Generation Interconnection Feasibility Study Report Web Version

For

PJM Generation Interconnection Request Queue Position W2-005

Pruntytown 138kV Project

PJM DOCS No. 617010v1
October, 2010

Overview

Interconnection Customer (IC) has submitted an Attachment N to propose the interconnection of 30 MW energy and 30 MW of Capacity into the PJM market via the Allegheny Power network. The Commercial Operation date for this project was requested to be October 31, 2013. The analysis was performed using a 2014 base year. By virtue of the developer's seeking QF status, this is a FERC jurisdictional interconnection and will result in the developer receiving a PJM Interconnection Service Agreement.

PJM Report on the Transmission System

This portion of the report addresses the impacts on and the required reinforcements to that part of the transmission system under PJM jurisdiction.

Network Impacts

Queue project W2-005 was studied as a 30.0MW (30.0MW of which was Capacity) injection into APS's system at the Pruntytown 138 kV substation. Project W2-005 was evaluated for compliance with reliability criteria for summer peak conditions in 2014. 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 Contingencies only with full energy output. Stuck Breaker and Bus Fault contingencies will be applied during the Impact Study)

No problems identified.

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

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

PJM has completed the short circuit analysis of the W2-005 queue project Pruntytown 138kV. One option was considered during this study: the option was a direct connection to the Pruntytown 138kV substation. Our analysis found no new breakers to be over-duty in the APS transmission area.

The study also showed no significant fault current contribution to the breakers which have already been identified as over-duty. This study was performed on the 100 kV and above system.

APS Feasibility Analysis Report

This portion of this Feasibility Study Report has been prepared for PJM queue project W2-005 by Allegheny Power. It addresses the impacts on and required reinforcements to that position of the network at the distribution level, including the attachment and direct connection facilities.

Injection into the Pruntytown 138kV Bus

Attachment Facilities and Related Network Upgrades

- At Pruntytown SS, install 1-138kV breaker, 3-138kV disconnect switches, 2-138kV dead-end structures, 138kV bus, 3-138kV CVTs, 138kV metering, structures, foundations, control panels and cables, grounding, and associated equipment. Relocate the existing Buckhannon and Loughs Lane 138kV lines to adjacent terminal positions. Assume fence expansion is not required for this installation. The IC is to install OPGW from Pruntytown Substation to W2-005.
  Estimated Cost: $1,140,897 in 2013 dollars.

The estimated project duration is **15 months** after the receipt of an executed Interconnection Service Agreement and Construction Service Agreement.

While the information in this report is reasonable for the scope of work defined, it should, however, be noted that the cost figures are conceptual in nature at this stage, as an engineering team has not 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 IC will be charged for actual costs. Any under-runs or over-runs will be reconciled at the conclusion of the project. The estimates in this report do not include tax gross-up.

The IC will interconnect with the Allegheny Power (AP) system via a customer owned overhead 138kV line from a customer owned substation located approximately 3.5 line-miles from Pruntytown Substation. The above cost estimates do not include construction of that line. Route selection, line design, rights-of-way acquisition and construction of such lines will be entirely the responsibility of the IC. It is assumed that the IC's main 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:
http://www.alleghenypower.com/Bus2Bus/Gen%20Trans%20AP%20Facility%20Connection%20Requirements.pdf

Overloads and Required Reinforcements

None

Short Circuit

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

AP reserves the right to review the electrical protection design and relay settings for IC 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. AP personnel must be present at the time of commissioning to inspect and witness proper function of the control scheme and related coordination. The estimated cost to perform this engineering review and field test effort is **$10,000 in 2010 dollars**.

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

It is assumed that a fiber optic interface will be used for the protection channel between the AP and ICs 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 AP applicable standards.