

***Generation Interconnection
Feasibility Impact
Study Report***

For

***PJM Generation Interconnection Request
Queue Position V4-004***

Roxbury 12.5kV

April 2010

Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, 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 impact study is performed.

The Feasibility 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 is 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 10.0 MW (3.8 MW capacity) solar generating facility. The facility will be located at Lenel Road and N. Frontage Road in Roxbury, New Jersey.

Point of Interconnection

V4-004 will interconnect with the Jersey Central Power & Light distribution system from the Landing 34.5kV and Mt. Arlington 34.5kV substations.

Network Impacts

The queue V4-004 project was studied as a 10MW injection (3.8MW of which was capacity) into JCPL's system. The power injection was evenly split between the Landing 34.5kV and the Mt. Arlington 34.5kV substations. The project was studied on a combined feasibility-impact basis which utilizes an AC analysis, and incorporates all contingency types. Project V4-004 was evaluated for compliance with reliability criteria for summer peak conditions in 2014.

Potential network impacts were as follows:

Generator Deliverability

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

No problems identified.

Multiple Facility Contingency

(Double Circuit Tower Line, Line with Failed Breaker and, Bus Fault contingencies for the Full energy output.

No problems identified.

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)

No problems identified.

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.

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:

No problems identified.