Generation Interconnection
Feasibility Study Report
Queue Position V3-064

General

The Interconnection Customer (IC), has proposed a 28 MW (28 MW capacity) biomass fueled generating facility to be located in Fairmont, West Virginia. V3-064 was studied as a 28 MW (28 MW of which was capacity) injection into the Allegheny Power System at the Sanford substation and evaluated for compliance with reliability criteria for summer peak conditions in 2014. The current in-service date for the project is December 1, 2012.

Point of Interconnection

V3-064 will interconnect with the Allegheny Power (AP) at the existing Sanford 138kV substation.

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

The Transmission Owner's (AP) scope of work includes:

Attachment Facilities

Sanford 138kV substation

- Extend the 138 kV bus and install a 138kV line terminal with one (1) 138kV breaker, three (3) 138kV disconnect switches, 138kV metering, line traps, arresters, and CVTs. Install foundations, structures, grounding, control cables, panels, transfer trip, and associated equipment. Preliminary review has found that no expansion will be required to accommodate this interconnection; however a detailed design has not yet been completed. Assume connection to the Interconnection Customer (IC) is by bus tubing to an adjacent station owned by the IC. The IC is required to install a fiber-optic link (OPGW) between the Sanford substation and their interconnection substation.

  The estimated cost to perform this work is **$898,400** in 2012 dollars.

Network Upgrades

- Install 138kV transfer trip facilities at Rivesville substation.

  The estimated cost to perform this work is **$50,200** in 2012 dollars.

- Install 138kV transfer trip facilities at Pruntytown substation.

  The estimated cost to perform this work is **$50,200** in 2012 dollars.

Allegheny Power reserves the right to review the electrical protection design and relay settings for the Interconnecting Customer facilities to ensure that the protective relaying equipment will be compatible with that installed at the new switching station. The relaying package will likely include both primary and backup protection. Allegheny Power personnel must be present at the time of commissioning to witness proper function of the protection scheme and related coordination. The estimated cost to perform this engineering review and field test effort is **$10,000 in 2012 dollars**.

Note: The purchase and installation of protective relaying and associated equipment at the generation site is the responsibility of the interconnecting customer and is not included in this scope of work.

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer will interconnect V3-064 with the APS system at the Sanford 138kV substation via bus tubing from an adjacent customer owned substation. The above cost estimates do not include construction of that bus. Route selection, line design, right-of-way acquisition and construction of such facilities will be entirely the responsibility of the Interconnection Customer. It's assumed that the Interconnection Customer's step up transformer will conform to the AP standard with delta on the low side and grounded wye on the high side as illustrated in the AP Facility Connection Manual.

It is assumed that a fiber optic interface will be used for the protection channel between the AP and IC's station. 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 however, that the cost figures are conceptual in nature at this stage, and that an engineering team has not yet been assigned to the project. 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.

The estimated time to provide for the interconnection of this project is **15 months** after the receipt of a fully executed Interconnection Service Agreement and Interconnection Construction Service Agreement.

Network Impacts

Potential 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

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'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

Stability Analysis

Will be completed during the V3-064 System Impact Study.