



***Facility Study for Generation  
Interconnection Request  
GEN – 2004 – 020***

***SPP Coordinated Planning  
(#GEN-2004-020)***

**October 2005**

## **Summary**

American Electric Power Southwest Transmission Planning (AEP) performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection request Gen-2004-020. 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.

Pursuant to the tariff, AEP was asked to perform a detailed Facility study in accordance with the Facility Study Agreement executed by the requesting customer and SPP.

***Generation Interconnection  
Facilities Study***

***For***

***GEN-2004-020***

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

**October 2005**

## Table of Contents

Table of Contents	4
Introduction	5
Interconnection Facilities	6
Interconnection Costs	7
One-line Diagram of Weatherford Area Transmission Facilities	8
Weatherford Area Transmission Map	9
Weatherford Wind Farm Station One-Line	10

## **Introduction**

The Southwest Power Pool (SPP) has requested a Facility Study for expanding the existing 120 MW wind farm near Weatherford, Oklahoma. The Customer's wind farm is connected to American Electric Power's (AEP) Clinton Junction to Weatherford Southeast 138 kV transmission line. The proposed in-service date is December 2005. The expansion of the Customer's wind farm will consist of 18 GE 1.5 wind turbines with a rating output of 1.5 MW each with standard LVRT capability, for a nominal output of 27 MW.

The purpose of this study is to identify the facilities and their costs that are needed to interconnect the expansion of 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-2004-020.

No additional facilities will be required in the existing AEP Weatherford Wind Farm Station due to the expansion of the existing wind farm.

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

### Weatherford Wind Farm 138 kV Station

No additional facilities will be required in the existing AEP Weatherford Wind Farm Station due to the expansion of the existing wind farm.

### 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 27 MW generation and related facilities. Therefore there are no short circuit upgrade costs associated with the Gen-2004-020 interconnection.

## **Interconnection Costs**

Listed below are the costs associated with interconnecting the additional 27 MW wind farm generation facility to the AEP transmission system.

SYSTEM IMPROVEMENT	COST (2004 DOLLARS)
None	\$0
<b>TRANSMISSION INTERCONNECTION FACILITY TOTAL COSTS</b>	<b>\$0</b>

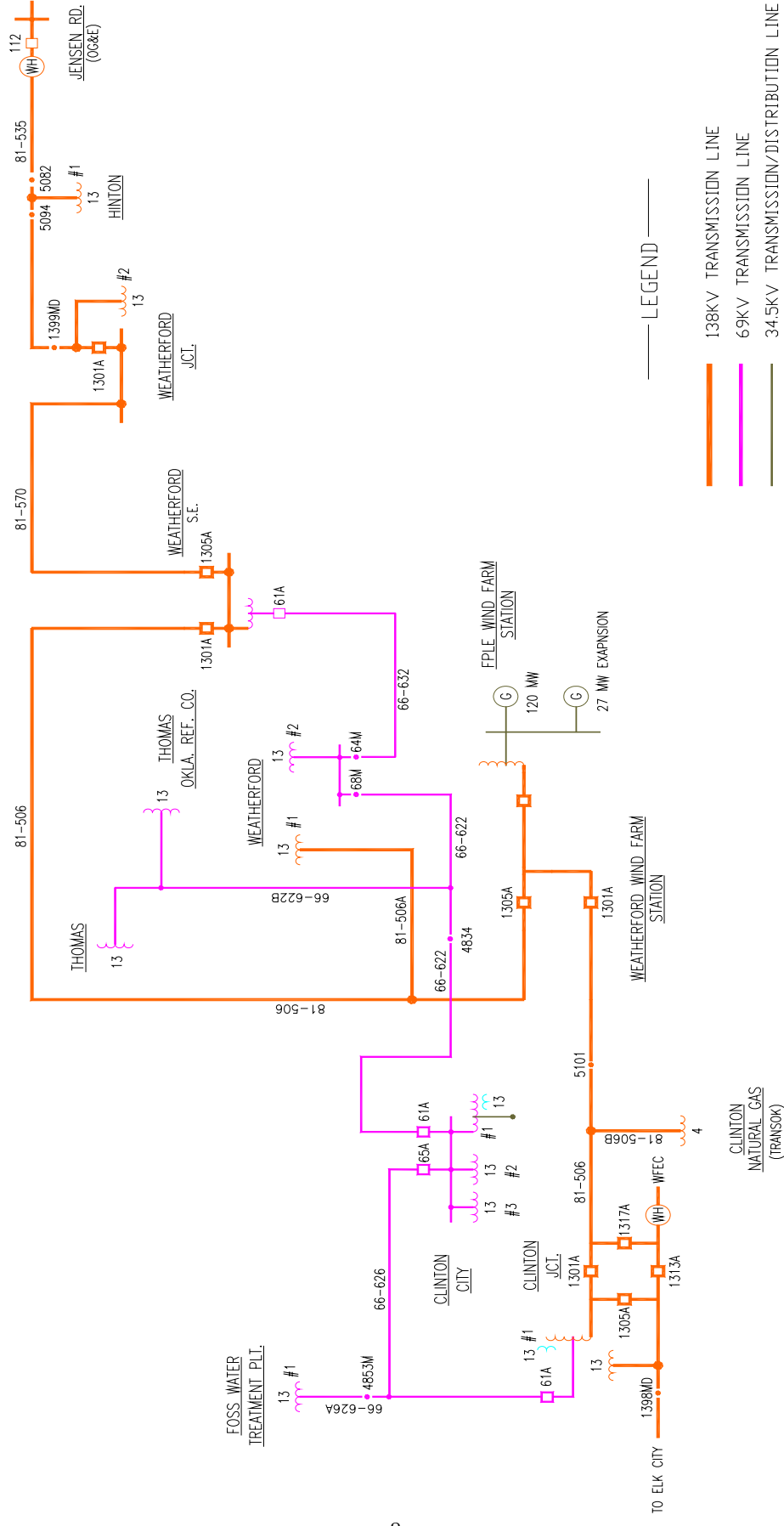


FIGURE 1: WEATHERFORD AREA ONELINE



# OKLAHOMA

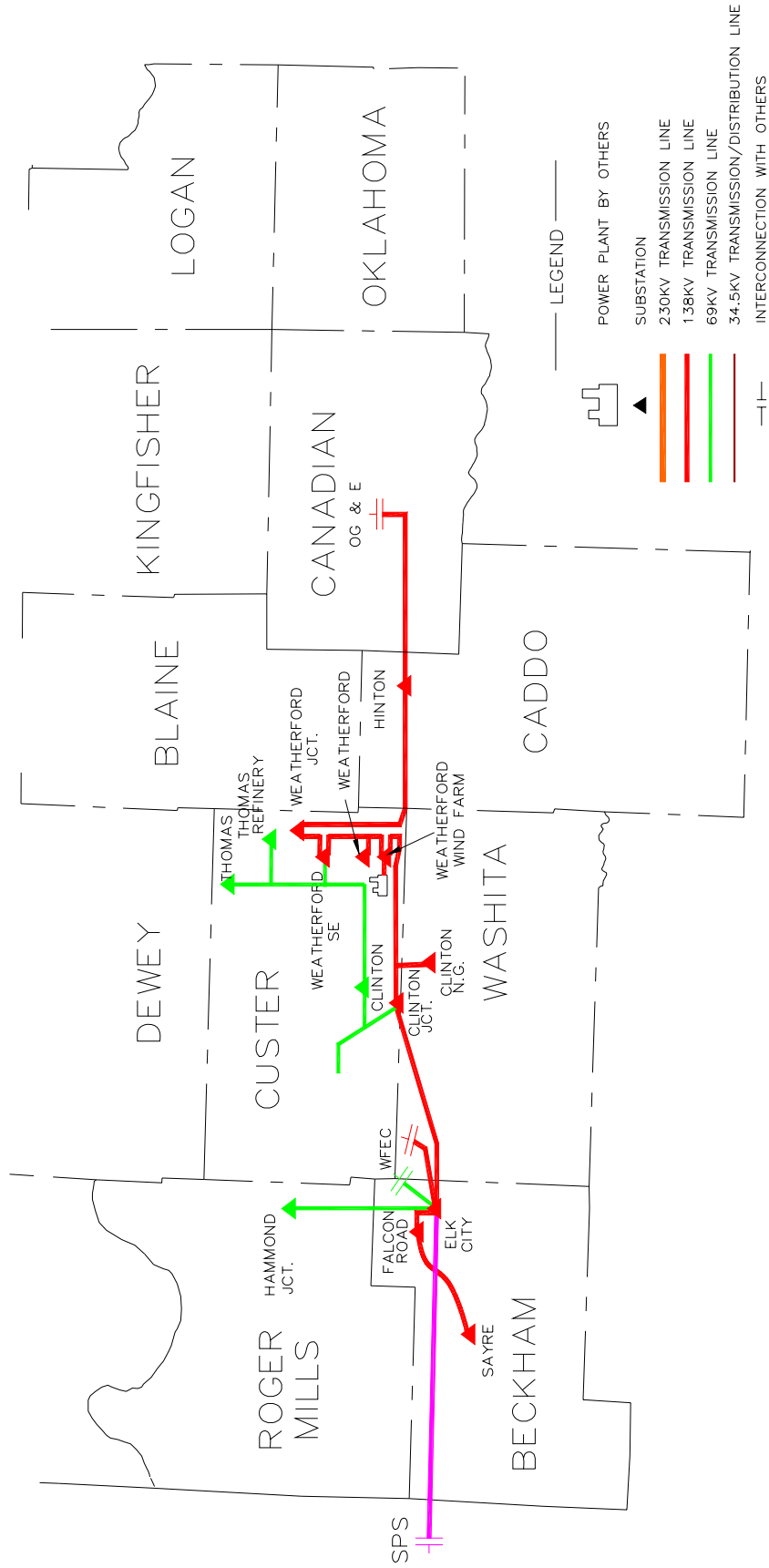


FIGURE 2 WEATHERFORD AREA TRANSMISSION MAP

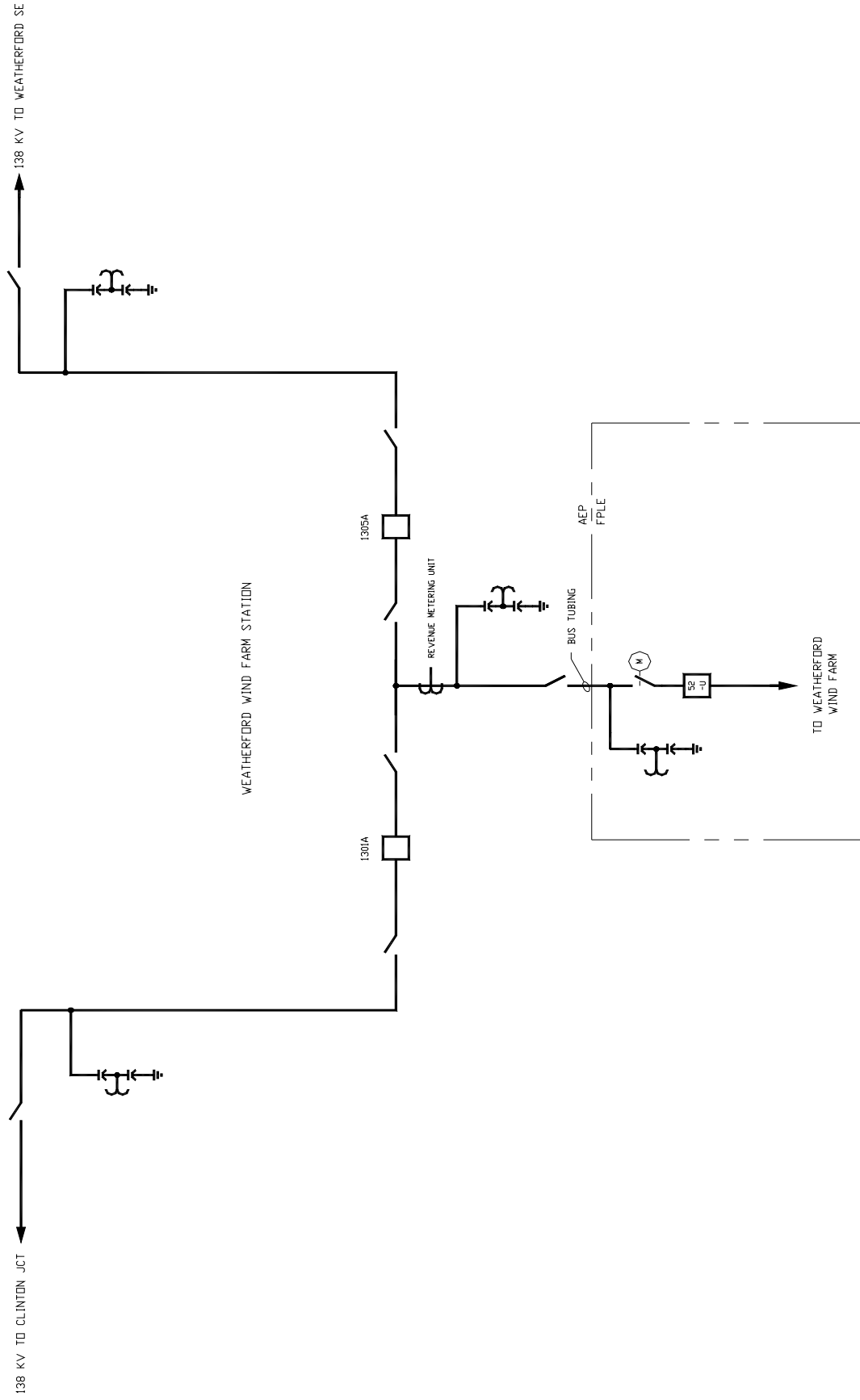


FIGURE 3

