Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-261

“Batavia 230kV 135MW 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 Baltimore County, Maryland with a designated PJM Project ID of AH1-261. The installed facilities will have a total Maximum Facility Output (MFO) of 135 MW with 135 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 Batavia 230kV substation.

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

3. POINT OF CHANGE IN OWNERSHIP (PCO)

The Point in Change of Ownership will be located at a proposed BGE-owned 230kV Batavia North Terminal Station, located approximately 0.1 miles northwest of the future BGE Batavia Road substation, with access from Batavia Farm Road.

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 (2) ADSS 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 AH1-261 project to the 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:

A new high-voltage underground cable system consisting of the following components will be installed as part of this project from the Batavia Substation to the PCO (Terminal Station):

- BGE expects to use a 1,000 mm^2 Copper XLPE 230kV cable with a copper wire sheath. Approximate cable length point to point is 750 ft.
- A 230 kV dead-end/take-off foundation within the fence of the PCO (proposed Batavia North Terminal Station), to terminate the Project Developer's generator lead line.
- Cable shall be rated 135MW (0.95 power factor & 100% daily load factor) under the conditions described in BGE's Engineering Practice EPB-15404.
- The new high-voltage underground cable system will be installed in a concrete encased duct bank, from the three (3) new AIS terminations at the future 230kV Batavia Road Substation, to the (PCO) Batavia North Terminal Station.
- Two (2) new manholes will be installed, one at each end of the cable circuit, to facilitate cable pulling and replacement.
- Trenchless installation might be considered for crossing large utilities.

PCO Terminal Station

The PCO Terminal Station construction shall be developed as a standalone network upgrade, distinct from the primary substation scope at the contractor's discretion. The PCO terminal station shall serve as a boundary point for housing the high voltage transition which will bridge between BGE and the Project Developer.

This facility will be equipped with a disconnector switch to formally delineate the point of change in ownership (PCO) between the Transmission Owner and the Project Developer.

Associated 230kV structures, equipment, and cables will be installed.

The scope of work includes but is not limited to:

- Approximate 0.45 acres of site preparation and grading as required for the construction of the new Terminal Station.
- Approximate 360 ft of fencing around the terminal station, with two vehicle gates.
- Foundations as required.
- Three (3) Steel structures for combined single-phase termination and arrester for BGE-owned circuit.
- One (1) 230kV 3-phase Air Break Switch, Horizontally Mount with 2 Ground Switches.
- Three (3) Single-Phase Cable Terminations for the BGE-owned 230kV cable from Batavia Substation.
- Three (3) Surge Arresters for BGE-owned 230kV cable from Batavia Substation.
- Conductors, connectors, conduits, and grounding materials as per engineering standards.

2. STAND ALONE NETWORK UPGRADES

None

Installation of fiber cable circuits

Fiber optic cables shall be installed between the control house at the Batavia Rd Substation and the Project Developer facility to support relaying, metering, and SCADA requirements. Fiber cable slack shall be coiled in two independent handholes located within the PCO site and then extended to the Project Developer site. Final fiber requirements shall be determined upon commencement of design and engineering activities following execution of the applicable agreement.

3. NETWORK UPGRADES

Expanding/ Upgrading 230kV Batavia Substation

The scope of work includes installation of one 230kV gas insulated breaker and associated accessories. New relays will be installed in the new control house with existing lines relaying to adjacent substations being updated. This will include but not limited to:

- Install one (1) Gas Insulated Breaker at the tie position.
- Install gas-insulated bushings (GIB) to connect the 230kV underground line from the GIS building at line position LB2 to the new Batavia North Terminal Station (PCO).
- Three (3) Steel structures for combined single-phase termination and arrester.

- Three (3) 230kV Surge Arresters.
- Upgrade line LB2 primary, line LB2 backup and breaker failure relay panels.
- The SEL-411L and SEL-311L relays will protect the line with a zone of protection of the BGE substation 230kV breaker and the PD breaker. These relays will be installed within the new substation control building. In addition, two (2) trip outputs will be sent to the PD (via fiber optic cable) to isolate PD-owned equipment.
- Breaker control, failure and reclosing will be accomplished from SEL-351 relay. Failure schemes will be initiated by breaker associated bus and line protection. The breaker failure lockout relay associated with the SEL-351 line scheme will send transfer trip signals (via fiber optic cable) to isolate PD owned equipment.
- Two (2) ADSS fibers from PCO to the control house, using 2" conduits installed in the underground Transmission Ductbank.

4. OTHER SCOPE OF WORK

For the **Transmission Owner (TO) Build Option**, the Transmission Owner is responsible for the engineering, procurement, and construction of all scope of work identified in:

- Section B.1 – Transmission Owner Interconnection Facilities (TOIF)
- Section B.3 – Network Upgrades

5. MILESTONE SCHEDULE FOR COMPLETION OF BGE WORK

Facilities outlined in this report are estimated to take 60 months to construct, from the time of 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 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
Property Acquisition (Optional)	1	18
Detailed Design	6	20
Permitting	1	18
Construction	30	60

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

- The schedule doesn't include any contingencies. Material lead times are subject to change. The quoted lead times in the scope of work document reflect current supply chain conditions. Current 230kV circuit breaker lead times are 155 weeks and could change before the project starts.
- Existing AC and DC systems can handle additional station loads.
- Existing relay panels can be used with appropriate modification.
- Minimum space requirements for the Terminal Station are approx. 80 ft by 50 ft.
- 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.
- The selected site has no wetland or other environmental constraints. Future studies will be required to confirm that.
- AC power supply (120/240V or 120/208V) to Batavia North Terminal Station to be provided by BGE distribution network.
- BGE will provide line fiber to the PCO and Project Developer is responsible for pulling fiber from PCO to Project Developer station control house
- Federal, state, and local agencies will treat the Transmission Owner Interconnect Facility and the Developer's facility as a single project.
- Section 106 consultation, if required, will not extend beyond 4 months
- Wetland and waterbody impacts would be limited to the extent practicable and not exceed 0.5 acres of permanent loss.
- The following studies will be completed as part of this project:
    - Geotechnical Investigation
    - Topographical / Subsurface Utility Engineering Surveys
    - Wetland Delineation
    - Forest Stand Delineation
    - Raptor Nest Survey

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 AH1-261 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 AH1-261 GIA.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

The Project Developer will be responsible for acquiring land for the Terminal Station at the project developer's cost. Minimum space requirements for the Terminal Station is approx. 80 ft by 50ft. Onwership of the PCO terminal station land shall be transferred to the Tranmission Owner.

This Facility Study Report assumes an average cost of $200K per acre. The estimated time for procurement of the land (including permitting) is 18 months and has been reflected in the schedule.

Land requirements for the Terminal Substation needed for this interconnection project must meet the requirements in the "Exelon Mid-Atlantic Interconnection Guidelines" as well as PJM standards as posted on the PJM website. Once construction is completed, the PD will be required to transfer ownership of the terminal station (including real estate) to BGE.

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.

10. ENVIRONMENTAL AND PERMITING

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

C. APPENDIX

Attachment #1: Single line Diagram for the Physical Interconnection

