

***PJM Generator Interconnection Request
Queue X2-094
Green Brook (New Market Solar) 13kV
Feasibility/Impact Report***

**October 2011
#670902**

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.

X2-094 Green Brook (New Market Solar) 13kV Feasibility/Impact Study

General

Greenlight Power Company, LLC has proposed installing a 3.0 MW solar project at 602 New Market Road, South Plainfield, Middlesex County, New Jersey. The project will consist of 6-500 kW inverters. The capacity evaluation is based upon 1.14 MW. The proposed commercial operation date is January 31, 2013. Backfeed is required by October 31, 2012.

Direct Connection

The following are estimates (including risk and contingencies) for the interconnection of the 3.0 MW New Market Solar Project in South Plainfield, New Jersey. The interconnection will consist of a single line service from the Green Brook 8021 13kV circuit. The 8021 circuit will be extended approximately ½ mile to the project site. The total interconnection cost will be as shown below:

<u>Project Item</u>	<u>13-kV</u> <u>Single Line</u> <u>GBK8021</u>
Inside Plant	
Line Position/Feeder Row	-
Relay Protection	-
Manholes/Conduit	-
Other/Misc.	-
Sub Total	\$0
Outside Plant	
Overhead Line	\$684,799
Underground Line	-
Manholes/Conduit	-
Other/Misc.	-
Sub Total	\$684,799
Metering/Monitoring	
Revenue Metering/Telemetry/SCADA	\$75,900
Feeder Metering	\$90,000
Other/Misc.	-
Sub Total	\$165,900
Total Cost	\$850,699
Acceptable Generation Level	Up to 3.0 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 is responsible for purchase and installation of all high voltage (13-kV, 26-kV, and 69-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.

Project Schedule

June 15, 2012

WMPA and IA are fully executed and authorization is received to proceed with construction

Long lead time construction material is placed on order

July 15, 2012

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

August 15, 2012

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

September 15, 2012

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

October 15, 2012

PSE&G commences line construction

November 15, 2012

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

December 15, 2012

Switchgear inspection and approval by PSE&G

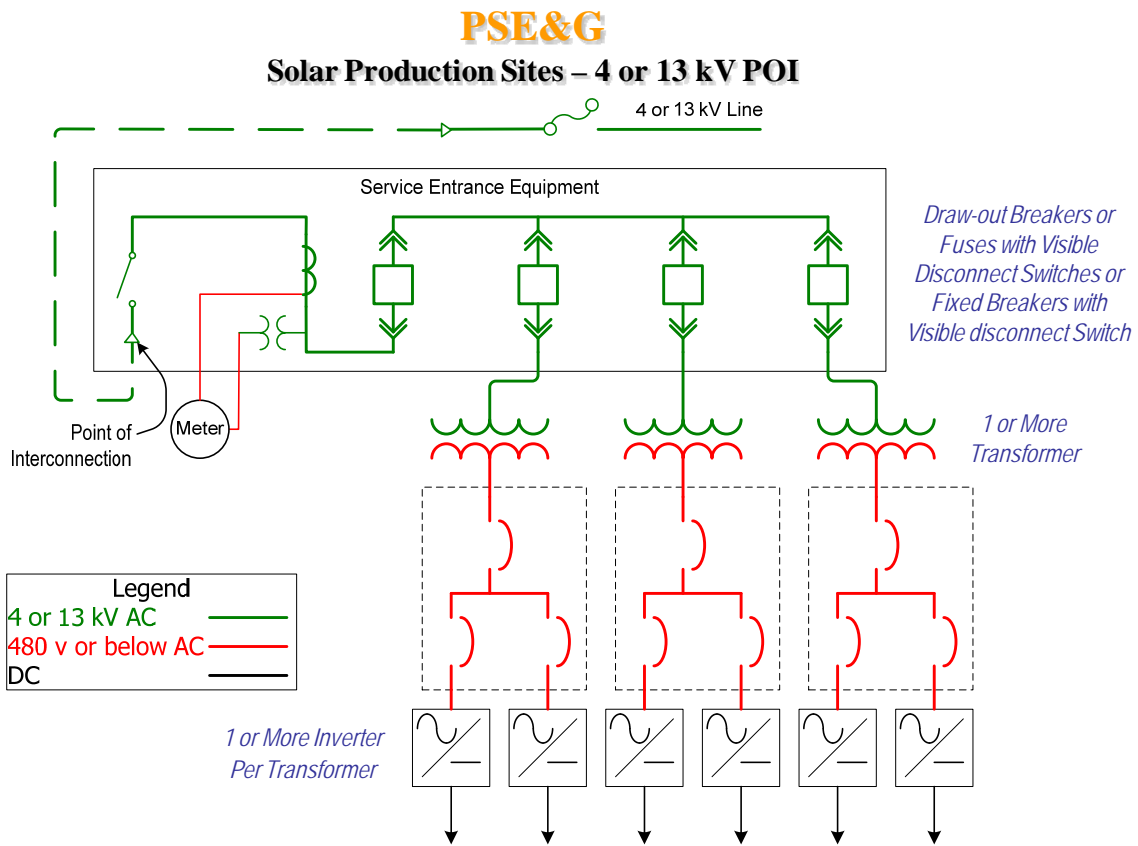
January 31, 2013

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

The Queue Project #X2-094 was studied as a(n) 3.0 MW(Capacity 1.1MW) injection at Green Brook 13kV station in the PSEG area. Project #X2-094 was evaluated for compliance with reliability criteria for summer peak conditions in 2015. 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.