Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-263

“Chancellor 115kV”

Introduction

This Facilities Study has been prepared in accordance with the PJM Open Access Transmission Tariff, as well as 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 d/b/a Dominion Energy Virginia (Dominion).

This Facility Study was performed to satisfy the Phase 2 Facility Study requirement of the PJM Tariff. The Facility Study is intended to provide scope, cost and schedule estimates for the project as currently defined and approved for Phase 2 study. In the event project changes are made during DP2 that impact this report, updates will be provided as part of the Phase 3 report. Following execution of the project's final agreement, this report will not be updated to account for other changes made as part of the agreements modification clause and instead the scope change process will be followed.

A. Transmission Owner Facilities Study Summary

1. PROJECT DESCRIPTION

The Project Developer (PD) has proposed a Battery Storage Facility located in, Spotsylvania County, Virginia with a designated PJM Project ID of AH1-263. The installed facilities will have a total Maximum Facility Output (MFO) of 200 MW with 200 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

AH1-263 will interconnect with the Dominion transmission system via the existing Chancellor Substation.

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 between the two Substations will be the 115kV disconnect switch 4-hole pad on the transmission line structure outside the Chancellor Substation fence.

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 AH1-263 projects to Dominion transmission system. These facilities shall be designed according to all Dominion Applicable Technical Requirements and Standards in effect March 20th, 2026. Dominion Energy Virginia – Electric Transmission Facility Interconnection Requirements, Procedure Version 25.0, dated October 1, 2025, shall apply. Once built, Dominion will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

The Transmission Owner Interconnection Facilities include the portion of the interconnection switching station which is associated solely with the single feed to the generating facilities collector station. The equipment associated with the Transmission Owner Interconnection Facilities includes disconnect switch, conductors and connectors.

The proposed Transmission Owner Interconnection Facility scope is detailed in Attachment #3 and Attachment #4.

2. STAND ALONE NETWORK UPGRADES

No Stand Alone Network Upgrades have been identified in this facility studies report.

3. NETWORK UPGRADES

Network Upgrades at Chancellor Stubstation:

Chancellor Substation will be expanded to accommodate the new generation interconnection.

The proposed Network Upgrade scope is shown in Attachment #3 and Attachment #5.

4. OTHER SCOPE OF WORK

Other scope includes the metering accuracy CCVT's, metering accuracy CT's, and associated metering equipment.

5. MILESTONE SCHEDULE FOR COMPLETION OF [TO] WORK

Facilities outlined in this report are estimated to take 36 months to construct, from the time the Generation 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.

Description	Start month	Finish month
Detailed Design	1	8
Permitting/Procurement	2	26
Construction	18	36

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

Assumptions can be found in Attachements #3-5

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 AH1-263 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in the Dominion Energy Virginia – Electric Transmission Facility Interconnection Requirements (FIR) Rev 25.0 posted on PJM website.

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

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 and NERC Compliance Procedure FAC-001 posted on PJM's website.

Dominion 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.

The Project Developer is responsible for the following expectations in the area Real Estate.

- Land and/or Permitting associated with the Generation Facility and the Generation Line to the Point of Change in Ownership (PCO) structure.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

These facilities shall be designed according to all Dominion Applicable Technical Requirements and Standards in effect March 20th, 2026. Dominion Energy Virginia – Electric Transmission Facility Interconnection Requirements, Procedure Version 25.0, dated October 1, 2025, shall apply.

10. ENVIRONMENTAL AND PERMITING

The Dominion 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

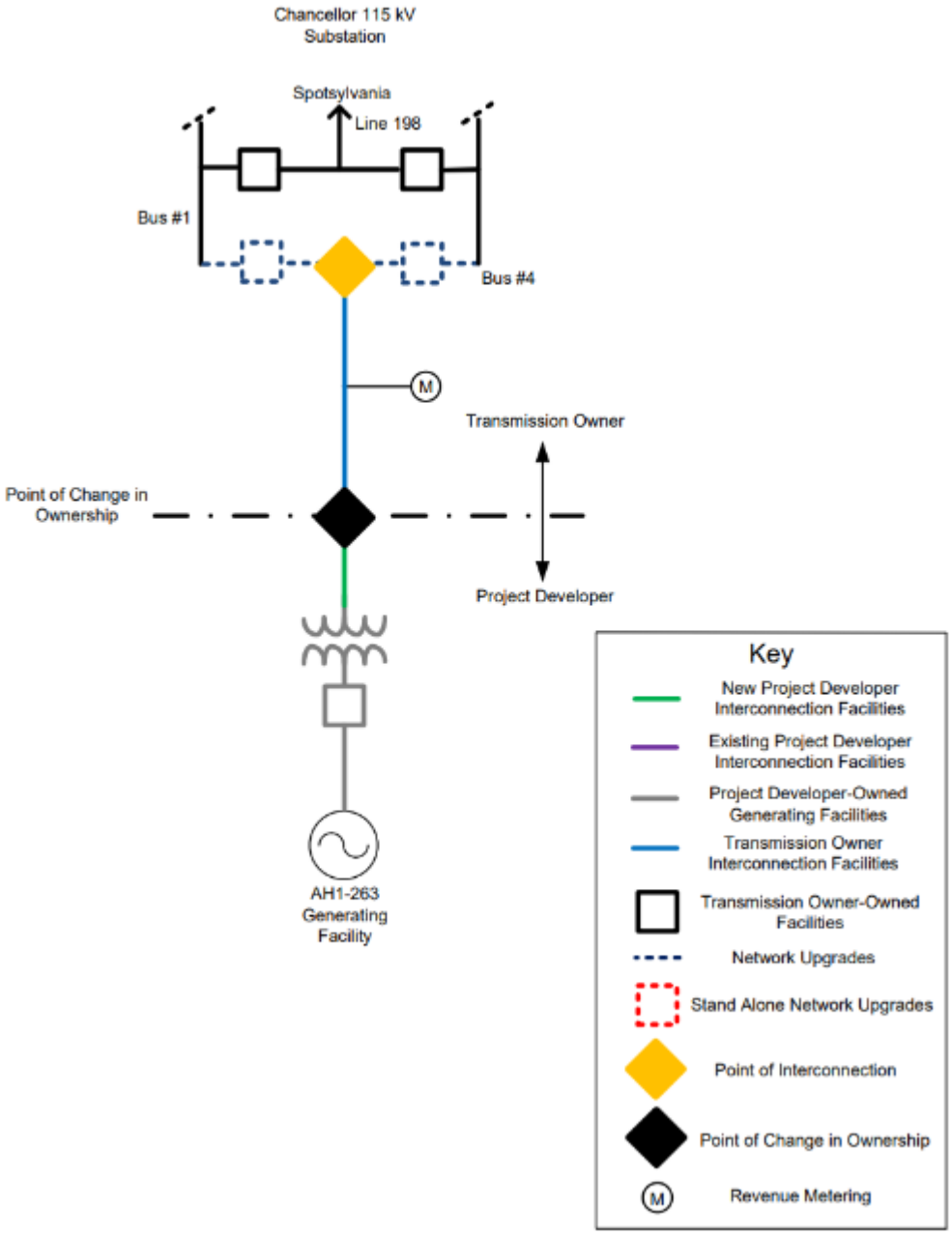
The Project Developer is responsible for the following expectations in the area Environmental and Permitting.

- Environmental and/or Permitting associated with the Generation Facility and the Generation Line to the Point of Change in Ownership (PCO) structure.

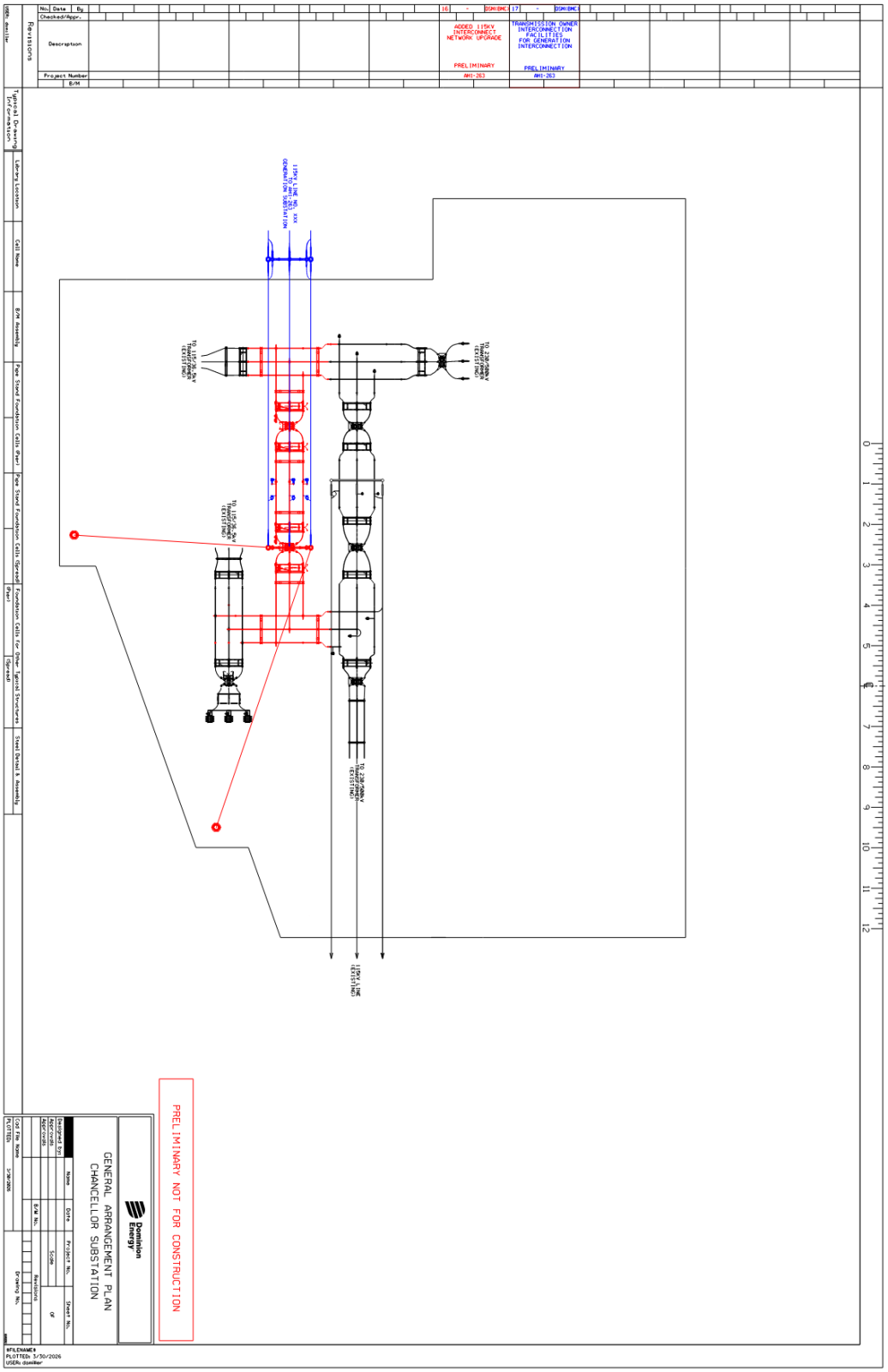
C. APPENDICES

Attachment #1:	Single line Diagram for the Physical Interconnection
Attachment #2:	Substation General Arrangement
Attachment #3:	Network Upgrade & Transmission Owner Interconnection Facility Scope – Substation
Attachment #4:	Transmission Owner Interconnection Facility Scope – Transmission
Attachment #5:	Network Upgrade Scope – Transmission

Attachment #1: Single line Diagram for the Physical Interconnection



Attachment #2: Substation General Arrangement



Attachment #3: Network Upgrade & Transmission Owner Interconnection Facility Scope – Substation

Project Summary

Project number AH1-263 provides for the initial construction of a new 115kV generation interconnect line into the existing Chancellor Substation in Spotsylvania County, Virginia.

The objective of this project is to add one new line position and two new 115kV breakers installed at Chancellor Substation to support the new solar farm built by Project Developer.

The Generating Facilities will be located outside of Chancellor Substation. The Point of Change in Ownership between the two Substations will be the 115kV disconnect switch 4-hole pad on the transmission line structure outside the Chancellor Substation fence. The Project Developer will bring its conductor to the demarcation point.

Transmission line engineering is to provide a new number for the new line between Chancellor Substation and the 115kV solar farm interconnect.

Other scope includes the metering accuracy CCVT's, metering accuracy CT's, and associated metering equipment.

Security and fence type – design level 1.

Assumption:

Currently, the scope and estimate assume dominion standard spread footer foundation. Once the soil information is available and it is prudent to change the design to “helical pile foundations” the Dominion team should be informed to adjust the project estimate at the earliest possible opportunity.

Purchase and install substation material – Network Upgrade:

1. Approximately 550’ linear ft of high security double mesh, 20 ft tall, around the perimeter station expansion along with the security cameras and integrators as per existing fence standards
2. Two (2), 115kV, 3000A, 40kAIC, SF-6 circuit breaker
3. Four (4), 115kV, 2000A, 3-phase center break gang-operated switch
4. Three (3), 90kV, 74kV MCOV surge arrester
5. Two (2), shield wire poles and two spans of shield wire (by Transmission)
6. Oil containment for transformers
7. Station stone as required
8. Station lighting as required
9. Steel structures as required including switch stands, bus supports, and CCVT supports
10. Foundations as required including equipment and bus support stands
11. Conductors, connectors, conduits, control cables, cable trough, and grounding materials as per engineering standards

Remove substation material – Network Upgrade:

1. Approximately 473 linear ft of 20 ft tall level 1 perimeter fence
2. Steel structures as required
3. Foundations as required
4. Conductors, connectors, conduits, control cables, and grounding materials as per engineering standards

Relocate Substation Materials:

1. One (1), 115kV, relay accuracy CCVT
2. Two (2), 115/34.5kV, transformer
3. Two (2), 115kV, 1200A, 20kAIC, circuit switcher
4. Three (3), 115kV, 1200A, 3-phase center break gang operated switch
5. Nine (9), 90kV, 74kV MCOV surge arrester
6. Six (6), 30kV, 24.4kV MCOV surge arrester
7. Four (4), 34.5kV, 3150A, 40kAIC, SF-6 circuit breaker
8. One (1), 123kV, 3000A, 40kAIC, SF-6 circuit breaker
9. Three (3), 34.5kV, 1200A, 25kAIC, vacuum circuit breaker
10. Twelve (12), 34.5kV, 2000A, hook stick disconnects
11. Thirty (30), 34.5kV 1200A, hook stick disconnects
12. Eight (8), SMD-20 fused disconnects with BCL fuse
13. Five (5), 167kVA, 34.5 - .12/.24kV transformer
14. Twenty-seven (27), 27kV, 22kV MCOV surge arrester
15. One (1), 34.5kV, 300A, 15kAIC, circuit switcher
16. One (1) 37.4kV, 7200 kVAR, capacitor bank
17. Two (2), 34.5kV, 135A, 12kAIC, circuit switcher
18. Two (2) 37.4kV, 4800 kVAR, capacitor bank
19. Four (4), 34.5kV, 600A, 3-phase end break switch
20. Six (6), 34.5kV, 175/300:1 Voltage Transformer
21. One (1), 20’x40’ control enclosure
22. Seven (7), 600V, 2000:5 slip over CT
23. Three (3), 115kV, 250A, 0.75mH reactor
24. One (1), 39.6MVAR capacitor bank

Purchase and install relay material – Network Upgrade:

1. Two (2), 1510 – 24” dual SEL-351-7 transmission breaker with reclosing panel
2. One (1), 4506 – 3-phase CCVT potential make-up box
3. Two (2), 4510 – SEL-2411 breaker annunciator
4. Two (2), 4526_A – circuit breaker fiber optic make-up box
5. One (1), 1603 – 24” SEL-451 islanding control scheme panel

The Transmission Owner Interconnection Facilities include the portion of the interconnecting switching station which is associated solely with the single feed to the generating facilities collector station. The equipment associated with the Transmission Owner Interconnection Facilities includes

the metering accuracy CCVT's, metering accuracy CT's, disconnect switch, conductors and connectors.

Other Scope includes metering accuracy CCVT's and metering accuracy CT's.

Purchase and install substation material – Transmission Owner Interconnection Facilities Network Upgrade:

1. One (1), 115kV, 2000A, 3-phase vertical mounted switch (by Transmission)
2. One (1), 115kV, heavy duty steel backbone (by Transmission)
3. Conductor, connectors, conduits, control cables, foundations, steel structures and grounding material as per engineering standards

Purchase and install relay material – Transmission Owner Interconnection Facilities Network Upgrade:

1. One (1), 1340 – 24" dual SEL-411L CD/Fiber line panel
2. One (1), 1323 – 24" SEL-487E/735 PMU and PQ monitoring panel

Purchase and install metering material – Other:

1. Three (3), 115kV, metering accuracy CCVT
2. Three (3), 115kV, 500:5 metering accuracy CT
3. One (1), 1425 – 24" dual SEL-735 transmission and generator interconnect metering panel
4. One (1), 4524 – revenue metering CT make-up box
5. One (1), 4506 – 3-phase CCVT potential make-up box with metering (P4)

Attachment #4: Transmission Owner Interconnection Facility Scope - Transmission

This project serves to construct a new 115 kV developer generation tie-in line from existing Chancellor Substation to a point of change in ownership (PCO) structure, which is located in Spotsylvania County, VA. The new 115 kV circuit will hereby be referred to as line 1XXX. The point of change in ownership (PCO) structure will be proposed structure 1XXX/4, which is to be installed outside existing Chancellor substation on Dominion owned property. The PCO structure is the demarcation point between Dominion and the developer. See **Figure 1** for the project location.

This scope only includes the installations for the transmission ownership interconnection facilities (TOIF) for the gen-tie line outside of Chancellor Substation. See the "Network Upgrade" scope for the remaining installations.

The proposed structures to be installed are two (2) 115kV SC Steel DDE 3-pole structure and one (1) 115kV steel self-supporting switch structure. The new conductor and shield wire to be used will be single (1) 768.2 ACSS/TW (20/7) "Maumee" conductor and two (2) DNO-11410 OPGW.

Length of Route	**0.15 miles**
Location of the subject line (County/State)	**Spotsylvania County, VA**
Total Number of Permanent Structures	**3**
Total Number of Temporary Structures	**No**
CPCN/SCC Required?	**No**

This project will utilize current Dominion 115 kV standards. The conceptual estimate includes cost for the following:

Transmission Owner Build - Permanent Facilities to be Installed

Structures: All structures will be galvanized steel.

Structure Type	Dwg Number	Str. Qty.
115 kV SC ENGR Steel DDE 3-Pole	12.158	2
115 kV SC Steel Self-Supporting Switch Structure - Include one (1) Horizontal Mounted 2000A Switch	11.830	1

Wire:

1. Mileage listed is per circuit.
2. Conductors include dampers. Fiber includes dampers and splices.
    - Estimate includes approximately 6 fiber splices. Two (2) on Str. 1XXX/2, two (2) on Str. 1XXX/4, and two (2) on existing Str. 1XXX/1.

Length (Miles)	Circuit	# If Bundled-Wire Type "Name"	Start-End
0.15	1	Single (1) 768.2 ACSS/TW (20/7) "Maumee" Conductor	Proposed BB 1XXX/1 – Proposed Str. 1XXX/4
0.15	2	DNO-11410 OPGW	Proposed BB 1XXX/1 – Proposed Str. 1XXX/4

Scope Notes/Assumptions

1. Due to allocated amount of time, no PLS-CADD modeling was done for this project, which results in higher level scopes. Projects in the Transition Cycle 2 – Phase 2 will need to go through full conceptual engineering design prior reaching detailed engineering.

2. This project does require acquisition of a laydown yard.

3. The generalized structure heights for this project are 65/50/65 ft for structures 1XXX/2 and 1XXX/4. This was determined for the high-level estimate projects for Dominion Generation Interconnection Projects.

4. All deadend engineered steel structures outside the substation (Str. 1XXX/2 and Str. 1XXX/4) will be designed for full construction deadend loading for construction conditions.

5. Project area code required loading include: NESC Heavy, 95 mph wind, ¾" Ice & 30 mph wind.

6. For detailed engineering, it is assumed LiDAR survey is required, including underground survey.

7. Structure heights are subject to change pending potential FAA restrictions in the area. The high-level conceptual scope and estimate do not have any FAA restrictions applied but will be used to file with FAA to determine if they are sufficient.

8. Crossing insulators will be used whenever crossing over substation fences.

9. There is an existing conservation easement on the west side of PCO structure 1XXX/4 on Dominion owned property. The developer span on the ahead side may require special permits for this crossing.

10. A wetland delineation has not been completed as part of this conceptual package.

11. A substation general arrangement was provided by the conceptual substation engineering team. See **Attachment #2** for the Chancellor general arrangement used for this project.

12. The assumed reel lengths for this project are 12,000 feet.

13. Cross slopes are not accounted for in this conceptual design. Structures designed assuming a 1.5' foundation reveal at the center of the structure.

14. The collector station is approximately 0.22 miles northwest of existing Chancellor Substation.

15. This project scope assumes that it is independent from other projects in the Transition Cycle.

16. The PCO structure 1XXX/4 is located outside the proposed substation AH1-263 and will be installed on Dominion owned property. This structure will be the demarcation point between the developer and Dominion.

Estimate Notes/Assumptions

1. This scope and estimate for project AH1-263 refers to the "Transmission Owner Interconnection Facilities" (TOIF). This includes the engineering, project management, and construction costs for the transmission assets associated with the new gen-tie line outside of Chancellor Substation. See the "network upgrade" (NW) scope and estimate for the remaining installations associated with project AH1-263.

    a. One (1) estimate has been provided for this scope.

        i. Transmission Owner Interconnection Facilities (TOIF)

2. Engineered steel pole costs were determined based off typical wind and weight spans, line angles, and average structure heights for each voltage. These inputs were used to derive an estimated steel pole weight, which was used to develop the structure costs. This was determined for the high-level estimate projects for Dominion Generation Interconnection Projects.

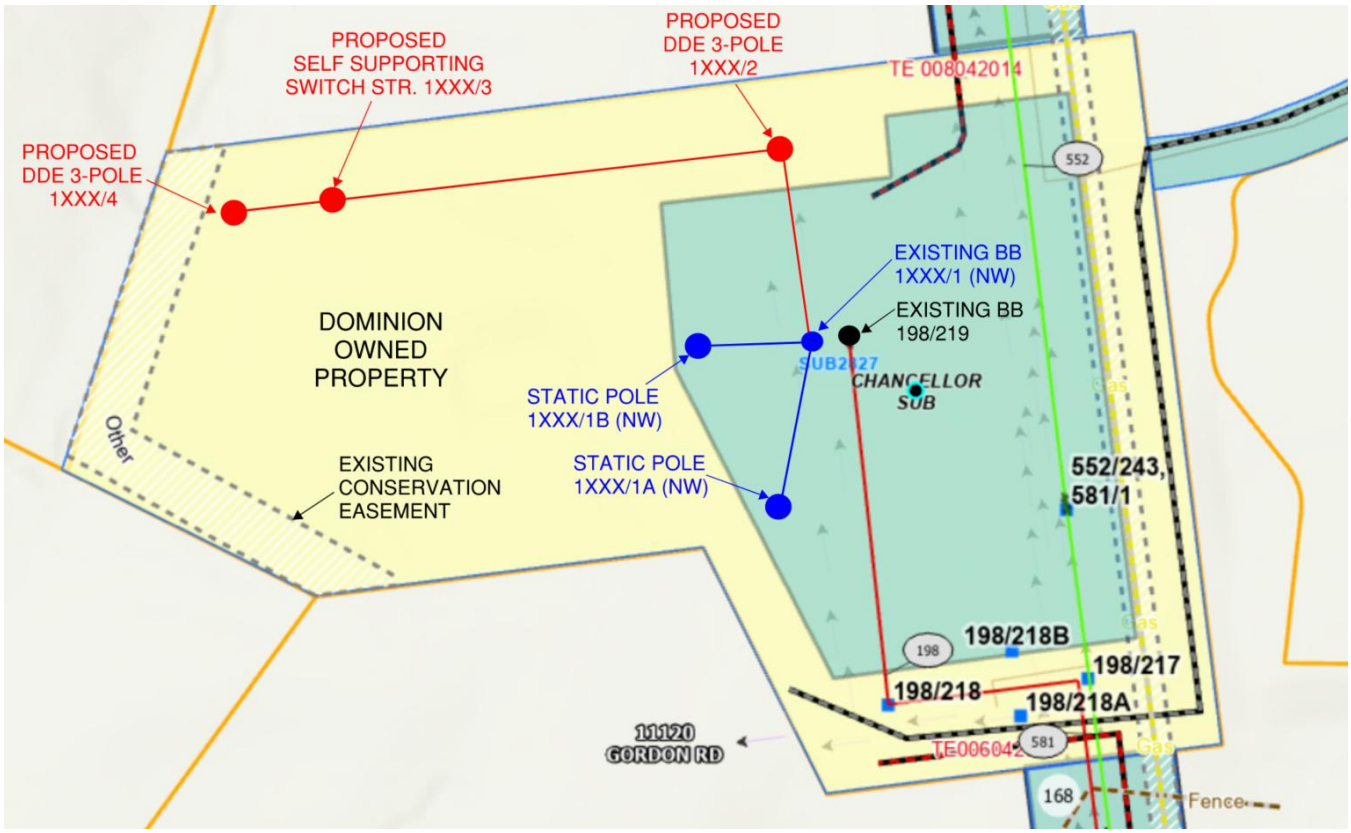
3. Engineered pole foundation costs were based off the projects' location and structure type in the regional soil profile map. The regional soil profile map used for this project is Piedmont.

4. Survey costs were determined based on substation proposed location, fiber installation, and impacts on existing line.

5. It should be determined in detailed engineering if 115 kV over-insulated conductor assemblies are required for this project. For this estimate, over-insulated conductor assemblies were utilized.

6. Transition Cycle 2 - Phase 2 estimates utilize Dominion 2025 labor and material adjustment rates.

Figure 1 – Project Location – Transmission Owner Interconnection Facilities



Attachment #5: Network Upgrade Scope - Transmission

Preliminary Scoping Summary

This project serves to rearrange the existing Chancellor Substation to install a new 115 kV developer generation tie-in line into the existing substation, which is located in Spotsylvania County, VA. The new 115 kV circuit will hereby be referred to as line 1XXX. See **Figure 1** for the project location.

This scope only includes the installations associated with the network upgrades (NW) inside of Chancellor Substation. See the "Transmission Owner Interconnection Facilities" scope for the remaining gen tie line installations.

The proposed structures to be installed are two (2) static poles and one (1) 115kV single circuit steel backbone. The new shield wire to be used will be single (1) 7#7 Alumoweld for spans connecting the backbone and static poles.

Length of Route	**0.0 miles**
Location of the subject line (County/State)	**Spotsylvania County, VA**
Total Number of Permanent Structures	**3**
Total Number of Temporary Structures	**No**
CPCN/SCC Required?	**No**

This project will utilize current Dominion 115 kV standards. The conceptual estimate includes cost for the following:

Transmission Owner Build - Permanent Facilities to be Installed

Structures: All structures will be galvanized steel.

Structure Type	Dwg Number	Str. Qty.
115kV SC Steel Backbone	11.955	1
Steel Static Pole	9.008	2

Wire:

3. Static includes dampers.

Length (Miles)	Circuit	# If Bundled-Wire Type "Name"	Start-End
0.04	1	7#7 Alumoweld Shield Wire	Proposed BB 1XXX/1 – Proposed Static Pole 1XXX/1A
0.03	1	7#7 Alumoweld Shield Wire	Proposed BB 1XXX/1 – Proposed Static Pole 1XXX/1B

Scope Notes/Assumptions

17. Due to allocated amount of time, no PLS-CADD modeling was done for this project, which results in higher level scopes. Projects in the Transition Cycle 2 – Phase 2 will need to go through full conceptual engineering design prior reaching detailed engineering.

18. This project does require acquisition of a laydown yard.

19. The generalized structure heights for this project are 70 ft for structure 1XXX/1, and 75 ft for structures 1XXX/1A and 1XXX/1B. This was determined for the high-level estimate projects for Dominion Generation Interconnection Projects.

20. Project area code required loading include: NESC Heavy, 95 mph wind, ¾" Ice & 30 mph wind.

21. For detailed engineering, it is assumed LiDAR survey is required, including underground survey.

22. Structure heights are subject to change pending potential FAA restrictions in the area. The high-level conceptual scope and estimate do not have any FAA restrictions applied but will be used to file with FAA to determine if they are sufficient.

23. A wetland delineation has not been completed as part of this conceptual package.

24. A substation general arrangement was provided by the conceptual substation engineering team. See **Attachment #2** for the Chancellor general arrangement used for this project.

25. The assumed reel lengths for this project are 12,000 feet.

26. Cross slopes are not accounted for in this conceptual design. Structures designed assuming a 1.5’ foundation reveal at the center of the structure.

27. This project scope assumes that it is independent from other projects in the Transition Cycle.

Estimate Notes/Assumptions

1. This scope and estimate for project AH1-263 refers to the network upgrade (NW). This includes the engineering, project management, and construction costs for the transmission assets within Chancellor Substation. See the "transmission ownership interconnection facilities” (TOIF) scope and estimate for the remaining installations associated with project AH1-263.

    a. One (1) estimate has been provided for this project.

        i. Network Upgrade (NW)

2. Engineered steel pole costs were determined based off typical wind and weight spans, line angles, and average structure heights for each voltage. These inputs were used to derive an estimated steel pole weight, which was used to develop the structure costs. This was determined for the high-level estimate projects for Dominion Generation Interconnection Projects.

3. Engineered pole foundation costs were based off the projects’ location and structure type in the regional soil profile map. The regional soil profile map used for this project is Piedmont.

4. Survey costs were determined based on substation proposed location, fiber installation, and impacts on existing line.

5. It should be determined in detailed engineering if 115 kV over-insulated conductor assemblies are required for this project. For this estimate, over-insulated conductor assemblies were utilized.

6. Transition Cycle 2 - Phase 2 estimates utilize Dominion 2025 labor and material adjustment rates.

Figure 2 – Project Location – Network Upgrades

