

Generation Interconnection Feasibility Study Report W3-037

The Interconnection Customer (IC) has proposed a 20MWE (7.6 MWC) solar powered generating facility consisting of ground mounted fixed panel solar photovoltaic arrays. The project is to be located in Delmar, Maryland. PJM studied W3-037 as a 20 MW injection into the Delmarva Power and Light (DPL) system at a tap of the Edgewood-North Salisbury 69kV circuit. The project was evaluated for compliance with reliability criteria for summer peak conditions in 2014. The requested in-service date is March 1, 2012.

Point of Interconnection

W3-037 will interconnect with the Delmarva Power and Light transmission system at a tap structure adjacent to the Edgewood-North Salisbury 69kV circuit.

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

The scope of work and estimated costs for the direct connection facilities is as follows:

Construct a tap structure and install three (3) 69kV switches on the Edgewood – North Salisbury 69kV circuit on property provided by the Interconnection Customer at no expense to DPL.

The estimated cost to perform this work is **\$500,000** and will take **18 months** to complete after receipt of a fully executed Interconnection Service Agreement (ISA) and Interconnection Construction Service Agreement (CSA).

Note: Additional costs upon further engineering review may result. Additionally, Contribution in Aid of Construction (CIAC) tax will be included upon further study.

Interconnection Customer Scope of Direct Connection Work

The IC is responsible for all design and construction related to activities on their side of the point of Interconnection. IC will interconnect W3-037 with the DPL system via a 69kV circuit from their facility to the tap structure of the Edgewood – North Salisbury 69kV circuit. The above cost does not include construction of that line or bus work. At this time, route selection, line design, right-of-way acquisition, and construction of such lines will be entirely the responsibility of the Interconnection Customer. Pending determination by DPL, the previously mentioned responsibility associated with planning and constructing the transmission line from the W3-037 to the tap structure may revert back to DPL. Ownership of the line would reside with DPL. The Interconnection Customer may be responsible for contributing to future O & M costs.

Protective relaying and metering design and installation must comply with Delmarva Power's applicable standards. The IC is also required to provide revenue metering and real-time telemetering data to PJM in conformance with the requirements contained in PJM Manuals M-01 and M-14 and

the PJM Tariff. DPL will require the capability to remotely trip the generator from its System Operations facility. The interconnected customer will grant its permission for PJM to send DPL all telemetry that the Interconnection Customer sends to PJM. The Interconnection Customer will be required to make provisions for a voice quality phone line within approximately 3 feet of each DPL metering position to facilitate remote interrogation and data collection.

Transmission Network Impacts

Potential transmission network impacts are as follows:

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

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

Short Circuit

None

Stability Analysis

Will be performed during the System Impact Study phase of W3-037 if required.

New System Reinforcements

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

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.

None

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:

These are ***not*** required reliability upgrades.

None