Generation Interconnection Combined Feasibility/System Impact Study Report

For

PJM Generation Interconnection Request Queue Position AB2-057

Brunswick 26kV

November 2016

Preface

The intent of the Combined Feasibility/System Impact 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, if any, is included in the System Impact Study.

The 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 associated with them will be addressed when seeking an Interconnection Agreement as outlined below. Developer will also be responsible for providing and installing metering equipment in compliance with applicable PJM and Transmission Owner standards.

General

New Road Solar, LLC, the Interconnection Customer (IC), has proposed a solar generating facility located in Brunswick, New Jersey. The installed facilities will have a total capability of 10 MW with 3.8 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is July 1, 2017. **This study does not imply a PSE&G commitment to this in-service date.**

Attachment facilities and local upgrades (if required) along with terms and conditions to interconnect AB2-057 will be specified in a separate two party Interconnection Agreement (IA) between PSE&G and the Interconnection Customer as this project is considered FERC non-jurisdictional per the PJM Open Access Transmission Tariff (OATT). From the transmission system perspective, no network impacts were identified as detailed below.

Point of Interconnection

AB2-057 will interconnect with the PSE&G distribution system by tapping the Brunswick P238 26 kV circuit.

Cost Summary

The AB2-057 project will be responsible for the following costs:

Description	Total Cost	
Transmission Owner facilities	$	570,509
New System Upgrades	$	0
Previously Identified Upgrades	$	0
Total Costs	**$**	**570,509**

Attachment Facilities

None.

Direct Connection Cost Estimate

The total preliminary cost estimate for the Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Direct Connection Facilities	$ 401,109
Metering upgrades	$ 69,400
Total Costs	**$ 470,509**

Non-Direct Connection Cost Estimate

The total preliminary cost estimate for the Non-Direct Connection work is given in the table below. These costs do not include CIAC Tax Gross-up.

Description	Total Cost
Relaying and Setting upgrades	$ 100,000
Total Costs	**$ 100,000**

Transmission Owner Scope of Work

Scope, cost, and detailed schedule provided in the Interconnection Agreement between the customer and transmission owner.

Interconnection Customer Requirements

PSE&G's Information & Requirements for Electric Service Handbook
http://www.pseg.com/business/builders/new_service/before/pdf/RequirementsElecSvc2005.pdf

PSE&G Customer Equipment Requirements – Primary Service
https://www.pseg.com/business/builders/new_service/before/pdf/pepp/sec03.pdf

Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

Public Service Electric and Gas Requirements

The Interconnection Customer will be required to comply with all PSE&G Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "Information and Requirements for Electric Service" document located at the following links:

http://www.pseg.com/business/builders/new_service/before/
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

Network Impacts

The Queue Project AB2-057 was evaluated as a 10.0 MW (Capacity 3.8 MW) injection at the Brunswick 26kV substation in the PSEG area. Project AB2-057 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB2-057 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Summer Peak Analysis - 2020

Generator Deliverability

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

None.

Multiple Facility Contingency

(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

None.

Short Circuit

(Summary of impacted circuit breakers)

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.

Steady-State Voltage Requirements

(Summary of the VAR requirements based upon the results of the steady-state voltage studies)

None.

Stability and Reactive Power Requirement for Low Voltage Ride Through

(Summary of the VAR requirements based upon the results of the dynamic studies)

None.

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.

Potential Congestion due to Local Energy Deliverability

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.

None.

Attachment 1. System Configuration