



***Facility Study for Generation  
Interconnection Request  
GEN – 2004 – 016***

***SPP Coordinated Planning  
(#GEN-2004-016)***

**December 2005**

## **Summary**

Westar Energy performed the following Study at the request of the Southwest Power Pool (SPP) for Generation Interconnection request Gen-2004-016. 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.

Pursuant to the tariff, Westar Energy 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**

**Generation Interconnection Request  
SPP-GEN-2004-016**

**December 5, 2005**

## **Introduction**

This report summarizes the results of a Generation Interconnection Facilities Study performed for the Southwest Power Pool (SPP) by Westar Energy, Inc. (WR) to evaluate a generation interconnection request by (Customer) for 150 MW of wind-powered generation on the WR transmission system approximately 13 miles north-northeast of McPherson, Kansas. The requested in-service date of the generating facility is December 31, 2005. Prior to this were completed both a Feasibility Study and a System Impact Study. The proposed project will interconnect with the WR Summit – East McPherson 230 kV line at a new ring-bus switching station. It is not possible to have the required facilities in service by the requested in-service date.

## **Project Location and Existing Facilities**

The project is located near McPherson, Kansas, in McPherson County approximately 13 miles north-northeast of McPherson, Kansas. The WR Summit – East McPherson 230 kV transmission line is approximately 6 miles west of the proposed Customer facility substation. The interconnection will be effected at a new 230 kV ring-bus substation approximately 14 miles south of the existing Summit substation. The substation will connect to Customer facilities at 230 kV. Customer will own, operate, and maintain 230 kV transmission to the project substation, step down transformation, and the project substation. Figure 1 shows the Southwest Power Pool regional transmission facilities and Figure 2 shows the WR transmission facilities in the area.

## **Interconnection Facilities**

Interconnection to the WR transmission system will be by way of a new 230 kV three position ring-bus switching station on the existing Summit – East McPherson 230 kV transmission line. The new substation terminal will look east towards Customer's facilities. Construction of this new substation terminal requires 10 acres of additional land adjacent to the existing transmission line right-of-way.

### **230 kV Ring Bus Substation**

The estimated cost is for three (3) 230 kV breakers, six (6) 230 kV switches, three (3) 230 kV motor operated switches, six (6) 230 kV CCVTs, three (3) 230 kV wave traps, six (230 kV, new redundant primary relaying, relaying setting changes and trap tuning at Summit and McPherson, three (3) 230 kV full tension deadend structures, and all associated site, yard and conduit work.

**\$4,020,000**

### **230 kV Interconnection Metering**

The estimated cost is for three (3) 230 kV VTs, three (3) 230 kV CTs, and revenue interconnection metering plus all associated site, yard and conduit work.

**\$ 207,000**

**230 kV Transmission Line Work**

The estimated cost is for steel turning structures to connect the existing Summit – East McPherson 230 kV transmission line into the interconnection substation plus associated foundations and labor. The existing transmission line is equipped with optical shield wire for communications.

**\$475,000**

The total cost estimate for Transmission Owner Interconnection Facilities (Interconnection Metering) and Stand Alone Network Upgrades (230 kV Ring-bus Substation and Transmission Line Work) is:

**\$ 207,000 Interconnection Metering**  
**\$4,020,000 230 kV Ring-bus Substation**  
**\$ 475,000 Transmission Line Work**  
**\$4,702,000**

This estimate is accurate to +/- twenty (20) percent in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement.

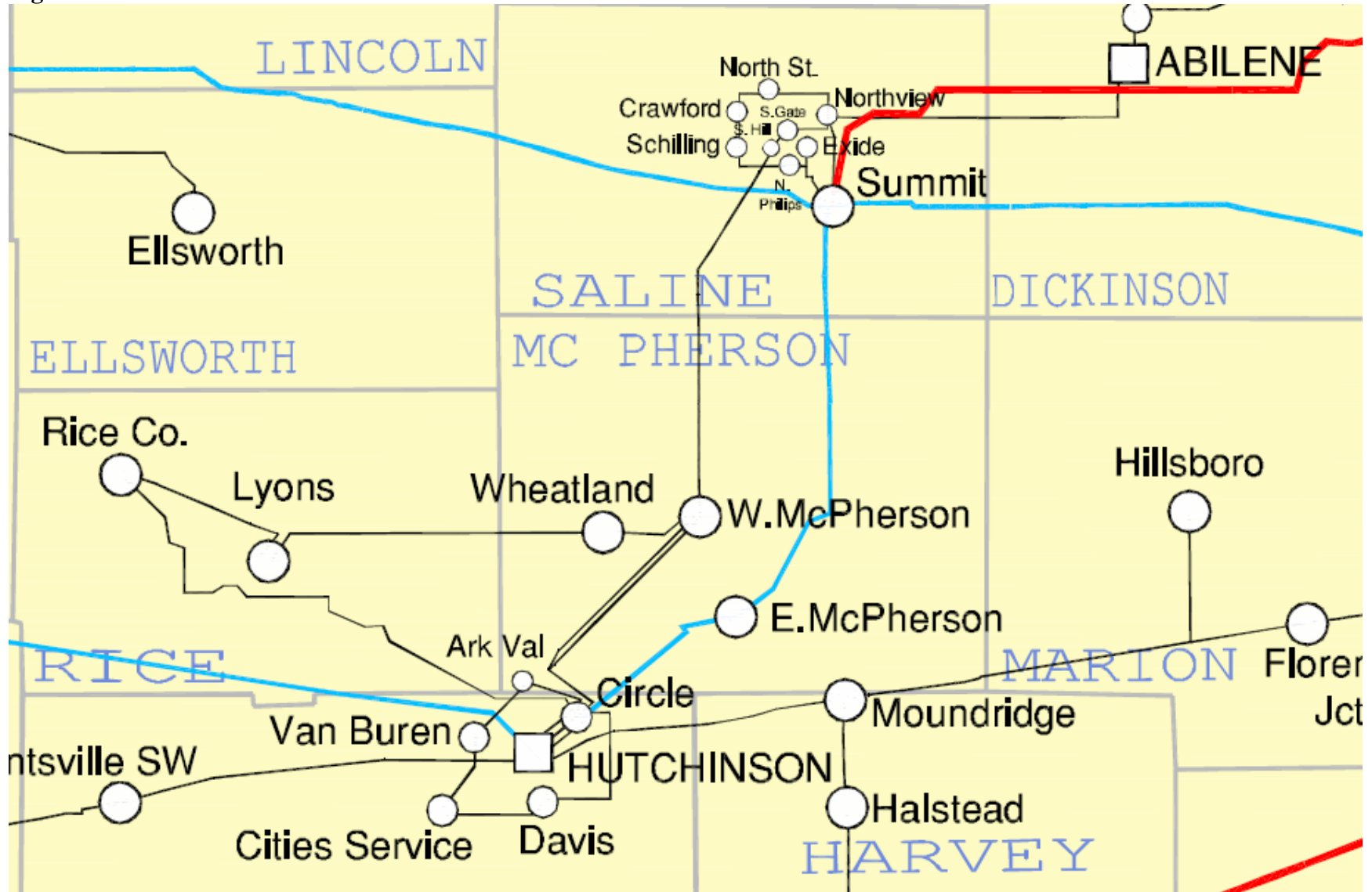
The following approximate time lines for the project are based on WR’s engineering time, average procurement time, and good weather during construction. The amount of time per task may change if consultants are hired to perform this work.

16 weeks      Engineering Time  
24 weeks      Procurement Time  
24 weeks      Construction Time  
**68 weeks Total**

The design and material ordering will only commence following execution of the Southwest Power Pool Standardized Large Generation Interconnection Agreement.

Westar Energy also maintains its own Facility Connection Requirements, which may be found at (wr.com).

Figure 1 – Southwest Power Pool Area Transmission



**Figure 2 – Westar Energy Area Transmission**

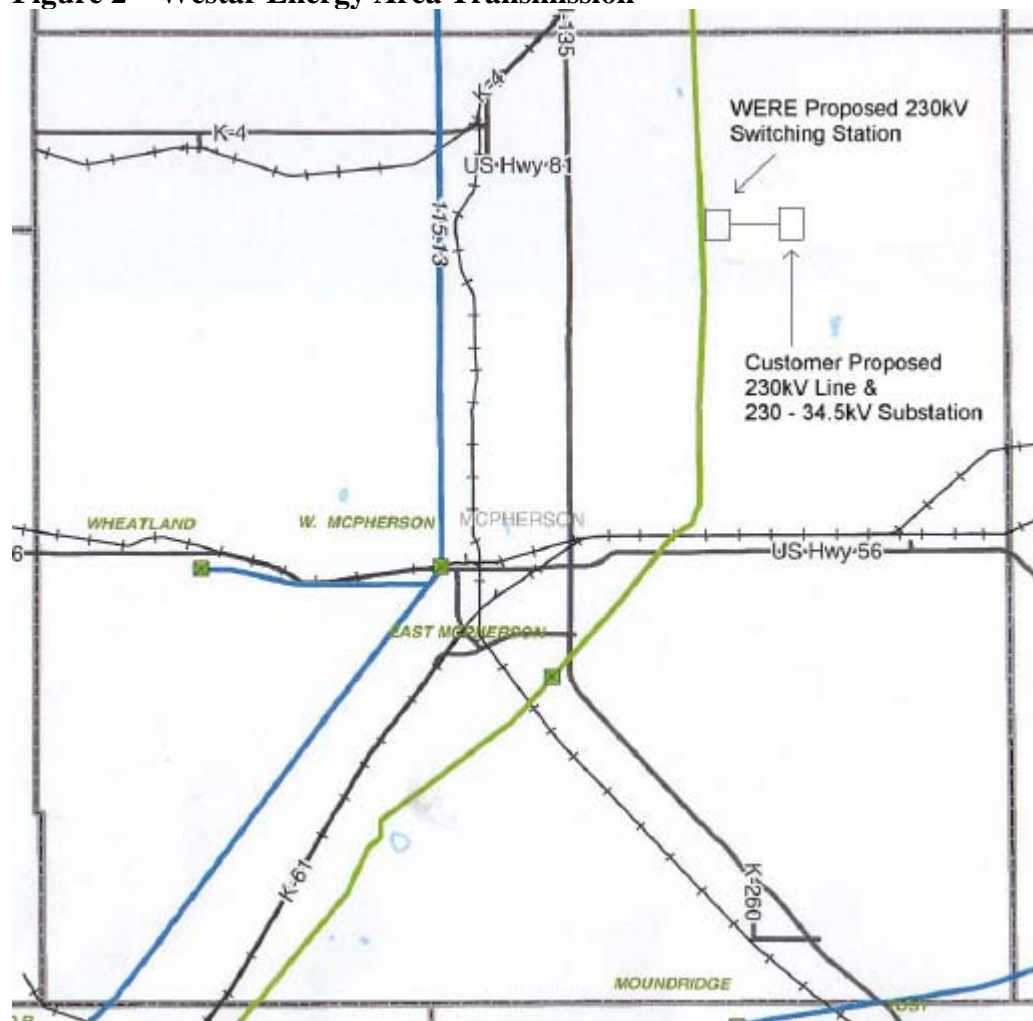
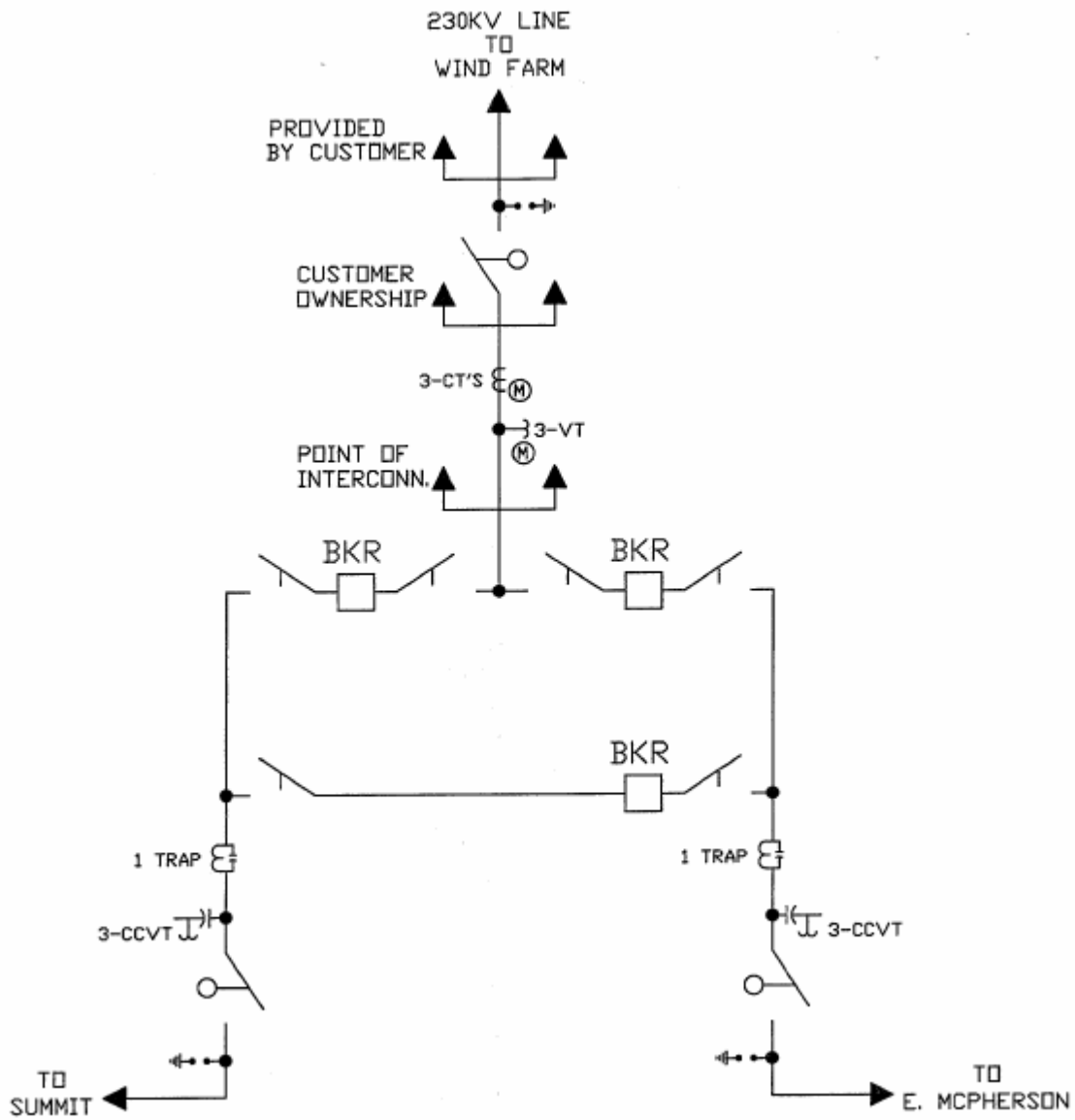


Figure 3 – Interconnection Substation One-Line





**Figure 4 – Interconnection Substation Layout**

