

Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-725

“Conastone 500kV 500MW BESS”

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 Baltimore Gas & Electric Company (BGE).

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 Energy Storage System (BESS) Generating Facility located in Harford County, Maryland with a designated PJM Project ID of AH-725. The installed facilities will have a total Maximum Facility Output (MFO) of 500 MW with 500 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the BGE transmission system via a direct connection into the Conastone 500kV 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 will be located at the H-frame dead-end located south of the substation. This structure will be owned and installed by BGE

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 and two OPGW fibers 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 AH1-725 project to BGE transmission system. These facilities shall be designed according to BGE Applicable Technical Requirements and Standards. Once built, BGE will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

The TO Interconnection Facility will include, but not to be limited to the following:

- Expansion of the existing substation, significant land development and grading work, stormwater management work, earth retention features, and associated permitting.
- Extend the fence of the south side station to install new line position requirements.
- Include up to three retaining walls or features to support the station expansion and transmission pole just outside the extension.
- Extensive amounts of backfill will need to be properly installed and compacted behind any proposed retaining walls or features. See scope sections for more detail and rough quantity.
- A 500 kV H-frame termination dead-end structure and foundation inside the expanded fence of the BGE Conastone Substation, to terminate the PD interconnection line.
- A 500 kV H-frame dead-end structure and foundation, approximately 187 ft south of the termination H-frame dead-end structure.
- A 500kV H-frame dead-end structure and foundation, approximately 210 ft south of the 2nd H-frame dead-end structure. This structure will serve as the PCO structure between BGE and the PD.
- Line conductor from the H-frame termination dead-end structure to the H-frame PCO dead-end structure.
- Two (2) OPGW fibers from the control house to the H-frame PCO dead-end structure.

- Extensive tree removals will be required to extend the substation, install the new transmission structure south of the expansion, retaining features, and the new stormwater facilities required for the expansion.
- New stormwater features will be required for the project. The new storm water features include but may not be limited to a stormwater detention facility, bioswale(s), and associated drainage system immediately south of the yard expansion, the new transmission pole, and the proposed retaining walls. See the scope sections for more detail and rough quantity.
- Accommodating the expansion at the proposed design elevation would require an estimated 30,000 cubic yards of imported fill. To retain this volume, the design may require multiple retaining features with an estimated height of 30 feet and a combined length of 1,200 feet.
- A cost estimate for the scope of the expansion is provided under TOIF category.

2. STAND ALONE NETWORK UPGRADES

Not Applicable

3. NETWORK UPGRADES

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

Conastone 500kV Substation Upgrade:

The existing substation, Conastone 500kV Substation will be expanded to interconnect the project with the project developer.

- A new 500kV breaker-and-a-half bay will be constructed. This expansion will initially incorporate two new circuit breakers and will be designed to accommodate a future tie-breaker position.
- Two (2) new 500kV circuit breakers will be installed, each equipped with disconnect switches on both the line and bus sides to provide full isolation capabilities.
- The line from position EF will be terminated by transitioning the connection from an air-insulated design to a gas-insulated bus (GIB). This GIB segment will be routed underneath the existing southern 500kV main bus to connect to the new bay.
- The fence of the south side station will be extended to install new line position requirements.

4. OTHER SCOPE OF WORK

Not Applicable

5. MILESTONE SCHEDULE FOR COMPLETION OF BGE WORK

Facilities outlined in this report are estimated to take 72 months to construct, from the time the first PJM Project Kick-off Meeting. This is a high level schedule estimate and a detailed schedule would need to be developed during the project execution phase. This schedule is may be impacted by the timeline for property acquisition, 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	30
Permitting	24	46
Construction	42	72

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

- The schedule does not include any contingency.
- Engineering requirements and construction methods have not been assessed in detail, nor have permitting needs, construction approaches, or timing restrictions been considered.
- Security equipment needs to be relocated to new modular control enclosure and new relay panels can be installed in that space.
- Vegetation clearing is not restricted by seasonal wildlife restrictions.
- Hot-line work or line work around energized lines (transmission line construction) will not be required.
- Material lead times are subject to change. The quoted lead times in the scope of work document reflect current supply chain conditions. Current 500kV circuit breaker lead times are 208 weeks and could change before the project starts.
- To the extent the developer has the ownership or property rights [BGE] may need to build its network upgrade. This facility study assumes that we can build the required network upgrade on the land identified. To the extent that additional land may be required outside of what is shown, neither the estimate nor schedule proposed accounts for the costs or time to acquire other suitable property.
- Federal, state, and local agencies will treat the Transmission Owner Interconnect Facility and the PD facility as a single project.
- A Zoning Certificate will be issued without an appeal.

- Section 106 consultation, if required, will not extend beyond 4 months.
- Schedule does not consider delays related to equipment and other external vendors.
- Wetland and waterbody impacts would be limited to the extent practicable and not exceed 0.5 acres of permanent loss.
- Secondary oil containment will not be required.
- GIB supports and anchorage will be designed to adequately perform in site specific loading conditions.
- GIB supports and anchorage will be designed by the GIB vendor.
- Only one stormwater pond is needed, and it will store no more than 30,000 CF of volume. It is assumed that no more than 200,000 SF of land will be disturbed.
- The following studies will be completed as part of this project, but not limited to:
 - Wetland Delineation
 - Phase I Bog Turtle Survey
 - Raptor Nest Survey
 - Forest Stand Delineation
 - Geotechnical investigation (Soil Boring Report)
 - Assume one (1) boring to depth of 50-feet at every new structure location.
- BGE will require approximately 130 ft by 50 ft for construction of the PCO. No additional ROW will be required for this project. Detailed design will address any blowout or edge of ROW concerns.
- A formal route evaluation will be conducted in subsequent phases of the project; however, it is assumed the existing right-of-way will remain for a large portion of the project.
- Distribution underbuild, road crossings, distribution crossings, railroad crossings, or waterway crossings will need to be accounted for in the proposed design.
- Access roads will be required inside and outside the new station expansion. The roadway outside of substation fence may need to be modified to support new PD supply line structures and tie into nearby existing roadways.
- Access road outside the station perimeter will not require DOT, State, or county related permits related to roadway, curb cut, traffic studies, and the like.
- Roadway outside the station has been estimated assuming a mid-size maintenance vehicle is being used. Consideration for vehicles needed to deliver large equipment such as pole sections have not been considered but should be evaluated in the next phases of this project.
- Access road for the transmission area outside the station will be no longer than 200ft and is meant to connect to the existing road just south of the yard expansion.
- Actual route, extent, widths, and material for roadways will need to be determined during detailed design.

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 AH1-725 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in the Exelon Utilities Transmission Facility Interconnection Requirements posted on PJM website.

The revenue metering shall be installed on the Project Developer side of the PCO. The revenue metering point shall be established within the Project Developer's facility between the high-voltage side of the MPT(s) or GSU(s) and the PCO.

Revenue meters, revenue grade instrument transformers, and the associated communication equipment shall be installed, owned, tested and maintained by the Project Developer. The Project Developer shall be responsible for providing real-time telemetry data and market settlement data to PJM.

Protective relaying and metering design and installation must comply with the Applicable Technical Requirements and Standards identified in Schedule D of the AH1-725 GIA.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

The Transmission Owner will be responsible to acquire land for the substation expansion at the developers cost. Land requirements for the Interconnection Substation needed for this interconnection project must meet the requirements in the "Exelon Mid-Atlantic Interconnection Guidelines" posted on PJM website.

This interconnection will require an additional easement measuring approximately 130 ft by 50 ft to allow room for the PCO structure on the Project Developer's property.

Accommodating the substation expansion at the proposed design elevation will require at least 30,000 cubic yards of imported fill. There is a significant change in grade between the existing station and the area just south of the southern fence line. Retaining features and foundation systems will be required to support the substation expansion, transmission work, and subsequent civil stormwater work.

To accommodate the significant grade changes on the south side of the station, the site expansion will likely require a system retaining walls to support the new development. These walls are estimated to reach a maximum height of 30 feet and have a total combined length of approximately 1,200 feet. The primary wall will support the substation yard expansion, and up to two additional walls will be required running parallel along the road south of the yard to provide stable truck access to the nearby transmission line support structure.

The existing stormwater management system on the south end of the station utilizes sand filters and riprap-lined conveyance channels for treatment and flow control. These systems may need to be re-evaluated and modified to comply with Harford County and State of Maryland Stormwater regulations. New storm water management infrastructure is also anticipated for the project. Harford County regulations specify that post-flow must be equal or less than pre-flow to preclude the need for additional stormwater management features. Due to the magnitude of the project, it is likely that a

detention facility would be required to manage flows. The need for storm water management scope is being driven by removal of woodland areas, increase in impervious surface area, as well as the addition of retaining walls. Any new stormwater management facility is planned to be outside the substation footprint. The actual location and extent of the stormwater facility will need to be confirmed once the project is further along.

It is possible that water quality treatment will also be required as part of the stormwater management scope. According to the 2025 Maryland Stormwater Design Manual, water quality design for new developments in the eastern region of Maryland must treat the first inch and a half of rainfall. It also states that the site design must target removing 80% of the average annual post development total suspended solids and 40% of the average annual post development total phosphorous load. As a result, any detention facility installed for the site expansion will need to meet these water quality requirements as well.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

Applicable Technical Requirements and Standard: The Exelon-East Interconnection Guidelines dated December 2025, Exelon Transmission Planning Criteria Rev 6 dated March 2025, Exelon Utility Companies' Transmission Facility Interconnection Requirements dated January 2024 and Exelon Utilities Transmission Bus Configuration Design Philosophy dated May 2021 shall apply. The mentioned requirements can be found on the PJM website.

10. ENVIRONMENTAL AND PERMITTING

Permits include but not limited to: Wetland and Waters Permit, Site Plan permit, a Phase I environmental assessment and local county permits.. A Certificate of Public Convenience and Necessity (CPCN) may be required. Additional permit needs may be identified during Section 106 reviews or during engineering design.

Long Lead Items

- *The Section 106 review process for historic preservation has the potential to take up to one year, although a three to four month timeline is more common.*
- *The Development Plan Review and the Grading Permit approval processes do not have set review periods and are each likely to span several months.*
- *Obtaining a favorable zoning determination is critical for project viability. While no specific timeline is given, this is the primary concern and could significantly delay or halt the project if not resolved early.*

The primary concern for this Project is its viability with regard to zoning regulations. Outreach to the Harford County Department of Planning and Zoning is required to determine if the Project is likely to be in compliance with local zoning regulations. The potential for wetlands and bog turtle habitat may restrict Project activities, so a wetland delineation and Phase I Bog Turtle Habitat Assessment are required to understand the location and extent of regulated wetlands, streams, and potential bog turtle habitat to guide the planning process. Presence of archaeological resources can also significantly

extend permitting timelines, so consultation with the SHPO is required to determine if additional investigations are necessary.

C. APPENDIX

Attachment #1: Single line Diagram for the Physical Interconnection

