



Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-345

CREWE 12.5 KV

4.8 MW Capacity / 8 MW Energy

January 2021

Table of Contents

1	Introduction.....	4
2	Preface.....	4
3	General.....	5
4	Point of Interconnection.....	6
5	Cost Summary.....	6
6	Transmission Owner Scope of Work.....	7
7	Transmission Owner Analysis.....	8
7.1	Power Flow Analysis.....	8
8	Interconnection Customer Requirements.....	8
8.1	System Protection.....	8
8.2	Compliance Issues and Interconnection Requirements.....	9
8.3	Power Factor Requirements.....	9
9	Revenue Metering and SCADA Requirements.....	9
9.1	PJM Requirements.....	9
9.2	Meteorological Data Reporting Requirements.....	10
9.3	Interconnected Transmission Owner Requirements.....	10
10	Summer Peak - Load Flow Analysis.....	11
10.1	Generation Deliverability.....	12
10.2	Multiple Facility Contingency.....	12
10.3	Contribution to Previously Identified Overloads.....	12
10.4	Potential Congestion due to Local Energy Deliverability.....	12
10.5	System Reinforcements - Summer Peak Load Flow - Primary POI.....	14
10.6	Flow Gate Details.....	17
10.6.1	Index 1.....	18
10.6.2	Index 2.....	19
10.6.3	Index 3.....	20
10.6.4	Index 4.....	23
10.6.5	Index 5.....	24
10.6.6	Index 6.....	25
10.7	Queue Dependencies.....	26
10.8	Contingency Descriptions.....	28

11 Short Circuit Analysis.....29

 11.1 System Reinforcements - Short Circuit.....29

12 Affected Systems30

 12.1 TVA.....30

 12.2 Duke Energy Progress.....30

13 Attachment 1: One Line Diagram31

1 Introduction

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

2 Preface

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

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

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

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

3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Nottoway County, Virginia. The installed facilities will have a total capability of 8 MW with 4.8 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 01, 2022. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-345
Project Name	CREWE 12.5 KV
State	Virginia
County	Nottoway
Transmission Owner	Dominion
MFO	8
MWE	8
MWC	4.8
Fuel	Solar
Basecase Study Year	2024

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

4 Point of Interconnection

AG1-345 will interconnect within the Dominion transmission system at the Crewe 115 kV substation.

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

5 Cost Summary

The AG1-345 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	\$ To be provided in IA
Total System Network Upgrade Costs	\$125,270,750 ¹
Total Costs	\$ To be provided in IA

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 2016-36, 2016-25 I.R.B. (6/20/2016). If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

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

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

6 Transmission Owner Scope of Work

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 Transmission Owner Analysis

Dominion assessed the impact of the proposed project 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.

7.1 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.

8 Interconnection Customer Requirements

8.1 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.

8.2 Compliance Issues and Interconnection 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.

8.3 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.

9 Revenue Metering and SCADA Requirements

9.1 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.

9.2 Meteorological Data Reporting Requirements

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

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

9.3 Interconnected Transmission Owner Requirements

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

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

10 Summer Peak - Load Flow Analysis

The Queue Project AG1-345 was evaluated as a 8.0 MW (Capacity 4.8 MW) injection at the Crewe 115 kV substation in the Dominion area. Project AG1-345 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-345 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

10.1 Generation Deliverability

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

None

10.2 Multiple Facility Contingency

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

None

10.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	KV	FROM BUS AREA	TO BUS#	TO BUS	KV	TO BUS AREA	CK T ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC/D C	MW IMPACT
168473417	313755	3FLAT CREEK	115.0	DVP	314707	3MORAN	115.0	DVP	1	DVP_P1-2: LN 1045	single	203.979995728	178.57	180.92	DC	4.8
168473418	313755	3FLAT CREEK	115.0	DVP	314707	3MORAN	115.0	DVP	1	Base Case	single	203.979995728	115.55	116.85	DC	2.65
168473434	313898	3BUTCHE R CRK	115.0	DVP	314267	3CHASCTY 2	115.0	DVP	1	DVP_P1-2: LN 158	single	269.779998779	135.01	136.79	DC	4.8
169210558	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	DVP_P1-2: LN 235-A	single	182.641998291	253.45	254.66	DC	2.2
169210560	314691	3FARMVIL	115.0	DVP	314692	6FARMVIL	230.0	DVP	2	DVP_P1-2: LN 1045	single	182.641998291	169.07	170.33	DC	2.3
168473412	314701	3LONEPN	115.0	DVP	313755	3FLAT CREEK	115.0	DVP	1	DVP_P1-2: LN 1045	single	203.979995728	178.57	180.92	DC	4.8
168473413	314701	3LONEPN	115.0	DVP	313755	3FLAT CREEK	115.0	DVP	1	Base Case	single	203.979995728	115.55	116.85	DC	2.65
169210596	314707	3MORAN	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	DVP_P1-2: LN 1045	single	203.979995728	175.18	177.54	DC	4.8
169210597	314707	3MORAN	115.0	DVP	314691	3FARMVIL	115.0	DVP	1	Base Case	single	203.979995728	112.12	113.42	DC	2.65
168473468	936260	AD2-033 TAP	115.0	DVP	313898	3BUTCHE R CRK	115.0	DVP	1	DVP_P1-2: LN 158	single	269.779998779	114.79	116.57	DC	4.8

10.4 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 IMPACT
1684734 14	31375 5	3FLAT CREEK	115.0	DVP	31470 7	3MORAN	115.0	DVP	1	DVP_P 1-2: LN 1045	operati on	203.9799957 28	313.47	317.4	DC	8.0
1684734 16	31375 5	3FLAT CREEK	115.0	DVP	31470 7	3MORAN	115.0	DVP	1	Base Case	operati on	203.9799957 28	171.76	173.92	DC	4.41
1684734 31	31389 8	3BUTCHER CRK	115.0	DVP	31426 7	3CHASCTY2	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	269.7799987 79	237.02	239.98	DC	8.0
1684734 33	31389 8	3BUTCHER CRK	115.0	DVP	31426 7	3CHASCTY2	115.0	DVP	1	Base Case	operati on	247.2200012 21	157.33	158.78	DC	3.59
1687778 45	31426 7	3CHASCTY2	115.0	DVP	31468 1	3CHASCTY	115.0	DVP	Z1	DVP_P 1-2: LN 158	operati on	449.3200073 24	127.33	128.37	DC	4.69
1687776 35	31442 7	3LUNENBURG	115.0	DVP	93626 0	AD2-033 TAP	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	269.7799987 79	159.1	162.07	DC	8.0
1692105 56	31469 1	3FARMVIL	115.0	DVP	31469 2	6FARMVIL	230.0	DVP	2	DVP_P 1-2: LN 235-A	operati on	182.6419982 91	375.44	377.45	DC	3.67
1692105 59	31469 1	3FARMVIL	115.0	DVP	31469 2	6FARMVIL	230.0	DVP	2	Base Case	operati on	176.8140106 2	234.75	236.11	DC	2.4
1692105 67	31469 1	3FARMVIL	115.0	DVP	31469 2	6FARMVIL	230.0	DVP	1	DVP_P 1-2: LN 298	operati on	198.0579986 57	272.21	273.87	DC	3.29
1684734 09	31470 1	3LONEPN	115.0	DVP	31375 5	3FLAT CREEK	115.0	DVP	1	DVP_P 1-2: LN 1045	operati on	203.9799957 28	313.47	317.4	DC	8.0
1684734 11	31470 1	3LONEPN	115.0	DVP	31375 5	3FLAT CREEK	115.0	DVP	1	Base Case	operati on	203.9799957 28	171.76	173.92	DC	4.41
1692108 97	31470 6	3MARTIN TAP	115.0	DVP	96189 0	AG1-030 TAP	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	269.7799987 79	110.85	113.81	DC	8.0
1692105 93	31470 7	3MORAN	115.0	DVP	31469 1	3FARMVIL	115.0	DVP	1	DVP_P 1-2: LN 1045	operati on	203.9799957 28	310.09	314.01	DC	8.0
1692105 95	31470 7	3MORAN	115.0	DVP	31469 1	3FARMVIL	115.0	DVP	1	Base Case	operati on	203.9799957 28	168.32	170.49	DC	4.41
1687777 66	31472 3	3VICTRIA	115.0	DVP	31442 7	3LUNENBURG	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	326.1799926 76	135.15	137.6	DC	8.0
1692107 23	31472 5	3VICT DP	115.0	DVP	31472 3	3VICTRIA	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	269.7799987 79	165.18	168.15	DC	8.0
1684734 65	93626 0	AD2-033 TAP	115.0	DVP	31389 8	3BUTCHER CRK	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	269.7799987 79	207.25	210.21	DC	8.0
1684734 67	93626 0	AD2-033 TAP	115.0	DVP	31389 8	3BUTCHER CRK	115.0	DVP	1	Base Case	operati on	247.2200012 21	127.76	129.21	DC	3.59
1692107 18	96189 0	AG1-030 TAP	115.0	DVP	31472 5	3VICT DP	115.0	DVP	1	DVP_P 1-2: LN 158	operati on	269.7799987 79	166.44	169.41	DC	8.0
1692107 20	96189 0	AG1-030 TAP	115.0	DVP	31472 5	3VICT DP	115.0	DVP	1	Base Case	operati on	247.2200012 21	99.89	101.34	DC	3.59

10.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
169210596,169 210597	5	3MORAN 115.0 kV - 3FARMVIL 115.0 kV Ckt 1	<p>dom-271 (1498) : Rebuild 70 miles of 115 kV lines (158, 84, 154, 1012) from Chase City to Lone Pine with 2-636 ACSR 150 C.</p> <p>Line 84:</p> <ul style="list-style-type: none"> - 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) <p>Line 154:</p> <ul style="list-style-type: none"> - Twittys Creek terminal: Replace Wave Trap and Line Lead - Madisonville terminal: Replace Line Switch - Pamplin terminal: Replace Wave Trap and Line Lead <p>Line 158:</p> <ul style="list-style-type: none"> - Farmville terminal: Replace Breaker Switch, Breaker Lead - Moran DP terminal: Replace Line Switch - Lone Pine terminal: Replace Wave Trap <p>Line 1012:</p> <ul style="list-style-type: none"> - Chase City terminal: Replace Breaker, Breaker switch, Breaker Lead and Wave Trap - Central terminal: Replace Line Switch - Twitty's Creek terminal: Replace Wave Trap <p>Project Type : FAC Cost : \$109,470,000 Time Estimate : 60-72 Months</p>	\$109,470,000
169210558,169 210560	3	3FARMVIL 115.0 kV - 6FARMVIL 230.0 kV Ckt 2	<p>dom-089 (1275) : Add additional 230/115 kV transformer at Farmville substation</p> <p>Project Type : CON Cost : \$6,000,000 Time Estimate : 16-18 Months</p>	\$6,000,000

ID	Idx	Facility	Upgrade Description	Cost
168473413,168 473412	4	3LONEPN 115.0 kV - 3FLAT CREEK 115.0 kV Ckt 1	<p>dom-271 (1498) : Rebuild 70 miles of 115 kV lines (158, 84, 154, 1012) from Chase City to Lone Pine with 2-636 ACSR 150 C.</p> <p>Line 84:</p> <ul style="list-style-type: none"> - 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) <p>Line 154:</p> <ul style="list-style-type: none"> - Twittys Creek terminal: Replace Wave Trap and Line Lead - Madisonville terminal: Replace Line Switch - Pamplin terminal: Replace Wave Trap and Line Lead <p>Line 158:</p> <ul style="list-style-type: none"> - Farmville terminal: Replace Breaker Switch, Breaker Lead - Moran DP terminal: Replace Line Switch - Lone Pine terminal: Replace Wave Trap <p>Line 1012:</p> <ul style="list-style-type: none"> - Chase City terminal: Replace Breaker, Breaker switch, Breaker Lead and Wave Trap - Central terminal: Replace Line Switch - Twitty's Creek terminal: Replace Wave Trap <p>Project Type : FAC Cost : \$109,470,000 Time Estimate : 60-72 Months</p>	\$109,470,000
168473434	2	3BUTCHER CRK 115.0 kV - 3CHASCTY2 115.0 kV Ckt 1	<p>dom-279 (1506) : 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</p> <p>Project Type : FAC Cost : \$2,005,000 Time Estimate : 30-36 Months</p>	\$2,005,000
168473468	6	AD2-033 TAP 115.0 kV - 3BUTCHER CRK 115.0 kV Ckt 1	<p>dom-393 (1620) : Reconductor 12.68 miles of 115 kV Line 98 from AD2-033 Tap to Butcher Creek with 768.2 ACSS 250 C.</p> <p>Project Type : FAC Cost : \$7,608,000 Time Estimate : 36-40 Months</p>	\$7,608,000

ID	Idx	Facility	Upgrade Description	Cost
168473417,168 473418	1	3FLAT CREEK 115.0 kV - 3MORAN 115.0 kV Ckt 1	<p>dom-271 (1498) : Rebuild 70 miles of 115 kV lines (158, 84, 154, 1012) from Chase City to Lone Pine with 2-636 ACSR 150 C.</p> <p>Line 84:</p> <ul style="list-style-type: none"> - 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) <p>Line 154:</p> <ul style="list-style-type: none"> - Twittys Creek terminal: Replace Wave Trap and Line Lead - Madisonville terminal: Replace Line Switch - Pamplin terminal: Replace Wave Trap and Line Lead <p>Line 158:</p> <ul style="list-style-type: none"> - Farmville terminal: Replace Breaker Switch, Breaker Lead - Moran DP terminal: Replace Line Switch - Lone Pine terminal: Replace Wave Trap <p>Line 1012:</p> <ul style="list-style-type: none"> - Chase City terminal: Replace Breaker, Breaker switch, Breaker Lead and Wave Trap - Central terminal: Replace Line Switch - Twitty's Creek terminal: Replace Wave Trap <p>Project Type : FAC Cost : \$109,470,000 Time Estimate : 60-72 Months</p>	\$109,470,000
			TOTAL COST	\$125,270,750

10.6 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".

10.6.1 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
168473417	313755	3FLAT CREEK	DVP	314707	3MORAN	DVP	1	DVP_P1-2: LN 1045	single	203.98	178.57	180.92	DC	4.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	2.5234	80/20	2.5234
316131	AB2-060 C	8.5795	80/20	8.5795
936265	AD2-033 C	77.9711	80/20	77.9711
946301	AF1-294 C	25.4906	80/20	25.4906
958211	AF2-115 C	14.9945	80/20	14.9945
961791	AG1-021 C	11.9956	80/20	11.9956
961891	AG1-030 C	89.9667	80/20	89.9667
962041	AG1-048 C	74.9722	80/20	74.9722
963171	AG1-166 C	11.9956	80/20	11.9956
963181	AG1-167 C	11.9956	80/20	11.9956
963191	AG1-168 C	11.9956	80/20	11.9956
963201	AG1-169 C	11.9956	80/20	11.9956
963211	AG1-170 C	11.9956	80/20	11.9956
963641	AG1-215 C	5.5979	80/20	5.5979
964821	AG1-345 C	4.7982	80/20	4.7982
965281	AG1-393 C	11.9956	80/20	11.9956
CALDERWOOD	CALDERWOOD	0.0184	Confirmed LTF	0.0184
NY	NY	0.0205	Confirmed LTF	0.0205
PRAIRIE	PRAIRIE	0.0956	Confirmed LTF	0.0956
CHEOAH	CHEOAH	0.0185	Confirmed LTF	0.0185
COTTONWOOD	COTTONWOOD	0.0777	Confirmed LTF	0.0777
HAMLET	HAMLET	0.0214	Confirmed LTF	0.0214
GIBSON	GIBSON	0.0202	Confirmed LTF	0.0202
BLUEG	BLUEG	0.0642	Confirmed LTF	0.0642
TRIMBLE	TRIMBLE	0.0206	Confirmed LTF	0.0206
CATAWBA	CATAWBA	0.0129	Confirmed LTF	0.0129

10.6.2 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
168473434	313898	3BUTCHER CRK	DVP	314267	3CHASCTY2	DVP	1	DVP_P1-2: LN 158	single	269.78	135.01	136.79	DC	4.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	2.5234	80/20	2.5234
316131	AB2-060 C	8.5795	80/20	8.5795
936265	AD2-033 C	77.9711	80/20	77.9711
946301	AF1-294 C	25.4906	80/20	25.4906
958211	AF2-115 C	14.9945	80/20	14.9945
961791	AG1-021 C	11.9956	80/20	11.9956
961891	AG1-030 C	89.9667	80/20	89.9667
962041	AG1-048 C	74.9722	80/20	74.9722
963171	AG1-166 C	11.9956	80/20	11.9956
963181	AG1-167 C	11.9956	80/20	11.9956
963191	AG1-168 C	11.9956	80/20	11.9956
963201	AG1-169 C	11.9956	80/20	11.9956
963211	AG1-170 C	11.9956	80/20	11.9956
963641	AG1-215 C	5.5979	80/20	5.5979
964821	AG1-345 C	4.7982	80/20	4.7982
965281	AG1-393 C	11.9956	80/20	11.9956
CALDERWOOD	CALDERWOOD	0.0184	Confirmed LTF	0.0184
NY	NY	0.0205	Confirmed LTF	0.0205
PRAIRIE	PRAIRIE	0.0956	Confirmed LTF	0.0956
CHEOAH	CHEOAH	0.0185	Confirmed LTF	0.0185
COTTONWOOD	COTTONWOOD	0.0777	Confirmed LTF	0.0777
HAMLET	HAMLET	0.0214	Confirmed LTF	0.0214
GIBSON	GIBSON	0.0202	Confirmed LTF	0.0202
BLUEG	BLUEG	0.0642	Confirmed LTF	0.0642
TRIMBLE	TRIMBLE	0.0206	Confirmed LTF	0.0206
CATAWBA	CATAWBA	0.0129	Confirmed LTF	0.0129

10.6.3 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
169210558	314691	3FARMVIL	DVP	314692	6FARMVIL	DVP	2	DVP_P1-2: LN 235-A	single	182.64	253.45	254.66	DC	2.2

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
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

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
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
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

10.6.4 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
168473412	314701	3LONEPN	DVP	313755	3FLAT CREEK	DVP	1	DVP_P1-2: LN 1045	single	203.98	178.57	180.92	DC	4.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	2.5234	80/20	2.5234
316131	AB2-060 C	8.5795	80/20	8.5795
936265	AD2-033 C	77.9711	80/20	77.9711
946301	AF1-294 C	25.4906	80/20	25.4906
958211	AF2-115 C	14.9945	80/20	14.9945
961791	AG1-021 C	11.9956	80/20	11.9956
961891	AG1-030 C	89.9667	80/20	89.9667
962041	AG1-048 C	74.9722	80/20	74.9722
963171	AG1-166 C	11.9956	80/20	11.9956
963181	AG1-167 C	11.9956	80/20	11.9956
963191	AG1-168 C	11.9956	80/20	11.9956
963201	AG1-169 C	11.9956	80/20	11.9956
963211	AG1-170 C	11.9956	80/20	11.9956
963641	AG1-215 C	5.5979	80/20	5.5979
964821	AG1-345 C	4.7982	80/20	4.7982
965281	AG1-393 C	11.9956	80/20	11.9956
CALDERWOOD	CALDERWOOD	0.0184	Confirmed LTF	0.0184
NY	NY	0.0205	Confirmed LTF	0.0205
PRAIRIE	PRAIRIE	0.0956	Confirmed LTF	0.0956
CHEOAH	CHEOAH	0.0185	Confirmed LTF	0.0185
COTTONWOOD	COTTONWOOD	0.0777	Confirmed LTF	0.0777
HAMLET	HAMLET	0.0214	Confirmed LTF	0.0214
GIBSON	GIBSON	0.0202	Confirmed LTF	0.0202
BLUEG	BLUEG	0.0642	Confirmed LTF	0.0642
TRIMBLE	TRIMBLE	0.0206	Confirmed LTF	0.0206
CATAWBA	CATAWBA	0.0129	Confirmed LTF	0.0129

10.6.5 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
169210596	314707	3MORAN	DVP	314691	3FARMVIL	DVP	1	DVP_P1-2: LN 1045	single	203.98	175.18	177.54	DC	4.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	2.5234	80/20	2.5234
316131	AB2-060 C	8.5795	80/20	8.5795
936265	AD2-033 C	77.9711	80/20	77.9711
946301	AF1-294 C	25.4906	80/20	25.4906
958211	AF2-115 C	14.9945	80/20	14.9945
961791	AG1-021 C	11.9956	80/20	11.9956
961891	AG1-030 C	89.9667	80/20	89.9667
962041	AG1-048 C	74.9722	80/20	74.9722
963171	AG1-166 C	11.9956	80/20	11.9956
963181	AG1-167 C	11.9956	80/20	11.9956
963191	AG1-168 C	11.9956	80/20	11.9956
963201	AG1-169 C	11.9956	80/20	11.9956
963211	AG1-170 C	11.9956	80/20	11.9956
963641	AG1-215 C	5.5979	80/20	5.5979
964821	AG1-345 C	4.7982	80/20	4.7982
965281	AG1-393 C	11.9956	80/20	11.9956
CALDERWOOD	CALDERWOOD	0.0184	Confirmed LTF	0.0184
NY	NY	0.0205	Confirmed LTF	0.0205
PRAIRIE	PRAIRIE	0.0956	Confirmed LTF	0.0956
CHEOAH	CHEOAH	0.0185	Confirmed LTF	0.0185
COTTONWOOD	COTTONWOOD	0.0777	Confirmed LTF	0.0777
HAMLET	HAMLET	0.0214	Confirmed LTF	0.0214
GIBSON	GIBSON	0.0202	Confirmed LTF	0.0202
BLUEG	BLUEG	0.0642	Confirmed LTF	0.0642
TRIMBLE	TRIMBLE	0.0206	Confirmed LTF	0.0206
CATAWBA	CATAWBA	0.0129	Confirmed LTF	0.0129

10.6.6 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
168473468	936260	AD2-033 TAP	DVP	313898	3BUTCHER CRK	DVP	1	DVP_P1-2: LN 158	single	269.78	114.79	116.57	DC	4.8

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314429	3JTRSVLE	2.5241	80/20	2.5241
936265	AD2-033 C	77.9938	80/20	77.9938
946301	AF1-294 C	25.4980	80/20	25.4980
958211	AF2-115 C	14.9988	80/20	14.9988
961791	AG1-021 C	11.9990	80/20	11.9990
961891	AG1-030 C	89.9928	80/20	89.9928
962041	AG1-048 C	74.9940	80/20	74.9940
963171	AG1-166 C	11.9990	80/20	11.9990
963181	AG1-167 C	11.9990	80/20	11.9990
963191	AG1-168 C	11.9990	80/20	11.9990
963201	AG1-169 C	11.9990	80/20	11.9990
963211	AG1-170 C	11.9990	80/20	11.9990
963641	AG1-215 C	5.5996	80/20	5.5996
964821	AG1-345 C	4.7996	80/20	4.7996
965281	AG1-393 C	11.9990	80/20	11.9990
CALDERWOOD	CALDERWOOD	0.0040	Confirmed LTF	0.0040
NY	NY	0.0044	Confirmed LTF	0.0044
PRAIRIE	PRAIRIE	0.0207	Confirmed LTF	0.0207
CHEOAH	CHEOAH	0.0040	Confirmed LTF	0.0040
COTTONWOOD	COTTONWOOD	0.0168	Confirmed LTF	0.0168
HAMLET	HAMLET	0.0046	Confirmed LTF	0.0046
GIBSON	GIBSON	0.0044	Confirmed LTF	0.0044
BLUEG	BLUEG	0.0139	Confirmed LTF	0.0139
TRIMBLE	TRIMBLE	0.0045	Confirmed LTF	0.0045
CATAWBA	CATAWBA	0.0028	Confirmed LTF	0.0028

10.7 Queue Dependencies

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

Queue Number	Project Name	Status
AB1-173	Brink-Trego 115kV	Engineering and Procurement
AB2-040	Brink 115kV	Engineering and Procurement
AB2-043	Chase City 115kV	Under Construction
AB2-060	Chase City-Lunenburg 115kV	In Service
AB2-077	Buggs Island-Chase City 115kV	Suspended
AB2-078	Buggs Island-Chase City 115kV	Suspended
AB2-079	Buggs Island-Chase City 115kV	Suspended
AB2-174	Emporia-Trego 115kV	In Service
AC1-036	Twittys Creek 34.5kV	Partially in Service - Under Construction
AC1-054	Kerr Dam–Eatons Ferry 115 kV	Engineering and Procurement
AC1-105	Halifax-Mt. Laurel 115kV	Engineering and Procurement
AC1-222	Crystal Hill-Halifax 115kV	Engineering and Procurement
AD1-055	Crystal Hill-Halifax 115 kV	Engineering and Procurement
AD1-157	South Creek 34.5 kV	Engineering and Procurement
AD2-033	Chase City-Lunenburg 115 kV	Active
AD2-046	Boydton DP-Kerr Dam 115 kV	Active
AD2-063	Central-Chase City 115kV	Active
AE1-056	Red House-South Creek 115 kV	Active
AE1-148	Kerr Dam-Ridge Rd 115 kV	Active
AE2-053	Kerr Dam-Ridge Road 115 kV	Active
AE2-258	Chase City 115 kV	Active
AE2-259	Curdsville-Willis Mtn 115 kV	Active
AF1-058	Welco 34.5 kV	Engineering and Procurement
AF1-059	Brodnax-South Hill 115 kV	Active
AF1-292	Fields 34.5kV	Active
AF1-294	Jetersville-Ponton 115 kV	Active
AF2-115	Jetersville-Ponton 115 kV	Active
AF2-171	Madisonville 115 kV	Active
AF2-222	Madisonville DP-Twitty's Creek 115 kV	Active
AF2-297	Sedge Hill 115 kV	Active
AF2-299	Fields 34.5 kV	Active
AG1-021	Jetersville-Ponton 115 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
AG1-166	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

Queue Number	Project Name	Status
AG1-170	Lone Pine 115 kV	Active
AG1-179	Brunswick 69 kV	Active
AG1-180	Brunswick 69 kV	Active
AG1-181	Pamplin-Chase City 115 kV	Active
AG1-185	Pamplin-Chase City 115 kV	Active
AG1-215	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
AG1-285	Chase City-Central 115 kV	Active
AG1-287	South Boston 12.5 kV	Active
AG1-310	Crystal Hill-Perth 115 kV	Active
AG1-342	Dryburg 115 kV	Active
AG1-345	Crewe 12.5 kV	Active
AG1-384	Twitty's Creek 115 kV	Active
AG1-393	Fort Pickett DP 34.5 kV	Active
AG1-413	South Hill-Bordnax 115 kV	Active
AG1-427	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
AG1-532	Fields 34.5 kV	Active
AG1-546	Ebony-Elams Road 115 kV	Active
AG1-557	Curdsville DP 115 kV	Withdrawn

10.8 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 1045	CONTINGENCY 'DVP_P1-2: LN 1045' OPEN BRANCH FROM BUS 313898 TO BUS 314267 CKT 1 /* 3BUTCHER CRK115.00 - 3CHASCTY2 115.00 END
Base Case	
DVP_P1-2: LN 235-A	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
DVP_P1-2: LN 298	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
DVP_P1-2: LN 158	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

11 Short Circuit Analysis

The following Breakers are overdutied:

None.

11.1 System Reinforcements - Short Circuit

None.

12 Affected Systems

12.1 TVA

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

12.2 Duke Energy Progress

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

13 Attachment 1: One Line Diagram