



***Facility Study for Generation
Interconnection Request
GEN – 2005 – 022***

***SPP Tariff Studies
(#GEN-2005-022)***

October 2006

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-2005-022. The request for interconnection was placed with SPP in accordance with 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 of the generation interconnection request to satisfy the Facility Study Agreement executed by the requesting customer and SPP.

***Generation Interconnection
Facilities Study***

For

GEN-2005-022

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

October 2006

Table of Contents

Table of Contents	4
Introduction	5
Interconnection Facilities	6
Interconnection Costs	7
One-line Diagram of Southwestern Area Transmission Facilities	8
Southwestern Station Area Transmission Map	9

Introduction

The Southwest Power Pool (SPP) has requested a Facility Study for interconnecting a 168 MW gas turbine power plant in Caddo County, Oklahoma. The proposed in-service date is January 2008. The Customer's plant will consist of two combustion turbine generators.

The purpose of this study is to identify the facilities and their costs that are needed to interconnect the new generators 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-2005-022.

The interconnection point for the new generation will be AEP's Southwestern Station substation. AEP will add a breaker to the existing breaker and a half scheme to accommodate the new interconnection. The existing AEP station includes a Control House with available room for all metering, protection and SCADA systems needed for the 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)

Southwestern Station 138 kV Substation

A new 138 kV terminal will be added at Southwestern Station for the generation interconnection. This terminal will consist of one 138 kV circuit breaker and associated equipment. A short 138 kV line will be required to connect the generators to the 138 kV bus. See Figure 1 for details.

The design and construction of the new terminal 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.

Short Circuit Fault Duty Evaluation

AEP conducted a short circuit fault duty evaluation for impacts that could be contributed to the new generator. Due to Western Farmers Electric Cooperative (WFEC) having transmission facilities in close proximity to Southwestern Station, WFEC also conducted a short circuit fault duty evaluation for the request.

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 168MW of generation and related facilities.

It is standard practice for WFEC 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.

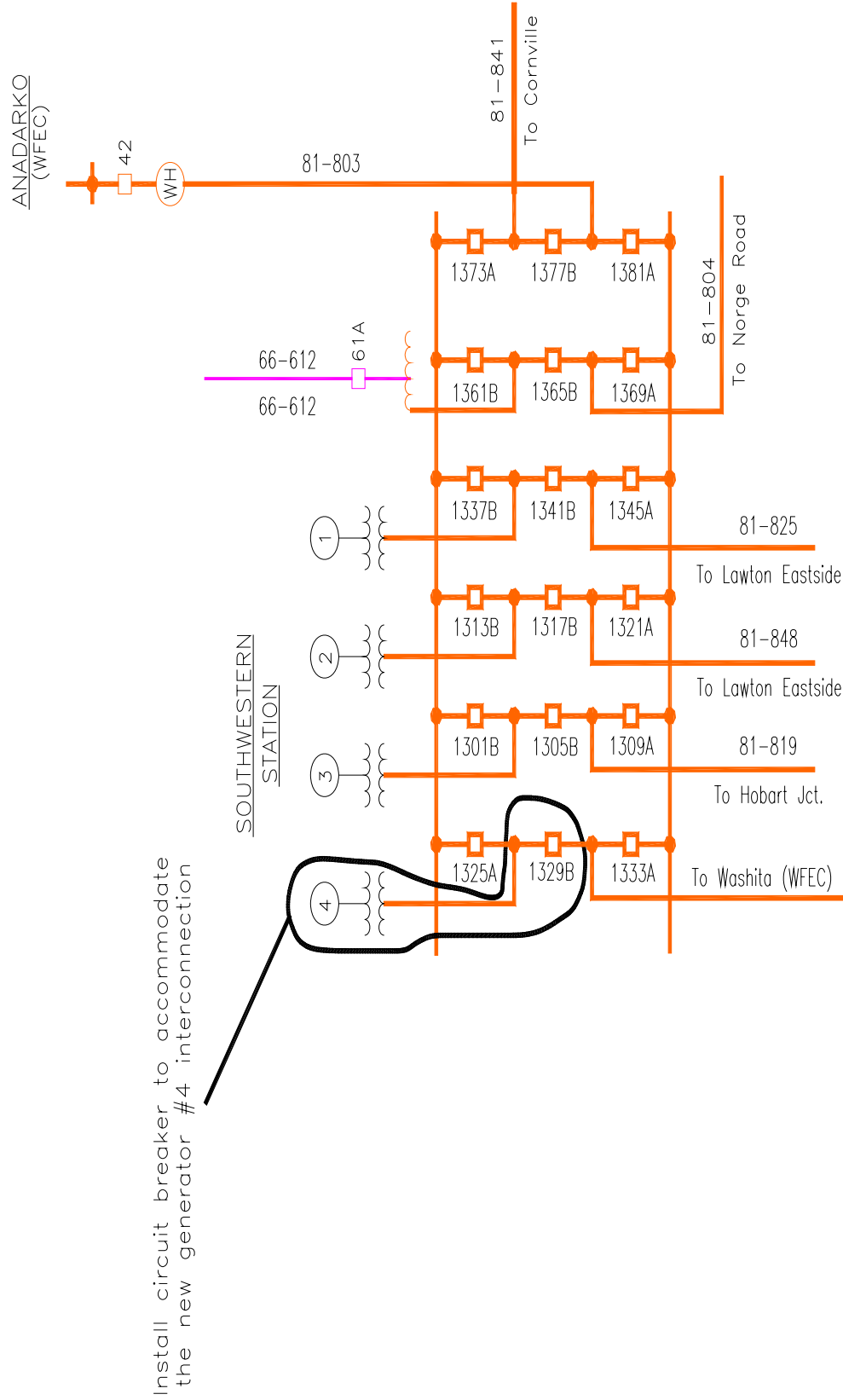
WFEC found no breakers that exceeded their interrupting capabilities, due to the new generation, on the WFEC system.

Therefore there are no short circuit upgrade costs associated with the Gen-2005-022 interconnection.

Interconnection Costs

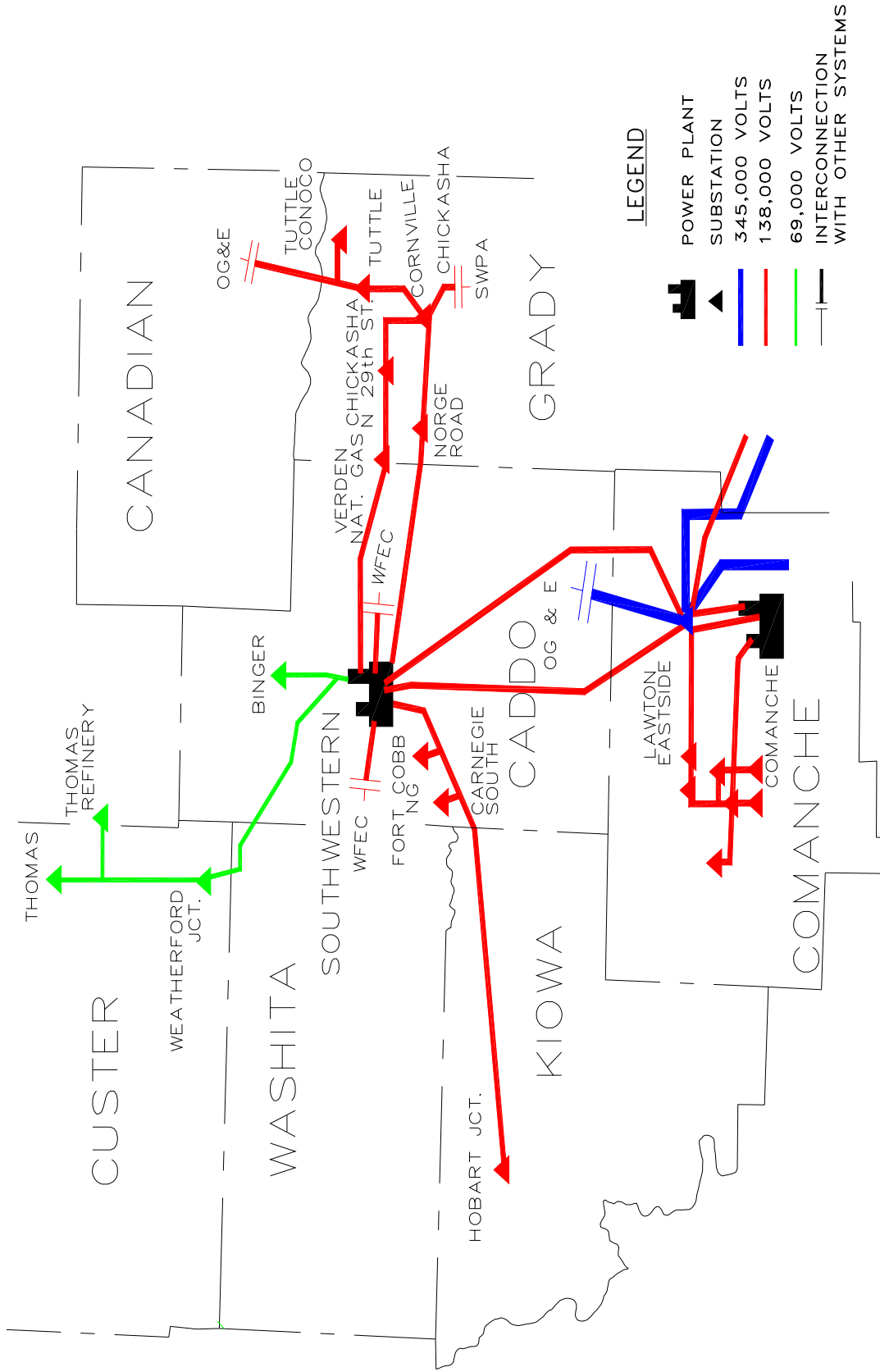
Listed below are the costs associated with interconnecting the 168 MW generation facility to the AEP transmission system.

SYSTEM IMPROVEMENT	COST (2004 DOLLARS)
New terminal at AEP's Southwestern Station substation. Including all metering, protection, and SCADA	\$909,200
TRANSMISSION INTERCONNECTION FACILITY TOTAL COSTS	\$909,200



Install circuit breaker to accommodate the new generator #4 interconnection

FIGURE 1
SOUTHWESTERN STATION 138 KV



LEGEND







-  POWER PLANT
-  SUBSTATION
-  345,000 VOLTS
-  138,000 VOLTS
-  69,000 VOLTS
-  INTERCONNECTION WITH OTHER SYSTEMS

FIGURE 2 SOUTHWESTERN STATION AREA TRANSMISSION