

***Generation Interconnection
Combined Feasibility/System Impact
Study Report***

For

***PJM Generation Interconnection Request
Queue Position V2-013***

Farmingdale 12.47kV

**PJM DOCS No. 561856 v1
March, 2010**

General

This report incorporates the overload information and direct connection/attachment facilities cost and schedules provided by the Transmission Owner, FirstEnergy, into the Feasibility Study Report sent in October, 2009. Since it combines the information and analysis of both the original Feasibility Study, and an Impact Study, it is therefore considered a Combined Feasibility/Impact Study Report and meets the requirements of analysis for interconnection of this project at the impact study phase.

This report was initiated at the request of the developer, Dynamic Energy Resources, LLC. They proposed to install and interconnect a 0.5 MW rooftop mounted solar generation facility in Farmingdale, New Jersey, and connect into the 12.47 kV system operated by Jersey Central Power & Light Co, a FirstEnergy Company.

Network Impacts

The queue V2-013 project was studied as a 0.5MW injection (0.2MW of which was capacity) into JCPL's system at the Farmingdale 34.5kV substation. Project V2-013 was evaluated for compliance with reliability criteria for summer peak conditions in 2013. 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, Stuck breaker and Bus Fault contingencies for the full energy output)

No problems identified.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

No problems identified.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. "Network Impacts", initially caused by the addition of this project generation)

None.

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

Short Circuit

Not required.

Potential Congestion due to Local Energy Deliverability

(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 below. There is no guarantee of full deliverability 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 identified overloaded element(s). As a result of the aggregate energy resources in the area, the following violations were identified:

No problems identified.

FirstEnergy Analysis and Interconnection Estimates

Load Flow Analysis

JCP&L has reviewed the Farmingdale (V2-013) Project service application information. It was modeled in the JCP&L internal 2013 assessment base case and a power flow analysis was performed. Based on that review, JCP&L confirms that the Farmingdale (V2-013) Project creates no new planning criteria violations and that it has no contribution to any existing violation on the Jersey Central transmission system.

Direct Connection/Attachment Facilities

The following is an estimate of the costs for construction and installation of the equipment necessary for this interconnection:

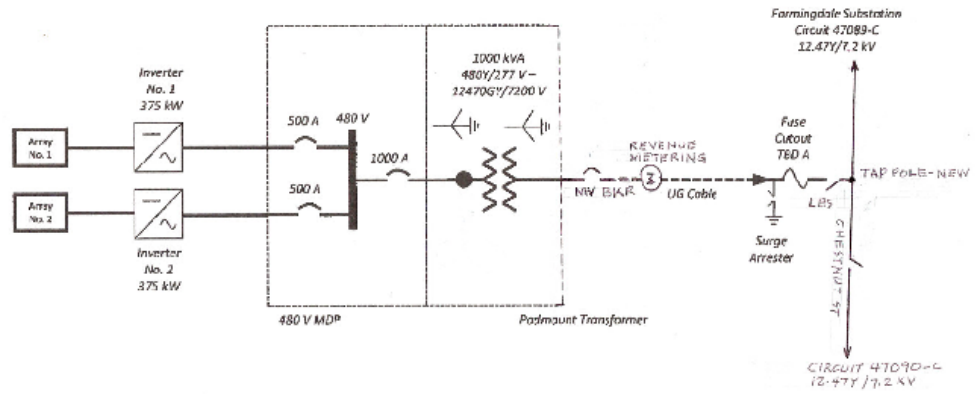
Primary Metering Cost :	\$13,839
Primary Riser, Switch & Extension:	<u>\$19,253</u>
Sub total	\$33,092
CIAC Gross-up at 35.63%	<u>\$11,791</u>
Estimated Project Total	\$44,883

These costs do not include any costs for any real estate, rights of way or easements that may be necessary to reach the point of interconnection. These are the responsibility of the developer.

Construction timing for this will be addressed by FirstEnergy during the facilities study review.

V2-013 PV interconnection diagram:

**Basic Interconnection Concept
One Line Diagram - Main Power Circuit**



PV System Interconnection
32 Chestnut Street
Farmingdale, NJ

6/3/2009
JIM

***PJM Feasibility Study Report
Queue # V2-013
Farmingdale 12.47 kV***

Network Impacts

The queue V2-013 project was studied as a 0.5MW injection (0.2MW of which was capacity) into JCPL's system at the Farmingdale 34.5kV substation. Project V2-013 was evaluated for compliance with reliability criteria for summer peak conditions in 2013. 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, Stuck breaker and Bus Fault contingencies for the full energy output)

No problems identified.

Contribution to Previously Identified Overloads

(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

No problems identified.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. "Network Impacts", initially caused by the addition of this project generation)

None.

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

None.

Short Circuit

Not required.

Potential Congestion due to Local Energy Deliverability

(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 below. There is no guarantee of full deliverability 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 identified overloaded element(s). As a result of the aggregate energy resources in the area, the following violations were identified:

No problems identified.