PJM Generator Interconnection Request
Queue W2-058
Southampton (Forza Solar Farm) 13kV
Feasibility/Impact Study Report

October 2010
#616442

W2-058 Southampton (Forza Solar Farm) 13kV Feasibility/Impact Study

General

The Forza Group has proposed installing a 1 MW solar project at property on Eayrestown Road (Lot 6.02, Block 2201), Southampton Township, Burlington County, New Jersey. The commercial operation date is September 1, 2011.

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 will consist of a 13-kV primary service connected to a 13-kV distribution circuit supplied from Southampton 69-13-kV Substation which, in turn, is supplied from Lumberton 230-69-kV Switching Station. The total interconnection cost of $215,863 (13-kV) or $241,001 (277/480 volt) is based on the most efficient possible route to the existing 13-kV Distribution infrastructure and is detailed as follows:

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

Project Item		Option A 13-kV Single Line Service	Option B 1500 KVA Transforn 277/480 Volt
Inside Plant			
Line Position/Feeder Row		-	-
Relay Protection		-	-
Manholes/Conduit		-	-
Other/Misc.		-	-
	Sub Total	$0	$0
Outside Plant			
Overhead Line		$158,563	$187,201
Underground Line		-	-
Manholes/Conduit		-	-
Other/Misc.		-	-
	Sub Total	$158,563	$187,201
Metering/Monitoring			
Revenue Metering/Telemetering/SCADA		$57,300	$53,800
Feeder Metering		-	-
Other/Misc.		-	-
	Sub Total	$57,300	$53,800
Total Cost		**$215,863**	**$241,001**
Acceptable Generation Level		**Up to 1.5 MW**	**Up to 1.5 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:

December 1, 2010

ISA and CSA are fully executed and authorization is received to proceed with construction

Long lead time construction material is placed on order

January 15, 2011

Developer submits preliminary site plan, 13-kV or 277/480 volt switchgear one-line diagram and equipment specifications for approval

February 1, 2011

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

March 1, 2011

Developer submits final site plan, 13-kV or 277/480 volt switchgear one-line diagram and equipment specifications for approval

March 15, 2011

PSE&G provides final comments and approval of 13-kV or 277/480 volt switchgear lay-out and design

Developer begins construction based on approved design

April 1, 2011

PSE&G commences line construction

May 15, 2011

Switchgear inspection and approval by PSE&G

June 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
Option #1

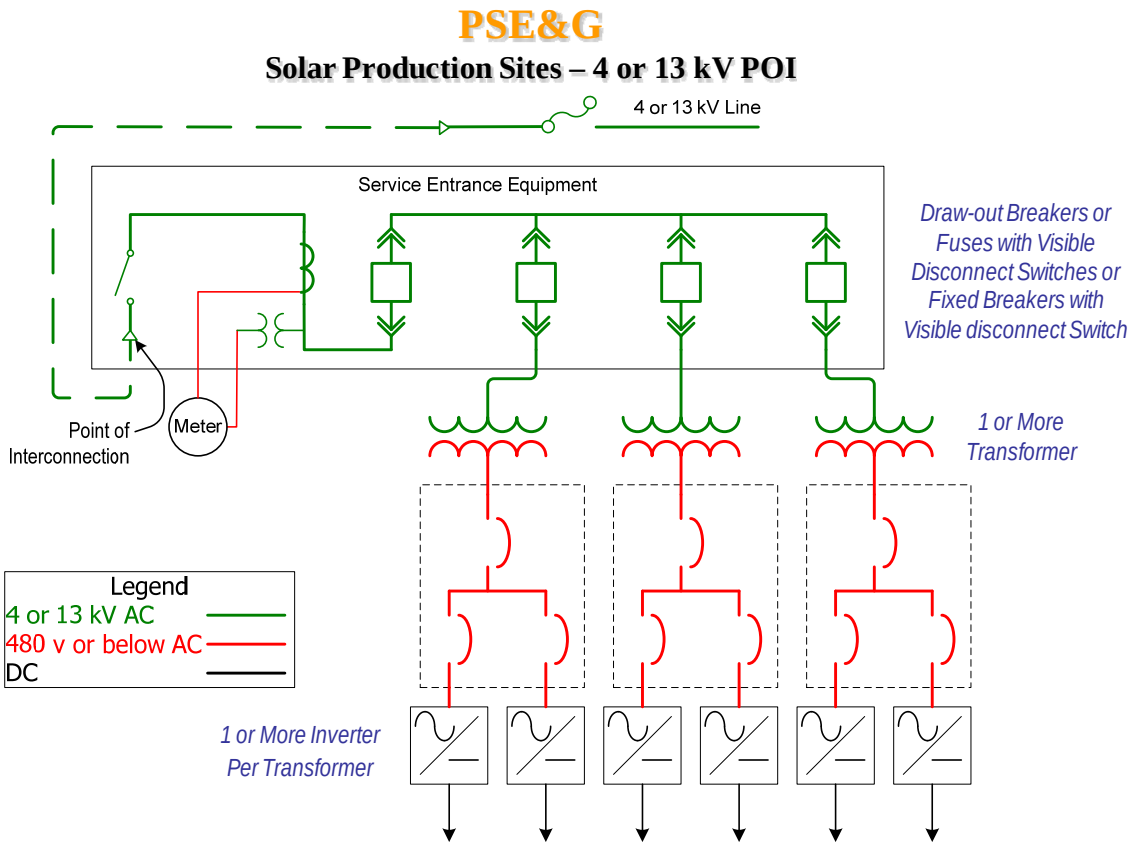
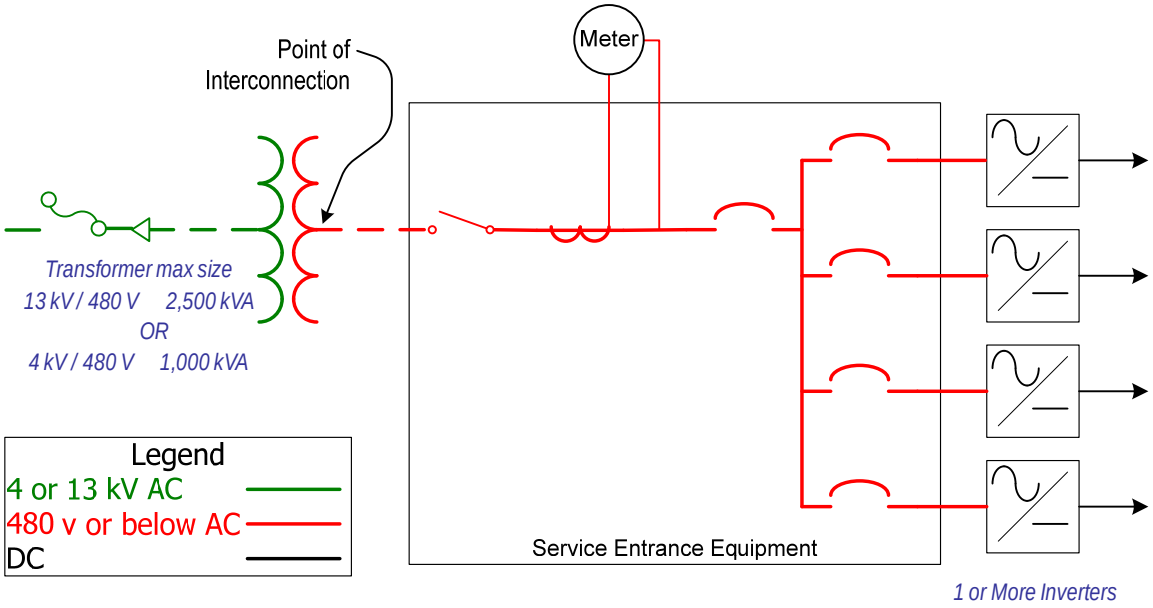


Figure #2
Option #2



Network Impacts

Queue project W2-058 was studied as a(n) 1.0MW (0.38 MW of which was Capacity) injection into PSEG's system at the Southampton 69kV substation. The project was studied on a combined feasibility-impact basis which utilizes an AC analysis, and incorporates all contingency types. Project W2-058 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.