PJM Generator Interconnection Request
Queue X2-002
Somerville (Halperin Solar) 13kV
FeasibilityReport

October 2011
#670502

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.

X2-002 Somerville (Halperin Solar) 13kV Feasibility Study

General

The interconnection customer (IC) has proposed installing a 11.2 MW AC ground-mount solar project on property at Block 148 Lot 18 Beekman Lane, Hillsborough Township, Somerset County, New Jersey. The capacity evaluation is based upon 4.2 MW. The proposed commercial operation date is March 31, 2012. The required back feed date is February 28, 2012. The IC was told this schedule is very aggressive and probably could not be met.

Direct Connection

The following are estimates (including risk and contingencies) for the interconnection of 11.2 MW of solar generation to Hillsborough Solar Project in Hillsborough, New Jersey. As previously specified, The total interconnection cost will vary with the option selected for the project as shown below. Each option is based on the most efficient possible route to the existing 13-kV infrastructure and is detailed as follows:

The following are estimates (including risk and contingencies) for the interconnection of the 11.2 MW Halperin Solar Project in Hillsborough, New Jersey. The interconnection will consist of three options; Option A: 13-kV Single line service from Somerville 8015, supplied from Somerville 230-kV Station; Option B: 13-kV services, from Sunnymeade 8034, supplied from Sunnymeade 230-kV Station; Option C: a single 13-kV line from Sunnymeade 8023. Option A and option B are capable of interconnecting 5 MW each. Option C will accommodate interconnection of the final 1.2 MW. Each option is based on the most efficient possible route to the existing 13-kV infrastructure.The total interconnection cost for each option is shown below.

The IC must choose the combination of interconnection options with which to proceed when returning the Impact Study Agreement.

Project Item		Option A 13-kV Single Line SMV8015	Option B 13-kV Single Line SUN8034	Option C 13-kV Single Line SUN8023	
Inside Plant					
Line Position/Feeder Row		-	-	-	
Relay Protection		-	-	-	
Manholes/Conduit		-	-	-	
Other/Misc.		-	-	-	
	Sub Total	$0	$0	$0	
Outside Plant					
Overhead Line		$34,003	$42,454	$1,018,415	
Underground Line		-	-	-	
Manholes/Conduit		-	-	-	
Other/Misc.		-	-	-	
	Sub Total	$34,003	$42,454	$1,018,415	
Metering/Monitoring					
Revenue Metering/Telemetering/SCADA		$75,900	$65,100	$62,900	
Feeder Metering		$90,000	$90,000	$30,000	(Note 1)
Other/Misc.		-	-	-	
	Sub Total	$165,900	$155,100	$92,900	
Total Cost		**$199,903**	**$197,554**	**$1,111,315**	
Acceptable Generation Level		**Up to 5.0 MW**	**Additional 5.0 MW**	**Additional 1.2 MW**	

Note 1: If Option B is not completed the price for Option C will increase by $60,000.

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

WMPA and IA, with PSE&G, are fully executed and authorization is received to proceed with construction

Long lead time construction material is placed on order

November 30, 2011

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

December 15, 2011
PSE&G provides comments on project lay-out and design

December 31, 2011
Developer submits final site plan, 13-kV switchgear one-line diagram and equipment specifications for approval

January 15, 2012
PSE&G commences line construction

January 31, 2012
PSE&G provides final comments and approval of 13-kV switchgear lay-out and design
Developer begins construction based on approved design

February 15, 2012
Switchgear inspection and approval by PSE&G

March 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

Network Impacts

The Queue Project #X2-002 was studied as a(n) 11.2MW(Capacity 4.2MW) injection at Somerville 13kV station in the PSEG area. Project #X2-002 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.
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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.