Generation Interconnection

Feasibility Study Report

Queue Position AB1-112

Interconnection Customer (IC) has proposed a natural gas generating facility located in Greene County, PA, West of the Monongahela River at about river mile marker 75. The installed facilities will have a capability of 20 MW with 20 MW of this output being recognized by PJM as Capacity. Note that this project is an increase to the Interconnection Customer's AA2-173 project, which will share the same property and connection point. The AA2-173 project will have a capability of 515.0 MW with 515.0 MW being recognized as Capacity. The total capability of the combined AA2-173 and AB1-112 projects will be 535.0 MW with 535.0 MW being recognized by PJM as Capacity. The proposed in-service date for the AB1-112 project is January 1, 2019. **This study does not imply a West Penn Power Company commitment to this in-service date.**

Point of Interconnection

AB1-112 will interconnect with the West Penn Power Company transmission system at one of the following points of interconnection: Option 1 will connect to the substation utilizing an existing point of interconnection from a prior project queue number AA2-173; or Option 2 will be a tap onto the Hatfield – Yukon 500 kV line.

Cost Summary

The AB1-112 project will be responsible for the following costs:

Description	Total Cost
Attachment Facilities	$ 0
Direct Connection Network Upgrades	$ 0
Non Direct Connection Network Upgrades	$ 12,700
Total Costs	**$ 12,700**

In addition, the AB1-112 project may be responsible for a contribution to the following costs:

Description	Total Cost
New System Upgrades	$ 0
Previously Identified Upgrades	$ 0
Total Costs	**$ 0**

Cost allocations for these upgrades will be provided in the System Impact Study Report.

Description	Total Cost
Transmission Owner facilities	$ 0
Transmission Upgrades	$ 0
Total Costs	**$ 0**

Cost allocations for these upgrades will be provided in the System Impact Study Report.

Attachment Facilities

Because AB1-112 is an increase to queue project AA2-173, no new interconnection facilities are required to accommodate the increased output. A one-line of the interconnection is shown in Attachment 2.

The total preliminary cost estimate for the Attachment work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
	$ 0
	$ 0
	$ 0
Total Attachment Facility Costs	**$ 0**

Direct Connection Cost Estimate

No Direct Connection work is required for AB1-112 project.

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
	$ 0
	$ 0
	$ 0
Total Direct Connection Facility Costs	**$ 0**

Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Adjust remote end relaying and metering settings.	$ 12,700
	$ 0
	$ 0
Total Non-Direct Connection Facility Costs	**$ 12,700**

Transmission Owner Scope of Work

The network impact analysis shows there are no Planning Criteria violations directly attributable to the Project. As such, there are no network upgrades associated with the Project.

Interconnection Customer Requirements

None.

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Transmission Owner Requirements

The Interconnection Customer will be required to comply with all FE Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "FirstEnergy Requirements for Transmission Connected Facilities" document located at the following links:

http://www.firstenergycorp.com/feconnect
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

Network Impacts

The Queue Project AB1-112 was evaluated as a 20.0 MW (Capacity 20.0 MW) injection as an uprate to the AA2-173 project at Hatfield 500kV substation in the APS area. Project AB1-112 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). The Study is based on Summer Peak Analysis – 2019. Project AB1-112 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Generator Deliverability
(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency
(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)

None

Contribution to Previously Identified Overloads
(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None

Steady-State Voltage Requirements
(Results of the steady-state voltage studies should be inserted here)

To be determined

Short Circuit
(Summary of impacted circuit breakers)

No Short Circuit analysis was required to be conducted by PJM because AB1-112 is an uprate to an existing unit and did not change the electrical characteristics of the machines and GSUs.

Affected System Analysis & Mitigation

Delivery of Energy Portion of Interconnection Request
PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.
Only the most severely overloaded conditions are listed. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed, which will study all overload conditions associated with the overloaded element(s) identified.

Not Applicable

Light Load Analysis - 2019

Light Load Studies to be conducted during later study phases (as required by PJM Manual 14B).

System Reinforcements

None identified.

Additional Interconnection Customer Responsibilities:

1. An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

2. The Interconnection Customer may be required to install and/or pay for metering as necessary to properly track real time output of the facility as well as installing metering which shall be used for billing purposes. See Section 8 of Appendix 2 to the Interconnection Service Agreement as well as Section 4 of PJM Manual 14D for additional information.

3. The Interconnection Customer seeking to interconnect a wind generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per item 5.iv. of Schedule H to the Interconnection Service Agreement.