



955 Jefferson Avenue  
Valley Forge Corporate Center  
Norristown, PA 19403-2497

**VIA FEDERAL EXPRESS**  
***Confidential***

October 28, 2010

Mr. Eric Blank  
Community Energy, Inc.  
201 King of Prussia Road, Suite 550  
Radnor, PA 19087

Dear Eric:

**SOUTHAMPTON 13KV 7 MW (W2-102) FEASIBILITY STUDY REPORT**

Attached is a report documenting the results of the Southampton 13kV (W2-102) Feasibility Study. The results of this Feasibility Study are predicated on a year 2014 transmission system based upon PJM's best assumptions at the present time for load growth and connection of proposed new generation additions. The project was evaluated for system normal conditions and single contingency outage conditions. In addition, tower line outages, which are anticipated to have a significant cost or timing impact on the interconnection of the project, were assessed. Short circuit analysis was performed and stability analysis was not performed.

Feasibility studies are performed to provide the generation developer with ballpark reinforcement cost and timing information concerning both direct connection facilities and potential transmission network upgrades. The analysis inherently has to include assumptions regarding existing uncertainties; therefore, the results should be used in this context.

Pursuant to Section 204 of the PJM Tariff, enclosed is a copy of an Impact Study Agreement for your consideration. The Agreement must be executed within thirty days (**by close of business on November 29, 2010**) to maintain the project's position in the queue. Please note that a deposit of **\$10,000**, \$10,000 of which is non-refundable, is required to accompany the signed Agreement.

**Please ensure that all requirements of Section 204 of the PJM Tariff are completed when returning the System Impact Study Agreement including specifying the Point of Interconnection when more than one option is available.** Please indicate which interconnection option you choose.

In order to expedite initiation of the Impact Study, please provide the information requested on this link, <http://www.pjm.com/planning/rtep-development/expansion-plan-process/form-impact-study-data.aspx>, and submit it electronically. We will need this information by **November 29, 2010**.

The cost for the Feasibility Study is being tabulated and you will receive an invoice in the near future.

The following information is provided for wire transfers: Bank: PNC Bank, NA, New Jersey; ABA Number: 031-207-607; Account Number: 8013589826. Please e-mail Jeannette Mittan at [mittaj@pjm.com](mailto:mittaj@pjm.com) with the project name, queue number, date and amount of wire.

Sincerely,



John W. Fedorko  
Sr. Consultant/Engineer  
System Planning Department

JWF\bnm #617948  
Attachments

cc: Via U.S. Mail (w/attachment):  
Esam Khadr – PSE&G  
Sheree Kelly – PSE&G  
James Calore – PSE&G  
Kenneth Tanis – PSE&G

PJM Office of the Interconnection (w/attachment):  
Rob Price - PJM

***PJM Generator Interconnection Request  
Queue W2-102  
Southampton 13kV  
Feasibility Study Report***

**October 2010  
#617936**

# **W2-102 Southampton 13kV Feasibility/Impact Study**

## **General**

Community Energy, Inc. has proposed installing a 7 MW solar project on property at Block 779, Lot 1, Pemberton Township, Burlington County, New Jersey. The commercial operation date is October 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**

Four options were evaluated for the interconnection request. Option A: 13-kV Single line service from South Hampton 13kV circuit 8021, ultimately supplied from Lumberton 230-69-kV Switching Station. Option B: Two 13-kV services, one from South Hampton 8021 (Lumberton 230-69-kV Switching Station) circuit and one from Bustleton 8013 circuit, supplied from Bustleton 138-13-kV Substation. Option C: A Single 26-kV line from M-195 at Mt. Holly, and ultimately supplied from Burlington 138-26-kV Switching Station. Option D: Extend a 69-kV line from circuit B-600 supplied from Lumberton 230-69-kV Switching Station. 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, 26-kV or 69-kV infrastructure and is detailed as follows:

Effisolar will build either a 13.2 kV, 26.4kV or a 69kV station at the solar site.

<u>Project Item</u>	Option A	Option B	Option C	Option D
	13-kV <u>Single Line Service</u>	13-Kv <u>2 Line Service</u>	26-kV <u>Single Line Service</u>	69-kV <u>Single Line Service</u>
<b>Inside Plant</b>				
Line Position/Feeder Row	-	-	-	-
Relay Protection	-	-	-	-
Manholes/Conduit	-	-	-	-
Other/Misc.	-	-	-	-
Sub Total	\$0	\$0	\$0	\$0
<b>Outside Plant</b>				
Overhead Line	\$220,799	\$520,586	\$814,664	\$6,437,688
Underground Line	-	-	-	-
Manholes/Conduit	-	-	-	-
Other/Misc.	-	-	-	-
Sub Total	\$220,799	\$520,586	\$814,664	\$6,437,688
<b>Metering/Monitoring</b>				
Revenue Metering/Telemetering/SCADA	\$54,400	\$92,100	\$58,800	\$102,200
Feeder metering	-	\$75,000	-	-
Other/Misc.	-	-	-	-
Sub Total	\$54,400	\$167,100	\$58,800	\$102,200
<b>Total Cost</b>	<b>\$275,199</b>	<b>\$687,686</b>	<b>\$873,464</b>	<b>\$6,539,888</b>
<b>Maximum Acceptable Generation</b>	<b>Up to 1.1 MW</b>	<b>Up to 7.0 MW</b>	<b>Up to 7.0 MW</b>	<b>Up to 7.0 MW</b>

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 (13,26 or 69kV) 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:

April 1, 2011

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

Long lead time construction material is placed on order

May 15, 2011

Developer submits preliminary site plan, 13-kV, 26-kV or 69-kV switchgear one-line diagram and equipment specifications for approval

June 1, 2011

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

July 1, 2011

Developer submits final site plan, 13-kV, 26-kV or 69-kV switchgear one-line diagram and equipment specifications for approval

July 15, 2011

PSE&G provides final comments and approval of 13-kV, 26-kV or 69-kV switchgear lay-out and design

Developer begins construction based on approved design

August 1, 2011

PSE&G commences line construction

September 15, 2011

Switchgear inspection and approval by PSE&G

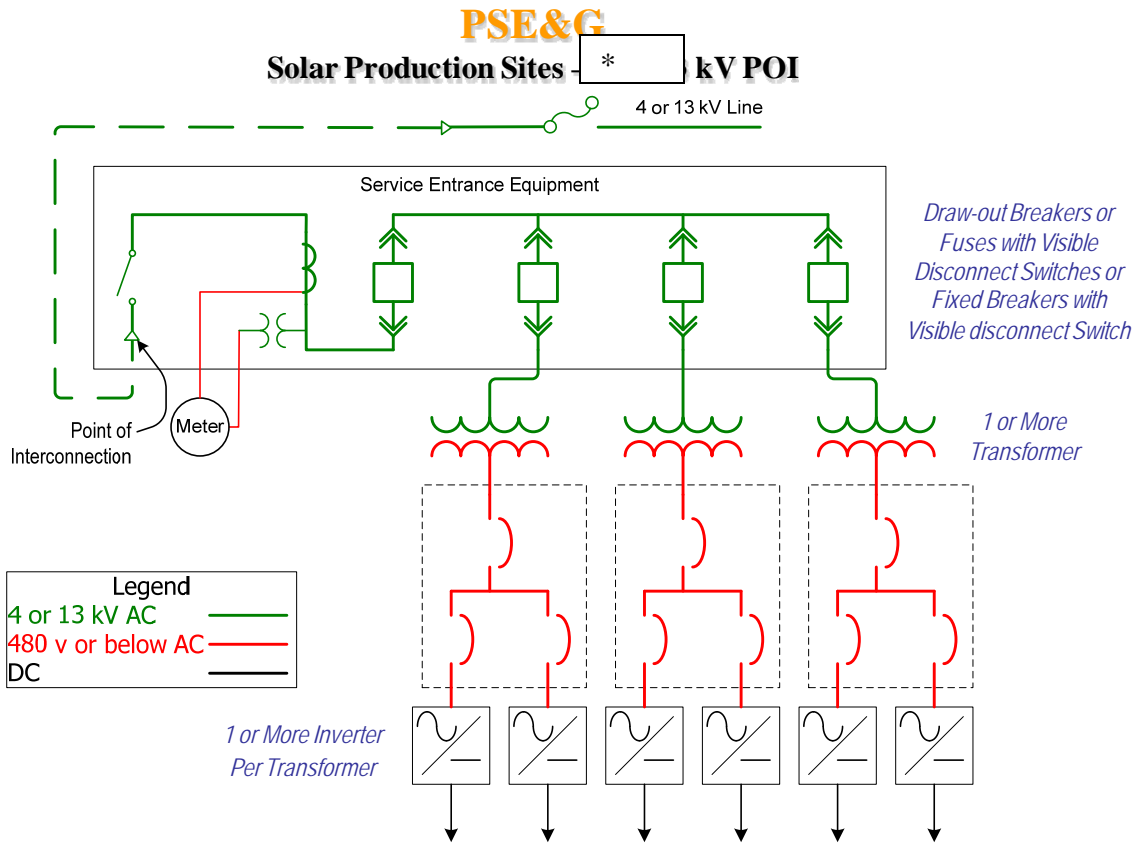
October 1, 2011

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**



\*Station to be either 13, 26 or 69kV

**Network Impacts**

Queue project W2-102 was studied as a(n) 7 MW (2.66 MW of which was Capacity) injection into PSEG's system at the South Hampton 69kV substation. The project was studied on a combined feasibility-impact basis which utilizes an AC analysis, and incorporates all contingency types. Project W2-087 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.