Facility Study For Generation Interconnection Request GEN-2008-023

SPP Tariff Studies

(#GEN-2008-023)

June 2010

Summary

American Electric Power performed the following Study at the request of the Southwest Power Pool (SPP) for Generation Interconnection request Gen-2008-023. The request for interconnection was placed with SPP in accordance SPP's Open Access Transmission Tariff, which covers new generation interconnections on SPP's transmission system.

Pursuant to the tariff, American Electric Power was asked to perform a detailed Facility Study of the generation interconnection request to satisfy the Facility Study Agreement executed by the requesting customer and SPP.

Interconnection Customer Interconnection Facilities

The Interconnection Customer will be responsible for the 138kV transmission line from the point of interconnection to its 138/34.5kV substation that will contain its 138/34.5kV transformer(s) and wind turbine collector feeders. In addition, the Customer will be required to maintain a +/- 95% power factor at the point of interconnection (AEPW Hobart Junction 138kV substation).

Transmission Owner Interconnection Facilities and Non Shared Network Upgrades

Per the following Facility Study, the Interconnection Customer is responsible for $1,038,000 of Transmission Owner Interconnection Facilities and non shared Network Upgrades.

Shared Network Upgrades

The GEN-2008-023 Interconnection Customer is included in the DISIS-2009-001. The Elk City – Clinton Jct. 138kV transmission line was identified as a shared constraint. Since the DISIS-2009-001 -1 impact study was posted, AEP has determined the mitigation for the constraint is to change the setting on current transformers at Elk City for a cost of $0. This cost is also subject to change for restudies conducted by the Transmission Provider in response to the higher queued customers or other customers in the DISIS-2009-001 that withdraw their interconnection request or suspend, terminate, or request unexecuted filings of their LGIAs.

Generation Interconnection Facilities Study

For

Southwest Power Pool Generation Interconnection Request GEN-2008-023

American Electric Power
Southwest Transmission Planning

June 2010

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Introduction

The Southwest Power Pool (SPP) has requested a Facility Study for interconnecting a 150 MW wind farm to Public Service Company of Oklahoma (PSO) 138 kV electric system in Washita County, Oklahoma. The proposed in-service date is November 2012.

This facilities study is done in conjunction with SPP Feasibility and Impact Studies for Generation Interconnection Request GEN-2008-023. The purpose of this study is to provide the costs to interconnect the new generation with PSO's 138 kV transmission system. The 150 MW wind farm will be located approximately 9 miles Northeast of Hobart Junction Substation.

The interconnection point for the new generation will be at PSO Hobart Junction Substation. American Electric Power (AEP) will install a new 138 kV terminal with the necessary metering, protection and SCADA systems to accommodate the customer's interconnection.

A detailed description of all costs associated with the construction of this interconnection is shown in Table 1 on page 5.

Interconnection Facilities (See Figures 1 and 2)

Hobart Junction 138 kV Terminal

A new 138 kV terminal will be built at PSO's Hobart Junction Substation for the 150 MW generation interconnection. AEP will install, own, operate, and maintain all equipment located at Hobart Junction Substation. This terminal will consist of a 138 kV circuit breaker and associated equipment. Metering equipment will be installed to monitor the plant output and will meet the required accuracy specifications.

The customer will install, own, operate and maintain the necessary 138 kV transmission line and generation facilities. See Figure 1 for details on page 6.

The design and construction of the new substation will meet all AEP specifications for stations. Bus work and disconnect switches will be designed to accommodate the loading requirements, and circuit breakers will be rated to ensure adequate load and fault interrupting capability.

Short Circuit Fault Duty Evaluation

It is standard practice for AEP to replace a circuit breaker when the current through the breaker for a fault exceeds 100% of its interrupting rating with recloser de-rating applied, as determined by the ANSI/IEEE C37.5-1979, C37.010-1979 & C37.04-1979 breaker rating methods.

In the AEP system, no breakers were found to exceed their interrupting capability after the addition of the 150 MW of wind farm generation and related facilities.

Therefore there is no circuit breaker upgrade associated with the Gen-2008-023 interconnection.

Note: SPP should contact other companies (OMPA and WFEC) near the Hobart Jct substation to run short circuit duty breaker analysis to determine if the short circuit capability of their breakers is exceeded

Interconnection Costs

Listed below is the estimated cost associated with interconnecting the 150 MW wind farm generation facility to the AEP transmission system.

Table 1:

SYSTEM IMPROVEMENT	ESTIMATED COST (2010 DOLLARS)
Install a new 138 kV terminal with one 145 kV 3000A breaker at PSO Hobart Junction Substation. This terminal will include all necessary metering, protection, dead-end, bus work, existing station yard, control building, and SCADA systems.	**$1,038,000**