Generation Interconnection Feasibility Study Report

Fairton 69kV II

The Interconnection Customer (IC), has proposed a 20 MWE (7.6 MWC) solar powered generating facility consisting of ground mounted fixed panel solar arrays to be located in Cumberland County, New Jersey. PJM studied W1-022 as a 20 MW injection into the Atlantic City Electric (ACE) system at the Fairton 69kV substation. The project was evaluated for compliance with reliability criteria for summer peak conditions in 2014.

Point of Interconnection

W1-022 will connect to the Atlantic City Electric transmission system at the Fairton 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:

1. Provide a 69kV terminal position in the Fairton 69kV substation.

The estimated cost to perform this work is **$800,000** and will take an estimated **24 – 36 months** to complete after receipt of a fully executed Interconnection Service Agreement (ISA) and Interconnection Construction Service Agreement (CSA).

Note: the above cost does not include the Contribution in Aid of Construction (CIAC) tax.

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer (IC) assumes full responsibility for design and construction of all facilities associated with the W1-022 generating station and the 69kV direct connection line on the IC's side of the Point of Interconnection. Site preparation, including grading and an access road as necessary, is assumed to be by the IC.

The IC will be required to install metering and telemetry equipment to provide revenue metering and real-time telemetry data to PJM. The requirements for this equipment are listed in Appendix 2, Section 8 of Attachment O to the PJM Tariff, as well as PJM Manuals 01 and 14D. Protective relaying and metering design and installation must comply with Atlantic City Electric's Applicable Standards.

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 contingencies only with full energy output. Stuck Breaker and Bus Fault contingencies will be applied during the System Impact Study.)

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. The CRLS CR2-SHRMAN#2 69 kV line (from bus 228252 to bus 228226 ckt 1) loads from 65.01% to 81.15% (DC power flow) of its emergency rating (56 MVA) for the single line contingency ('FAIR-NEWP'). This project contributes approximately 9.04 MW to cause the thermal violation.

2. The FAIRTON-NEWPORT 69 kV line (from bus 228214 to bus 228219 ckt 1) loads from 69.31% to 86.91% (DC power flow) of its emergency rating (48 MVA) for the single line contingency ('CARLL-SHERM'). This project contributes approximately 8.44 MW to cause the thermal violation.