



***Facility Study for Generation  
Interconnection Request  
GEN – 2003 – 004***

***SPP Coordinated Planning  
(#GEN-2003-004)***

**November 2004**

## **Summary**

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP) Western Farmers Electric Cooperative (WFEC) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request Gen-2003-004. 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

***Generation Interconnection  
Facilities Study***

***For***

***GEN-2003-004***

***Western Farmers Electric Cooperative***

**November 2004**

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## **Introduction**

The Southwest Power Pool (SPP) has requested a Facility Study for interconnecting a 100 MW wind farm to the existing 75 MW Blue Canyon Wind Farm located near Apache, Oklahoma.

The wind farm will be connected to Washita switching Station owned by Western Farmers Electric Cooperative (WFEC) with an existing 26 mile 138 kV transmission line.

The purpose of this study is to identify the facilities and their costs that are needed to interconnect the Customer's wind farm with the Southwest Power Pool transmission system. This facilities study is done in conjunction with SPP Feasibility and Impact Studies for Generation Interconnection Request GEN-2003-004.

WFEC will construct approximately three miles of 138 kV transmission line from WFEC's Washita Switching Station and AEP's Southwestern Station. WFEC will expand the Washita Switch Station from 4 breaker ring to a 5 breaker ring. AEP will construct an additional bay at the Southwestern Station.

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 and 2)**

### Washita – Southwestern Station 138 kV Transmission Line

WFEC will construct up to a 3 mile, 1590 ACSR line from Washita Switching Station to AEP's Southwestern Station. This line was called out in the system impact study and will relieve first contingency loading on Anadarko to Southwestern Station. WFEC will purchase right-of-way for this line.

### Washita Switching Station Breaker Addition (138 kV)

The proposed Customer's plant is to be interconnected with the transmission facilities, via an existing 26 mile 138 kV tap line connected to WFEC's Washita Switching Station. The Station will be expanded from a four to a five breaker ring-bus to connect the new Washita to Southwestern Station Transmission line.

### AEP Southwestern Station Breaker addition (138 kV)

AEP will expand the Southwestern Station to connect the new Washita to Southwestern Station transmission line. This will include new buswork, breakers, interconnection metering, and relaying.

### Short Circuit Fault Duty Evaluation

It is standard practice for both WFEC and 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.

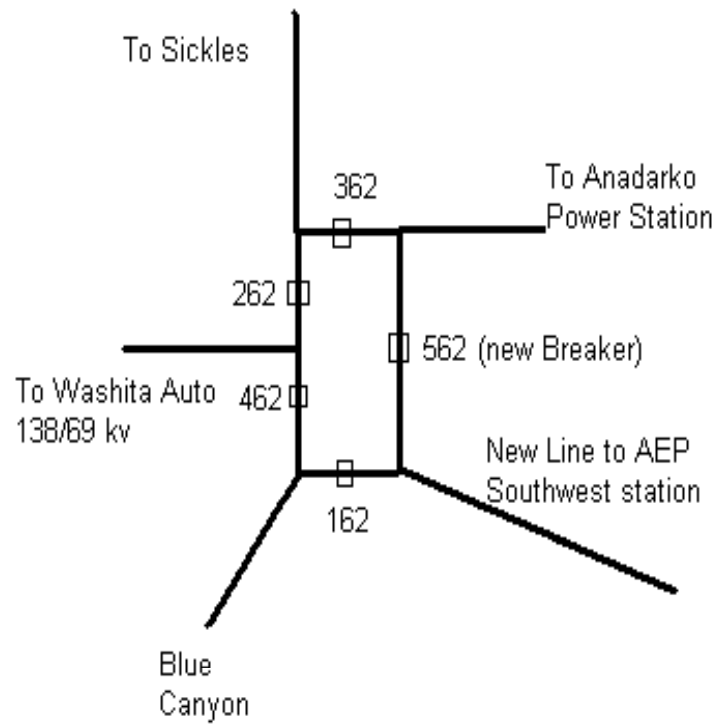
For this generator interconnection, no breakers were found to exceed their interrupting capability after the addition of the Customer's 100MW generation and related facilities. WFEC/AEP found no breakers that exceeded their interrupting capabilities on their systems. Therefore there are no short circuit upgrade costs associated with the Gen-2003-004 interconnection.

## **Interconnection Costs**

Listed below are the costs associated with interconnecting the Customer's 100 MW wind farm generation facility to the Southwest Power Pool transmission system.

<b>SYSTEM IMPROVEMENT</b>	<b>COST (2004 DOLLARS)</b>
Convert Washita Switching Station from four-breaker Ring to five-breaker ring.	\$365,218
Construct up to three miles of 138 kV, 1590 ACSR transmission line from WFEC Washita Station to AEP Southwestern Station.	\$835,783
<b>WFEC Subtotal</b>	<b>\$1,201,001</b>
Modifications at Southwestern Station to add a 138 kV Breaker Bay	\$1,200,000
<b>AEP Subtotal</b>	<b>\$1,200,000</b>
<b>TRANSMISSION INTERCONNECTION FACILITY TOTAL COSTS</b>	<b>\$2,401,001</b>

# Washita Switching Station One-line Diagram





**WFEC lines in Blue Canyon Area  
(Washita to Southwestern Station shown in Green)**

