



***FCS-2008-001 Shared Facility Study  
for  
Transmission Facilities in AEP***

***(Elk City Transformer 230/138 kV Ckt 1)***

***SPP Tariff Studies***

***(#FCS-2008-001)***

***March 2010***

## **Summary**

American Electric Power Southwest Transmission Planning (AEP SWTP) performed the following study at the request of the Southwest Power Pool (SPP) for SPP Generation Interconnection Cluster requests FCS-2008-001. The requests for interconnection were 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 cluster requests to satisfy the Facility Study Agreement executed by the requesting customers and SPP.

### **Shared Interconnection Upgrade Facilities Costs**

The FCS-2008-001 Interconnection Customers are included in the 1<sup>st</sup> Cluster Study approved in FERC Docket #ER09-262. The Interconnection Customers' shared upgrade costs are \$379,649 and are allocated as follows for each project:

GEN-2007-005:	\$29,045
GEN-2007-008:	\$99,282
GEN-2007-034:	\$26,652
GEN-2007-045:	\$39,860
GEN-2007-046:	\$25,064
GEN-2007-048:	\$70,138
GEN-2007-057:	\$5,226
GEN-2008-008:	\$10,569
GEN-2008-009:	\$10,666
GEN-2008-014:	\$19,461
GEN-2008-016:	\$43,686

This cost allocation is subject to change for restudies conducted by the Transmission Provider in response to the higher queued customers or other customers in the 1<sup>st</sup> Cluster that withdraw their interconnection request or suspend, terminate, or request unexecuted filings of their LGIAs.

### **Affected System Facilities**

There is no short circuit upgrade costs associated with the SPP Generation Interconnection Cluster requests FCS-2008-001 for the AEP system.

***Generation Interconnection Facilities  
Study For  
FCS-2008-001***

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

**November, 2009**

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## **Introduction**

The SPP has requested a Facility Study for interconnecting multiple generation interconnection requests associated with new generation totaling 6,500 MW which would be located within the transmission systems of American Electric Power West (AEPW), Empire District Electric (EMDE), Midwest Energy Inc. (MIDW), Missouri Public Service (MIPU), Mid-Kansas Electric Power LLC (MKEC), Oklahoma Gas and Electric (OKGE), Southwestern Public Service (SPS), Sunflower Electric Power Corporation (SUNC), Westar Energy (WERE) and/or Western Farmers Electric Cooperative (WFEC).

The purpose of this study is to identify the facilities and their costs that are needed to interconnect the new generation with AEP's transmission system. This facility study is done in conjunction with SPP Feasibility and Impact Studies for SPP Generation Interconnection Cluster requests FCS-2008-001.

The Impact study has identified network upgrades needed to support the interconnection of the generation requests in this study into AEP's transmission system; the network upgrades were on the 138 kV bus of the Elk City Station.

To accommodate the generation interconnection requests associated with new generation of 6,500 MW, AEP will replace the necessary equipment on the 138 kV bus of the Elk City Station.

## **Interconnection Facilities**

The requirement to interconnect the 6,500 MW of generation into the existing and proposed transmission systems in the affected areas of the SPP transmission footprint consist of the necessary cost allocated shared facilities listed in the SPP Generation Interconnection Cluster study FCS-2008-001 Appendix G. Interconnection Facilities specific to each generation interconnection request are also listed in the SPP Generation Interconnection Cluster study FCS-2008-001 Appendix F.

To support the interconnection of the generation requests into the SPP transmission footprint, AEP will replace the necessary equipment on the 138 kV at Elk City Station.

A preliminary one-line drawing for the network upgrades are shown in Figure 1.

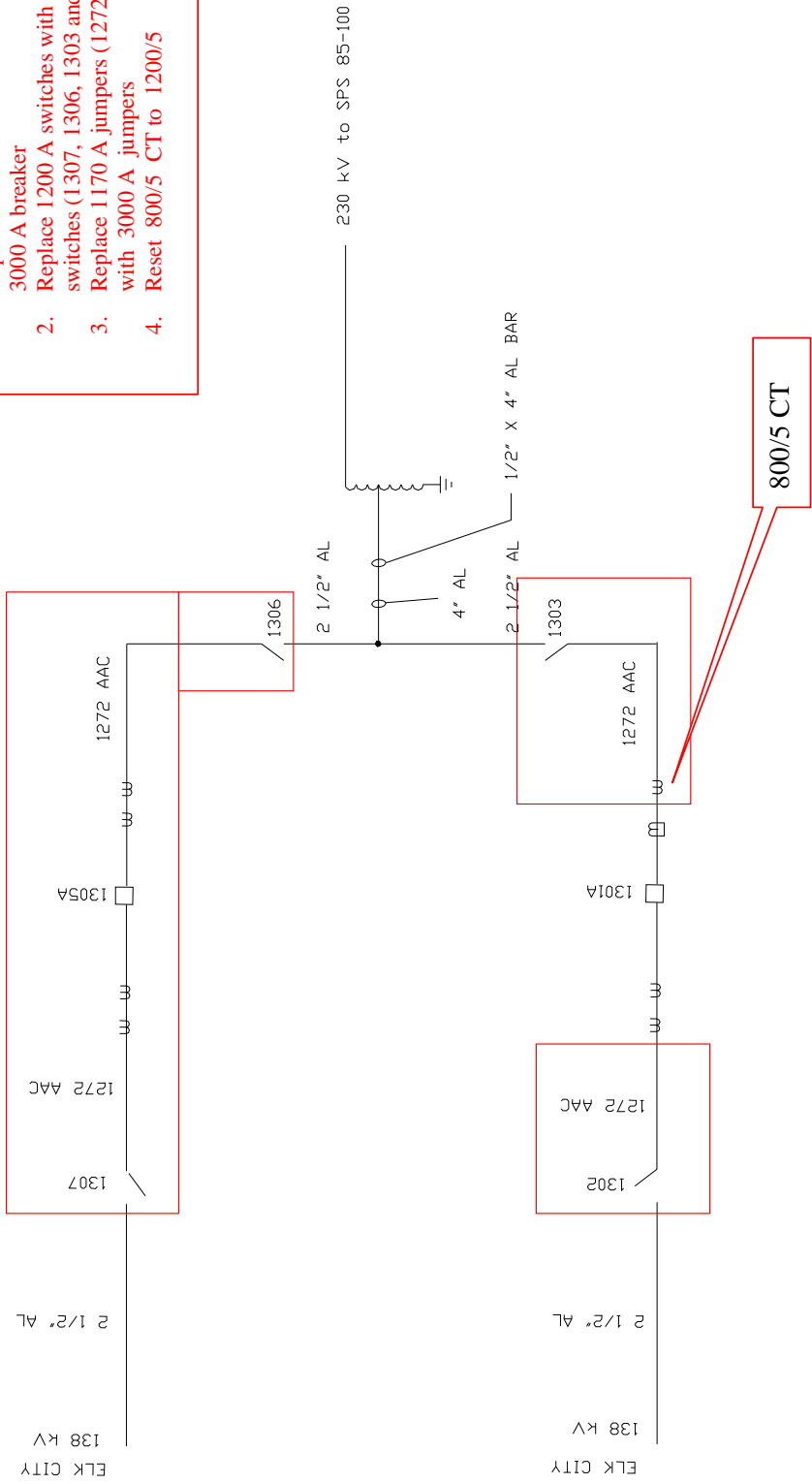
## **Network Upgrade Costs**

Listed below are the costs associated with the construction of the network upgrades at Elk City Station.

**Table 1: Required Network Upgrades**

<b>SYSTEM IMPROVEMENT</b>	<b>COST (2009 DOLLARS)</b>
Network Upgrades - 138 kV at Elk City Station	\$ 379,649
<b>TRANSMISSION NETWORK UPGRADES TOTAL COSTS</b>	<b>\$ 379,649</b>

1. Replace 1200 A breaker 1305A with 3000 A breaker
2. Replace 1200 A switches with 3000 A switches (1307, 1306, 1303 and 1302)
3. Replace 1170 A jumpers with 3000 A jumpers
4. Reset 800/5 CT to 1200/5



**Figure 1. Elk City 138 kV Bus – Proposed Upgrades (FCS-2008-001)**

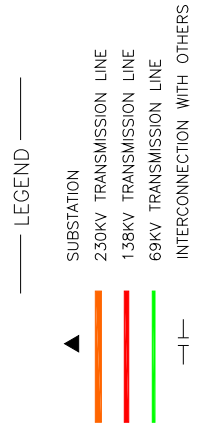
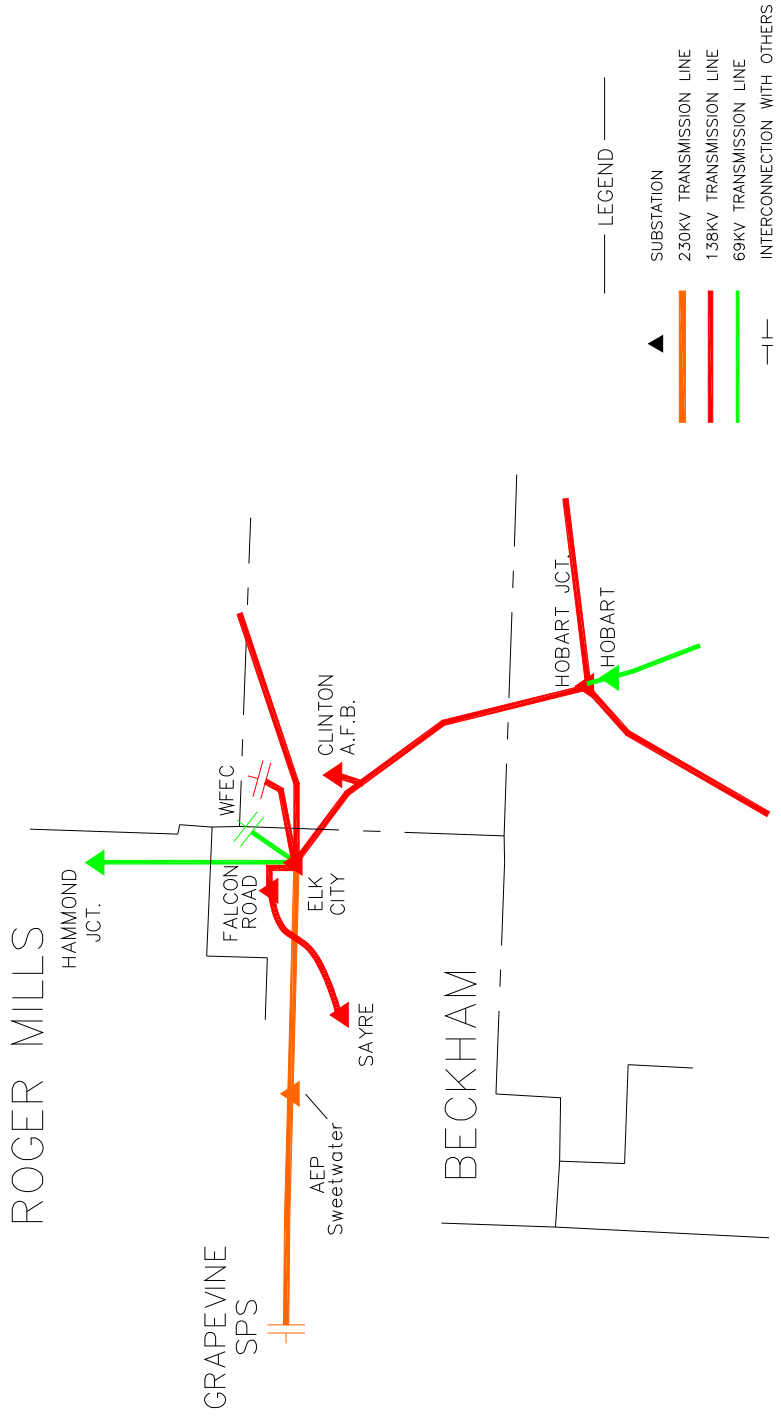


FIGURE 2 ELK CITY AREA TRANSMISSION MAP