SPP Southwest Power Pool

Facility Study for Generation Interconnection Request GEN–2006–046

SPP Tariff Studies
(#GEN-2006-046)

April 2008

Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP), Oklahoma Gas & Electric Company (OG&E) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer and SPP for SPP Generation Interconnection request GEN-2006-046. 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.

Facilities

The Customer has studied three different wind turbine types and manufacturers for use with GEN-2006-046. For the various requirements for each wind turbine, the Impact Study for GEN-2006-046 dated November, 2007 and the Impact Study for GEN-2006-046 dated April, 2008 should be consulted.

Powerflow analysis conducted for GEN-2006-046 in the Feasibility Study dated June, 2007 show that limitations exist to the delivery of output from the generation facility. The outage of the Dewey – Southard 138kV transmission line (at the point of interconnection for GEN-2006-046) will cause overloads to the Taloga 138/69kV autotransformer and the Mooreland – Glass Mountain 138kV transmission line for all seasons and situations. As such, a flowgate will be instituted to limit output from the wind farm facility until such time as the Customer requests and is granted firm transmission service.

The flowgate description is listed below

Monitored Element	Outaged Element	Flowgate Rating	Proposed Flowgate Name
Taloga 138/69kV autotransformer	Dewey – Southard 138kV	56	TALXFMRDEWSOU

FACILITY STUDY

for

Generation Interconnection Request 2006-046

130 MW Wind Generating Facility
In Dewey County
Near
Taloga, Oklahoma

March 12, 2008

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Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP), Oklahoma Gas and Electric (OG&E) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request Gen-2006-046. 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. The requirements for interconnection consist of adding a new 138kV breaker and terminal in the existing Dewey 138kV Substation. The total cost for OKGE to add a new 138kV breaker and terminal in the Dewey substation, the interconnection facility, is estimated at $724,697.

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Introduction

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting 130MW of wind generation within the service territory of OG&E Electric Services (OKGE) in Dewey County Oklahoma. The proposed 138kV point of interconnection is at the existing Dewey 138kV Substation in Dewey County. This substation is owned by OKGE. The proposed in-service date is December 31, 2009.

Power flow analysis has indicated that for the power flow cases studied, it is possible to interconnect the 130MW of generation with transmission system reinforcements within the local transmission system. Given the Point of Interconnection at an existing substation, there are additional requirements for interconnection including bus, breaker, switches, relaying, metering, etc.

The cost for adding a new 138kV terminal to the existing Dewey Substation, the required interconnection facility, is estimated at $589,697. Other Network Constraints in the American Electric Power West (AEPW), OKGE and Western Farmers Electric Cooperative (WFEC) systems may be verified with a transmission service request and associated studies.

Interconnection Facilities

The primary objective of this study is to identify attachment facilities. The requirements for interconnection consist of adding a new 138kV terminal in the existing Dewey 138kV Substation. This 138kV addition shall be constructed and maintained by OKGE. The Customer did not propose a route of its 138kV line to serve its 138-34.5kV facilities. It is assumed that obtaining all necessary right-of-way for the new OKGE 138kV substation facilities will not be a significant expense.

The total cost for OKGE to add a new 138kV terminal in the Dewey substation, the interconnection facility, is estimated at $589,697. This cost does not include building 138kV line from the Customer substation into the existing Dewey Substation. The Customer is responsible for this 138kV line up to the point of interconnection. This cost does not include the Customer's 138-34.5kV substation and the cost estimate should be determined by the Customer.

This Facility Study does not guarantee the availability of transmission service necessary to deliver the additional generation to any specific point inside or outside the Southwest Power Pool (SPP) transmission system. The transmission network facilities may not be adequate to deliver the additional generation output to the transmission system. If the customer requests firm transmission service under the SPP Open Access Transmission Tariff at a future date, Network Upgrades or other new construction may be required to provide the service requested under the SPP OATT.

The costs of interconnecting the facility to the OKGE transmission system are listed in Table 1.

Short Circuit Fault Duty Evaluation

It is standard practice for OG&E 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.

For this generator interconnection, no breakers were found to exceed their interrupting capability after the addition of the Customer's 130MW generation and related facilities. OG&E found no breakers that exceeded their interrupting capabilities on their system. Therefore, there are no short circuit upgrade costs associated with the Gen-2006-046 interconnection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2005 DOLLARS)
OKGE – **Interconnection Facilities**- Add a single 138kV line terminal to existing Dewey 138kV Substation. Dead end structure, line relaying, revenue metering including CTs and PTs	**$589,697**
OKGE – **Network Upgrades** at Dewey sub, 138kV breaker, disconnect switches, and associated equipment	**$135,000**
OKGE - Right-of-Way for 138kV terminal addition	No Additional ROW
Total	**$724,697**

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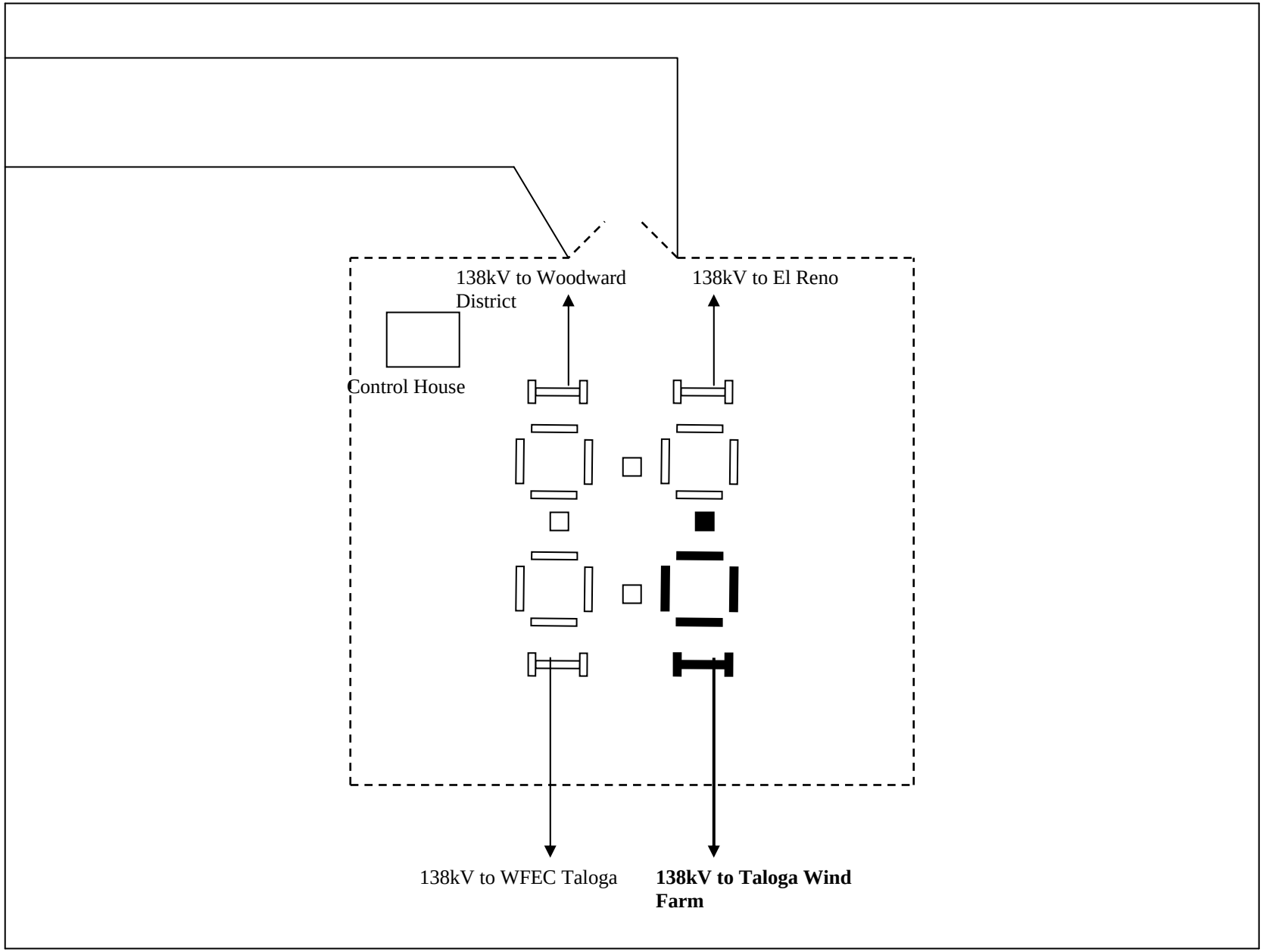
Overview, Dewey Substation



One Line Diagram, Dewey Substation