



***Facility Study
For
Generation Interconnection
Request
GEN-2005-016***

SPP Tariff Studies

(#GEN-2005-016)

August 2007

Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP), Westar Energy performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting Customer and SPP for SPP Generation Interconnection Request #GEN-2005-016.



**Generation Interconnection Facilities
Study**

For

SPP-GEN-2005-016

August 30, 2007

Introduction

This report summarizes the results of a Generation Interconnection Facilities Study performed for the Southwest Power Pool (SPP) by Westar Energy to evaluate a generation interconnection request for 150 MW of wind-powered generation. The project is located east of Howard, Kansas, in Elk County. The requested in-service date of the generating facility is May 2009. Prior to this were completed both a Feasibility Study and a System Impact Study. The proposed project will interconnect with the Westar Energy Neosho – Latham – Rose Hill 345 kV line at a new substation located approximately 63 miles from the existing Neosho Substation.

Project Location and Existing Facilities

The project is located east of Howard, Kansas, in Elk County. The Westar Energy Neosho – Latham – Rose Hill 345 kV transmission line is approximately 5 miles south of the proposed Customer generating facility substation. The interconnection will be effected at a new the 345 kV ring-bus substation approximately 63 miles west-northwest of the existing Neosho substation. The substation would connect to Customer facilities at 345 kV. Customer will own, operate, and maintain 345 kV transmission to the generating facility substation together with step down transformation, and the project substation. Figure 1 shows the Westar Energy transmission facilities in the area.

Interconnection Facilities

Interconnection to the Westar Energy transmission system will be by way of a new 345 kV ring-bus substation on the existing Neosho – Latham – Rose Hill 345 kV transmission line. One new substation terminal will look north towards Customer's facilities. Construction of this new interconnection substation requires additional land adjacent to the existing transmission line right-of-way. Cost estimates provided in this study do not include costs for real property for the substation. A proposed one-line diagram of the 345 kV ring-bus substation is shown in Figure 2. A proposed layout of the 345 kV ring-bus substation is shown in Figure 3.

345 kV Interconnection Facilities

The estimated cost is for: one (1) 345 kV 300 Amp motor operated disconnect switch; three (3) 345 kV VT's; three (3) 345 kV CT's; three (3) 345 kV arresters, one (1) metering panel with associated devices for revenue metering at the Point of Interconnection with new redundant primary 345 kV relaying protection; one (1) 345 kV full tension dead end structure; and all associated yard work, foundations, steel, bus, cable and miscellaneous equipment and connectors. The estimated cost is \$736,000.

345 kV Ring Bus Substation

The estimated cost is for: three (3) 345 kV circuit breakers; six (6) 345 kV 3000 Amp disconnect switches; two (2) 345 kV 3000 Amp motor operated disconnect switches; six (6) 345 kV CCVT's; six (6) 345 kV arresters; two (2) sets of new redundant primary 345 kV line relaying; two (2) 345 kV full tension dead end structures; one (1) equipment enclosure with AC, DC, SCADA, Digital Fault Recorder and other miscellaneous

equipment; and all associated yard work, foundations, steel, bus, cable and miscellaneous equipment and connectors. The estimated cost is \$4,800,000.

345 kV Transmission Line

Work is required to connect the new substation to the existing Neosho – Latham – Rose Hill 345 kV transmission line. The estimated cost includes steel turning structures to connect the existing Neosho – Latham – Rose Hill 345 kV transmission line into the interconnection substation plus associated foundations and labor. The existing transmission line is equipped with optical shield wire for communications. The estimated cost is \$500,000 and assumes that the interconnection substation is located within on span (500 feet) of the existing 345 kV transmission line.

The total cost estimate for Transmission Owner Interconnection Facilities (Interconnection Metering) and Stand Alone Network Upgrades (345 kV Substation and Transmission Line Work) is:

\$ 736,000 (345 kV Interconnection Facilities)
\$ 4,800,000 (345kV Ring Bus Substation)
\$ 500,000 (345 kV Transmission Line Work)
\$ 6,036,000

The following are the approximate time lines for the projects. These are based on Westar Energy’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.

345 kV Ring Bus Substation Terminal:
26 weeks Engineering Time
28 weeks Procurement Time
16 weeks Construction Time
70 weeks Total

Short Circuit Considerations

The Westar Energy 345 kV transmission system will not be adversely affected by short circuit contributions from the Customer generating facility.

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 on our web-site (www.westarenergy.com).

Figure 1 – Westar Energy Area Transmission

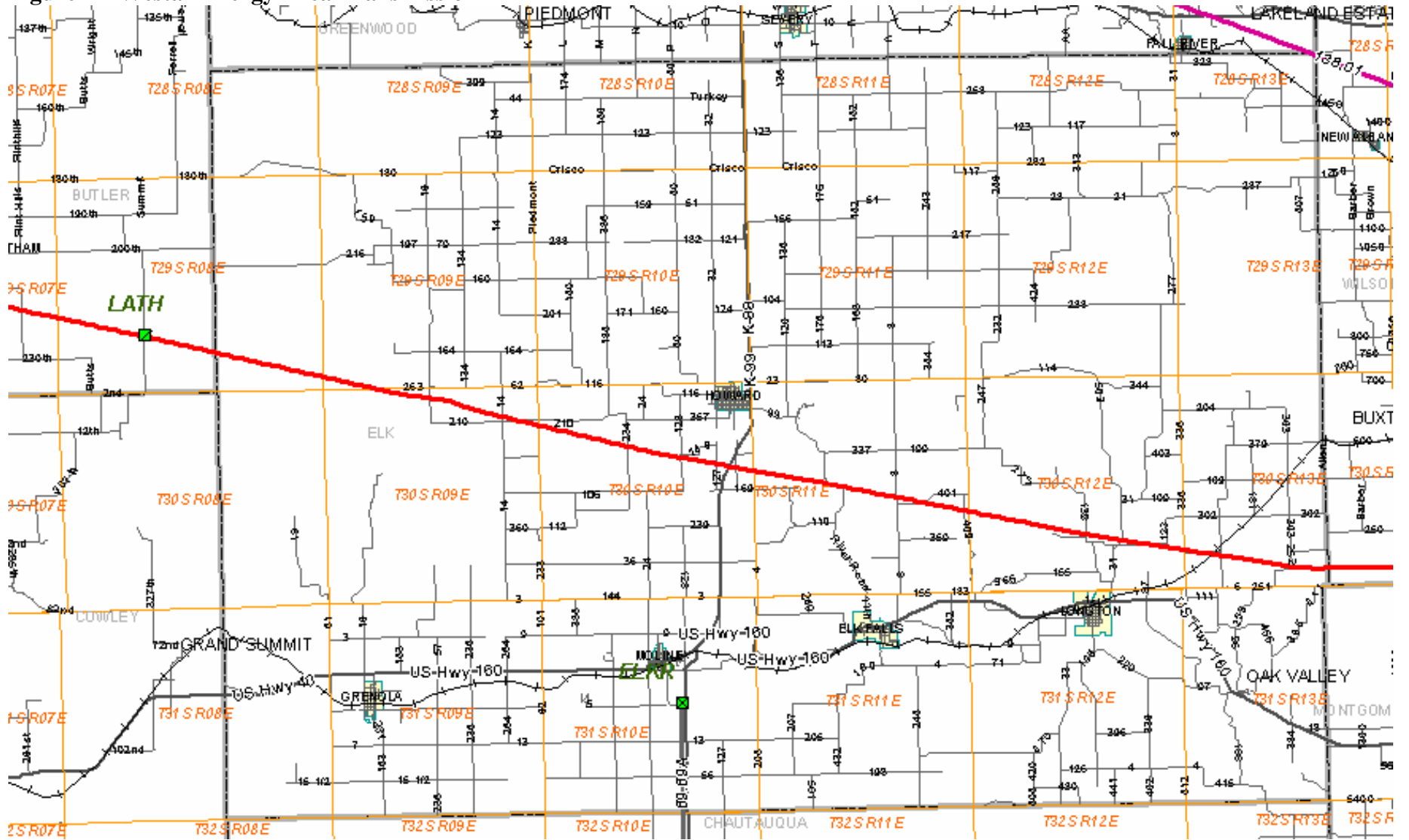


Figure 2 – Substation One-Line

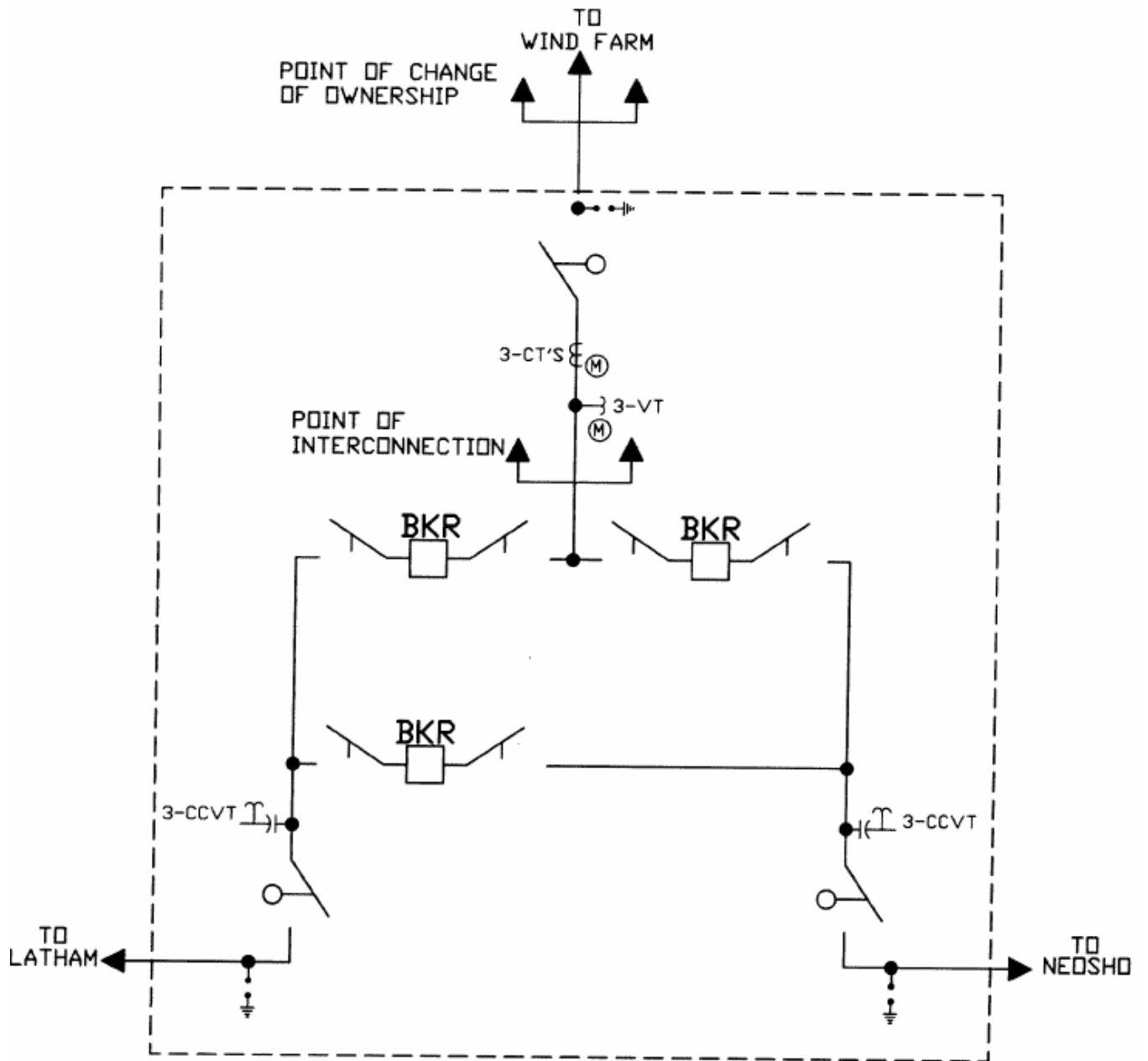


Figure 3 – Substation Layout

