

Generation Interconnection Feasibility Study Report Queue Position AB2-102

The Interconnection Customer (IC) has proposed a 230 MW (225 MWC) simple cycle combustion turbine generating facility to be located in Millville, New Jersey. PJM studied AB2-102 as a 68 MW** injection into the Atlantic City Electric Company (ACE) system at the Cumberland 230 kV Substation and evaluated it for compliance with reliability criteria for summer peak conditions in 2020. The planned in-service date, as stated during the project kick-off call, is June 1, 2020.

** At the Interconnection Customer's request, 157 MWs of Capacity Interconnection Rights (CIRs) from the deactivated Cedar 2, Missouri Ave CT: B, C, & D and the Middle Energy Center: 1, 2 & 3 units were transferred to this AB2-102 project

Point of Interconnection

The Interconnection Customer requested that the AB2-102 project utilize the same Point of Interconnection as their prior queue position P06.

Transmission Owner Scope of Work

Other than the relay work below, no additional Transmission Owner work is required as the AB2-102 project will utilize the Attachment Facilities and Point of Interconnection created by Interconnection Customer's prior queue project P06.

Required Relaying and Communications

Relay replacement of the bus relays at the Cumberland 230 kV Substation will be required. The estimated time to complete this work is **18 months** and will cost **\$200,000**.

Interconnection Customer Scope of Work

The Interconnection Customer is responsible for all design and construction related to activities on their side of the Point of Interconnection. Site preparation, including grading and an access road, as necessary, is assumed to be by the IC. Route selection, line design, and right-of-way acquisition of the direct connect facilities is not included in this report, and is the responsibility of the IC. Protective relaying and metering design and installation must comply with ACE's applicable standards. The IC is also required to provide revenue metering and real-time telemetering data to PJM in conformance with the requirements contained in PJM Manuals M-01 and M-14 and the PJM Tariff.

ACE Interconnection Customer Scope of Direct Connection Work Requirements

- ACE requires that an IC circuit breaker is located within 500 feet of the ACE substation to facilitate the relay protection scheme between ACE and the IC at the Point of Interconnection (POI).

Metering

Three phase 230 kV revenue metering points will need to be established. ACE will purchase and install all metering instrument transformers as well as construct a metering structure. The secondary wiring connections at the instrument transformers will be completed by ACE's metering technicians. The metering control cable and meter cabinets will be supplied and installed by ACE. ACE will install conduit for the control cable between the instrument transformers and the metering enclosure. The location of the metering enclosure will be determined in the construction phase. ACE will provide both the Primary and the Backup meters. ACE's meter technicians will program and install the Primary & Backup solid state multi-function meters for each new metering position. Each meter will be equipped with load profile, telemetry, and DNP outputs. The IC will be provided with one meter DNP output for each meter. ACE will own the metering equipment for the interconnection point, unless the IC asserts its right to install, own, and operate the metering system.

The Interconnection Customer will be required to make provisions for a voice quality phone line within approximately 3 feet of each Company metering position to facilitate remote interrogation and data collection.

It is the IC's responsibility to send the data that PJM and ACE requires directly to PJM. The IC will grant permission for PJM to send ACE the following telemetry that the IC sends to PJM: real time MW, MVAR, volts, amperes, generator status, and interval MWH and MVARH.

Special Operating Requirements

1. ACE will require the capability to remotely disconnect the generator from the grid by communication from its System Operations facility. Such disconnection may be facilitated by a generator breaker, or other method depending upon the specific circumstances and the evaluation by ACE.
2. It is the Interconnection Customer's responsibility to send the data that PJM and ACE require directly to PJM. The Interconnection Customer will grant permission for PJM to send to ACE the following telemetry that the Interconnection Customer sends to PJM: real time MW, MVAR, volts, amperes, generator/status, and interval MWH and MVARH.
3. The Interconnection Customer will be required to make provisions for a voice quality phone line within approximately 3 feet of each ACE metering position to facilitate remote interrogation and data collection.
4. ACE reserves the right to charge the Interconnection Customer operation and maintenance expenses to maintain the Interconnection Customer attachment facilities, including metering and telecommunications facilities, owned by ACE.

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.

Summer Peak Analysis - 2020

Transmission Network Impacts

Potential transmission network impacts are 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

Summer Peak Load Flow Analysis Reinforcements

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None

Steady-State Voltage Requirements

To be performed during later study phases.

Short Circuit

No issues identified.

Stability and Reactive Power Requirement

To be performed during later study phases.

Light Load Analysis - 2020

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

Facilities Study Estimate

7 months: \$100,000

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.

None