Generation Interconnection Feasibility Study Report W3-103

The Interconnection Customer (IC), has proposed a 5 MWE (1.9 MWC) solar powered generating facility consisting of ground mounted, fixed panel, solar photovoltaic arrays. The project is to be located in Bridgeton, New Jersey. PJM studied W3-103 as a 5 MW injection into the Atlantic City Electric (ACE) system at the Carlls Corner 69kV substation. The project was evaluated for compliance with reliability criteria for summer peak conditions in 2014. The proposed in-service date, as stated in Attachment N, is December 31, 2011.

Point of Interconnection

W3-103 will interconnect with the Atlantic City Electric transmission system at the Carlls Corner 69kV substation.

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

The scope of work and estimated costs for the direct connection facilities is as follows:

At the Carlls Corner 69kV substation, create one (1) 69kV bus position and add a riser with disconnect switches for cabling from the substation to the Point of Interconnection (POI) for the 69kV line to the W3-103 site.

The estimated cost to perform this work is **$1,600,000**. The estimated time to complete this work is **24 - 36 months** after receipt of a fully executed Interconnection Service Agreement (ISA) and Interconnection Construction Service Agreement (CSA).

Note: Additional costs upon further engineering review may result. Additionally, Contribution in Aid of Construction (CIAC) tax will be included upon further study.

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer (IC) is responsible for all design and construction related to activities on their side of the point of Interconnection. IC will interconnect W3-103 with the ACE system via a 69kV circuit from their facility to the Carlls Corner 69kV substation. The above cost does not include construction of that line. Site preparation, including grading and an access road, as necessary, is assumed to be by the IC. At this time, route selection, line design, right-of-way acquisition, and construction of such lines will be entirely the responsibility of the Interconnection Customer. Pending determination by ACE, the previously mentioned responsibility associated with planning and constructing the transmission line from the W3-103 to the Carlls Corner 69kV substation may revert back to ACE. Ownership of the line would reside with ACE. The Interconnection Customer may be responsible for contributing to future O & M costs.

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 will require the capability to remotely trip the generator from its System Operations facility. The interconnected customer will grant its permission for PJM to send ACE all telemetry that the Interconnection Customer sends to PJM. 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.

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, Line with Failed 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

Short Circuit

None

Stability Analysis

Not required due to project size.

New System Reinforcements

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

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.

None

Potential Congestion due to Local Energy Deliverability

(PJM also studied the delivery of the energy portion of the surrounding generation. Any potential 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 Transmission Interconnection Request. Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full deliverability for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which analyzes all overload conditions associated with the identified overloaded element(s). As a result of the aggregate energy resources in the area, the following violations were identified:

These are ***not*** required reliability upgrades.

1. (AE) The Sherman-Sherman #1 69 kV line (from bus 228226 to bus 228256 ckt 1) loads from 99.72% to 101.41% (DC power flow) of its emergency rating (108 MVA) for the operational contingency 'USLC-SM_V4-036B_WITH_W1-085B'. This project contributes approximately 1.83 MW to the thermal violation.