Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-146

GARNER DP-LANCASTER 115 KV

18 MW Capacity / 30 MW Energy

January 2021

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1 Introduction

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

2 Preface

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

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

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

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

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3 General

The Interconnection Customer (IC), has proposed a Solar generating facility located in Lancaster County, Virginia. The installed facilities will have a total capability of 30 MW with 18 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 01, 2024. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-146
Project Name	GARNER DP-LANCASTER 115 KV
State	Virginia
County	Lancaster
Transmission Owner	Dominion
MFO	30
MWE	30
MWC	18
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.

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4 Point of Interconnection

AG1-146 "Garner DP-Lancaster 115 kV" will interconnect with the Dominion transmission system. The POI will be a newly constructed 115 kV three breaker ring bus located on the line between the Garner DP substation and Lancaster substation.

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

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

5 Cost Summary

The AG1-146 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$ 8,800,000
Total System Network Upgrade Costs	$ 33,092,200[1]
Total Costs	$ 41,892,200

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

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

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

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6 Transmission Owner Scope of Work

AG1-146 "Garner DP-Lancaster 115 kV" will interconnect with the Dominion transmission system. The primary POI will be a newly constructed 115 kV three breaker ring bus located on the line between the Garner DP substation and Lancaster substation.

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

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

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

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

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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.

This schedule will be more cleary identified in future study phases.

8 Transmission Owner Analysis

Dominion assessed the impact of the proposed AG1-146 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

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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).

1. 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.

2. 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.

3. 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.

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10 Revenue Metering and SCADA Requirements

10.1 PJM Requirements

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

10.2 Meteorological Data Reporting Requirements

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

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

10.3 Interconnected Transmission Owner Requirements

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

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

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11 Summer Peak - Load Flow Analysis

The Queue Project AG1-146 was evaluated as a 30.0 MW (Capacity 18.0 MW) injection tapping the Garner DP to Lancaster 115 kV line in the Dominion area. Project AG1-146 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-146 was studied with a commercial probability of 53.0 %. Potential network impacts were as follows:

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11.1 Generation Deliverability

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

ID	FROM BUS#	FROM BUS	kV	FROM BUS AREA	TO BUS#	TO BUS	kV	TO BUS AREA	CKT ID	CONT NAME	Type	Rating MVA	PRE PROJECT LOADING %	POST PROJECT LOADING %	AC|DC	MW IMPACT
168670258	314163	6FINES	230.0	DVP	314137	6FREDBRG	230.0	DVP	1	DVP_P1-2: LN 2090-B	single	548.020019531	99.46	100.08	DC	3.39
168670259	314163	6FINES	230.0	DVP	314137	6FREDBRG	230.0	DVP	1	3138376SUMMIT 230 965440 AG1-412 TAP 2301	single	548.020019531	99.39	100.01	DC	3.39
169590521	939240	AE1-155 TAP	115.0	DVP	314181	3NORNECK	115.0	DVP	1	DVP_P1-2: LN 65-A	single	203.979995728	94.36	103.19	DC	18.0

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|DC	MW IMPACT
166907140	313886	3GREYSPT	115.0	DVP	314174	3HARMONY	115.0	DVP	1	DVP_P7-1: LN 2083-2145-A	tower	169.0	114.02	124.34	DC	17.44
166907141	313886	3GREYSPT	115.0	DVP	314174	3HARMONY	115.0	DVP	1	DVP_P7-1: LN 2076-2145-B	tower	169.0	114.02	124.34	DC	17.44
166907138	314191	3WHITSTONE	115.0	DVP	313870	3RAPPAHNCK	115.0	DVP	1	DVP_P7-1: LN 2076-2145-B	tower	169.0	114.08	124.39	DC	17.44
166907139	314191	3WHITSTONE	115.0	DVP	313870	3RAPPAHNCK	115.0	DVP	1	DVP_P7-1: LN 2083-2145-A	tower	169.0	114.08	124.39	DC	17.44
166907136	945360	AF1-201 TAP	115.0	DVP	314177	3HAYES89	115.0	DVP	1	DVP_P7-1: LN 85-2016-B	tower	208.0	144.89	150.41	DC	11.48
166907163	962970	AG1-146 TAP	115.0	DVP	314178	3LANCAST	115.0	DVP	1	DVP_P7-1: LN 2076-2145-B	tower	249.0	100.84	107.84	DC	17.44
166907164	962970	AG1-146 TAP	115.0	DVP	314178	3LANCAST	115.0	DVP	1	DVP_P7-1: LN 2083-2145-A	tower	249.0	100.84	107.84	DC	17.44

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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
168368344	313870	3RAPPAHNCK	115.0	DVP	313886	3GREYSPT	115.0	DVP	2	DVP_P1-2: LN 65-D	operation	103.400001526	85.98	100.48	DC	15.0
168368347	313870	3RAPPAHNCK	115.0	DVP	313886	3GREYSPT	115.0	DVP	1	DVP_P1-2: LN 65-D	operation	103.400001526	85.98	100.48	DC	15.0
168368142	313886	3GREYSPT	115.0	DVP	314174	3HARMONY	115.0	DVP	1	DVP_P1-2: LN 65-D	operation	138.179992676	128.53	150.24	DC	30.0
168368144	313886	3GREYSPT	115.0	DVP	314174	3HARMONY	115.0	DVP	1	Base Case	operation	138.179992676	98.7	110.71	DC	16.59
168670234	314132	6BIRCHWD	230.0	DVP	314163	6FINES	230.0	DVP	1	DVP_P1-2: LN 2090-B	operation	548.020019531	120.93	121.96	DC	5.65
168670236	314132	6BIRCHWD	230.0	DVP	314163	6FINES	230.0	DVP	1	Base Case	operation	548.020019531	105.98	107.08	DC	6.03
168670255	314163	6FINES	230.0	DVP	314137	6FREDBRG	230.0	DVP	1	DVP_P1-2: LN 2090-B	operation	548.020019531	117.15	118.18	DC	5.65
168670257	314163	6FINES	230.0	DVP	314137	6FREDBRG	230.0	DVP	1	Base Case	operation	548.020019531	102.21	103.3	DC	6.03
168670101	314173	3GARNER	115.0	DVP	939240	AE1-155 TAP	115.0	DVP	1	DVP_P1-2: LN 65-A	operation	203.979995728	133.64	148.35	DC	30.0
168670103	314173	3GARNER	115.0	DVP	939240	AE1-155 TAP	115.0	DVP	1	Base Case	operation	203.979995728	97.01	103.58	DC	13.41
168670249	314174	3HARMONY	115.0	DVP	314176	6HARMONY	230.0	DVP	1	DVP_P1-2: LN 89-B	operation	224.377990723	121.37	125.94	DC	10.26
168670312	314178	3LANCAST	115.0	DVP	313813	3OCRAN	115.0	DVP	1	DVP_P1-2: LN 224	operation	257.559997559	92.97	100.23	DC	18.69
168670057	314181	3NORNECK	115.0	DVP	314182	6NORNECK	230.0	DVP	2	DVP_P1-3: 6NORNECK-TX#4	operation	177.377990723	143.36	150.32	DC	12.34
168670097	314181	3NORNECK	115.0	DVP	314182	6NORNECK	230.0	DVP	1	DVP_P1-3: 6NORNECK-TX#6	operation	179.916000366	136.46	143.09	DC	11.92
168368139	314191	3WHITSTONE	115.0	DVP	313870	3RAPPAHNCK	115.0	DVP	1	DVP_P1-2: LN 65-D	operation	138.179992676	128.6	150.31	DC	30.0
168368141	314191	3WHITSTONE	115.0	DVP	313870	3RAPPAHNCK	115.0	DVP	1	Base Case	operation	138.179992676	98.77	110.78	DC	16.59
169590828	936590	AD2-074 TAP	115.0	DVP	962860	AG1-135 TAP	115.0	DVP	1	DVP_P1-2: LN 65-A	operation	203.979995728	86.28	100.99	DC	30.0

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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
169590518	939240	AE1-155 TAP	115.0	DVP	314181	3NORNECK	115.0	DVP	1	DVP_P1-2: LN 65-A	operation	203.979995728	195.9	210.61	DC	30.0
169590520	939240	AE1-155 TAP	115.0	DVP	314181	3NORNECK	115.0	DVP	1	Base Case	operation	203.979995728	131.6	138.17	DC	13.41
169590657	945360	AF1-201 TAP	115.0	DVP	314177	3HAYES89	115.0	DVP	1	DVP_P1-2: LN 2016	operation	169.199996948	144.47	148.95	DC	7.58
169590659	945360	AF1-201 TAP	115.0	DVP	314177	3HAYES89	115.0	DVP	1	Base Case	operation	169.199996948	119.72	122.55	DC	4.8
168670134	962860	AG1-135 TAP	115.0	DVP	314173	3GARNER	115.0	DVP	1	DVP_P1-2: LN 65-A	operation	203.979995728	115.7	130.4	DC	30.0
169892127	962970	AG1-146 TAP	115.0	DVP	314178	3LANCAST	115.0	DVP	1	DVP_P1-2: LN 65-D	operation	203.979995728	115.7	130.4	DC	30.0
169892129	962970	AG1-146 TAP	115.0	DVP	314178	3LANCAST	115.0	DVP	1	Base Case	operation	203.979995728	95.49	103.62	DC	16.59

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11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

ID	Idx	Facility	Upgrade Description	Cost
166907164,166907163	6	AG1-146 TAP 115.0 kV - 3LANCAST 115.0 kV Ckt 1	**DVP** **dom-414 (1640) : Reconductor 5.9 miles of 115 kV Line 65 from AG1-146 Tap to Lancaster with 768.2 ACSS 250 C. replace Line Switch at Lancaster terminal.** **Project Type : FAC** **Cost : $3,740,000** **Time Estimate : 36-40 Months**	$3,740,000
166907141,166907140	3	3GREYSPT 115.0 kV - 3HARMONY 115.0 kV Ckt 1	**DVP** **dom-204 (1430) : Reconductor 4.1 miles of 115 kV Line 65 from Grey Spt to Harmony with 636 ACSR.** **Project Type : FAC** **Cost : $2,460,000** **Time Estimate : 30-36 Months**	$2,460,000
168670258,168670259	1	6FINES 230.0 kV - 6FREDBRG 230.0 kV Ckt 1	**DVP** **dom-286 (1512) : Rebuild 7.24 mi miles of 230 kV Line 2083 from Fredericksburg to Fines with 2-636 ACSR (24/7) 150 C.** **Project Type : FAC** **Cost : $18,100,000** **Time Estimate : 36-40 Months**	$18,100,000
166907138,166907139	4	3WHIT STONE 115.0 kV - 3RAPPHNCK 115.0 kV Ckt 1	**DVP** **dom-291 (1517) : Reconductor 0.877 miles of 115 kV Line 65 from Whitestone to Rappahannock with 636 ACSR 150 C** **Project Type : FAC** **Cost : $526,200** **Time Estimate : 30-36 Months**	$526,200
169590521	2	AE1-155 TAP 115.0 kV - 3NORNECK 115.0 kV Ckt 1	**DVP** **dom-398 (1624) : Reconductor 10.06 miles of 138 kV line 65 from AE1-155 Tap to Northern Neck with 768 ACSS 250 C. Replace Line Switch and wave trap at Northern neck terminal** **Project Type : FAC** **Cost : $6,386,000** **Time Estimate : 36-40 Months**	$6,386,000
166907136	5	AF1-201 TAP 115.0 kV - 3HAYES89 115.0 kV Ckt 1	**DVP** **dom-145 (1323) : Reconductor 1.4 miles of 115 kV Line 89 from Hayes to AF1-201 Tap with 636 ACSR** **Project Type : FAC** **Cost : $840,000** **Time Estimate : 30-36 Months** **DVP** **dom-404 (1630) : Reconductor 1.4 miles of 115 kV Line 89 from Hayes to AF1-201 Tap with 768.2 ACSS 250 C. Replace Line Switch at Hayes terminal.** **Project Type : FAC** **Cost : $1,040,000** **Time Estimate : 30-36 Months**	$1,880,000
			TOTAL COST	**$33,092,200**

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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".

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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
168670259	314163	6FINES	DVP	314137	6FREDBRG	DVP	1	313837 6SUMMIT 230 965440 AG1-412 TAP 230 1	single	548.02	99.39	100.01	DC	3.39

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314131	6ARNOLDS	0.9157	80/20	0.9157
314184	3SHACKLE	0.3183	80/20	0.3183
314190	6WESTMOR	0.8081	80/20	0.8081
314243	3PROV 92	0.1804	80/20	0.1804
314375	6CORRCTN	0.1913	80/20	0.1913
315033	1BIRCHWDA	172.0883	80/20	172.0883
315034	1NORNECKC1	1.1070	80/20	1.1070
315035	1NORNECKC2	1.0670	80/20	1.0670
316077	AC2-138 C	0.2801	80/20	0.2801
316156	AD2-030 C	0.2361	80/20	0.2361
925863	AC1-065 C	4.2164	80/20	4.2164
926784	AC1-164 C	11.1703	80/20	11.1703
934141	AD1-041 C	3.2004	80/20	3.2004
934391	AD1-063 C	0.1390	80/20	0.1390
936581	AD2-073 C	4.5183	80/20	4.5183
936591	AD2-074 C	7.1141	80/20	7.1141
938961	AE1-124 C	0.9684	80/20	0.9684
939245	AE1-155 C	17.6852	80/20	17.6852
939611	AE1-191 C	6.4008	80/20	6.4008
940231	AE2-005 C	0.7666	80/20	0.7666
940551	AE2-041	3.9144	80/20	3.9144
943431	AF1-014 C	0.7263	80/20	0.7263
943471	AF1-018	3.9144	80/20	3.9144
943741	AF1-042 C	3.7225	80/20	3.7225
944491	AF1-114 C	21.1592	80/20	21.1592
945361	AF1-201 C O1	6.0300	80/20	6.0300
945831	AF1-248	0.0934	80/20	0.0934
957191	AF2-013	62.2100	80/20	62.2100
957601	AF2-054 C	1.3640	80/20	1.3640
957831	AF2-077 C	0.9377	80/20	0.9377
957971	AF2-091 C	7.1941	80/20	7.1941
958261	AF2-120 C	8.6386	80/20	8.6386
961781	AG1-019	62.2100	80/20	62.2100
961951	AG1-038 C	4.1143	80/20	4.1143
962131	AG1-057	1.9572	80/20	1.9572
962531	AG1-102 C	0.4813	80/20	0.4813
962861	AG1-135 C	8.1403	80/20	8.1403
962971	AG1-146 C	3.3890	80/20	3.3890
962981	AG1-147 C	7.9078	80/20	7.9078

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
963611	AG1-210 C	1.1272	80/20	1.1272
964021	AG1-256 C	2.4710	80/20	2.4710
964211	AG1-282 C	3.0724	80/20	3.0724
964591	AG1-322 O1	50.6142	80/20	50.6142
965231	AG1-388 C	3.0724	80/20	3.0724
966661	AG1-536 C	7.4464	80/20	7.4464
WEC	WEC	0.1106	Confirmed LTF	0.1106
LGEE	LGEE	0.2344	Confirmed LTF	0.2344
CPLE	CPLE	1.0258	Confirmed LTF	1.0258
CBM-W2	CBM-W2	4.7667	Confirmed LTF	4.7667
NY	NY	0.3500	Confirmed LTF	0.3500
TVA	TVA	0.8988	Confirmed LTF	0.8988
SIGE	SIGE	0.1175	Confirmed LTF	0.1175
CBM-S2	CBM-S2	12.5489	Confirmed LTF	12.5489
CBM-S1	CBM-S1	0.2253	Confirmed LTF	0.2253
MEC	MEC	0.6578	Confirmed LTF	0.6578
LAGN	LAGN	1.1077	Confirmed LTF	1.1077
CBM-W1	CBM-W1	4.5565	Confirmed LTF	4.5565

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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
169590521	939240	AE1-155 TAP	DVP	314181	3NORNECK	DVP	1	DVP_P1-2: LN 65-A	single	203.98	94.36	103.19	DC	18.0

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
936591	AD2-074 C	32.6800	80/20	32.6800
939245	AE1-155 C	76.0000	80/20	76.0000
943741	AF1-042 C	17.1000	80/20	17.1000
958261	AF2-120 C	37.2000	80/20	37.2000
961951	AG1-038 C	18.9000	80/20	18.9000
962861	AG1-135 C	36.0000	80/20	36.0000
962971	AG1-146 C	18.0000	80/20	18.0000
962981	AG1-147 C	42.0000	80/20	42.0000
966661	AG1-536 C	32.0000	80/20	32.0000

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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
166907141	313886	3GREYSPT	DVP	314174	3HARMONY	DVP	1	DVP_P7-1: LN 2076-2145-B	tower	169.0	114.02	124.34	DC	17.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314190	6WESTMOR	0.2918	50/50	0.2918
315034	1NORNECKC1	0.9396	50/50	0.9396
315035	1NORNECKC2	0.9057	50/50	0.9057
316077	AC2-138 C	0.2377	50/50	0.2377
316078	AC2-138 E	1.3395	50/50	1.3395
925863	AC1-065 C	-3.2442	Adder	-3.82
926472	AC1-118 E	0.9530	50/50	0.9530
934141	AD1-041 C	-2.9557	Adder	-3.48
936581	AD2-073 C	1.8667	50/50	1.8667
936582	AD2-073 E	0.9249	50/50	0.9249
936591	AD2-074 C	15.4805	50/50	15.4805
936592	AD2-074 E	25.2577	50/50	25.2577
938961	AE1-124 C	0.2941	50/50	0.2941
938962	AE1-124 E	0.9389	50/50	0.9389
939245	AE1-155 C	31.8265	50/50	31.8265
939246	AE1-155 E	21.3573	50/50	21.3573
940231	AE2-005 C	-0.5899	Adder	-0.69
940552	AE2-041 BAT	2.3932	Merchant Transmission	2.3932
943472	AF1-018 BAT	2.3932	Merchant Transmission	2.3932
943741	AF1-042 C	8.1003	50/50	8.1003
943742	AF1-042 E	13.2162	50/50	13.2162
944491	AF1-114 C	5.8859	50/50	5.8859
944492	AF1-114 E	8.1281	50/50	8.1281
945831	AF1-248	0.0793	50/50	0.0793
957191	AF2-013	14.0140	50/50	14.0140
957971	AF2-091 C	2.0012	50/50	2.0012
957972	AF2-091 E	2.7636	50/50	2.7636
958261	AF2-120 C	15.6441	50/50	15.6441
958262	AF2-120 E	10.4294	50/50	10.4294
961781	AG1-019	14.0140	50/50	14.0140
961951	AG1-038 C	8.9529	50/50	8.9529
961952	AG1-038 E	12.3636	50/50	12.3636
962132	AG1-057 BAT	0.6342	Merchant Transmission	0.6342
962861	AG1-135 C	15.9422	50/50	15.9422
962862	AG1-135 E	10.6282	50/50	10.6282
962971	AG1-146 C	10.4629	50/50	10.4629
962972	AG1-146 E	6.9752	50/50	6.9752
962981	AG1-147 C	24.4133	50/50	24.4133
962982	AG1-147 E	16.2756	50/50	16.2756
963611	AG1-210 C	0.9568	50/50	0.9568
963612	AG1-210 E	1.4351	50/50	1.4351

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964021	AG1-256 C	1.1211	50/50	1.1211
964022	AG1-256 E	1.6817	50/50	1.6817
964211	AG1-282 C	1.3040	50/50	1.3040
964212	AG1-282 E	0.8694	50/50	0.8694
965231	AG1-388 C	1.3040	50/50	1.3040
965232	AG1-388 E	0.8694	50/50	0.8694
966661	AG1-536 C	13.4006	50/50	13.4006
966662	AG1-536 E	18.0071	50/50	18.0071
G-007A	G-007A	0.0096	Confirmed LTF	0.0096
VFT	VFT	0.0258	Confirmed LTF	0.0258
CALDERWOOD	CALDERWOOD	0.0094	Confirmed LTF	0.0094
PRAIRIE	PRAIRIE	0.0310	Confirmed LTF	0.0310
CHEOAH	CHEOAH	0.0095	Confirmed LTF	0.0095
CBM-N	CBM-N	0.0048	Confirmed LTF	0.0048
COTTONWOOD	COTTONWOOD	0.0336	Confirmed LTF	0.0336
HAMLET	HAMLET	0.0202	Confirmed LTF	0.0202
GIBSON	GIBSON	0.0055	Confirmed LTF	0.0055
BLUEG	BLUEG	0.0174	Confirmed LTF	0.0174
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0101	Confirmed LTF	0.0101

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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
166907139	314191	3WHIT STONE	DVP	313870	3RAPPAHNCK	DVP	1	DVP_P7-1: LN 2083-2145-A	tower	169.0	114.08	124.39	DC	17.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314190	6WESTMOR	0.2918	50/50	0.2918
315034	1NORNECKC1	0.9396	50/50	0.9396
315035	1NORNECKC2	0.9057	50/50	0.9057
316077	AC2-138 C	0.2377	50/50	0.2377
316078	AC2-138 E	1.3395	50/50	1.3395
925863	AC1-065 C	-3.2442	Adder	-3.82
926472	AC1-118 E	0.9530	50/50	0.9530
934141	AD1-041 C	-2.9557	Adder	-3.48
936581	AD2-073 C	1.8667	50/50	1.8667
936582	AD2-073 E	0.9249	50/50	0.9249
936591	AD2-074 C	15.4805	50/50	15.4805
936592	AD2-074 E	25.2577	50/50	25.2577
938961	AE1-124 C	0.2941	50/50	0.2941
938962	AE1-124 E	0.9389	50/50	0.9389
939245	AE1-155 C	31.8265	50/50	31.8265
939246	AE1-155 E	21.3573	50/50	21.3573
940231	AE2-005 C	-0.5899	Adder	-0.69
940552	AE2-041 BAT	2.3932	Merchant Transmission	2.3932
943472	AF1-018 BAT	2.3932	Merchant Transmission	2.3932
943741	AF1-042 C	8.1003	50/50	8.1003
943742	AF1-042 E	13.2162	50/50	13.2162
944491	AF1-114 C	5.8859	50/50	5.8859
944492	AF1-114 E	8.1281	50/50	8.1281
945831	AF1-248	0.0793	50/50	0.0793
957191	AF2-013	14.0140	50/50	14.0140
957971	AF2-091 C	2.0012	50/50	2.0012
957972	AF2-091 E	2.7636	50/50	2.7636
958261	AF2-120 C	15.6441	50/50	15.6441
958262	AF2-120 E	10.4294	50/50	10.4294
961781	AG1-019	14.0140	50/50	14.0140
961951	AG1-038 C	8.9529	50/50	8.9529
961952	AG1-038 E	12.3636	50/50	12.3636
962132	AG1-057 BAT	0.6342	Merchant Transmission	0.6342
962861	AG1-135 C	15.9422	50/50	15.9422
962862	AG1-135 E	10.6282	50/50	10.6282
962971	AG1-146 C	10.4629	50/50	10.4629
962972	AG1-146 E	6.9752	50/50	6.9752
962981	AG1-147 C	24.4133	50/50	24.4133
962982	AG1-147 E	16.2756	50/50	16.2756
963611	AG1-210 C	0.9568	50/50	0.9568
963612	AG1-210 E	1.4351	50/50	1.4351

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964021	AG1-256 C	1.1211	50/50	1.1211
964022	AG1-256 E	1.6817	50/50	1.6817
964211	AG1-282 C	1.3040	50/50	1.3040
964212	AG1-282 E	0.8694	50/50	0.8694
965231	AG1-388 C	1.3040	50/50	1.3040
965232	AG1-388 E	0.8694	50/50	0.8694
966661	AG1-536 C	13.4006	50/50	13.4006
966662	AG1-536 E	18.0071	50/50	18.0071
G-007A	G-007A	0.0096	Confirmed LTF	0.0096
VFT	VFT	0.0258	Confirmed LTF	0.0258
CALDERWOOD	CALDERWOOD	0.0094	Confirmed LTF	0.0094
PRAIRIE	PRAIRIE	0.0310	Confirmed LTF	0.0310
CHEOAH	CHEOAH	0.0095	Confirmed LTF	0.0095
CBM-N	CBM-N	0.0048	Confirmed LTF	0.0048
COTTONWOOD	COTTONWOOD	0.0336	Confirmed LTF	0.0336
HAMLET	HAMLET	0.0202	Confirmed LTF	0.0202
GIBSON	GIBSON	0.0055	Confirmed LTF	0.0055
BLUEG	BLUEG	0.0174	Confirmed LTF	0.0174
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0101	Confirmed LTF	0.0101

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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
166907136	945360	AF1-201 TAP	DVP	314177	3HAYES89	DVP	1	DVP_P7-1: LN 85-2016-B	tower	208.0	144.89	150.41	DC	11.48

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
315034	1NORNECKC1	0.5545	50/50	0.5545
315035	1NORNECKC2	0.5345	50/50	0.5345
316077	AC2-138 C	0.1403	50/50	0.1403
316078	AC2-138 E	0.7905	50/50	0.7905
316156	AD2-030 C	1.1864	50/50	1.1864
316157	AD2-030 E	3.8461	50/50	3.8461
934141	AD1-041 C	17.2215	50/50	17.2215
934142	AD1-041 E	11.4810	50/50	11.4810
936591	AD2-074 C	10.0259	50/50	10.0259
936592	AD2-074 E	16.3580	50/50	16.3580
939245	AE1-155 C	20.3672	50/50	20.3672
939246	AE1-155 E	13.6675	50/50	13.6675
939611	AE1-191 C	34.4430	50/50	34.4430
939612	AE1-191 E	22.9620	50/50	22.9620
943741	AF1-042 C	5.2461	50/50	5.2461
943742	AF1-042 E	8.5594	50/50	8.5594
945361	AF1-201 C O1	76.5126	50/50	76.5126
945362	AF1-201 E O1	51.0084	50/50	51.0084
945831	AF1-248	0.0468	50/50	0.0468
957601	AF2-054 C	6.8542	50/50	6.8542
957602	AF2-054 E	4.5694	50/50	4.5694
957831	AF2-077 C	9.4201	50/50	9.4201
957832	AF2-077 E	6.2801	50/50	6.2801
958261	AF2-120 C	10.0157	50/50	10.0157
958262	AF2-120 E	6.6772	50/50	6.6772
961951	AG1-038 C	5.7983	50/50	5.7983
961952	AG1-038 E	8.0072	50/50	8.0072
962531	AG1-102 C	4.8357	50/50	4.8357
962532	AG1-102 E	10.0795	50/50	10.0795
962533	AG1-102 BAT	0.0785	50/50	0.0785
962861	AG1-135 C	10.2596	50/50	10.2596
962862	AG1-135 E	6.8398	50/50	6.8398
962971	AG1-146 C	6.8897	50/50	6.8897
962972	AG1-146 E	4.5931	50/50	4.5931
962981	AG1-147 C	16.0759	50/50	16.0759
962982	AG1-147 E	10.7173	50/50	10.7173
963611	AG1-210 C	0.5646	50/50	0.5646
963612	AG1-210 E	0.8470	50/50	0.8470
966661	AG1-536 C	8.5757	50/50	8.5757
966662	AG1-536 E	11.5236	50/50	11.5236
G-007A	G-007A	0.1894	Confirmed LTF	0.1894

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
VFT	VFT	0.5096	Confirmed LTF	0.5096
CALDERWOOD	CALDERWOOD	0.0552	Confirmed LTF	0.0552
PRAIRIE	PRAIRIE	0.1731	Confirmed LTF	0.1731
CHEOAH	CHEOAH	0.0566	Confirmed LTF	0.0566
CBM-N	CBM-N	0.0936	Confirmed LTF	0.0936
COTTONWOOD	COTTONWOOD	0.1974	Confirmed LTF	0.1974
HAMLET	HAMLET	0.1247	Confirmed LTF	0.1247
GIBSON	GIBSON	0.0289	Confirmed LTF	0.0289
BLUEG	BLUEG	0.0885	Confirmed LTF	0.0885
TRIMBLE	TRIMBLE	0.0278	Confirmed LTF	0.0278
CATAWBA	CATAWBA	0.0613	Confirmed LTF	0.0613

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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
166907164	962970	AG1-146 TAP	DVP	314178	3LANCAST	DVP	1	DVP_P7-1: LN 2083-2145-A	tower	249.0	100.84	107.84	DC	17.44

Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
314190	6WESTMOR	0.2918	50/50	0.2918
315034	1NORNECKC1	0.9396	50/50	0.9396
315035	1NORNECKC2	0.9057	50/50	0.9057
316077	AC2-138 C	0.2377	50/50	0.2377
316078	AC2-138 E	1.3395	50/50	1.3395
925863	AC1-065 C	-3.2442	Adder	-3.82
926472	AC1-118 E	0.9530	50/50	0.9530
934141	AD1-041 C	-2.9557	Adder	-3.48
936581	AD2-073 C	1.8667	50/50	1.8667
936582	AD2-073 E	0.9249	50/50	0.9249
936591	AD2-074 C	15.4805	50/50	15.4805
936592	AD2-074 E	25.2577	50/50	25.2577
938961	AE1-124 C	0.2941	50/50	0.2941
938962	AE1-124 E	0.9389	50/50	0.9389
939245	AE1-155 C	31.8265	50/50	31.8265
939246	AE1-155 E	21.3573	50/50	21.3573
940231	AE2-005 C	-0.5899	Adder	-0.69
940552	AE2-041 BAT	2.3932	Merchant Transmission	2.3932
943472	AF1-018 BAT	2.3932	Merchant Transmission	2.3932
943741	AF1-042 C	8.1003	50/50	8.1003
943742	AF1-042 E	13.2162	50/50	13.2162
944491	AF1-114 C	5.8859	50/50	5.8859
944492	AF1-114 E	8.1281	50/50	8.1281
945831	AF1-248	0.0793	50/50	0.0793
957191	AF2-013	14.0140	50/50	14.0140
957971	AF2-091 C	2.0012	50/50	2.0012
957972	AF2-091 E	2.7636	50/50	2.7636
958261	AF2-120 C	15.6441	50/50	15.6441
958262	AF2-120 E	10.4294	50/50	10.4294
961781	AG1-019	14.0140	50/50	14.0140
961951	AG1-038 C	8.9529	50/50	8.9529
961952	AG1-038 E	12.3636	50/50	12.3636
962132	AG1-057 BAT	0.6342	Merchant Transmission	0.6342
962861	AG1-135 C	15.9422	50/50	15.9422
962862	AG1-135 E	10.6282	50/50	10.6282
962971	AG1-146 C	10.4629	50/50	10.4629
962972	AG1-146 E	6.9752	50/50	6.9752
962981	AG1-147 C	24.4133	50/50	24.4133
962982	AG1-147 E	16.2756	50/50	16.2756
963611	AG1-210 C	0.9568	50/50	0.9568
963612	AG1-210 E	1.4351	50/50	1.4351

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Bus #	Bus	Gendeliv MW Impact	Type	Full MW Impact
964021	AG1-256 C	1.1211	50/50	1.1211
964022	AG1-256 E	1.6817	50/50	1.6817
964211	AG1-282 C	1.3040	50/50	1.3040
964212	AG1-282 E	0.8694	50/50	0.8694
965231	AG1-388 C	1.3040	50/50	1.3040
965232	AG1-388 E	0.8694	50/50	0.8694
966661	AG1-536 C	13.4006	50/50	13.4006
966662	AG1-536 E	18.0071	50/50	18.0071
G-007A	G-007A	0.0096	Confirmed LTF	0.0096
VFT	VFT	0.0258	Confirmed LTF	0.0258
CALDERWOOD	CALDERWOOD	0.0094	Confirmed LTF	0.0094
PRAIRIE	PRAIRIE	0.0310	Confirmed LTF	0.0310
CHEOAH	CHEOAH	0.0095	Confirmed LTF	0.0095
CBM-N	CBM-N	0.0048	Confirmed LTF	0.0048
COTTONWOOD	COTTONWOOD	0.0336	Confirmed LTF	0.0336
HAMLET	HAMLET	0.0202	Confirmed LTF	0.0202
GIBSON	GIBSON	0.0055	Confirmed LTF	0.0055
BLUEG	BLUEG	0.0174	Confirmed LTF	0.0174
TRIMBLE	TRIMBLE	0.0056	Confirmed LTF	0.0056
CATAWBA	CATAWBA	0.0101	Confirmed LTF	0.0101

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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
AC1-065	Harmony Village-Shackleford 115kV	Engineering and Procurement
AC1-118	Westmoreland 34.5kV	In Service
AC1-164	Chickahominy 230kV	Engineering and Procurement
AC2-138	Northern Neck 34.5kV	Partially in Service - Under Construction
AD1-041	Harmony Village-Shackleford 115 kV	Engineering and Procurement
AD1-063	Harmony Village 34.5 kV	In Service
AD2-030	Wan 34.5 kV	In Service
AD2-073	Sanders DP 230 kV	Active
AD2-074	Garner DP-Lancaster 115 kV	Active
AE1-124	Oak Grove 34.5 kV	Engineering and Procurement
AE1-155	Garner-Northern Neck 115 kV	Active
AE1-191	Harmony Village-Shackleford 115 kV	Active
AE2-005	Harmony Village-Shackleford 115 kV	Engineering and Procurement
AE2-041	Harmony Village 230 kV	Active
AF1-014	Harmony Village-Shackleford 115 kV	Active
AF1-018	Harmony Village 230 kV	Active
AF1-042	Garner DP-Lancaster 115 kV	Active
AF1-114	Oak Grove-Dahlgren 230 kV	Active
AF1-201	Hayes-White Marsh 115 kV	Active
AF1-248	Northern Neck 34.5 kV	Partially in Service - Under Construction
AF2-013	Arnold's Corner-Dahlgren 230 kV	Active
AF2-054	Wan 34.5 kV	Active
AF2-077	White Marsh 34.5 kV	Active
AF2-091	Oak Grove-Dahlgren 230 kV	Active
AF2-120	Garner-Northern Neck 115 kV	Active
AG1-019	Arnold's Corner-Dahlgren 230 kV	Active
AG1-038	Garner DP-Lancaster 115 kV	Active
AG1-057	Harmony Village 230 kV	Active
AG1-102	White Marsh 34.5 kV	Active
AG1-135	Garner-Lancaster 115 kV	Active
AG1-146	Garner DP-Lancaster 115 kV	Active
AG1-147	Garner DP-Lancaster 115 kV	Active
AG1-210	Northern Neck 34.5 kV	Active
AG1-256	Northern Neck 230 kV	Active
AG1-282	Dunnsville 34.5 kV	Active
AG1-322	Birchwood 230 kV	Active
AG1-388	Dunnsville 34.5 kV	Active
AG1-536	Garner-Northern Neck 115 kV	Active

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11.8 Contingency Descriptions

Contingency Name	Contingency Definition
DVP_P7-1: LN 2076-2145-B	CONTINGENCY 'DVP_P7-1: LN 2076-2145-B' /* . OPEN BRANCH FROM BUS 957190 TO BUS 314131 CKT 1 /* AF2-013 TAP 230.00 - 6ARNOLDS 230.00 OPEN BRANCH FROM BUS 314131 TO BUS 314175 CKT 1 /* 6ARNOLDS 230.00 - 6COMORN 230.00 OPEN BRANCH FROM BUS 314132 TO BUS 314175 CKT 1 /* 6BIRCHWD 230.00 - 6COMORN 230.00 OPEN BUS 314131 /* ISLAND: 6ARNOLDS 230.00 OPEN BUS 314175 /* ISLAND: 6COMORN 230.00 END
DVP_P1-2: LN 65-D	CONTINGENCY 'DVP_P1-2: LN 65-D' OPEN BRANCH FROM BUS 314173 TO BUS 962860 CKT 1 /* 3GARNER 115.00 - AG1-135 TAP 115.00 OPEN BRANCH FROM BUS 314173 TO BUS 939240 CKT 1 /* 3GARNER 115.00 - AE1-155 TAP 115.00 OPEN BRANCH FROM BUS 314181 TO BUS 939240 CKT 1 /* 3NORNECK 115.00 - AE1-155 TAP 115.00 OPEN BUS 314173 /* ISLAND: 3GARNER 115.00 OPEN BUS 939240 /* ISLAND: AE1-155 TAP 115.00 OPEN BUS 939241 /* ISLAND: AE1-155 MAIN115.00 OPEN BUS 939242 /* ISLAND: AE1-155 COL134.500 OPEN BUS 939243 /* ISLAND: AE1-155 TER 13.800 OPEN BUS 939244 /* ISLAND: AE1-155 COL234.500 OPEN BUS 939245 /* ISLAND: AE1-155 C 0.6300 OPEN BUS 939246 /* ISLAND: AE1-155 E 0.6300 END
313837 6SUMMIT 230 965440 AG1-412 TAP 230 1	CONTINGENCY '313837 6SUMMIT 230 965440 AG1-412 TAP 230 1' OPEN BRANCH FROM BUS 313837 TO BUS 965440 CKT 1 END
DVP_P1-2: LN 224	CONTINGENCY 'DVP_P1-2: LN 224' OPEN BRANCH FROM BUS 314172 TO BUS 314182 CKT 1 /* 6DUNNSVL 230.00 - 6NORNECK 230.00 OPEN BRANCH FROM BUS 314172 TO BUS 314388 CKT 1 /* 6DUNNSVL 230.00 - 6LANEXA 230.00 OPEN BUS 314172 /* ISLAND: 6DUNNSVL 230.00 END

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Contingency Name	Contingency Definition
DVP_P7-1: LN 2083-2145-A	CONTINGENCY 'DVP_P7-1: LN 2083-2145-A' /* . OPEN BRANCH FROM BUS 314132 TO BUS 314163 CKT 1 /* 6BIRCHWD 230.00 - 6FINES 230.00 OPEN BRANCH FROM BUS 314137 TO BUS 314163 CKT 1 /* 6FREDBRG 230.00 - 6FINES 230.00 OPEN BUS 314163 /* ISLAND: 6FINES 230.00 OPEN BRANCH FROM BUS 957190 TO BUS 314131 CKT 1 /* AF2-013 TAP 230.00 - 6ARNOLDS 230.00 OPEN BRANCH FROM BUS 314131 TO BUS 314175 CKT 1 /* 6ARNOLDS 230.00 - 6COMORN 230.00 OPEN BRANCH FROM BUS 314132 TO BUS 314175 CKT 1 /* 6BIRCHWD 230.00 - 6COMORN 230.00 OPEN BUS 314131 /* ISLAND: 6ARNOLDS 230.00 OPEN BUS 314175 /* ISLAND: 6COMORN 230.00 END
DVP_P1-2: LN 65-A	CONTINGENCY 'DVP_P1-2: LN 65-A' OPEN BRANCH FROM BUS 313813 TO BUS 314178 CKT 1 /* 3OCRAN 115.00 - 3LANCAST 115.00 OPEN BRANCH FROM BUS 313813 TO BUS 314191 CKT 1 /* 3OCRAN 115.00 - 3WHIT STONE 115.00 OPEN BRANCH FROM BUS 313870 TO BUS 314191 CKT 1 /* 3RAPPAHNCK 115.00 - 3WHIT STONE 115.00 OPEN BRANCH FROM BUS 962970 TO BUS 314178 CKT 1 /* AG1-146 TAP 115.00 - 3LANCAST 115.00 OPEN BUS 314178 /* ISLAND: 3LANCAST 115.00 OPEN BRANCH FROM BUS 314178 TO BUS 314400 CKT 1 /* 3LANCAST 115.00 - 3LANCA_1 115.00 OPEN BUS 314400 /* ISLAND: 3LANCA_1 115.00 OPEN BUS 313813 /* ISLAND: 3OCRAN 115.00 OPEN BUS 314191 /* ISLAND: 3WHIT STONE 115.00 END
DVP_P1-2: LN 2016	CONTINGENCY 'DVP_P1-2: LN 2016' OPEN BRANCH FROM BUS 314174 TO BUS 314176 CKT 1 /* 3HARMONY 115.00 - 6HARMONY 230.00 OPEN BRANCH FROM BUS 314176 TO BUS 314189 CKT 1 /* 6HARMONY 230.00 - 6PAPERMILL 230.00 OPEN BRANCH FROM BUS 314189 TO BUS 314375 CKT 1 /* 6PAPERMILL 230.00 - 6CORRCTN 230.00 OPEN BRANCH FROM BUS 314375 TO BUS 314388 CKT 1 /* 6CORRCTN 230.00 - 6LANEXA 230.00 OPEN BUS 313846 /* ISLAND: 6HARMONY_1 230.00 OPEN BUS 314176 /* ISLAND: 6HARMONY 230.00 OPEN BUS 934391 /* ISLAND: AD1-063 C 230.00 OPEN BUS 934392 /* ISLAND: AD1-063 E 230.00 OPEN BUS 314189 /* ISLAND: 6PAPERMILL 230.00 OPEN BUS 314375 /* ISLAND: 6CORRCTN 230.00 OPEN BUS 923842 /* ISLAND: AB2-024 E 230.00 END

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Contingency Name	Contingency Definition
DVP_P1-2: LN 2090-B	CONTINGENCY 'DVP_P1-2: LN 2090-B' OPEN BRANCH FROM BUS 965440 TO BUS 314197 CKT 1 /* AG1-412 TAP 230.00 - 6LDYSMITH CT230.00 END
DVP_P1-3: 6NORNECK-TX#6	CONTINGENCY 'DVP_P1-3: 6NORNECK-TX#6' OPEN BRANCH FROM BUS 314181 TO BUS 314182 CKT 2 /* 3NORNECK 115.00 - 6NORNECK 230.00 END
DVP_P1-3: 6NORNECK-TX#4	CONTINGENCY 'DVP_P1-3: 6NORNECK-TX#4' OPEN BRANCH FROM BUS 314181 TO BUS 314182 CKT 1 /* 3NORNECK 115.00 - 6NORNECK 230.00 END
Base Case	
DVP_P1-2: LN 89-B	CONTINGENCY 'DVP_P1-2: LN 89-B' OPEN BRANCH FROM BUS 945360 TO BUS 314177 CKT 1 /* AF1-201 TAP 115.00 - 3HAYES89 115.00 END

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Contingency Name	Contingency Definition
DVP_P7-1: LN 85-2016-B	CONTINGENCY 'DVP_P7-1: LN 85-2016-B' /* . OPEN BRANCH FROM BUS 934140 TO BUS 314184 CKT 1 /* AD1-041 TAP 115.00 - 3SHACKLE 115.00 OPEN BRANCH FROM BUS 314184 TO BUS 314188 CKT 1 /* 3SHACKLE 115.00 - 3WEST PT 115.00 OPEN BRANCH FROM BUS 314188 TO BUS 314387 CKT 1 /* 3WEST PT 115.00 - 3LANEXA 115.00 OPEN BUS 314184 /* ISLAND: 3SHACKLE 115.00 OPEN BUS 925860 /* ISLAND: AC1-065 MAIN115.00 OPEN BUS 925862 /* ISLAND: AC1-065 COL 34.500 OPEN BUS 925863 /* ISLAND: AC1-065 C 0.3900 OPEN BUS 925864 /* ISLAND: AC1-065 TRE 13.800 OPEN BUS 925865 /* ISLAND: AC1-065 E 0.3900 OPEN BUS 314188 /* ISLAND: 3WEST PT 115.00 OPEN BRANCH FROM BUS 314174 TO BUS 314176 CKT 1 /* 3HARMONY 115.00 - 6HARMONY 230.00 OPEN BRANCH FROM BUS 314176 TO BUS 314189 CKT 1 /* 6HARMONY 230.00 - 6PAPERMILL 230.00 OPEN BRANCH FROM BUS 314189 TO BUS 314375 CKT 1 /* 6PAPERMILL 230.00 - 6CORRCTN 230.00 OPEN BRANCH FROM BUS 314375 TO BUS 314388 CKT 1 /* 6CORRCTN 230.00 - 6LANEXA 230.00 OPEN BUS 313846 /* ISLAND: 6HARMONY_1 230.00 OPEN BUS 314176 /* ISLAND: 6HARMONY 230.00 OPEN BUS 934391 /* ISLAND: AD1-063 C 230.00 OPEN BUS 934392 /* ISLAND: AD1-063 E 230.00 OPEN BUS 314189 /* ISLAND: 6PAPERMILL 230.00 OPEN BUS 314375 /* ISLAND: 6CORRCTN 230.00 OPEN BUS 923842 /* ISLAND: AB2-024 E 230.00 END

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12 Short Circuit Analysis

The following Breakers are overdutied:

None

12.1 System Reinforcements - Short Circuit

None

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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).

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