U2-030 Four Mile Ridge Wind Project 138kV
Generation Interconnection

General

The Interconnection Customer has proposed a 60 MWE wind power generating facility to be located in the Fourmile Ridge area of Garrett County, Maryland. The project was evaluated for compliance with reliability criteria for summer peak conditions in 2012 and was studied as a 60MW injection into the Allegheny Power (AP) system at the Frostburg-Jennings 138kV line. The planned in service date of the project is December 2010.

Point of Interconnection

U2-030 will interconnect with the Allegheny Power transmission system at the new Four Mile Ridge 138kV substation.

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

The Transmission Owner's (Allegheny Power) scope of work for the direct connection facility includes:

- Obtain property at no cost to AP and cut the existing Hazelton-Ridgeley 138kV line. Construct one (1) span (0.1 mile) 954 ACSR 138kV line loop into the proposed 138kV Four Mile Ridge substation.
  Estimated Cost: $210,000 in 2010 dollars

- Four Mile Ridge 138kV substation. Substation property and permitting to be obtained by the developer at no cost to AP. Grade the site, install fence ground grid, yard stone, and access roads. Construct a 138kV breaker station in a ring bus configuration consisting of: three (3)138kV breakers, 138kV metering, seven (7) 138kV disconnect switches, three (3) 138kV deadend structures, 138kV power VT for station service, metal control building, control cables, panels and equipment, SCADA, telephone service, and associated facilities.
  Estimated Cost: $2,900,000 in 2010 dollars

- Install facilities for transfer trip at the Hazelton 138kV substation. Install 138kV line trap, CVT, transfer trip panel and associated equipment.
  Estimated Cost: $180,000 in 2010 dollars

- Install facilities for transfer trip at the Ridgeley 138kV substation. Install 138kV line trap, CVT, transfer trip panel and associated equipment.
  Estimated Cost: $180,000 in 2010 dollars

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer (IC) has assumed full responsibility for the design and construction of all facilities associated with the U2-030 generating facility and the 138kV direct connection line on the IC side of the POI. The IC will interconnect U2-030 with the AP system by constructing a customer-owned 138kV circuit from the generating facility site to AP's Four Mile Ridge substation. Route selection, line design, right-of-way acquisition and construction of such lines will be entirely the responsibility of the IC. Cost estimates do not include construction of that line. It is assumed that the ICs step up transformer will conform to the AP standard of delta on the low side and grounded wye on the high side. It is further assumed that a fiber optic interface will be used for the protection channel between the AP and developer's stations.

The IC will be required to install metering and telemetry equipment to provide revenue metering and real-time telemetry data to PJM. The requirements for this equipment are listed in Appendix 2, Section 8 of Attachment O to the PJM Tariff, as well as PJM Manuals 01 and 14D. Protective relaying and metering design and installation must comply with the Allegheny Power Applicable Standards.

Cost and Timing Summary

While the information in this transmittal is reasonable for the scope of work defined, it should be noted that the cost figures are conceptual in nature at this stage, and that an engineering team has not yet been assigned to the project. Obviously, any change to the scope of work will require that the estimates be revisited. The costs are a best estimate, but the developer will be charged for actual costs. Any under-runs or over-runs will be reconciled at the conclusion of the project.

The cost estimates in this report do not include tax gross-up, land acquisition, or any network upgrades which may have been identified and required by this project.

The estimated time to provide for the interconnection of this project is **24 months** after the receipt of a signed Interconnection Service Agreement and Construction Service Agreement.

Network Impacts

Potential network impacts are as follows:

Generator Deliverability

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

None

Multiple Facility Contingency

*(Double Circuit Tower Line contingencies only for the **full energy** output. Stuck breaker and bus fault contingencies will be performed for the System Impact Study)*

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

No breakers were identified as being over their maximum interrupting rating.

Stability and Reactive Power Requirements

Will be performed during the Queue U2-030 System Impact Study.

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 System Impact Study)

None

Delivery of Energy Portion of Interconnection Request

None