Generation Interconnection Feasibility Study Report
(Final)

For

PJM Generation Interconnection Request Queue Position V2-046

Pilesgrove Township 12kV

February 2010

Preface

The intent of the Feasibility Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the System Impact Study is performed.

Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer may be responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs may be included in the study.

General

The Interconnection Customer (IC), has proposed a 19.9 MWE (7 MWC) solar powered generating facility consisting of fixed panel solar arrays to be located in Pilesgrove Township, Salem County, New Jersey. PJM studied V2-046 as a 19.9 MW injection into the Atlantic City Electric's transmission system at the Woodstown 69/12 kV substation and evaluated the project for compliance with reliability criteria for summer peak conditions in 2013. The planned in-service date is November 1, 2010.

Point of Interconnection

V2-046 will interconnect with the Atlantic City Electric distribution system at the Woodstown 69/12kV substation (see Attachment 1).

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. The construction of a new dedicated 12kV dual feeder (approximately 9700 feet in length) with 500 CU PAC aerial cables to be built between the IC's generating site and the Woodstown 69/12kV substation on the same existing pole line. The estimated cost to perform this work is **$1,300,000.**

2. Installation of a 42/45MVA (N/E) 69/12kV transformer and one feeder terminal at the Woodstown substation. The estimated cost to perform this work is **$4,500,000.**

3. A second feeder terminal will be created at the Woodstown substation for the new dedicated dual 12kV feeder. The estimated cost to perform this work is **$400,000.**

4. A utility operated recloser will be required on the IC tap that will have proper relaying and communication. The estimated cost to perform this work is **$50,000.**

5. Utility grade primary metering will be required. The estimated cost to perform this work is **$20,000.**

6. A SCADA point addition to Control Center will be required. The estimated cost to perform this work is **$10,000.**

7. System protection planning including transfer trip work. Transfer trip to be installed in locations where a generator installation can be islandized with a minimum load. A minimum load is less than 3 times the size of generator capacity. The estimated cost to perform this work is **$15,000.**

   The total estimated cost to perform the above work is **$6,295,000.** The estimated time to complete the work is **6 to 12 months** following receipt of a fully executed Interconnection Services Agreement and Interconnection Construction Service Agreement. The schedule and costs will be refined during the System Impact Study phase of the project.

   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 assumes full responsibility for design and construction of all facilities associated with the V2-046 generating station on their side of the POI. Site preparation including grading and an access road, if 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 Applicable Standards.

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

Not required.

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

Dynamic Analysis

A time based dynamic study will be completed during the System Impact Study phase of V2-046. The study may identify the need for additional system equipment, settings, distribution system reinforcements, and possibly Point of Interconnection alternatives. The IC will be required to provide dynamic VAR compensation.