PJM Generator Interconnection Request
Queue Y1-009
Yardville 13kV
Feasibility/Impact Study Report

July 2011
#707667

Y1-009 Yardville 13kV Feasibility/Impact Study

General

Yardville 13 kV has proposed installing a 4.0 MW solar project on properties at 99 Merrick Road, Hamilton Township, Mercer County, NJ. The capacity evaluation is based upon 1.52 MW. The original commercial operation date was December 31, 2012, but will need to be amended based on the date the Interconnection agreement is executed, and the availability of long lead time equipment.

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 following is an estimate (including risk and contingencies) for the interconnection of 4 MW of solar generation by Yardville 13 kV project in Hamilton Township, Mercer County, New Jersey. As previously specified, the interconnection will consist of a single 13-kV distribution circuit Yardville 8011 supplied from the Yardville 138/13 kV substation. The total interconnection cost of $1,395,934 is based on the most efficient possible route to the existing 13 kV Distribution infrastructures and is detailed as follows:

Project Item		13-kV Single Line YRD8011
Inside Plant		
Line Position/Feeder Row		-
Relay Protection		-
Manholes/Conduit		-
Other/Misc.		-
	Sub Total	$0
Outside Plant		
Overhead Line		$1,244,034
Underground Line		-
Manholes/Conduit		-
Other/Misc.		-
	Sub Total	$1,244,034
Metering/Monitoring		
Revenue Metering/Telemetering/SCADA		$61,900
Feeder Metering		$90,000
Other/Misc.		-
	Sub Total	$151,900
Total Cost		**$1,395,934**
Acceptable Generation Level		**Up to 4.0 MW**

This cost 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 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.

Project Schedule

Project Initiation
Wholesale Market Participation Agreement (WMPA is fully executed and authorization is received to proceed with construction
Long lead time construction material is placed on order

1-2 Weeks from Project Initiation
Developer submits preliminary site plan, 13-kV switchgear one-line diagram and equipment specifications for approval

3-4 Weeks from Project Initiation
PSE&G provides comments on project lay-out and design

6-7 Weeks from Project Initiation
Developer submits final site plan, 13-kV switchgear one-line diagram and equipment specifications for approval

8-10 Weeks from Project Initiation
PSE&G commences line construction

10-12 Weeks from Project Initiation
PSE&G provides final comments and approval of 13-kV switchgear lay-out and design
Developer begins construction based on approved design

18-20 Weeks from Project Initiation
Switchgear inspection and approval by PSE&G

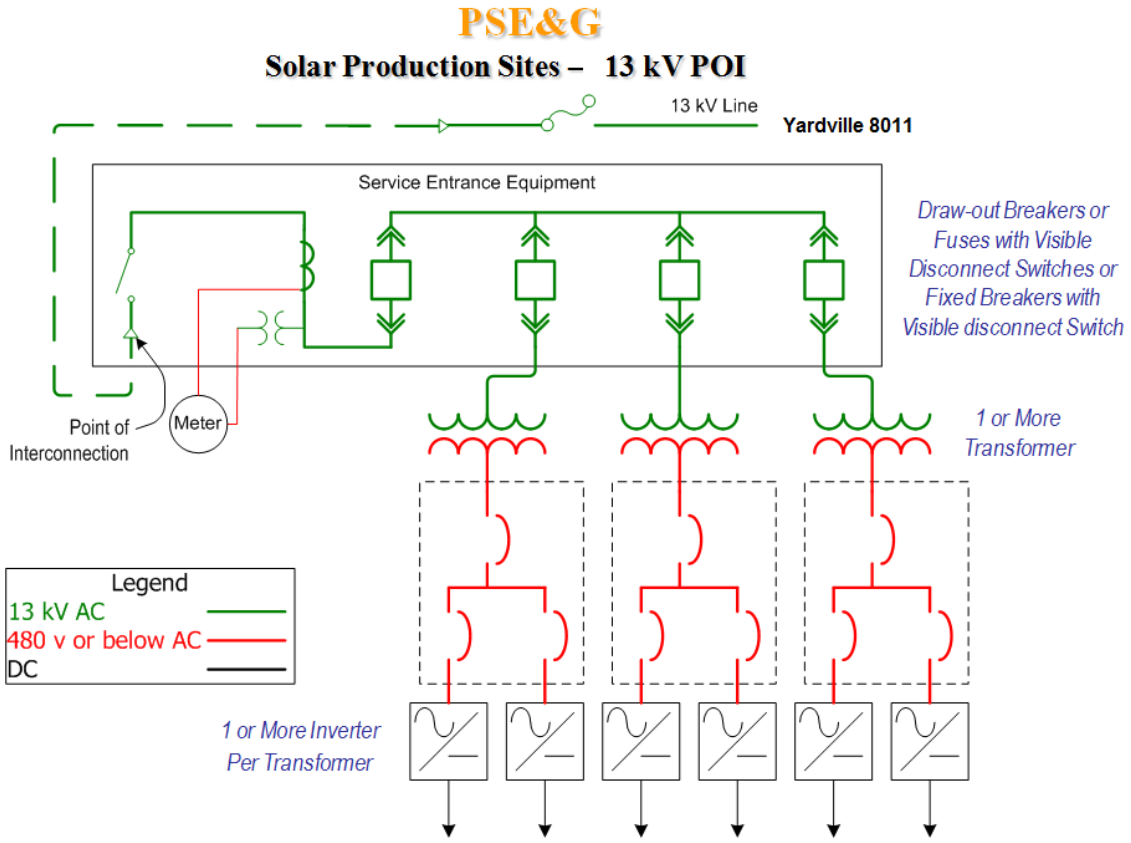
24-26 Weeks from Project Initiation

Completion of interconnection work and service cut-in

Notes:

1) Developer is responsible for purchase and installation of transfer trip equipment to meet PSE&G specifications at the customer's facility
2) Electric service route was based on most efficient route
3) Material procurement will be six months from project approval/authorization

Figure #1



Network Impacts

Queue project Y1-009 was studied as a 4.0 MW injection, (1.52 MW of which was Capacity) into PSEG's system at the Yardville 138/13 kV substation. Project Y1-009 was evaluated for compliance with reliability criteria for summer peak conditions in 2015.

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.