Generation Interconnection

Feasibility Study Report

for

Queue Project AF2-040

ELK RUN-GAINESVILLE 230 KV

75 MW Capacity / 75 MW Energy

July 2020

Table of Contents

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 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 Storage generating facility located in Fauquier County, Virginia. The installed facilities will have a total capability of 75 MW with 75 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is October 01, 2023. This study does not imply a TO commitment to this in-service date.

Queue Number	**AF2-040**
Project Name	ELK RUN-GAINESVILLE 230 KV
State	Virginia
County	Fauquier
Transmission Owner	Dominion
MFO	75
MWE	75
MWC	75
Fuel	Storage
Basecase Study Year	2023

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

4 Point of Interconnection

AF2-040 will interconnect with the Dominion transmission system. The primary POI is a single line tap between Elk Run 230 kV substation and Gainesville 230 kV substation. The IC is responsible for securing right-of-way, permits and constructing the proposed attachment line from the storage facility site to the proposed new substation. Attachment 1 shows a one-line diagram of the proposed interconnection facilities. The IC may not install any facilities on Dominion's right-of-way without first obtaining the necessary approval from Dominion Energy.

There is no secondary point of interconnection specified for AF2-040.

5 Cost Summary

The AF2-040 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$ 10,400,000
Total System Network Upgrade Costs	$ 24,060,000
Total Costs	$ 34,460,000

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 88-129. If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

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

6 Transmission Owner Scope of Work

Dominion assessed the impact of the proposed Queue Project AF2-040 was evaluated as a 75 MW Capacity (75.0 MW Energy) injection at a single line tap between Elk Run 230 kV substation and Gainesville 230 kV substation in the Dominion Transmission System, for compliance with NERC Reliability Criteria on Dominion Transmission System. The system was assessed using the summer 2023 AF2 case provided to Dominion by PJM. When performing a generation analysis, Dominion's main analysis will be load flow study results under single contingency (both normal and stressed system conditions). Dominion Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at: http://www.dominionenergy.com.

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

The required physical interconnection work for the interconnection of the AE2-040 generation project to the Dominion Transmission System is detailed in the following sections. The associated one-line with the generation project attachment facilities and primary direct and non-direct connection are shown in Attachment 1.

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

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

Description	Total Cost
Attachment Facilities	$ 2,100,000
New 115 kV three breaker ring-bus substation	$ 6,500,000

Description	Total Cost
Re-arrange 115 kV line to interconnect new substation	$ 1,800,000
Total Physical Interconnection Costs	$ 10,400,000

It is estimated to take 24-30 months to complete this work upon execution of an Interconnection Construction Service Agreement (ICSA). These preliminary cost estimates are based on typical engineering costs. A more detailed engineering cost estimates are normally done when the IC provides an exact site plan location for the generation substation during the Facility Study phase. See Attachment One.

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

7 Schedule

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

8 Transmission Owner Analysis

8.1 Power Flow Analysis

PJM performed a power flow analysis of the transmission system using a 2023 summer peak load flow model and the results were verified by Dominion. Additionally, Dominion performed an analysis of its transmission system and no further deficiencies were identified.

9 Interconnection Customer Requirements

9.1 System Protection

The IC must design its Customer Facilities in accordance with all applicable standards, including the standards in Dominion's "Dominion Energy Electric Transmission Generator Interconnection Requirements" documented in Dominion's Facility Interconnection Requirements "Exhibit C" located at: https://www.dominionenergy.com/company/moving-energy/electric-transmission-access. Preliminary

Protection requirements will be provided as part of the Facilities Study. Detailed Protection Requirements will be provided once the project enters the construction phase.

9.2 Compliance Issues and Interconnection Customer Requirements

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

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

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

The IC will also be required to meet all PJM, SERC, and NERC reliability criteria and operating procedures for standards compliance. For example, the IC will need to properly locate and report the over and under voltage and over and under frequency system protection elements for its units as well as the submission of the generator model and protection data required to satisfy the PJM and SERC audits. Failure to comply with these requirements may result in a disconnection of service if the violation is found to compromise the reliability of the Dominion system.

9.3 Power Factor Requirements

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

10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

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

10.2 Interconnected Transmission Owner Requirements

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

11 Summer Peak - Load Flow Analysis

The Queue Project AF2-040 was evaluated as a 75.0 MW (Capacity 75.0 MW) injection tapping the Elk Run to Gainesville 230 kV line in the Dominion area. Project AF2-040 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-040 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)

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
98536195	314085	6REMNGCT	230.0	DVP	314110	6ELK RUN	230.0	DVP	1	DVP_P7-1: LN 2039-2040	tower	1204.0	99.12	101.27	DC	25.66
98536196	314110	6ELK RUN	230.0	DVP	941850	AE2-190 TAP	230.0	DVP	1	DVP_P7-1: LN 2039-2040	tower	1204.0	98.83	100.98	DC	25.66

11.3 Contribution to Previously Identified Overloads

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
98536186	941850	AE2-190 TAP	230.0	DVP	314037	6GAINSVL	230.0	DVP	1	DVP_P7-1: LN 2039-2040	tower	1204.0	102.62	106.74	DC	49.34

11.4 Potential Congestion due to Local Energy Deliverability

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

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
97885653	314085	6REMNG CT	230.0	DVP	314110	6ELK RUN	230.0	DVP	1	DVP_P1-2: LN 569	operation	984.179992676	98.35	103.45	DC	50.08
97885658	314110	6ELK RUN	230.0	DVP	941850	AE2-190 TAP	230.0	DVP	1	DVP_P1-2: LN 569	operation	984.179992676	98.01	103.11	DC	50.08
97885663	941850	AE2-190 TAP	230.0	DVP	314037	6GAINSVL	230.0	DVP	1	DVP_P1-2: LN 569	operation	984.179992676	100.33	102.87	DC	24.92

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
98536186	3	AE2-190 TAP 230.0 kV - 6GAINSVL 230.0 kV Ckt 1	**DVP** **dom-192 (1243) : Reconductor 20.4 miles of 230 kV Line 2114 from AE2-190 Tap to Gainsville with 795 ACSR.** **Project Type : FAC** **Cost : $16,320,000** **Time Estimate : 36-42 Months**	$16,320,000
98536195	1	6REMNGCT 230.0 kV - 6ELK RUN 230.0 kV Ckt 1	**DVP** **dom-206 (1305) : Rebuild 3.46 miles of 230 kV Line 2114 from Remington CT to Elk Run with 2-795 ACSR.** **Project Type : FAC** **Cost : $5,190,000** **Time Estimate : 30-36 Months**	$5,190,000
98536196	2	6ELK RUN 230.0 kV - AE2-190 TAP 230.0 kV Ckt 1	**DVP** **dom-207 (1306) : Rebuild 1.7 miles of 230 kV Line 2114 from AE2-190 Tap to Elk Run with 2-795 ACSR.** **Project Type : FAC** **Cost : $2,550,000** **Time Estimate : 30-36 Months**	$2,550,000
			TOTAL COST	**$24,060,000**

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
98536195	314085	6REMNGCT	DVP	314110	6ELK RUN	DVP	1	DVP_P7-1: LN 2039-2040	tower	1204.0	99.12	101.27	DC	25.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314078	3REMNGTN	0.7201	50/50	0.7201
315021	1REMNGT1	15.8399	50/50	15.8399
315022	1REMNGT2	15.8608	50/50	15.8608
315023	1REMNGT3	15.9235	50/50	15.9235
315024	1REMNGT4	15.8608	50/50	15.8608
315028	1M RUN A	16.8344	50/50	16.8344
315029	1M RUN B	16.6992	50/50	16.6992
315030	1M RUN C	16.8344	50/50	16.8344
923892	AB2-029 E	6.7016	50/50	6.7016
925022	AB2-158 E	3.2433	Adder	3.82
925671	**AC1-043 C (Suspended)**	**12.5826**	**50/50**	**12.5826**
925672	**AC1-043 E (Suspended)**	**20.5294**	**50/50**	**20.5294**
926001	**AC1-076 C (Suspended)**	**3.2562**	**Adder**	**3.83**
926002	**AC1-076 E (Suspended)**	**5.2948**	**Adder**	**6.23**
926481	AC1-120 C O1	11.1193	50/50	11.1193
926482	AC1-120 E O1	5.7281	50/50	5.7281
926501	AC1-121 C O1	3.8187	50/50	3.8187
926502	AC1-121 E O1	1.7971	50/50	1.7971
926611	AC1-143 C O1	20.7702	50/50	20.7702
926612	AC1-143 E O1	9.4776	50/50	9.4776
934861	AD1-115 C	6.2913	50/50	6.2913
934862	AD1-115 E	10.2647	50/50	10.2647
939221	AE1-153 C O1	33.4311	50/50	33.4311
939222	AE1-153 E O1	22.2874	50/50	22.2874
939231	AE1-154 C	1.1924	Adder	1.4
939232	AE1-154 E	0.8347	Adder	0.98
941361	AE2-132	1.8506	50/50	1.8506
941381	**AE2-134 (Suspended)**	**2.2438**	**Adder**	**2.64**
944111	AF1-079 C	2.2655	Adder	2.67
944112	AF1-079 E	3.0763	Adder	3.62
946371	AF1-301 C	8.8819	Adder	10.45
946372	AF1-301 E	5.9602	Adder	7.01
957431	AF2-037 C	2.6038	Adder	5.78
957432	AF2-037 E	1.7359	Adder	3.85
957462	AF2-040 BAT	25.6605	50/50	25.6605
957691	AF2-063 C	4.1551	Adder	9.22
957692	AF2-063 E	2.7700	Adder	6.15
961101	AF2-401 C	1.3569	50/50	1.3569
961102	AF2-401 E	2.2486	50/50	2.2486
WEC	WEC	0.0794	Confirmed LTF	0.0794
LGEE	LGEE	0.1711	Confirmed LTF	0.1711

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
CPLE	CPLE	0.7184	Confirmed LTF	0.7184
CBM-W2	CBM-W2	3.4808	Confirmed LTF	3.4808
NY	NY	0.7427	Confirmed LTF	0.7427
CBM-W1	CBM-W1	2.6771	Confirmed LTF	2.6771
TVA	TVA	0.7686	Confirmed LTF	0.7686
O-066	O-066	10.1338	Confirmed LTF	10.1338
CBM-S2	CBM-S2	5.4274	Confirmed LTF	5.4274
CBM-S1	CBM-S1	4.2856	Confirmed LTF	4.2856
G-007	G-007	1.5798	Confirmed LTF	1.5798
MADISON	MADISON	0.1956	Confirmed LTF	0.1956
MEC	MEC	0.5037	Confirmed LTF	0.5037

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
98536196	314110	6ELK RUN	DVP	941850	AE2-190 TAP	DVP	1	DVP_P7-1: LN 2039-2040	tower	1204.0	98.83	100.98	DC	25.66

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314078	3REMNGTN	0.7201	50/50	0.7201
315021	1REMNGT1	15.8399	50/50	15.8399
315022	1REMNGT2	15.8608	50/50	15.8608
315023	1REMNGT3	15.9235	50/50	15.9235
315024	1REMNGT4	15.8608	50/50	15.8608
315028	1M RUN A	16.8344	50/50	16.8344
315029	1M RUN B	16.6992	50/50	16.6992
315030	1M RUN C	16.8344	50/50	16.8344
923892	AB2-029 E	6.7016	50/50	6.7016
925022	AB2-158 E	3.2433	Adder	3.82
925671	**AC1-043 C (Suspended)**	**12.5826**	**50/50**	**12.5826**
925672	**AC1-043 E (Suspended)**	**20.5294**	**50/50**	**20.5294**
926001	**AC1-076 C (Suspended)**	**3.2562**	**Adder**	**3.83**
926002	**AC1-076 E (Suspended)**	**5.2948**	**Adder**	**6.23**
926481	AC1-120 C O1	11.1193	50/50	11.1193
926482	AC1-120 E O1	5.7281	50/50	5.7281
926501	AC1-121 C O1	3.8187	50/50	3.8187
926502	AC1-121 E O1	1.7971	50/50	1.7971
926611	AC1-143 C O1	20.7702	50/50	20.7702
926612	AC1-143 E O1	9.4776	50/50	9.4776
934861	AD1-115 C	6.2913	50/50	6.2913
934862	AD1-115 E	10.2647	50/50	10.2647
939221	AE1-153 C O1	33.4311	50/50	33.4311
939222	AE1-153 E O1	22.2874	50/50	22.2874
939231	AE1-154 C	1.1924	Adder	1.4
939232	AE1-154 E	0.8347	Adder	0.98
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CBM-S2	CBM-S2	5.4274	Confirmed LTF	5.4274
CBM-S1	CBM-S1	4.2856	Confirmed LTF	4.2856
G-007	G-007	1.5798	Confirmed LTF	1.5798
MADISON	MADISON	0.1956	Confirmed LTF	0.1956
MEC	MEC	0.5037	Confirmed LTF	0.5037

11.6.3 Index 3

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315023	1REMNGT3	15.9235	50/50	15.9235
315024	1REMNGT4	15.8608	50/50	15.8608
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315029	1M RUN B	16.6992	50/50	16.6992
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926482	AC1-120 E O1	5.7281	50/50	5.7281
926501	AC1-121 C O1	3.8187	50/50	3.8187
926502	AC1-121 E O1	1.7971	50/50	1.7971
926611	AC1-143 C O1	20.7702	50/50	20.7702
926612	AC1-143 E O1	9.4776	50/50	9.4776
934861	AD1-115 C	6.2913	50/50	6.2913
934862	AD1-115 E	10.2647	50/50	10.2647
939221	AE1-153 C O1	33.4311	50/50	33.4311
939222	AE1-153 E O1	22.2874	50/50	22.2874
939231	AE1-154 C	1.1924	Adder	1.4
939232	AE1-154 E	0.8347	Adder	0.98
941361	AE2-132	1.8506	50/50	1.8506
941381	**AE2-134 (Suspended)**	**2.2438**	**Adder**	**2.64**
941851	AE2-190 C	17.7754	50/50	17.7754
941852	AE2-190 E	28.2748	50/50	28.2748
944111	AF1-079 C	2.2655	Adder	2.67
944112	AF1-079 E	3.0763	Adder	3.62
946371	AF1-301 C	8.8819	Adder	10.45
946372	AF1-301 E	5.9602	Adder	7.01
957431	AF2-037 C	2.6038	Adder	5.78
957432	AF2-037 E	1.7359	Adder	3.85
957461	AF2-040	49.3395	50/50	49.3395
957691	AF2-063 C	4.1551	Adder	9.22
957692	AF2-063 E	2.7700	Adder	6.15
961101	AF2-401 C	1.3569	50/50	1.3569
961102	AF2-401 E	2.2486	50/50	2.2486

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
WEC	WEC	0.0794	Confirmed LTF	0.0794
LGEE	LGEE	0.1711	Confirmed LTF	0.1711
CPLE	CPLE	0.7184	Confirmed LTF	0.7184
CBM-W2	CBM-W2	3.4808	Confirmed LTF	3.4808
NY	NY	0.7427	Confirmed LTF	0.7427
CBM-W1	CBM-W1	2.6771	Confirmed LTF	2.6771
TVA	TVA	0.7686	Confirmed LTF	0.7686
O-066	O-066	10.1338	Confirmed LTF	10.1338
CBM-S2	CBM-S2	5.4274	Confirmed LTF	5.4274
CBM-S1	CBM-S1	4.2856	Confirmed LTF	4.2856
G-007	G-007	1.5798	Confirmed LTF	1.5798
MADISON	MADISON	0.1956	Confirmed LTF	0.1956
MEC	MEC	0.5037	Confirmed LTF	0.5037

11.7 Queue Dependencies

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

Queue Number	Project Name	Status
AB2-029	Remington 34.5kV	In Service
AB2-158	Louisa-South Anna 230kV	Under Construction
AC1-043	Mountain Run-Mitchell 115 kV	Suspended
AC1-076	Locust Grove-Paytes 115kV	Suspended
AC1-120	Mitchell-Mountain Run 115kV	Engineering and Procurement
AC1-121	Mitchell-Mountain Run 115kV	Engineering and Procurement
AC1-143	Brandy-Remington 115kV	Active
AD1-115	Mountain Run-Mitchell 115 kV	Active
AE1-153	Remington-Gordonsville 230 kV	Active
AE1-154	Louisa-South Anna 230 kV	Engineering and Procurement
AE2-132	Remington CT 230 kV	In Service
AE2-134	Locust Grove-Paytes 115 kV	Suspended
AE2-190	Elk Run D.P.-Gainesville 230 kV	Active
AF1-079	Louisa-South Anna 230 kV	Active
AF1-301	Louisa-South Anna 230 kV	Active
AF2-037	Louisa-North Anna 230 kV	Active
AF2-040	Elk Run-Gainesville 230 kV	Active
AF2-063	Louisa-North Anna 230 kV	Active
AF2-401	Culpeper 34.5 kV	Active

11.8 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P1-2: LN 569	CONTINGENCY 'DVP_P1-2: LN 569' OPEN BRANCH FROM BUS 314913 TO BUS 314916 CKT 1 /* 8LOUDOUN 500.00 - 8MORRSVL 500.00 END
DVP_P7-1: LN 2039-2040	CONTINGENCY 'DVP_P7-1: LN 2039-2040' /* . OPEN BRANCH FROM BUS 314063 TO BUS 314099 CKT 1 /* 6MORRSVL 230.00 - 6GI1MRUN 230.00 OPEN BRANCH FROM BUS 314063 TO BUS 314099 CKT 2 /* 6MORRSVL 230.00 - 6GI1MRUN 230.00 END

12 Short Circuit Analysis

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

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