Generation Interconnection
Combined Feasibility/System

For

PJM Generation Interconnection Request
Queue Position X1-077

Wrightstown 34.5kV

September 2011

Preface

The intent of the Combined Feasibility/System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, 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, if any, is included in the System Impact Study.

The 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 associated with them will be addressed when seeking an Interconnection Agreement as outlined below. . Developer will also be responsible for providing and installing metering equipment in compliance with applicable PJM and Transmission Owner standards.

General

NJ Land, LLC, the Interconnection Customer (IC), has proposed a solar generating facility located at 2469 Saylors Pond Road in Wrightstown, New Jersey. This project is requesting the addition of 0.76 MW of Capacity rights to a prior project, W3-025, requested by the Interconnection Customer. The W3-025 project has a Maximum Facility Output of 2.06 MW with 0.0 MW being recognized as Capacity. The combined total for the W3-025 and X1-077 projects will have a Maximum Facility Output of 2.03 MW with 0.76 MW of this output being recognized by PJM as Capacity. This means that the remaining 1.27 MW will be curtailable should a system reliability constraint occur. The proposed in-service date for the projects is April 1, 2011. **This study does not imply a First Energy commitment to this in-service date.**

Attachment facilities and local upgrades (if required) along with terms and conditions to interconnect X1-077 will be specified in a separate two party Interconnection Agreement (IA) between FirstEnergy and the Interconnection Customer as this project is considered FERC non-jurisdictional per the PJM Open Access Transmission Tariff (OATT). From the transmission system perspective, no network impacts were identified as detailed below.

Point of Interconnection

X1-077 will interconnect with the Jersey Central Power & Light system along the 12.47kV circuit #67278 from the New Lisbon substation.

FirstEnergy Analysis

The results of the FE analysis show that there are no network upgrades required for the deliverability of the W3-025 and X1-077 Projects to the Jersey Central and PJM transmission systems. There are also no reinforcements defined for previous projects for which this project will have an impact. However, there are a number of other solar projects in the vicinity of the W3-025 and X1-077 Projects that may cause system constraints. For example, there are three proposed generator attachments to the New Lisbon - McGuire (K11-3) 34.5 kV line to date with a total capability of 55 MW while its continuous rating is only 41 MVA. The FE study results show that the contingency flow on this line can exceed its summer normal rating by 26.2% and its emergency rating by 8.2% for a loss of the New Lisbon - Pemberton (K11-3) 34.5 kV line. This constraint will exist at all load levels. A conclusion of this analysis is therefore that the curtailment of the W3-025 and X1-077 Projects output can be expected at times to maintain the Jersey Central system reliability within the NERC, Regional and FE operations and planning standards.

Since the X1-077 Project will require no new Direct Connection facilities nor cause the need for any Network upgrades beyond those identified for the associated W3-025 Project, the capacity request being made will have no additional cost.

Network Impacts

Queue project X1-077 was studied as a(n) 0.0 MW (0.78 MW of which was Capacity) injection into JCPL's system at the N LISB W 34.5 kV substation. Project X1-077 was evaluated for compliance with reliability criteria for summer peak conditions in 2015.

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

None

Multiple Facility Contingency

(Double Circuit Tower Line, Line with Failed Breaker and Bus Fault contingencies for the full energy output)

None

Short Circuit

(Summary form of Cost allocation for breakers will be inserted here if any)

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)

None

Steady-State Voltage Requirements

(Results of the steady-state voltage studies should be inserted here)

None

Stability and Reactive Power Requirement

(Results of the dynamic studies should be inserted here)

None

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)

(Summary form of Cost allocation for transmission lines and transformers will be inserted here if any)

None

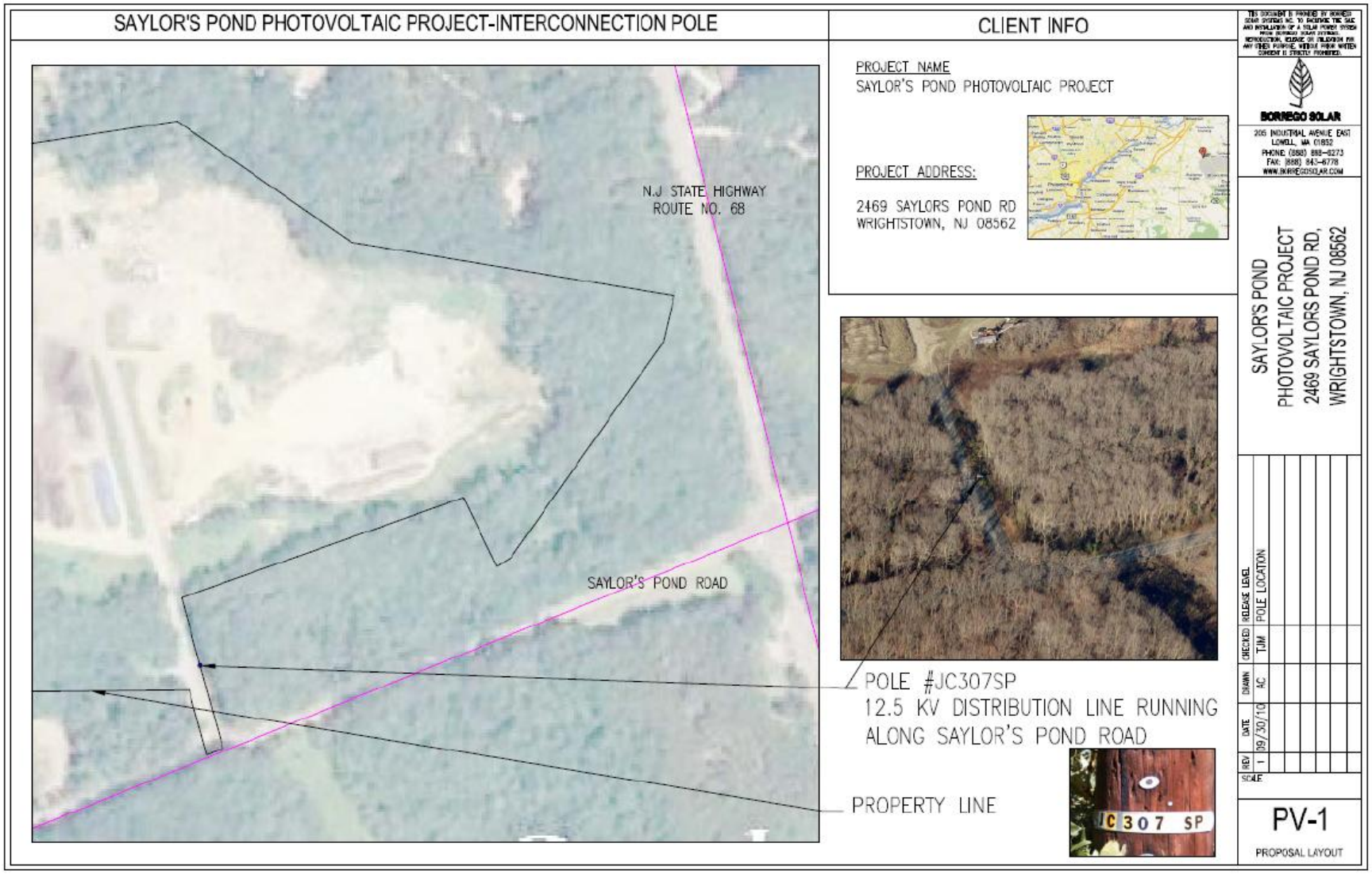
Delivery of Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any 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 Merchant Transmission Interconnection request.

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 will study all overload conditions associated with the overloaded element(s) identified.

None

Attachment 1
Site View



Attachment 2
Single Line Diagram