Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AG2-618

“Morgantown 230kV”

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 PEPCO.

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 agreement's 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 solar Generating Facility located in Charles County, Maryland with a designated PJM Project ID of AG2-618. The installed facilities will have a total Maximum Facility Output (MFO) of 110.0 MW with 71.5 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Generating Facility will interconnect with the PEPCO transmission system via a direct connection into the Morgantown 230kV 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 first transmission pole outside the existing Morgantown Substation fence near the southeast corner of the substation. The developer will provide the transmission pole.

This study assumes that the PD will design the structure and obtain proper real estate agreements during detailed design with PEPCO's Real Estate department. The PD shall comply with all state, federal, and local permitting, and PEPCO engineering requirements to submit an application in detailed design. No conceptual design or review of PD designed/owned structures has been considered in this study.

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 PJM standards as well as 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 AG2-618 project to PEPCO transmission system. These facilities shall be designed according to PEPCO Applicable Technical Requirements and Standards. Once built, PEPCO will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

A 230 kV dead-end structure and foundation within the fence of the Interconnection Substation, to terminate the Project Developer's generator lead line.

Line conductor from the dead-end structure to the bus position in the switchyard of the interconnection substation.

- Install 1200 feet of 3-phase 2-1590 ACSR from the PCO to the new 230kV dead-end structure
- Install one (1) 230kV, 3000A, motor operated disconnect switch on PEPCO's side of the PCO structure
- Install one (1) 230kV, 3 Phase, motor operated ground switch on PEPCO's side of the PCO structure
- Install two (2) fiber distribution boxes for line differential and DTT communication to the Project Developer substation. (Fiber and fiber routes will be provided as a Project Developer Interconnection Facility).
- Install 900 feet of 96 count fiber between Morgantown control enclosure and point in ownership change.

2. STAND ALONE NETWORK UPGRADES

None of the upgrades associated with this interconnection are considered stand-alone network upgrades.

3. NETWORK UPGRADES

Morgantown 230kV Substation Upgrade

The existing substation, Morgantown 230kV Substation, will be upgraded to interconnect the project with the PEPCO transmission system. These upgrades include the following:

- Remove existing East bus foundations
- Remove one (1) 230kV, existing circuit breaker foundation
- Install two (2) 230kV, 3000A, 63kA gas circuit breakers
- Install two (2) 230kV, circuit breaker foundations
- Install four (4) 230kV, 3000A, motor operated disconnect switches
- Install five (5) 230kV, 3 Phase, manually operated ground switches
- Install six (6) 230kV, switch foundations and associated structures
- Install three (3) 230kV, lightning arresters and associated structures and foundations
- Install three (3) 230kV, CCVT and associated structures and foundations
- Install 600’ of 4” SCH 80 rigid bus and associated structures and foundations
- Install 540’ of 1590 ACSR 45/7 (two conductors per phase) as jumpers between switches and breakers
- Install cables, conduits, and grounding associated with installation of the above facilities
- Install two (2) GE-F60 relay panels for breaker control and stuck breaker system 1 protection.
- Install two (2) SEL-451 relay panels for stuck breaker system 2 protection of new 230 kV CB.
- Install one (1) GE-L90 frontline relay panel for the protection of the gen-tie line.
- Install one (1) SEL-411L backup relay panel for the protection of the gen-tie line.
- Modify bus differential relays to incorporate new breakers

The expansion will be designed, built, owned, and operated by PEPCO. PEPCO will obtain the necessary permits at the developer’s cost for all work within the Substation fence.

4. OTHER SCOPE OF WORK

Per the Exelon-East Interconnection Guidelines real time power meter section, The Project Developer shall install a real-time power meter at the high side of the generator transformer and provide all real-time and interval metering data required by PJM, including authorization for PJM to share such data with Exelon.

5. MILESTONE SCHEDULE FOR COMPLETION OF PEPCO WORK

Facilities outlined in this report are estimated to take 45 months to construct, from the time of the first PJM Project Kick-Off Meeting. 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
Detailed Design	1	10
Permitting	26	38
Construction	38	45

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

General Assumptions:

- To the extent the developer has the ownership or property rights Pepco may need to build its network upgrade, this facility study assumes that PEPCO 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 substation conceptual design has been developed with known future projects in consideration. Future projects that may arise by PEPCO or other parties prior to a GIA being executed could result in a change in design by PEPCO.
- The scope assumes that there is sufficient space available for the necessary relays and panels in the existing control house. If during detailed design it is determined that there is no longer adequate space inside the existing control house, reconfiguration or expansion of the existing control house could be required at the expense of the Project Developer.

- This report assumes that the Project Developer's generator tie line can be routed to the PCO structure without the need for PEPCO to reconfigure existing transmission lines inside or outside of the existing substation. If existing transmission lines must be reconfigured to allow space for the Project Developer's Generator Tie Line, additional cost will incur.
- The cost estimate assumes favorable soil conditions and traditional drilled pier foundations will be used. During detailed design a geotechnical report will be prepared for the site and will include recommendations for the PEPCO equipment foundation types. If deep foundation systems are required, additional costs will incur.
- The schedule has been developed considering known long lead material times at the date of this report. If material lead times change before the material is procured, there could be impacts to the energization date.
- The schedule assumes PEPCO will be able to take bus and line outages as needed for the testing and energization of new equipment.
- The substation scope assumes that the existing ground grid is adequate for the new equipment. During detailed design a grounding study will be performed by PEPCO to determine the adequacy of the existing ground grid with the addition of the new substation equipment. If upgrades to the existing ground grid are deemed necessary as a result of the new equipment additions, additional costs will incur.

The following studies will be completed as part of this project, and associated assumptions for each are listed (if applicable):

- Geotechnical investigation (Soil Boring Report)
  - Assumes two (2) borings inside the substation fence.
- RTE Plant/Animal Surveys
  - Includes Raptor Nest Survey
- Transient Study

The following calculations may need to be completed as part of this project:

- Voltage Drop Calculations
- AC Calculations
- DC Calculations
- Grounding Calculations
- Foundation Design Calculations
- Structural Calculations
- Rigid Bus Evaluation Calculation
- Soil Resistivity Analysis

7. REVENUE METERING REQUIREMENTS

A three-phase revenue metering point must be established at the Point of Change in Ownership, with no line-loss or transformer-loss compensation provided. The Project Developer is responsible for installing proper equipment to supply real-time telemetry data to PJM. The Project Developer will procure, install, own, and maintain revenue grade instrument transformers, and will provide a

metering cabinet and structure in accordance with Exelon's specifications. Placement of metering equipment requires Exelon approval and must be in a secure location with unescorted access for Exelon employees. The Transmission Owner will procure, install, own, and maintain the revenue meter. The Project Developer will complete wiring connections at the secondary of the instrument transformers, terminate at a terminal/shorting block, and supply/install conduit as needed for Exelon to finish wiring and connections at the metering enclosure. Given the minimal distance between the Point of Change in Ownership and the Point of Interconnection, no line loss or transformer loss compensation will be provided.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

The substation conceptual design and estimate have been developed solely for planning purposes and are based off the assumption that the Project Developer will obtain all permits, approvals, licenses, rights-of-way or and easements required from all third-party landowners, including PEPCO, for the generator tie line. For portions of the generator tie line proposed to be located on or across property owned by PEPCO, the Project Developer must comply with all PEPCO Real Estate, Legal, Engineering, Environmental, Safety, and operations requirements and processes. PEPCO makes no representation, warranty, or assurance that any easement, license, consent or other property right will be granted to any proposed route or use of PEPCO property.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

The Exelon-East Interconnection Guidelines (Rev 2, December 2025), the Exelon Utility Companies' Transmission Facility Interconnection Requirements (FAC-001-4, January 1, 2024), and the PHI Technical Considerations for Generation Parallel Operations (October 13, 2016) shall apply.

10. ENVIRONMENTAL AND PERMITTING

The PD is responsible for completing all environmental assessments and obtaining all environmental and permitting approvals required to construct and operate PD Interconnection Facilities on the PD side of PCO. These requirements include acquisition of all necessary Property Rights and Permits, such as Phase I Environmental Site Assessments, Phase II Environmental Assessments where applicable, wetland delineation reports, zoning approvals, building permits, special-use permits, and all other jurisdictional permits associated with the proposed facilities.

The PD shall provide all site documentation necessary to support environmental and permitting review, including civil site plans, drainage plans, access layouts, topographic surveys, ALTA/ACSM surveys, wetland reports, title commitments, and copies of all permits or pending permit applications. This documentation is required to enable TO review of siting, environmental constraints, and right-of-way requirements associated with the interconnection.

C. APPENDICES

Attachment #1: Single line Diagram for the Physical Interconnection

