181 TAP	DVP	936480	AD2-063 TAP	DVP	1	DVP_P1-2: LN 298	single	269.78	122.94	124.72	DC	4.79

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	0.1709	80/20	0.1709
925611	AC1-036 C	0.9431	80/20	0.9431
935221	AD1-157 C	0.6094	80/20	0.6094
938371	AE1-056 C	16.6526	80/20	16.6526
942461	AE2-259 C O1	14.3748	80/20	14.3748
946301	AF1-294 C	1.7266	80/20	1.7266
958211	AF2-115 C	1.0157	80/20	1.0157
958801	AF2-171 C	45.2520	80/20	45.2520
959311	AF2-222 C	66.7090	80/20	66.7090
961791	AG1-021 C	0.8125	80/20	0.8125
962041	AG1-048 C	5.0782	80/20	5.0782
963171	AG1-166 C	0.8125	80/20	0.8125
963181	AG1-167 C	0.8125	80/20	0.8125
963191	AG1-168 C	0.8125	80/20	0.8125
963201	AG1-169 C	0.8125	80/20	0.8125
963211	AG1-170 C	0.8125	80/20	0.8125
963321	AG1-181 C O1	73.6410	80/20	73.6410
963361	AG1-185 O1	35.6295	80/20	35.6295
963641	AG1-215 C	0.3792	80/20	0.3792
964111	AG1-272 C	10.7183	80/20	10.7183
964121	AG1-273 C	10.7183	80/20	10.7183
964131	AG1-274 C	10.7183	80/20	10.7183
964821	AG1-345 C	0.3212	80/20	0.3212
965191	AG1-384 C	10.7183	80/20	10.7183
965281	AG1-393 C	0.8125	80/20	0.8125
965641	AG1-432 C O1	28.7496	80/20	28.7496
965831	AG1-451	4.7916	80/20	4.7916

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	2.8750	80/20	2.8750
G-007A	G-007A	0.0503	Confirmed LTF	0.0503
VFT	VFT	0.1354	Confirmed LTF	0.1354
CALDERWOOD	CALDERWOOD	0.0348	Confirmed LTF	0.0348
PRAIRIE	PRAIRIE	0.1292	Confirmed LTF	0.1292
CHEOAH	CHEOAH	0.0355	Confirmed LTF	0.0355
CBM-N	CBM-N	0.0240	Confirmed LTF	0.0240
COTTONWOOD	COTTONWOOD	0.1302	Confirmed LTF	0.1302
HAMLET	HAMLET	0.0629	Confirmed LTF	0.0629
GIBSON	GIBSON	0.0235	Confirmed LTF	0.0235
BLUEG	BLUEG	0.0746	Confirmed LTF	0.0746
TRIMBLE	TRIMBLE	0.0234	Confirmed LTF	0.0234
CATAWBA	CATAWBA	0.0346	Confirmed LTF	0.0346

### 11.6.18 Index 18

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
170041651	964240	AG1-285 TAP	DVP	314681	3CHASCTY	DVP	1	Base Case	single	247.22	193.13	194.47	DC	3.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	0.8847	80/20	0.8847
935221	AD1-157 C	0.5228	80/20	0.5228
936485	AD2-063 C	72.2304	80/20	72.2304
938371	AE1-056 C	14.2854	80/20	14.2854
942461	AE2-259 C O1	9.9450	80/20	9.9450
958801	AF2-171 C	40.2093	80/20	40.2093
959311	AF2-222 C	62.2180	80/20	62.2180
963321	AG1-181 C O1	69.5206	80/20	69.5206
963361	AG1-185 O1	33.6359	80/20	33.6359
964111	AG1-272 C	10.0549	80/20	10.0549
964121	AG1-273 C	10.0549	80/20	10.0549
964131	AG1-274 C	10.0549	80/20	10.0549
964241	AG1-285 C O1	62.2448	80/20	62.2448
965191	AG1-384 C	10.0549	80/20	10.0549
965591	AG1-427 C	58.6838	80/20	58.6838
965641	AG1-432 C O1	19.8900	80/20	19.8900
965831	AG1-451	3.3150	80/20	3.3150
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	1.9890	80/20	1.9890
G-007A	G-007A	0.1846	Confirmed LTF	0.1846
VFT	VFT	0.4966	Confirmed LTF	0.4966
CALDERWOOD	CALDERWOOD	0.1158	Confirmed LTF	0.1158
PRAIRIE	PRAIRIE	0.3487	Confirmed LTF	0.3487

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CHEOAH	CHEOAH	0.1191	Confirmed LTF	0.1191
CBM-N	CBM-N	0.0912	Confirmed LTF	0.0912
COTTONWOOD	COTTONWOOD	0.4137	Confirmed LTF	0.4137
HAMLET	HAMLET	0.2732	Confirmed LTF	0.2732
GIBSON	GIBSON	0.0568	Confirmed LTF	0.0568
BLUEG	BLUEG	0.1719	Confirmed LTF	0.1719
TRIMBLE	TRIMBLE	0.0540	Confirmed LTF	0.0540
CATAWBA	CATAWBA	0.1365	Confirmed LTF	0.1365

### 11.6.19 Index 19

ID	FROM BUS#	FROM BUS	FROM BUS AREA	TO BUS#	TO BUS	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC DC	MW IMPACT
163355912	964840	AG1-347 TAP	DVP	963270	AG1-176 TAP	DVP	1	DVP_P2-2: BREMO B1	bus	699.0	124.14	125.92	DC	12.45

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
313527	AB2-043 C	0.5789	50/50	0.5789
313853	3PONTONDP	1.8407	50/50	1.8407
314429	3JTRSVLE	1.1616	50/50	1.1616
314677	6BUCKING	1.6095	50/50	1.6095
314713	3PAMPLIN	4.9032	50/50	4.9032
315161	1KERR 4	0.7452	50/50	0.7452
315162	1KERR 5	0.7452	50/50	0.7452
315163	1KERR 6	0.7452	50/50	0.7452
315164	1KERR 7	0.7452	50/50	0.7452
316131	AB2-060 C	1.7524	50/50	1.7524
924022	AB2-043 E O1	3.2808	50/50	3.2808
924032	AB2-045 E	4.7608	50/50	4.7608
924162	AB2-060 E OP	5.2270	50/50	5.2270
924301	AB2-077 C O1 (Suspended)	2.2313	50/50	2.2313
924302	AB2-077 E O1 (Suspended)	1.4875	50/50	1.4875
924311	AB2-078 C O1 (Suspended)	2.2313	50/50	2.2313
924312	AB2-078 E O1 (Suspended)	1.4875	50/50	1.4875
924321	AB2-079 C O1 (Suspended)	2.2313	50/50	2.2313
924322	AB2-079 E O1 (Suspended)	1.4875	50/50	1.4875
925611	AC1-036 C	0.4580	50/50	0.4580
925612	AC1-036 E	1.7382	50/50	1.7382
932511	AC2-071 C (Withdrawn : 01/22/2021)	1.5857	50/50	1.5857

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
932512	AC2-071 E (Withdrawn : 01/22/2021)	5.0631	50/50	5.0631
935221	AD1-157 C	0.7154	50/50	0.7154
935222	AD1-157 E	3.0229	50/50	3.0229
936265	AD2-033 C	24.1714	50/50	24.1714
936266	AD2-033 E	16.1143	50/50	16.1143
936361	AD2-046 C O1	6.9048	50/50	6.9048
936362	AD2-046 E O1	3.1752	50/50	3.1752
936485	AD2-063 C	22.4433	50/50	22.4433
936486	AD2-063 E	14.9622	50/50	14.9622
938371	AE1-056 C	19.5482	50/50	19.5482
938372	AE1-056 E	10.6810	50/50	10.6810
939181	AE1-148 C	6.9525	50/50	6.9525
939182	AE1-148 E	4.6350	50/50	4.6350
940661	AE2-053 O1	2.5750	50/50	2.5750
942451	AE2-258	2.7372	50/50	2.7372
942461	AE2-259 C O1	37.3440	50/50	37.3440
942462	AE2-259 E O1	24.8960	50/50	24.8960
943911	AF1-059	12.7036	50/50	12.7036
946301	AF1-294 C	11.7343	50/50	11.7343
946302	AF1-294 E	7.8229	50/50	7.8229
958211	AF2-115 C	6.9026	50/50	6.9026
958212	AF2-115 E	4.6017	50/50	4.6017
958801	AF2-171 C	41.2002	50/50	41.2002
958802	AF2-171 E	27.4668	50/50	27.4668
959311	AF2-222 C	35.5030	50/50	35.5030
959312	AF2-222 E	23.7870	50/50	23.7870
961791	AG1-021 C	5.5220	50/50	5.5220
961792	AG1-021 E	3.6814	50/50	3.6814
961891	AG1-030 C	37.5642	50/50	37.5642
961892	AG1-030 E	25.0428	50/50	25.0428
962041	AG1-048 C	34.5128	50/50	34.5128
962042	AG1-048 E	23.0085	50/50	23.0085
963171	AG1-166 C	5.5220	50/50	5.5220
963172	AG1-166 E	3.6814	50/50	3.6814
963181	AG1-167 C	5.5220	50/50	5.5220
963182	AG1-167 E	3.6814	50/50	3.6814
963191	AG1-168 C	5.5220	50/50	5.5220
963192	AG1-168 E	3.6814	50/50	3.6814
963201	AG1-169 C	5.5220	50/50	5.5220
963202	AG1-169 E	3.6814	50/50	3.6814
963211	AG1-170 C	5.5220	50/50	5.5220
963212	AG1-170 E	3.6814	50/50	3.6814
963321	AG1-181 C O1	32.0091	50/50	32.0091
963361	AG1-185 O1	15.4869	50/50	15.4869
963641	AG1-215 C	2.5770	50/50	2.5770
963642	AG1-215 E	3.8654	50/50	3.8654
964111	AG1-272 C	5.2046	50/50	5.2046
964112	AG1-272 E	1.5458	50/50	1.5458
964121	AG1-273 C	5.2046	50/50	5.2046
964122	AG1-273 E	1.5458	50/50	1.5458
964131	AG1-274 C	5.2046	50/50	5.2046

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964132	AG1-274 E	1.5458	50/50	1.5458
964241	AG1-285 C O1	17.4997	50/50	17.4997
964242	AG1-285 E O1	11.6665	50/50	11.6665
964821	AG1-345 C	2.2018	50/50	2.2018
964822	AG1-345 E	1.4679	50/50	1.4679
964841	AG1-347 C	48.8992	50/50	48.8992
964842	AG1-347 E	38.4208	50/50	38.4208
965191	AG1-384 C	5.2046	50/50	5.2046
965192	AG1-384 E	1.5458	50/50	1.5458
965281	AG1-393 C	5.5220	50/50	5.5220
965282	AG1-393 E	3.6814	50/50	3.6814
965451	AG1-413 C O1	5.3401	50/50	5.3401
965452	AG1-413 E O1	3.5601	50/50	3.5601
965591	AG1-427 C	16.7803	50/50	16.7803
965592	AG1-427 E	11.2105	50/50	11.2105
965641	AG1-432 C O1	74.6880	50/50	74.6880
965642	AG1-432 E O1	49.7920	50/50	49.7920
965831	AG1-451	12.4480	50/50	12.4480
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	7.4688	50/50	7.4688
966862	AG1-557 E O1 (Withdrawn : 12/14/2020)	4.9792	50/50	4.9792
WEC	WEC	0.0233	Confirmed LTF	0.0233
LGEE	LGEE	0.0496	Confirmed LTF	0.0496
CPL	CPL	0.2539	Confirmed LTF	0.2539
CBM-W2	CBM-W2	0.9677	Confirmed LTF	0.9677
NY	NY	0.0420	Confirmed LTF	0.0420
TVA	TVA	0.1806	Confirmed LTF	0.1806
O-066	O-066	0.5855	Confirmed LTF	0.5855
SIGE	SIGE	0.0177	Confirmed LTF	0.0177
CBM-S2	CBM-S2	2.6726	Confirmed LTF	2.6726
CBM-S1	CBM-S1	0.0456	Confirmed LTF	0.0456
G-007	G-007	0.0924	Confirmed LTF	0.0924
MEC	MEC	0.1367	Confirmed LTF	0.1367
LAGN	LAGN	0.2223	Confirmed LTF	0.2223
CBM-W1	CBM-W1	0.9814	Confirmed LTF	0.9814

### 11.6.20 Index 20

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
170041686	965590	AG1-427 TAP	DVP	964240	AG1-285 TAP	DVP	1	Base Case	single	247.22	167.95	169.29	DC	3.31

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
925611	AC1-036 C	0.8847	80/20	0.8847

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
935221	AD1-157 C	0.5228	80/20	0.5228
936485	AD2-063 C	72.2304	80/20	72.2304
938371	AE1-056 C	14.2854	80/20	14.2854
942461	AE2-259 C O1	9.9450	80/20	9.9450
958801	AF2-171 C	40.2093	80/20	40.2093
959311	AF2-222 C	62.2180	80/20	62.2180
963321	AG1-181 C O1	69.5206	80/20	69.5206
963361	AG1-185 O1	33.6359	80/20	33.6359
964111	AG1-272 C	10.0549	80/20	10.0549
964121	AG1-273 C	10.0549	80/20	10.0549
964131	AG1-274 C	10.0549	80/20	10.0549
965191	AG1-384 C	10.0549	80/20	10.0549
965591	AG1-427 C	58.6838	80/20	58.6838
965641	AG1-432 C O1	19.8900	80/20	19.8900
965831	AG1-451	3.3150	80/20	3.3150
966861	AG1-557 C O1 (Withdrawn : 12/14/2020)	1.9890	80/20	1.9890
G-007A	G-007A	0.1846	Confirmed LTF	0.1846
VFT	VFT	0.4966	Confirmed LTF	0.4966
CALDERWOOD	CALDERWOOD	0.1158	Confirmed LTF	0.1158
PRAIRIE	PRAIRIE	0.3487	Confirmed LTF	0.3487
CHEOAH	CHEOAH	0.1191	Confirmed LTF	0.1191
CBM-N	CBM-N	0.0912	Confirmed LTF	0.0912
COTTONWOOD	COTTONWOOD	0.4137	Confirmed LTF	0.4137
HAMLET	HAMLET	0.2732	Confirmed LTF	0.2732
GIBSON	GIBSON	0.0568	Confirmed LTF	0.0568
BLUEG	BLUEG	0.1719	Confirmed LTF	0.1719
TRIMBLE	TRIMBLE	0.0540	Confirmed LTF	0.0540
CATAWBA	CATAWBA	0.1365	Confirmed LTF	0.1365

## 11.7 Queue Dependencies

The Queue Projects below are listed in one or more indices for the overloads identified in your report. These projects contribute to the loading of the overloaded facilities identified in your report. The percent overload of a facility and cost allocation you may have towards a particular reinforcement could vary depending on the action of these earlier projects. The status of each project at the time of the analysis is presented in the table. This list may change as earlier projects withdraw or modify their requests.

Queue Number	Project Name	Status
AA1-063	Huntsville (Cabin Creek) 69kV	Withdrawn
AA2-053	Carolina-Jackson 115kV	In Service
AA2-074	CPLP-PJM	Confirmed
AA2-165	Hornertown-Whitakers 115kV	In Service
AB1-173	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	In Service
AB2-077	Buggs Island-Chase City 115kV	Suspended
AB2-078	Buggs Island-Chase City 115kV	Suspended
AB2-079	Buggs Island-Chase City 115kV	Suspended
AB2-174	Emporia-Trego 115kV	In Service
AC1-036	Twittys Creek 34.5kV	Partially in Service - Under Construction
AC1-042	Altavista-Mt. Airy 69kV	Engineering and Procurement
AC1-054	Kerr Dam-Eatons Ferry 115 kV	Engineering and Procurement
AC1-075	Perth-Hickory Grove 115kV	Engineering and Procurement
AC1-080	Perth-Hickory Grove 115kV	Engineering and Procurement
AC1-105	Halifax-Mt. Laurel 115kV	Engineering and Procurement
AC1-145	Gretna DP 69 kV	Engineering and Procurement
AC1-208	Cox-Whitakers 115kV	Engineering and Procurement
AC1-221	Halifax-Person 230kV	Engineering and Procurement
AC1-222	Crystal Hill-Halifax 115kV	Engineering and Procurement
AC2-071	Buckingham 35kV	Withdrawn
AC2-100	Halifax-Person 230kV	Engineering and Procurement
AC2-112	Stuarts Draft-Waynesboro 115kV	Engineering and Procurement
AC2-165	Bremo-Powhatan 230kV	Engineering and Procurement
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	Engineering and Procurement
AD1-152	Clover-Sedge Hill 230 kV	Active
AD1-157	South Creek 34.5 kV	Engineering and Procurement
AD2-022	East Danville-Roxborough 230 kV	Active
AD2-023	E. Danville-Roxborough 230 kV	Active
AD2-033	Chase City-Lunenburg 115 kV	Active
AD2-046	Boydton DP-Kerr Dam 115 kV	Active
AD2-063	Central-Chase City 115kV	Active

Queue Number	Project Name	Status
AD2-202	Clover-Sedge Hill 230kV	Active
AE1-056	Red House-South Creek 115 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
AE1-230	Shockoe 69 kV	Active
AE2-053	Kerr Dam-Ridge Road 115 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
AE2-258	Chase City 115 kV	Active
AE2-259	Curdsville-Willis Mtn 115 kV	Active
AE2-283	Gladys-Stone Mill 69 kV	Active
AE2-291	Grit DP-Perth 115 kV	Active
AE2-292	Grit DP-Perth 115 kV	Active
AF1-058	Welco 34.5 kV	Engineering and Procurement
AF1-059	Brodnax-South Hill 115 kV	Active
AF1-173	Gretna DP-Shockoe DP 69 kV	Active
AF1-246	Clover-Rawlings 500 kV	Active
AF1-292	Fields 34.5kV	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-Rawlings 500 kV	Active
AF2-085	Midlothian 34.5 kV	Engineering and Procurement
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	Withdrawn
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
AF2-403	Shockoe DP-Chatham 69 kV	Active
AG1-021	Jetersville-Ponton 115 kV	Active
AG1-022	Scottsville-Colleen 138 kV	Active
AG1-030	Victoria DP-Martin DP 115 kV	Active
AG1-048	Jetersville-Ponton 115 kV	Active
AG1-093	Halifax-Chase City 115 kV	Active
AG1-098	Briery-Clover 230 kV	Active
AG1-105	Clover-Sedge Hill 230 kV	Active
AG1-166	Lone Pine 115 kV	Active
AG1-167	Lone Pine 115 kV	Active
AG1-168	Lone Pine 115 kV	Active
AG1-169	Lone Pine 115 kV	Active
AG1-170	Lone Pine 115 kV	Active
AG1-176	Briery-Clover 230 kV	Active
AG1-179	Brunswick 69 kV	Active
AG1-180	Brunswick 69 kV	Active
AG1-181	Pamplin-Chase City 115 kV	Active

Queue Number	Project Name	Status
AG1-185	Pamplin-Chase City 115 kV	Active
AG1-209	Gretna 12.5 kV	Active
AG1-215	Fort Pickett 13.2 kV	Active
AG1-272	Twitty's Creek 115 kV	Active
AG1-273	Twitty's Creek 115 kV	Active
AG1-274	Twitty's Creek 115 kV	Active
AG1-275	Gladys DP-Stone Mill 69 kV	Active
AG1-276	Gladys DP-Stone Mill 69 kV	Active
AG1-284	Bremo-Cunningham DP 115 kV	Active
AG1-285	Chase City-Central 115 kV	Active
AG1-287	South Boston 12.5 kV	Active
AG1-310	Crystal Hill-Perth 115 kV	Active
AG1-313	Jackson DP-Oconeechee 115 kV	Active
AG1-342	Dryburg 115 kV	Active
AG1-345	Crewe 12.5 kV	Active
AG1-347	Briery DP-Clover 230 kV	Active
AG1-357	Clover-Rawlings 500 kV	Active
AG1-384	Twitty's Creek 115 kV	Active
AG1-393	Fort Pickett DP 34.5 kV	Active
AG1-413	South Hill-Bordnax 115 kV	Active
AG1-426	Bremo-Scottsville 138 kV	Active
AG1-427	Chase City-Drakes Branch 115 kV	Active
AG1-428	Danieltown 69 kV	Active
AG1-432	Curdsville DP-Willis Mt. 115 kV	Active
AG1-440	Palmer Springs 115 kV	Active
AG1-441	Palmer Springs 115 kV	Active
AG1-445	Palmer Spring 115 kV	Active
AG1-446	Palmer Springs 115 kV	Active
AG1-451	Curdsville DP-Willis Mt. 115 kV	Active
AG1-505	Rawlings-Clover 500 kV	Active
AG1-506	Rawlings-Clover 500 kV	Active
AG1-532	Fields 34.5 kV	Active
AG1-539	Grit DP-Perth 115 kV	Active
AG1-546	Ebony-Elams Road 115 kV	Active
AG1-547	Mount Airy-Chatham 69 kV	Active
AG1-552	Carolina 13.2 kV	Active
AG1-557	Curdsville DP 115 kV	Withdrawn

## 11.8 Contingency Descriptions

Contingency Name	Contingency Definition
<b>DVP_P1-2: LN 1045</b>	CONTINGENCY 'DVP_P1-2: LN 1045' OPEN BRANCH FROM BUS 313898 TO BUS 314267 CKT 1 /* 3BUTCHER CRK115.00 - 3CHASCTY2 115.00 END
<b>DVP_P1-2: LN 1012-B</b>	CONTINGENCY 'DVP_P1-2: LN 1012-B' OPEN BRANCH FROM BUS 963320 TO BUS 936480 CKT 1 /* AG1-181 TAP 115.00 - AD2-063 TAP 115.00 OPEN BUS 936480 /* ISLAND: AD2-063 TAP 115.00 OPEN BUS 936481 /* ISLAND: AD2-063 MAIN115.00 OPEN BUS 936482 /* ISLAND: AD2-063 COL234.500 OPEN BUS 936483 /* ISLAND: AD2-063 TER 13.800 OPEN BUS 936484 /* ISLAND: AD2-063 COL134.500 OPEN BUS 936485 /* ISLAND: AD2-063 C 0.5500 OPEN BUS 936486 /* ISLAND: AD2-063 E 0.5500 END
<b>DVP_P1-2: LN 1012-E</b>	CONTINGENCY 'DVP_P1-2: LN 1012-E' OPEN BRANCH FROM BUS 964240 TO BUS 314681 CKT 1 /* AG1-285 TAP 115.00 - 3CHASCTY 115.00 END
<b>DVP_P1-2: LN 556-B</b>	CONTINGENCY 'DVP_P1-2: LN 556-B' OPEN BRANCH FROM BUS 945810 TO BUS 964930 CKT 1 /* AF1-246 TAP 500.00 - AG1-357 TAP 500.00 END
<b>DVP_P1-2: LN 556-C</b>	CONTINGENCY 'DVP_P1-2: LN 556-C' OPEN BRANCH FROM BUS 964930 TO BUS 966360 CKT 1 /* AG1-357 TAP 500.00 - AG1-055 TAP 500.00 END
<b>DVP_P1-2: LN 2193</b>	CONTINGENCY 'DVP_P1-2: LN 2193' OPEN BRANCH FROM BUS 313707 TO BUS 313867 CKT 1 /* 6FORK UNION 230.00 - 6BREMODIST 230.00 OPEN BRANCH FROM BUS 313867 TO BUS 314747 CKT 1 /* 6BREMODIST 230.00 - 6BREMO 230.00 OPEN BUS 313867 /* ISLAND: 6BREMODIST 230.00 END

Contingency Name	Contingency Definition
<b>DVP_P1-2: LN 235-A</b>	CONTINGENCY 'DVP_P1-2: LN 235-A' 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 964840 CKT 1 /* 6BRIERY 230.00 - AG1-347 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 END
<b>DVP_P1-2: LN 298</b>	CONTINGENCY 'DVP_P1-2: LN 298' OPEN BRANCH FROM BUS 314677 TO BUS 314692 CKT 1 /* 6BUCKING 230.00 - 6FARMVIL 230.00 OPEN BRANCH FROM BUS 314677 TO BUS 314747 CKT 1 /* 6BUCKING 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 314691 TO BUS 314692 CKT 2 /* 3FARMVIL 115.00 - 6FARMVIL 230.00 OPEN BUS 314677 /* ISLAND: 6BUCKING 230.00 OPEN BUS 924032 /* ISLAND: AB2-045 E 230.00 OPEN BUS 932511 /* ISLAND: AC2-071 C 230.00 OPEN BUS 932512 /* ISLAND: AC2-071 E 230.00 END
<b>DVP_P2-2: BREMO B1</b>	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 /* 6BREMODIST 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

Contingency Name	Contingency Definition
<b>DVP_P1-2: LN 2027</b>	CONTINGENCY 'DVP_P1-2: LN 2027' OPEN BRANCH FROM BUS 313868 TO BUS 314747 CKT 1 /* 6CARTERV 230.00 - 6BREMO 230.00 OPEN BRANCH FROM BUS 313868 TO BUS 933500 CKT 1 /* 6CARTERV 230.00 - AC2-165 TAP 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 BRANCH FROM BUS 314333 TO BUS 933500 CKT 1 /* 6POWHATN 230.00 - AC2-165 TAP 230.00 OPEN BUS 313868 /* ISLAND: 6CARTERV 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 OPEN BUS 938561 /* ISLAND: AE1-075 C 230.00 OPEN BUS 938562 /* ISLAND: AE1-075 E 230.00 OPEN BUS 933500 /* ISLAND: AC2-165 TAP 230.00 OPEN BUS 933501 /* ISLAND: AC2-165 C 230.00 OPEN BUS 933502 /* ISLAND: AC2-165 E 230.00 END
<b>Base Case</b>	
<b>DVP_P1-2: LN 154-A</b>	CONTINGENCY 'DVP_P1-2: LN 154-A' OPEN BRANCH FROM BUS 314713 TO BUS 314715 CKT 1 /* 3PAMPLIN 115.00 - 3MADSONV 115.00 OPEN BRANCH FROM BUS 314715 TO BUS 959310 CKT 1 /* 3MADSONV 115.00 - AF2-222 TAP 115.00 OPEN BUS 314715 /* ISLAND: 3MADSONV 115.00 END
<b>DVP_P1-2: LN 158</b>	CONTINGENCY 'DVP_P1-2: LN 158' OPEN BRANCH FROM BUS 313755 TO BUS 314701 CKT 1 /* 3FLAT CREEK 115.00 - 3LONEPN 115.00 OPEN BRANCH FROM BUS 313755 TO BUS 314707 CKT 1 /* 3FLAT CREEK 115.00 - 3MORAN 115.00 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 BUS 313755 /* ISLAND: 3FLAT CREEK 115.00 OPEN BUS 314519 /* ISLAND: 3LONEPINE_1 115.00 OPEN BUS 314707 /* ISLAND: 3MORAN 115.00 END
<b>314333 6POWHATN 230 933500 AC2-165 TAP 230 1</b>	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

The following Breakers are overdutied

None

### 12.1 System Reinforcements - Short Circuit

None

## **13 Affected Systems**

### **13.1 TVA**

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

### **13.2 Duke Energy Progress**

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

## 14 Attachment 1: One Line Diagram

