



***Facility Study
For
Generation Interconnection
Request
GEN-2009-016***

SPP Tariff Studies

(#GEN-2009-016)

July 2010

Summary

American Electric Power performed the following Study at the request of the Southwest Power Pool (SPP) for Generation Interconnection request Gen-2009-016. 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 Falcon Road 138kV substation). Also, the customer is required to install a +/-10MVA STATCOM device on the 34.5kV bus of its substation.

Transmission Owner Interconnection Facilities and Non Shared Network Upgrades

Per the following Facility Study, the Interconnection Customer is responsible for \$4,530,000 of Transmission Owner Interconnection Facilities and non shared Network Upgrades.

Shared Network Upgrades

The GEN-2009-016 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-2009-016***

***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 the Customer 141 MW wind farm power plant in Beckham County, Oklahoma. The proposed in-service date is September 2011.

The purpose of this study is to identify the facilities and their costs that are needed to interconnect the new generation with AEP's 138 kV transmission system. This facilities study is done in conjunction with SPP Impact Studies for Generation Interconnection Request GEN-2009-016.

The interconnection point for the new generation will be located at American Electric Power's (AEP) Falcon Road substation. AEP will expand the Falcon Road substation to include a new four breaker 138 kV ring bus to accommodate the new interconnection.

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

Interconnection Facilities (See Figures 1 and 2)

138 kV Falcon Road Substation

A new 138 kV ring bus substation will be built at AEP's existing Falcon Road substation for the Customer generation interconnection. This substation will consist of a four 138 kV circuit breaker ring bus and associated equipment. AEP will own, operate and maintain the facilities in the Falcon Road substation. Customer will construct and own a 10 mile 138 kV line to connect their wind farm to the Falcon Road 138 kV bus¹.

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. Metering equipment will be installed to monitor the plant output and will meet the required accuracy specifications. See Figure 1 for details.

Short Circuit Fault Duty Evaluation

AEP conducted a short circuit fault duty evaluation for impacts that could be contributed to the new generator.

It is standard practice for AEP to recommend replacing 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 141MW of wind farm generation and related facilities.

Therefore there is no short circuit upgrade costs associated with the Gen-2009-016 interconnection.

Due to the proximity of the interconnections with WFEC at Elk City, we recommend that SPP contact WFEC investigate the need for short circuit breaker upgrades on WFEC's system.

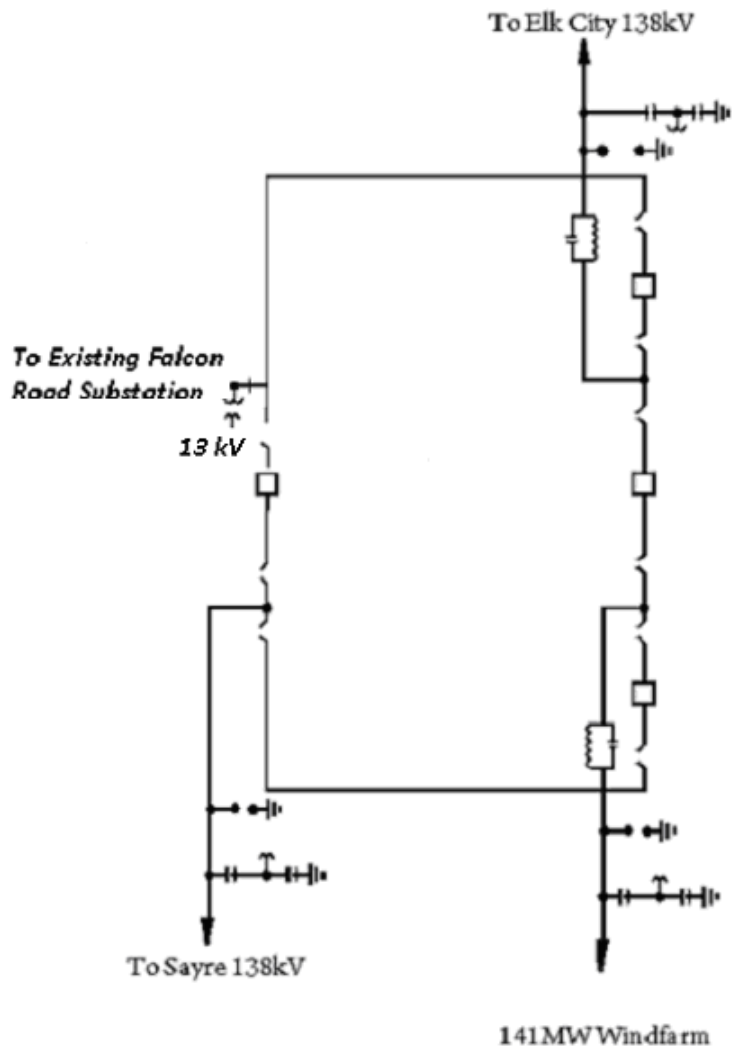
¹ Customer may find it difficult to run their 138 kV line to Falcon Road through the western part of Elk City. It may be more feasible to add a three breaker switching station further to the west.

Interconnection Costs

Listed below are the costs associated with interconnecting the 141 MW GEN-2009-016 Wind Farm generation facilities to the AEP transmission system.

SYSTEM IMPROVEMENT	COST (2010 DOLLARS)
Transmission Tap : Loop Elk City to Erick (WFEC) 138 kV line into the Falcon Road Substation	\$500,000
Expand Falcon Road substation to include a 4 breaker 138 kV ring bus. Include all metering, protection, and SCADA	\$4,043,000
TOTAL	\$4,543,000

Figure 1 : Proposed Falcon Road 138 kV substation for interconnection



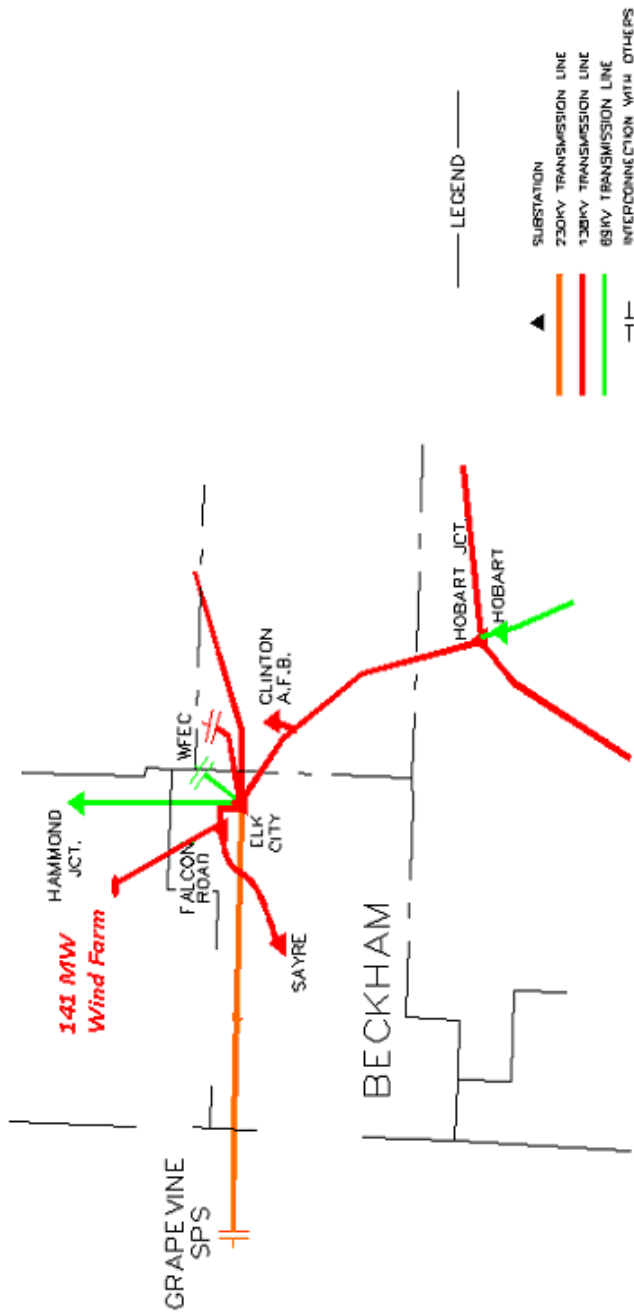


FIGURE 2 ELK CITY AREA TRANSMISSION MAP