Facilities Study Report

For

Physical Interconnection of

PJM Generation Interconnection Request

Project ID AH1-260

“AH1-260 New Freedom - Monroe 230 kV”

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 Atlantic City Electric.

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 Storage Facility located in Camden County, New Jersey with a designated PJM Project ID of AH1-260. The installed facilities will have a total Maximum Facility Output (MFO) of 300 MW with 300 MW of this output being recognized by PJM as Capacity.

2. POINT OF INTERCONNECTION (POI)

The Storage Facility will interconnect with the Atlantic City Electric transmission system via a newly constructed 230 kV 4-breaker ring bus substation, tapping the New Freedom - Monroe 230kV line 2305, at a point approximately 1.1 miles from the New Freedom Substation and 5.7 miles from the Monroe Substation.

The construction of the new interconnection substation will result in the splitting of the existing New Freedom - Monroe 230kV line, Circuit 2305, into two lines on the transmission system. The two new lines resulting from splitting of existing 2305 New Freedom - Monroe 230 kV shall be assigned new names and circuit numbers

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 structure located outside the new constructed substation. This dead-end structure will be owned and installed by the Project Developer

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 AH1-260 project to Atlantic City Electric transmission system. These facilities shall be designed according to Atlantic City Electric Applicable Technical Requirements and Standards. Once built, Atlantic City Electric will own, operate, and maintain these Facilities.

1. TRANSMISSION OWNER INTERCONNECTION FACILITIES:

- A 230 kV take-off structure and foundation within the fence of the Interconnection Substation, to terminate the Project Developer's generator lead line.
- A 230kV Line conductor from the take-off structure to the bus position in the switchyard of the interconnection substation.

The 230kV line conductor up to the first transmission line dead end structure outside the substation fence will be owned by the TO. The first transmission line dead end structure outside the substation fence will be owned by the Project Developer, and shall serve as the Point of Change in Ownership.

2. STAND ALONE NETWORK UPGRADES

AH1-260 New Substation

A new 4-breaker ring bus substation, designed as part of this project 230kV level, will be constructed along the 2305 New Freedom – Monroe 230kV transmission line to interconnect the project with the Atlantic City Electric transmission system.

A new greenfield 230kV 4-breaker ring bus substation will be built with ability to expand to a 6-position breaker-and-a-half bus. The project shall cut into existing 2305 230kV Monroe – New Freedom line. Only 3 line terminals will be installed in the new substation. Two of the terminals will be tie-ins of the newly divided 2305 230kV Monroe – New Freedom line. The third terminal will connect to the developer's interconnection facilities. In addition, new circuit breakers and line protections relays, along with associated incoming fiber cable connection for the 3 lines will be installed.

For the Transmission Owner build option, the transmission owner will design, construct, inspect and install all equipment as described above. Regarding the property ACE must acquire for the installation of the new substation, this facility study assumes an average cost of $200k per acre. The estimated

time for the procurement of this land (including permitting) is 18 months and has been reflected in the schedule.

For the Option-To-Build where the Project Developer will build the substation, the transmission owner will only be responsible for engineering and construction oversight as well as final commissioning of the substation prior to energization. A separate cost estimate has been provided.

3. NETWORK UPGRADES

The 2305 New Freedom – Monroe 230kV line will be cut and looped into the new interconnection substation.

4. OTHER SCOPE OF WORK

N/A

5. MILESTONE SCHEDULE FOR COMPLETION OF ACE WORK

Facilities outlined in this report are estimated to take 42 to 54 months to construct, from the time the Generation Interconnection Agreement is fully executed. 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
Property Acquisition (Optional)	1	18
Detailed Design	6	36
Permitting	24	42
Construction	42	54

6. ASSUMPTIONS IN DEVELOPING SCOPE/COST/SCHEDULE

- Substation design shall consist of (2) 230kV bays configured in 4-breaker ring bus arrangement. Space for a third bay have been allocated in the substation design, which shall be used to transform the substation into 6-position breaker-and-a-half bus in the future.
- Substation exact location is to be determined in future stages of the project.
- It is assumed that strain conductors and insulator assemblies associated with new outgoing transmission line are covered under the transmission line scope.
- The connection between the take-off tower in the new ring bus substation and the transmission structures outside the substation will be overhead and will not require any other transmission structures between the two take-off towers. It will be high enough to allow vehicles to drive under it.
- The 145 kV circuit breaker (CB) is identified as a critical path item. At the time of submission of this report, the estimated procurement lead time is 145 weeks. This lead time is subject to change based on market conditions, manufacturer availability, and other external factors.

- For the property ACE must acquire for the installation of the new substation, this facility study assumes an average cost of $200k per acre. The estimated time for the procurement of this land (including permitting) is 18 months and has been reflected in the schedule.

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 AH1-260 GIA, and in PJM Manuals M01 and M14D. The details of applicable revenue metering requirements are given in the 'PJM - Transmission Owner Engineering & Construction Standards' posted on PJM website.

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.

8. LAND REQUIREMENTS FOR INTERCONNECTION SUBSTATION

Land acquisition for the new interconnection substation is at the developer's cost. In the event of the Project Developer selecting "Option to Build', substation ownership and associated land rights must be transferred to ACE prior to inspection and initial energization of the substation. For a new greenfield substation that ACE will construct, the land rights must be transferred fee-simple to ACE prior to the start of below grade construction.

ACE's minimum acreage for a 230kV substation is 8 acres.

9. APPLICABLE TECHNICAL REQUIREMENTS AND STANDARDS

In addition to the interconnection standards posted on the PJM website, the PHI Substation Design Manual and OH Transmission Design Manual must be followed.

10. ENVIRONMENTAL AND PERMITING

Permits include but not limited to: Site Plan, Soil Conservation District, and a local building permit. Additional permits may be required and will be identified during engineering design.

C. APPENDICES

Attachment #1: Single Line Diagram for the Physical Interconnection

Attachment #1 – Single Line Diagram for the Physical Interconnection

