PJM Generator Interconnection Request
Queue X2-035
Sunnymeade Road (Valley Road Solar)
13kV
Feasibility Report

October 2011
#670984

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.

X2-035 Sunnymeade Road (Valley Road Solar) 13kV Feasibility/Impact Study

General

The Interconnection Customer (IC) has proposed installing an 8.0 MW solar project consisting of 16-500kW inverters supplying 4 step-up transformers at 262 Valley Road, Hillsborough, Somerset County, New Jersey. Each of the solar panels will be rated approximately 280 watts, Suntech or similar. The capacity evaluation is based upon 3.04 MW. The initial proposed in-service date was December 31, 2011. The IC understands that this is not achievable. PSE&G expects to be able to have work completed for an in-service date in the second quarter of 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 13kVcircuit. The 8021 circuit will be extended approximately ½ mile to the project site. The total interconnection cost will be as shown below:

Project Item		Option A 13-kV Single Line SUN8023		Option B 13-kV Single Line SUN8011
Inside Plant				
Line Position/Feeder Row		-		-
Relay Protection		-		-
Manholes/Conduit		-		-
Other/Misc.		-		-
	Sub Total	$0		$0
Outside Plant				
Overhead Line		$50,000		$685,000
Underground Line		-		-
Manholes/Conduit		-		-
Other/Misc.		-		-
	Sub Total	$50,000		$685,000
Metering/Monitoring				
Revenue Metering/Telemetering/SCADA		$69,400		$59,500
Feeder Metering		$30,000	(Note 1)	$30,000
Other/Misc.		-		-
	Sub Total	$99,400		$89,500
Total Cost		**$149,400**		**$774,500**
Acceptable Generation Level		**Up to 5.0 MW**		**Additional 3 MW**

Note 1: If previous solar projects are not completed the price could increase by $60,000.

Project Item		13-kV Single Line GBK8021
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/Telemetering/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

November 15, 2011

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

Long lead time construction material is placed on order

December 15, 2011

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

December 31, 2011

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

January 15, 2012

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

February 15, 2012

PSE&G commences line construction

March 15, 2012

PSE&G provides final comments and approval of 13-kV switchgear lay-out and design

Developer begins construction based on approved design

April 15, 2012

Switchgear inspection and approval by PSE&G

May 31, 2012

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 #X2-035 was studied as a(n) 8.0 MW(Capacity 3.0 MW) injection at Sunnymeade Road 13kV station in the PSEG area. Project #X2-035 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.