Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AF1-128

Chesterfield 230 kV

December 2024

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff Part VII, and, if applicable, the Application and Studies Agreement between the Project Developer and PJM Interconnection, LLC (PJM or Transmission Provider (TP)). The Transmission Owner (TO) is Virginia Electric and Power Company (VEPCO or Dominion).

A. Transmission Owner Facilities Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed a Natural Gas Generating Facility located in Chesterfield, VA with a designated PJM Project ID of AF1-128. The installed facilities will have a total Maximum Facility Output (MFO) of 569 MW with 569 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

AF1-128 is a new service request project that will interconnect with the Dominion transmission system via a direct connection into the Chesterfield 230 kV substation between existing breakers G5T228 and G512. The interconnect will terminate into the existing GEN 5 line position, and the existing GEN 5 terminal will be removed. The breakers will be renamed 228T2326 & 232612 and the line from Chesterfield to AF1-128 will be line 2326.

The proposed generation interconnection is shown on the single line diagram in Attachment #1.

3. POINT OF CHANGE IN OWNERSHIP

The Point of Change in Ownership will be the dead-end structure outside the Chesterfield Substation.

4. SCOPE OF PROJECT DEVELOPER INTERCONNECTION FACILITIES

Project Developer will design, build, own, operate and maintain the Project Developer Interconnection Facilities on Project Developer's side of the Point of Change in Ownership (PCO). This includes, but is not limited to:

- Circuit breakers and associated equipment located between the high side of the MPT(s) or GSU(s) and the Point of Change in Ownership.
- Generator lead line from the Generating Facility to the Point of Change in Ownership.
- Relay and protective equipment, telecommunications equipment, and Supervisory Control and Data Acquisition (SCADA) to comply with the TO's Applicable Technical Requirements and Standards.

B. Transmission Owner Facilities Study Results

The following is a description of the planned Transmission Owner facilities for the physical interconnection of the proposed AF1-128 project to the Dominion transmission system. These

facilities shall be designed according to Dominion Applicable Technical Requirements and Standards. Once built, Dominion will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

The Transmission Owner Interconnection Facilities will include, but not be limited to, the following:

As a part of the AF1-129 scope, which is an Expedited Process project with an executed GIA, a 230 kV backbone structure and foundation outside the fence of the Interconnection Substation will be constructed to terminate the Project Developer's generator lead line.

There will also be a line conductor constructed from the backbone structure to the bus position in the switchyard of the interconnection substation.

The scope of work for AF1-128 includes the following:

Purchase and install substation material – Transmission Owner Interconnection Facilities:

1. Three (3), 230kV, metering accuracy CCVT
2. Three (3), 230kV, 1000:5 metering accuracy CT (to be verified during detail design)
3. Conductors, connectors, conduits, control cables, foundations, steel structures, and grounding materials as per engineering standards

Purchase and install relay material – Transmission Owner Interconnection Facilities:

1. One (1), 1340 – 24" dual SEL-411L DCB/Fiber line panel
2. One (1), 1425 – 24" dual SEL-735 transmission and generator interconnect metering panel
3. One (1), 4524 – revenue metering CT make-up box
4. One (1), 4506 – 3-phase CCVT potential make-up box with metering (P4)
5. One (1), 1323 – 24" SEL-487E/735 PMU and PQ monitoring panel

2. STAND ALONE NETWORK UPGRADES

Dominion's Technical Requirements for Generation Interconnect Substation (EP_REF_2200-23-00) prevents this project from having the option to build for the Stand Alone Network Upgrades.

3. NETWORK UPGRADES

The Network Upgrades will include, but not be limited to, the following:

Transmission Line Tie-in for new interconnection substation:

Chesterfield 230 kV Upgrade

Any Transmission Line Network Upgrades to Chesterfield will be performed under the AF1-129 GIA and is not covered in this report.

Expanding existing TO substation:

Chesterfield 230 kV substation will be expanded/upgraded to interconnect AF1-128 with the Dominion transmission system.

The objective of this project is to install the interconnect for Gen. CT2 to terminate into the existing Gen 5-line position. The existing Gen 5 terminal will be removed.

Substation design and relay protection are based on Dominion's Facility Interconnection Requirements, NERC Compliance Procedure FAC-001 (version 23), that is posted on PJM's website. This standard meets or exceeds the PJM Transmission and Substation Design Subcommittee Technical Requirements and the PJM Protection Standards (PJM Manual 7).

The scope of work for AF1-128 includes the following:

Purchase and Install – Network Upgrade:

1. One (1), 230 kV, 4000A, 3-Phase Center Break Gang Operated Switch.
2. Three (3), 230kV, Relaying Accuracy CCVTs.
3. Three (3), 180 kV, 144 kV MCOV surge arresters.
4. Station Stone as required.
5. Station Lighting as required.
6. Steel structures as required including switch stands, bus supports, CCVT and wave trap supports.
7. Foundations as required including control enclosure, equipment, and bus support stands.
8. Conductors, connectors, conduits, control cables, and grounding materials as per engineering standards.

Remove Substation Material – Network Upgrade:

1. Three (3), 230kV CCVTs on line G5.
2. One (1), 230kV Double end break switch with Motor operator.
3. One (1), 230kV, 3000A Center break switch.
4. One (1), breaker annun MU Box (CB 26).

Purchase and Install – Relay Protection Equipment - Network Upgrade:

1. One (1), 4510 - SEL-2411 Breaker Annunciator
2. One (1), 4506 – 3 Phase CCVT Potential M.U. Box
3. One (1), 4526_A – Circuit Breaker Fiber Optic M.U. Box
4. One (1), 1340 – 24" Dual SEL-411L CD/Fiber Line Panel
5. Add (1), SEL-351 reclosing relay for breaker 26 on existing Panel 43.
6. Retire Panel (18)

4. OTHER SCOPE OF WORK

The Project Developer will supply and own metering equipment that will provide instantaneous net MW and MVar per unit values in accordance with PJM Manuals M-01 and M-14D, and Sections 8.1 through 8.5 of Appendix 2 to the GIA.

5. MILESTONE SCHEDULE FOR COMPLETION OF TO WORK

Facilities outlined in this report are estimated to take 21 months to construct, from the time the Generator Interconnection Agreement is fully executed. This schedule may be impacted by the timeline for procurement and installation of long lead items, the ability to obtain outages to construct and test the proposed facilities. This schedule also takes into account work started under AF1-129.

Description	Start month	Finish month
Detailed Design	Started	Nov 2024
Permitting	Started	March 2025
Construction	March 2025	June 2026

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

General Assumptions:

1. The estimated procurement lead time for breakers is based on current Dominion pre-ordered breaker production slots. These production slots will be assigned after the agreement is executed.
2. The preliminary construction schedule is dependent on outage availability.
3. It is anticipated that the project scope will remain on Dominion owned property.
4. The project is currently in detailed design and the scope may change.
5. The milestone schedule is based on the current construction schedule working under the IISA agreement.

7. REVENUE METERING REQUIREMENTS

All revenue metering needed for this interconnection project must meet the metering requirements stated in Appendix 2, section 8 of the AF1-128 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in section 4.1.6 Metering and Telecommunications of Dominion's Facility Interconnection Connection Requirement NERC Standard FAC-001 posted on PJM website.

The revenue metering will be installed on the Transmission Owner side of the Point of Change in Ownership will be installed, owned and maintained by Transmission Owner.

a. Hourly compensated MWh received from the Generating Facility to the TO;
b. Hourly compensated MVARh received from the Generating Facility to the TO;
c. Hourly compensated MWh delivered from the TO to the Generating Facility; and
d. Hourly compensated MVARh delivered from the TO to the Generating Facility.

The Project Developer will access revenue meter via wireless transceivers or fiber cabling to meter with RS-485 or Ethernet communication port for dial-up reads. Project Developer must provide revenue and real time data to PJM from Project Developer Market Operations Center per "PJM Telemetry Data Exchange Summary" document available at PJM.com.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

Land requirements for the Interconnection Substation needed for this interconnection project must meet the requirements in Dominion's Facility Interconnection Requirements, NERC Compliance Procedure FAC-001 (version 23), that is posted on PJM's website.

The Project Developer would be responsible for the following expectations in the area of Real Estate.

- The land required for Dominion's substation and project specific areas around must be deeded over title-in-fee.
- Any additional land needed for Storm Water Management, Landscaping, and Wetlands/Wetlands Mitigation.
- Dominion Real Estate and Counsel will provide standard real estate checklist word document. Process needs to start at least 6 months prior to closing date.
- Required subdivision plat and associated documentation to be reviewed prior to subdividing parcel with the county.
- Suitable Access Road from Substation to a Virginia/North Carolina State Maintained Roadway.
- Dominion will require access road, transmission line and utilities easement to the Substation.
- Any other Land/Permitting requirements required by the Substation.

9. ENVIRONMENTAL AND PERMITING

The Project Developer would be responsible for the following expectations in the area of Environmental and Permitting.

- Assessment of environmental impacts related to the Interconnection Facility and/or Network Upgrades including:

  Environmental Impact Study requirements

  Environmental Permitting

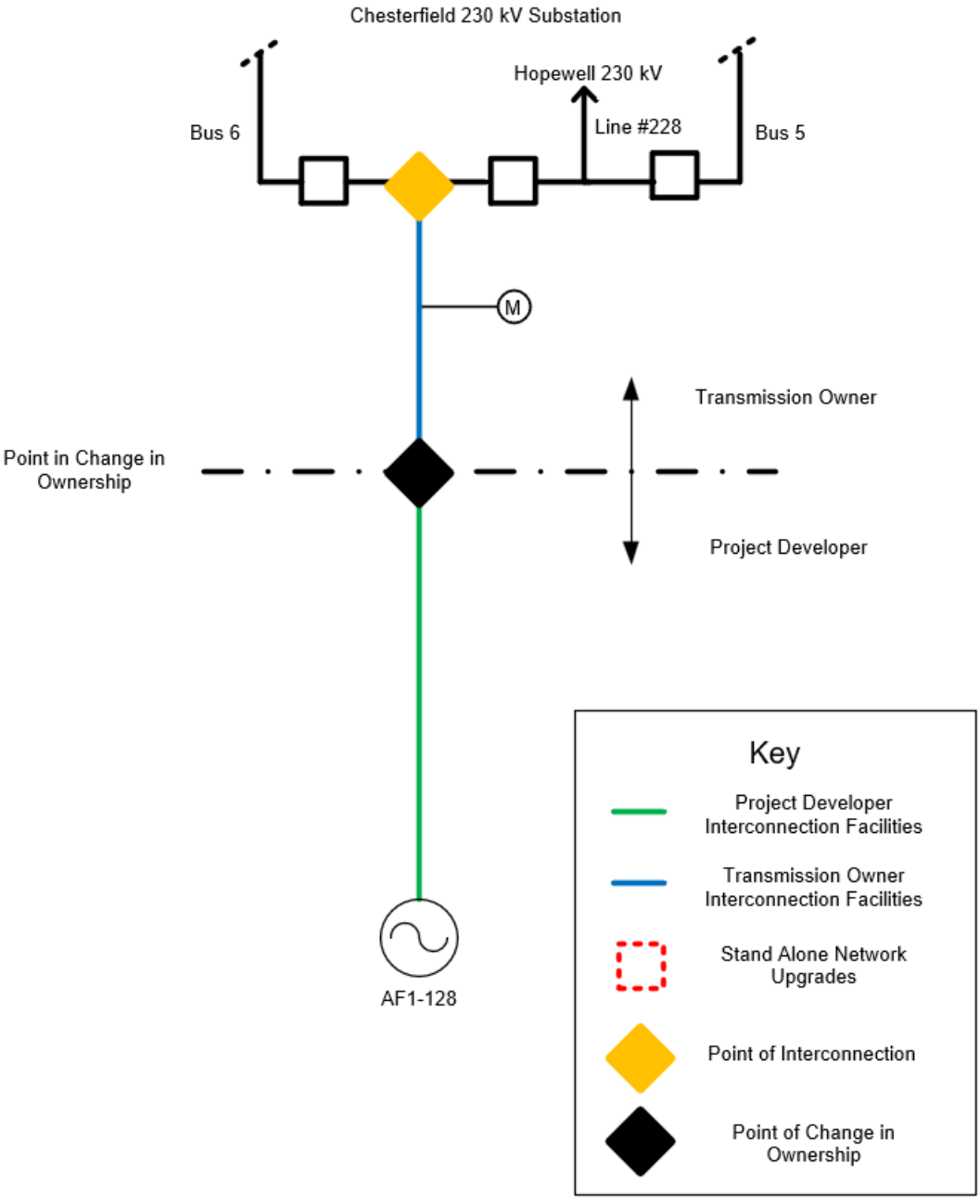
- Dominion will require a stormwater easement for substation specific stormwater design BMP's to allow access to and use of the facilities.

  A maintenance agreement should be in place in perpetuity for said stormwater facilities.

- Conditional Use Permit for Substation
- Any additional land needed for Storm Water Management, Landscaping, and Wetlands/Wetlands Mitigation
- Any other Permitting requirements required by the Substation

C. APPENDICES

Attachment #1: Single line Diagram for the Physical Interconnection



Attachment #2: Substation General Arrangement