Generation Interconnection
System Impact Study Report

For

PJM Generation Interconnection Request Queue
Position Y2-081

Deptford (Kinsley Solar) 13kV

December 2013

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.

General

Kinsley Landfill Inc. ,the Interconnection Customer (IC), is proposing to install 5.0 of Solar generation to be located in Gloucester County, New Jersey and has requested to be studied as a 5.0 MW Energy 1.9 MW Capacity) resource interconnecting into the PSE&G area. This means that the remaining 3.1 MW can be curtailed should a system reliability constraint occur. The IC has proposed in-service date is for June 1, 2014. The IC has requested a backfeed date of April 1, 2014.

This Generation Interconnection Feasibility Study provides analysis results to aid the IC in assessing the practicality and cost of incorporating the facility into the PJM system. This study was limited to load flow analyses of probable contingencies. If the IC elects to pursue a System Impact Study, a more comprehensive analysis will be performed.

Point of Interconnections

Y2-081 will interconnect with the PSE&G distribution system at the Deptford 8042, 13 kV Circuit.

Direct Connection Cost Estimate

The following are estimates (including risk and contingencies) for the interconnection of 5 MW of solar generation to the Kinsley Landfill Solar project in Sewell, New Jersey. The interconnection will consist of a single 13 kV line from Deptford Substation (Deptford 8042) and is acceptable for up to 5.0 MW at the solar site. The total interconnection costs of $865,019 are based on the most efficient possible routes to the existing 13 kV infrastructures and are detailed as follows:

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 provide all 13-kV service equipment and 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
- Developer to contact Verizon to obtain estimate for facility transfer costs
- Electric service route was based on most efficient route given no site plans were provided by customer

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

	13-kV	
Project Item	Single Line	
	DFD 8042	
Inside Plant		
Line Position/Feeder Row	-	
Relay Protection	-	
Manholes/Conduit	-	
Other/Misc.	-	
Sub Total	$0	
Outside Plant		
	$703,119	
Overhead Line		
Underground Line	-	
Manholes/Conduit	-	
Other/Misc.	-	
Sub Total	$703,119	
Metering/Monitoring		
Revenue Metering/Telemetering/SCADA	$61,900	
Feeder Metering	$100,000	See Note 1
Other/Misc.	-	
Sub Total	$161,900	
Total Cost	**$865,019**	
Acceptable Generation Level	**Up to 5 MW**	
Note 1: If previous solar projects are not completed, the cost for feeder metering could increase by $70,000 for Option 2.		

Table 1 –Estimated Costs

KINSLEY LANDFILL SOLAR Project Schedule

March 10, 2014

Wholesale Market Participation Agreement (WMPA) and Interconnection Agreement (IA) are fully executed and authorization is received to proceed with construction

Long lead time construction material is placed on order

April 30, 2014

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

May 1, 2014

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

June 1, 2014

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

June 15, 2014

PSE&G commences line construction

July 1, 2014

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

Developer begins construction based on approved design

August 15, 2014

Switchgear inspection and approval by PSE&G

October 1, 2014

Completion of interconnection work and service cut-in

Notes:

1) Developer will abide by PSE&G Information and Requirements for electric service hand book
2) Developer is responsible to provide trench, conduit and manholes where applicable
3) Developer is responsible to provide permits, access and easements
4) Developer must provide access for the installation, maintenance and operation of all service equipment
5) Developer to contact Verizon to obtain estimate for facility transfer costs

Revenue Metering and SCADA Requirements

For PJM: IC will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

For PSE&G:

The Interconnection Customer will be required to comply with all PSE&G Revenue Metering Requirements for Generation Interconnection Customers.

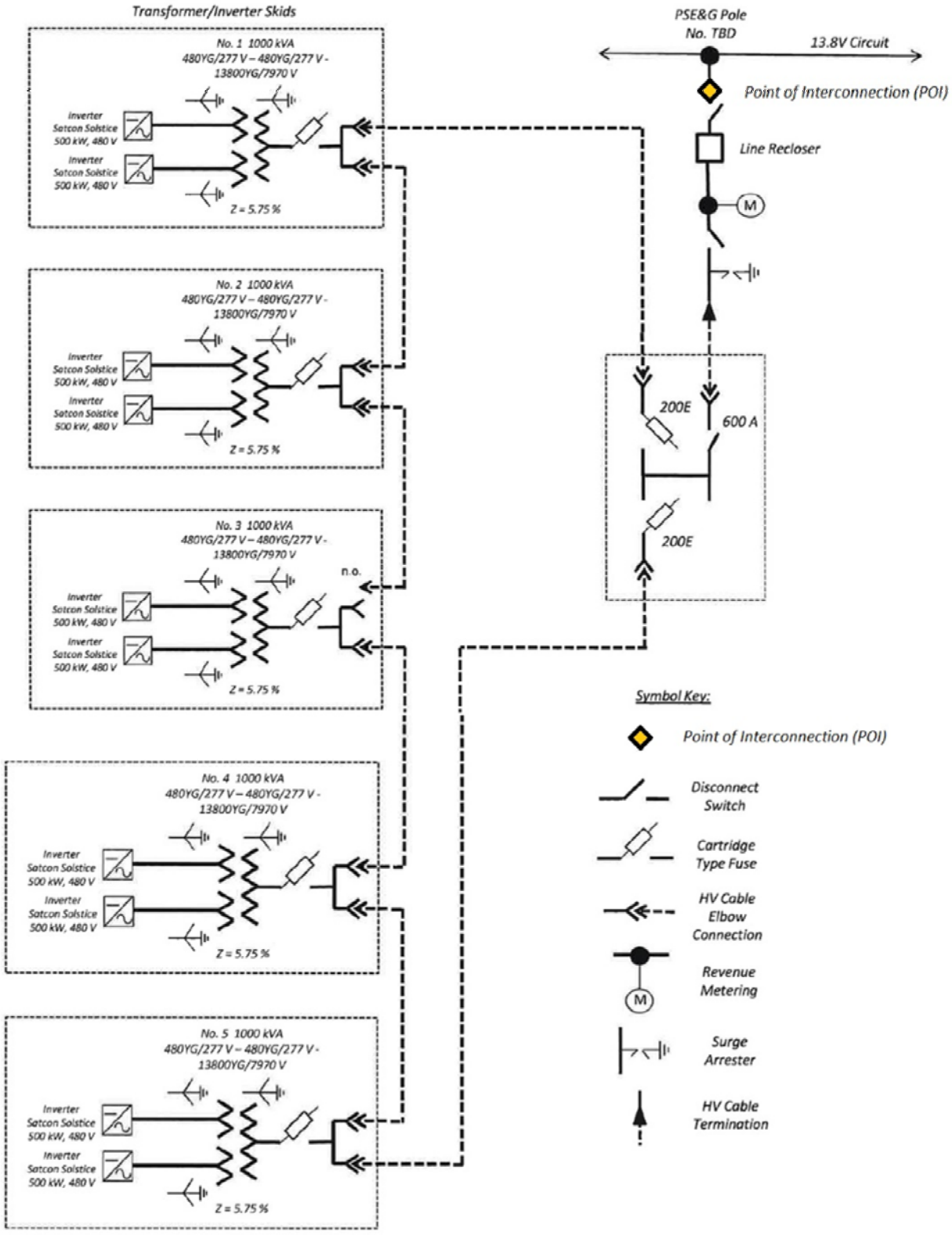

Figure 1 – Single Line Diagram

Figure 2 – Proposed Solar Array Location

Network Impacts

Queue project Y2-081 was studied as a(n) 5.0 MW (1.9 MW of which was Capacity) injection into PSEG's system at the Deptford substation. Project Y2-081 was evaluated for compliance with reliability criteria for summer peak conditions in 2016. 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.