



***Facility Study for Generation
Interconnection Request
GEN – 2003 – 022***

***SPP Coordinated Planning
(#GEN-2003-022)***

August 2004

Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP) American Electric Power Southwest Transmission Planning (AEP) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer and SPP for SPP Generation Interconnection request Gen-2003-022. The request for interconnection was placed with SPP in accordance SPP's Open Access Transmission Tariff Attachment V, which covers new generation interconnections on SPP's transmission system.

***Generation Interconnection
Facilities Study***

For

GEN-2003-022

***American Electric Power
Southwest Transmission Planning***

August 2004

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Introduction

The Southwest Power Pool (SPP) has requested a Facility Study for interconnecting a 120 MW wind farm near Weatherford, Oklahoma. The <Customer's> wind farm will be connected to American Electric Power's (AEP) Clinton Junction to Weatherford Southeast 138 kV transmission line. The proposed in-service date is December 2004. The Customer's wind farm will consist of up to 80 GE 1.5 wind turbines with a rating output of 1.5 MW each with standard LVRT capability, for a nominal output of 120 MW.

The purpose of this study is to identify the facilities and their costs that are needed to interconnect the Customer's wind farm with AEP's 138 kV transmission system. This facilities study is done in conjunction with SPP Feasibility and Impact Studies for Generation Interconnection Request GEN-2003-022.

AEP will construct a new 138 kV station adjacent to the Clinton Junction to Weatherford Southeast 138 kV transmission line. The AEP station will include a Control House for all metering, protection and SCADA systems. The Customer will provide the property and initial site preparation for the construction of the AEP station.

The only permit required is a Storm Water Pollution Prevention Plan (SWPPP) which will be procured by the Customer for the project.

A detailed description of all costs associated with the construction of this new switching station is shown in Table 1. The construction schedule for the interconnection is shown in Figure 4.

Interconnection Facilities (See Figures 1, 2, and 3)

Weatherford Wind Farm 138 kV Station

The proposed Customer's plant is to be interconnected with the transmission facilities, via a new 138 kV station adjacent to the Clinton Junction to Weatherford Southeast 138 kV transmission line. The interconnection point between the Customer and AEP will be a switch inside the AEP station. The Customer's station will be adjacent to the new AEP station and the interconnection will be via a five inch aluminum tubing bus. Due to this short interconnection there are no Right-of-Way issues. The AEP station will consist of two 138 kV breakers in a line breaker configuration. The AEP station will include a control house for all metering, protection and SCADA systems. The Customer will provide the property and initial site preparation for the construction of the AEP station.

The design and construction of the switching station 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. AEP will own, operate and maintain the station

Clinton Junction – Weatherford Southeast 138 kV Transmission Line

AEP will loop the single circuit 138 kV transmission line from Clinton Junction to Weatherford Southeast into the new Weatherford Wind Farm Station. This work will include setting two guyed single pole deadend structures, installing 795 ACSR conductor, and installing shield wire for 100-foot slack spans.

Morewood Switch to Hammon-Butler Junction 69

Western Farmers Electric Cooperative (WFEC) will rebuild the 69 kV line from Morewood Switch to Hammon Butler Junction. The line will be rebuilt with 556 ACSR. Line switches will be replaced on both ends of the line. The construction of this line will take approximately 12 months. In the time period between when the wind farm goes into service and completion of the rebuild of this line, the line will be temporarily rated for a higher conductor temperature corresponding to an emergency rating of 34 MVA.

Short Circuit Fault Duty Evaluation

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 Customer's 120MW generation and related facilities. WFECC found no breakers that exceeded their interrupting capabilities on the WFECC system. Therefore there are no short circuit upgrade costs associated with the Gen-2003-022 interconnection.

Interconnection Costs

Listed below are the costs associated with interconnecting the Customer's 120 MW wind farm generation facility to the AEP transmission system.

SYSTEM IMPROVEMENT	COST (2004 DOLLARS)
New two breaker Weatherford Wind Farm Station. Including a Control House for all metering, protection, and SCADA	\$1,855,000
Loop Clinton Junction to Weatherford Southeast 138 kV line into new station	\$248,000
AEP Subtotal	\$2,103,000
Rebuild WFEC 69 kV line from Morewood Switch to Hammon-Butler Junction. Replace switches on both ends of the line	\$3,452,000
WFEC Subtotal	\$3,452,000
TRANSMISSION INTERCONNECTION FACILITY TOTAL COSTS	\$5,555,000

A schedule for the completion of the AEP interconnection facilities is shown in figure 4.

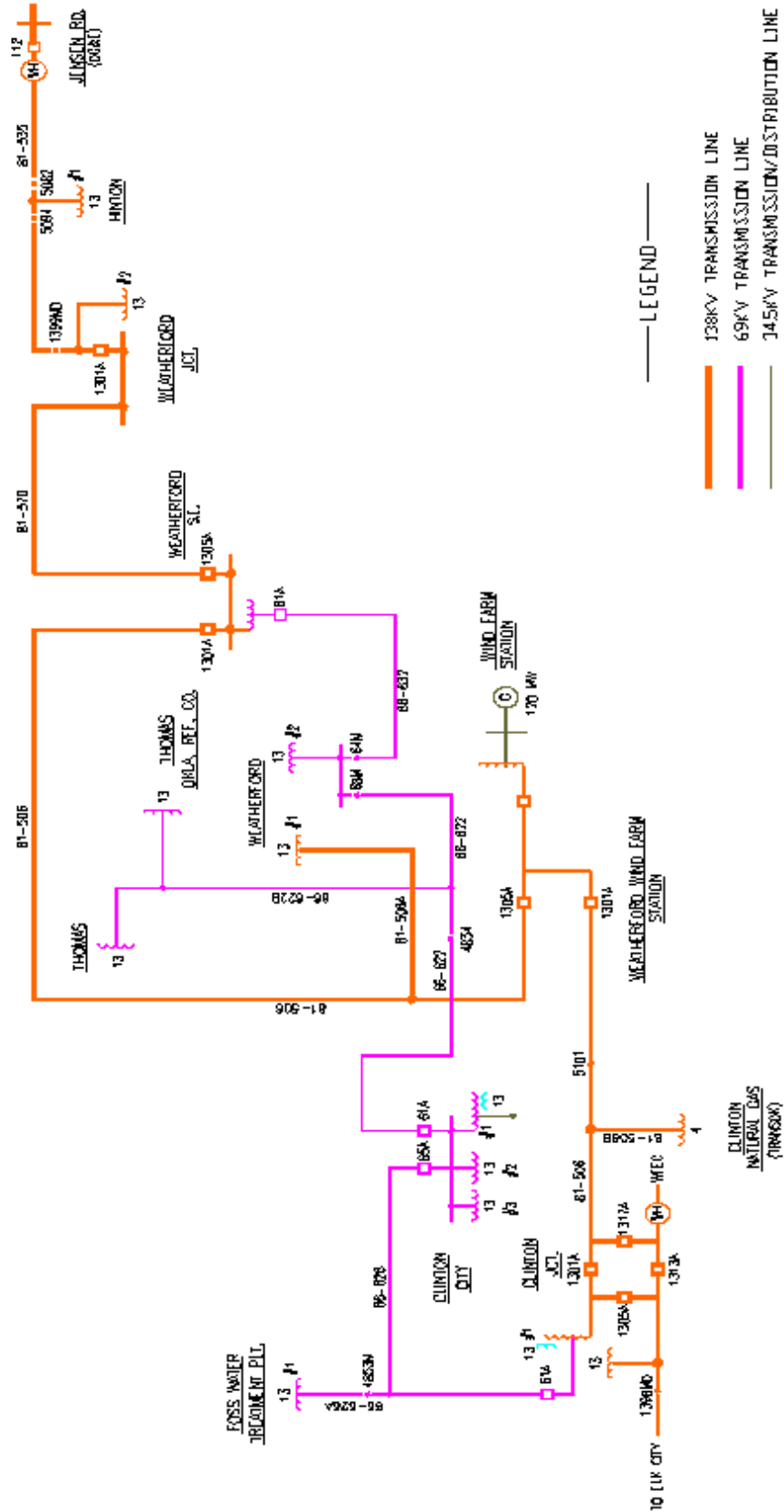


FIGURE 1: WEATHERFORD AREA ONELINE

OKLAHOMA

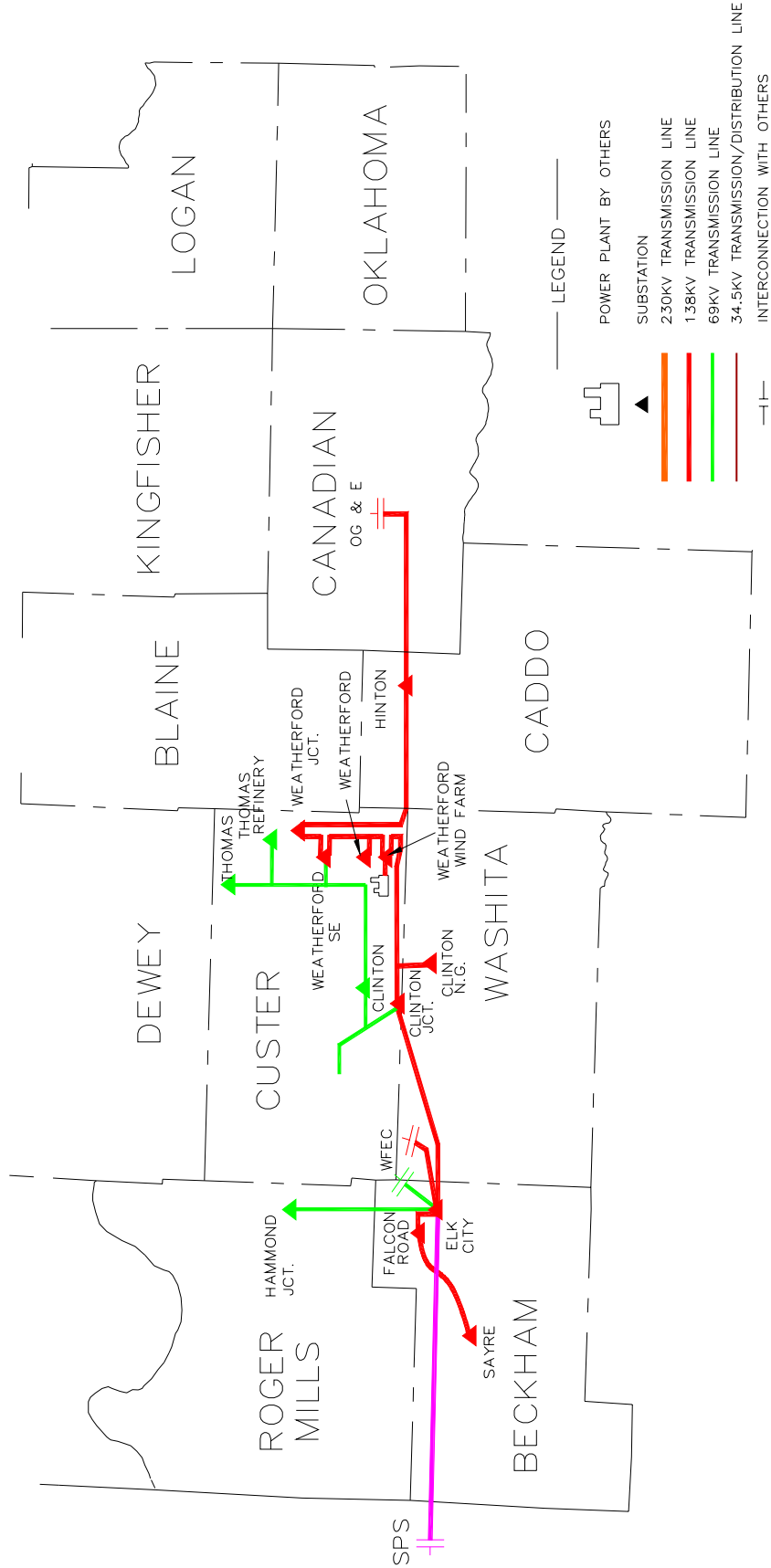


FIGURE 2 WEATHERFORD AREA TRANSMISSION MAP

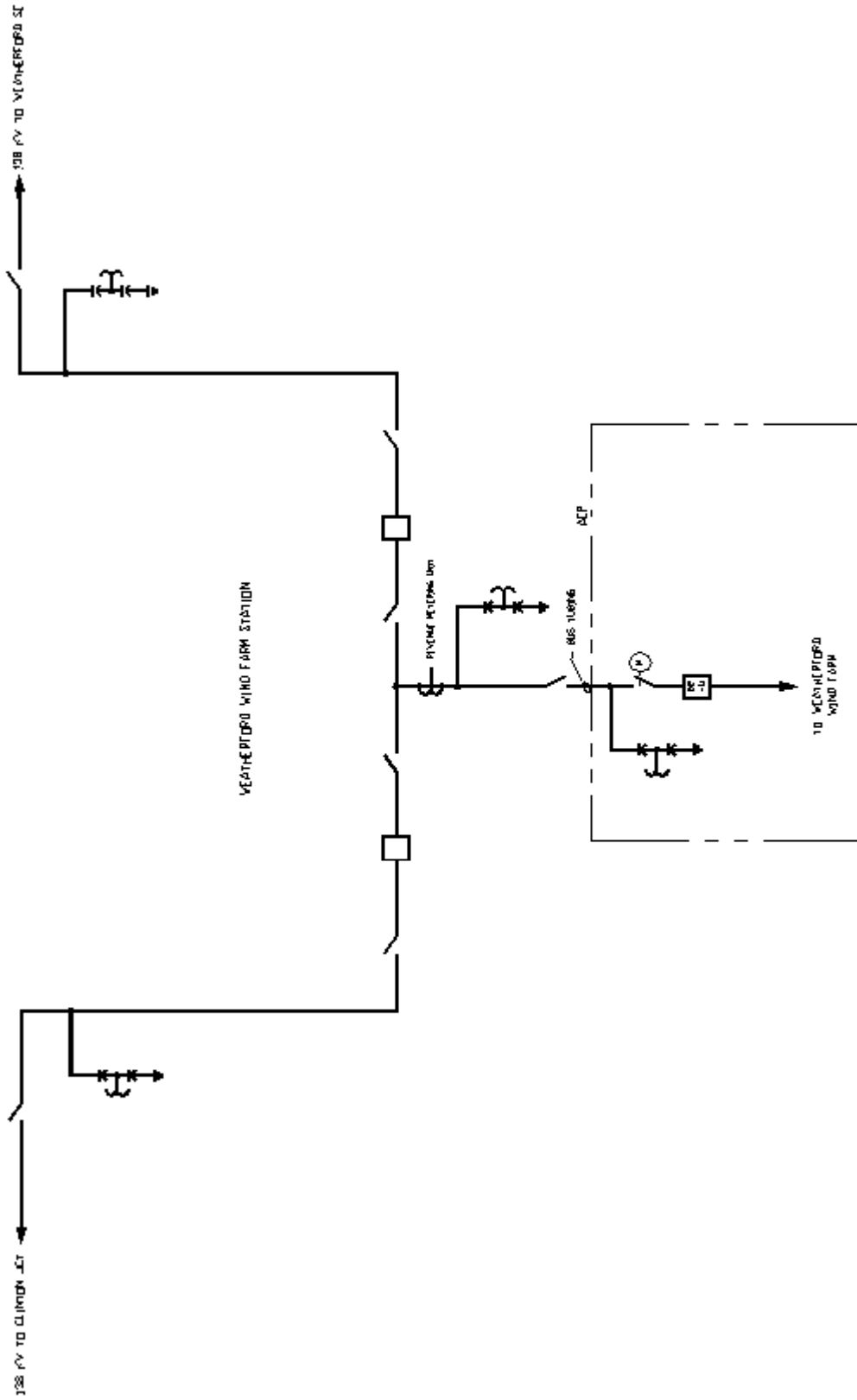


FIGURE 3

