

***PJM Generator Interconnection Request
Queue W2-056
Lumberton 13kV
Feasibility/Impact Study Report***

**October 2010
#616328**

W2-056 Lumberton 13kV Feasibility/Impact Study

General

Earl F. Stahl Jr. has proposed installing an 11 MW solar project at 7-12 Reeves Station Road and 27 Reeves Station Road, Medford, Burlington County, New Jersey. The commercial operation date is November 1, 2011.

PSE&G can support up to 5 MW on a distribution circuit. There are two distribution circuits just west of the proposed installation on Medford-Mt. Holly Road that emanate from Lumberton station. There is also a 13kV circuit on the east side of the generating site on Fostertown Road that emanates from Medford 69kV station. The Medford station is fed from the Lumberton station via a 69kV circuit.

Earl Stahl decided that the Feasibility/Impact Study should proceed evaluating connecting a 10 to 11 MW project utilizing two of the three distribution circuits near the property, determining which two would be the least expensive interconnection.

The intent of the Feasibility/Impact study is to determine system reinforcements and associated costs and construction time estimates required to facilitate the addition of the new generating plant to the transmission system. The reinforcements include the direct connection of the generator to the system and any network upgrades necessary to maintain the reliability of the transmission system.

Direct Connection

The interconnection of 11 MW of solar generation by Earl Stahl Solar Energy in Medford, New Jersey will consist of two 13-kV separate interconnections to two distribution circuits, Lumberton 8014 and Lumberton 8024, supplied from Lumberton 230-13-kV substation. The total interconnection cost of \$850,019 is based on the most efficient possible route to the 2 existing 13-kV Distribution infrastructures and is detailed as follows:

<u>Project Item</u>	<u>13-kV 2 Lines Service</u>
Inside Plant	
Line Position/Feeder Row	-
Relay Protection	-
Manholes/Conduit	-
Other/Misc.	-
Sub Total	\$0
Outside Plant	
Overhead Line	\$656,919
Underground Line	-
Manholes/Conduit	-
Other/Misc.	-
Sub Total	\$656,919
Metering/Monitoring	
Revenue Metering/Telemetry/SCADA	\$93,100
Feeder Metering	\$100,000
Other/Misc.	-
Sub Total	\$193,100
Total Cost	\$850,019
Acceptable Generation Level	Up to 11 MW

The cost in the Interconnection Agreement is exclusive of work required to be performed by the developer as specified in PSE&G's Information & Requirements for Electric Service Handbook. This work includes, but may not be limited to, the following:

- Developer is responsible for purchase and installation of all high voltage (26-kV) service equipment as required
- Developer will adhere to specifications detailed in the PSE&G Information and Requirements for electric service handbook
- Developer is responsible for all trenching and the installation of conduits and manholes as normally required and specified by PSE&G
- Developer must obtain all permits and easements required to install the interconnection facilities
- Developer must provide access for the installation, maintenance and operation of all service equipment

It is anticipated that material procurement and construction will require 5-6 months from the date of project approval and authorization.

Below is the schedule of work PSE&G has proposed for the project:

May 1, 2011

ISA and CSA are fully executed and authorization is received to proceed with construction
Long lead time construction material is placed on order

June 15, 2011

Developer submits preliminary site plan, 13-kV switchgear one-line diagram and equipment specifications for approval

July 1, 2011

PSE&G provides comments on project lay-out and design

August 1, 2011

Developer submits final site plan, 13-kV switchgear one-line diagram and equipment specifications for approval

August 15, 2011

PSE&G provides final comments and approval of 13-kV switchgear lay-out and design
Developer begins construction based on approved design

September 1, 2011

PSE&G commences line construction

October 15, 2011

Switchgear inspection and approval by PSE&G

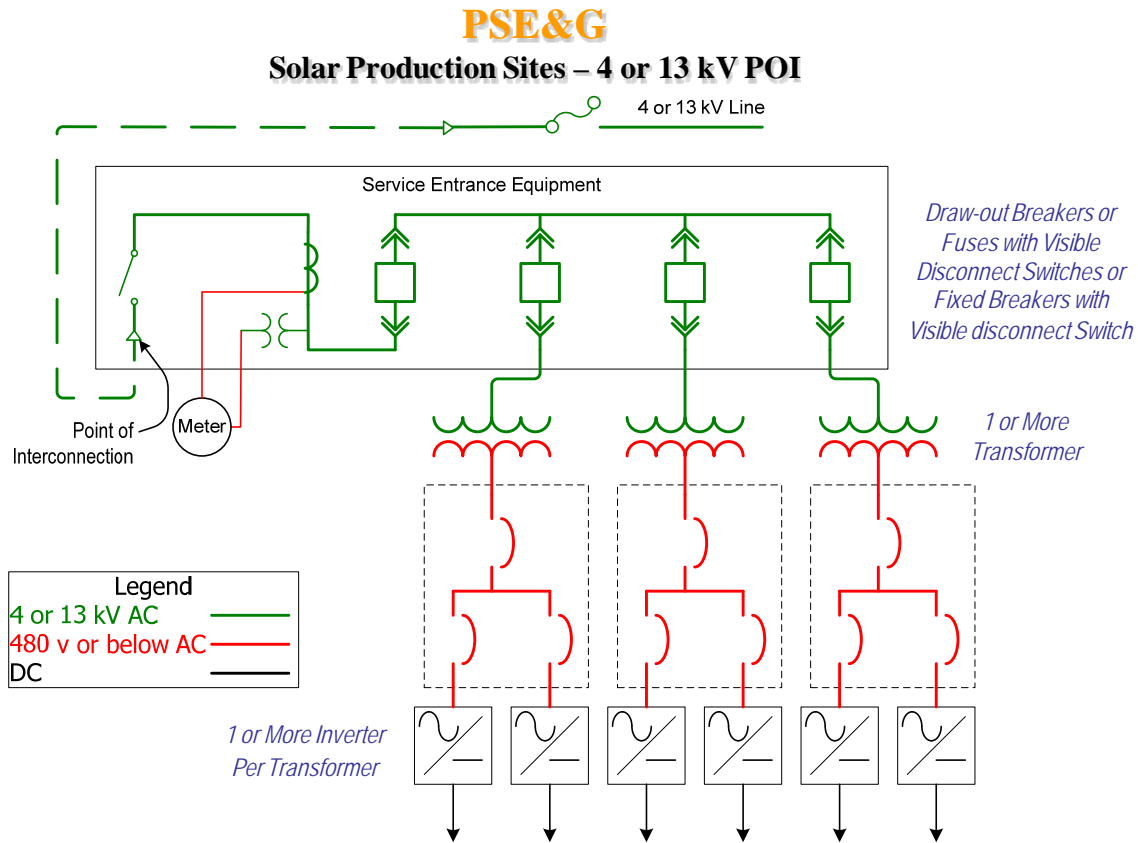
November 1, 2011

Completion of interconnection work and service cut-in

Notes:

- 1) Customer will abide by PSE&G Information and Requirements for electric service hand book
- 2) Customer is responsible to provide trench, conduit and manholes were applicable
- 3) Customer is responsible to provide access and easements
- 4) Customer is responsible to provide permits and associated costs.
- 5) Electric service route was based on most efficient route
- 6) Material procurement will be six months from project approval/authorization

Figure #1



Network Impacts

Queue project W2-056 was studied as a(n) 11.0MW (4.18MW of which was Capacity) injection into PSEG's system at the Lumberton 13.2kV substation. The project was studied on a combined feasibility-impact basis which utilizes an AC analysis, and incorporates all contingency types. Project W2-056 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.

Short Circuit

(Summary form of Cost allocation for breakers will be inserted here if any)

No problems identified

Stability

Not required because the project is less than 30 MW.

System Reinforcements

None

Energy Portion of Interconnection Request

(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. There is no guarantee of full delivery of energy 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 overloaded element(s) identified. As a result of the aggregate energy resources in the area, the following violations were identified.)

No problems identified.