



***Facility Study for Generation
Interconnection Request
GEN – 2007 – 015***

***SPP Tariff Studies
(#GEN-2007-015)***

November 2009

Summary

Westar Energy performed the following Study at the request of the Southwest Power Pool (SPP) for Generation Interconnection request GEN-2007-015. 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.

Interconnection Customer Facility Considerations

This Facility Study gives the Facility Cost information for Network Upgrades and Transmission Owner Interconnection Facilities. The Interconnection Customer also has responsibility for facilities that it will have ownership of. Pursuant to the Impact Study conducted for this interconnection request, the Interconnection Customer will have responsibility for reactive compensation at the point of interconnection. The type of reactive compensation is dependent upon which of the two wind turbine types the Interconnection Customer requested to be studied. If the Customer installs the General Electric 1.5MW wind turbines with the LVRT II and 'windvar' package, no additional reactive compensation devices are necessary. If the Customer installs the Vest V82 wind turbines, the Customer will be required to install 15Mvars of staged capacitor banks and in addition a 34.5kV, 13.75MVA STATCOM device.



**Generation Interconnection Facilities
Study**

For

**Generation Interconnection Request
SPP-GEN-2007-015**

November 3, 2009

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 [omitted text] (Customer) for 130 MW of wind-powered generation in Nemaha County, Kansas, to the transmission system of Westar Energy, Inc. The proposed interconnection is on the Kelly – Humboldt 161 kV line near transmission system structure 1621 approximately 3 miles south of the Kansas- Nebraska border. Prior to this were completed both a Feasibility Study and a System Impact Study. The requested in-service date of the generating facility is December 31, 2009. It is not possible for Westar Energy to have the required facilities in service by the requested in-service date under any option of the Standardized Large Generator Interconnection Agreement.

Project Location and Existing Facilities

The project is located near Bern, Kansas, in Nemaha County approximately 3 miles south of the Kansas-Nebraska border on the Kelly – Humboldt 161 kV transmission line. The WR 161 kV transmission line crosses the property of the proposed development. The interconnection will be effected at a new 161 kV ring-bus substation and will connect to Customer facilities at 161 kV. Customer will construct, own, operate, and maintain but did not propose a specific route for the 161 kV line extending to the project substation. Figure 1 shows the Westar Energy regional transmission facilities and Figure 2 shows the Westar Energy transmission facilities in the local area as well as the service areas of other utilities at the point of interconnection. The proposed project is within the Westar Energy service area.

Interconnection Facilities

Interconnection to the WR transmission system will be by way of a new 161 kV three position ring-bus switching station on the existing Kelly – Humboldt 161 kV transmission line. The new substation terminal will look east towards Customer's facilities.

161 kV Interconnection Metering

The estimated cost is for three (3) 161 kV VTs, three (3) 161 kV CTs, one (1) 161 kV motor operated switch and revenue interconnection metering plus all associated site, yard and conduit work.

\$ 326,913

161 kV Ring Bus Substation

The estimated cost is for three (3) 161 kV breakers, six (6) 161 kV switches, two (2) 161 kV motor operated switches, six (6) 161 kV CCVTs, two (2) 161 kV wave traps, six (6) 161 kV, new redundant primary relaying, relaying setting changes and trap tuning at

Kelly and Humboldt, two (2) 161 kV full tension deadend structures, and all associated site, yard and conduit work. This estimate includes all equipment inside the substation fence up to the Point of Change of Ownership. In addition, there will be relay upgrades and setting changes required at Tecumseh Hill 161 kV.

\$2,874,031

161 kV Transmission Line Work

The estimated cost is for steel turning structures to connect the existing Kelly – Humboldt 161 kV transmission line into the interconnection substation plus associated foundations and labor. The existing transmission line is equipped with optical shield wire for communications.

\$250,000

The total cost estimate for Transmission Owner Interconnection Facilities (Interconnection Metering) and Stand Alone Network Upgrades (161 kV Ring-bus Substation and Transmission Line Work) is:

\$2,874,031 161 kV Ring-bus Substation
\$ 326,913 161 kV Interconnection Metering
\$ 250,000 161 kV Transmission Line Work
\$3,450,944

This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement. However, recent cost escalations in materials are very significant and the accuracy of this estimate at the time of actual construction cannot be assured.

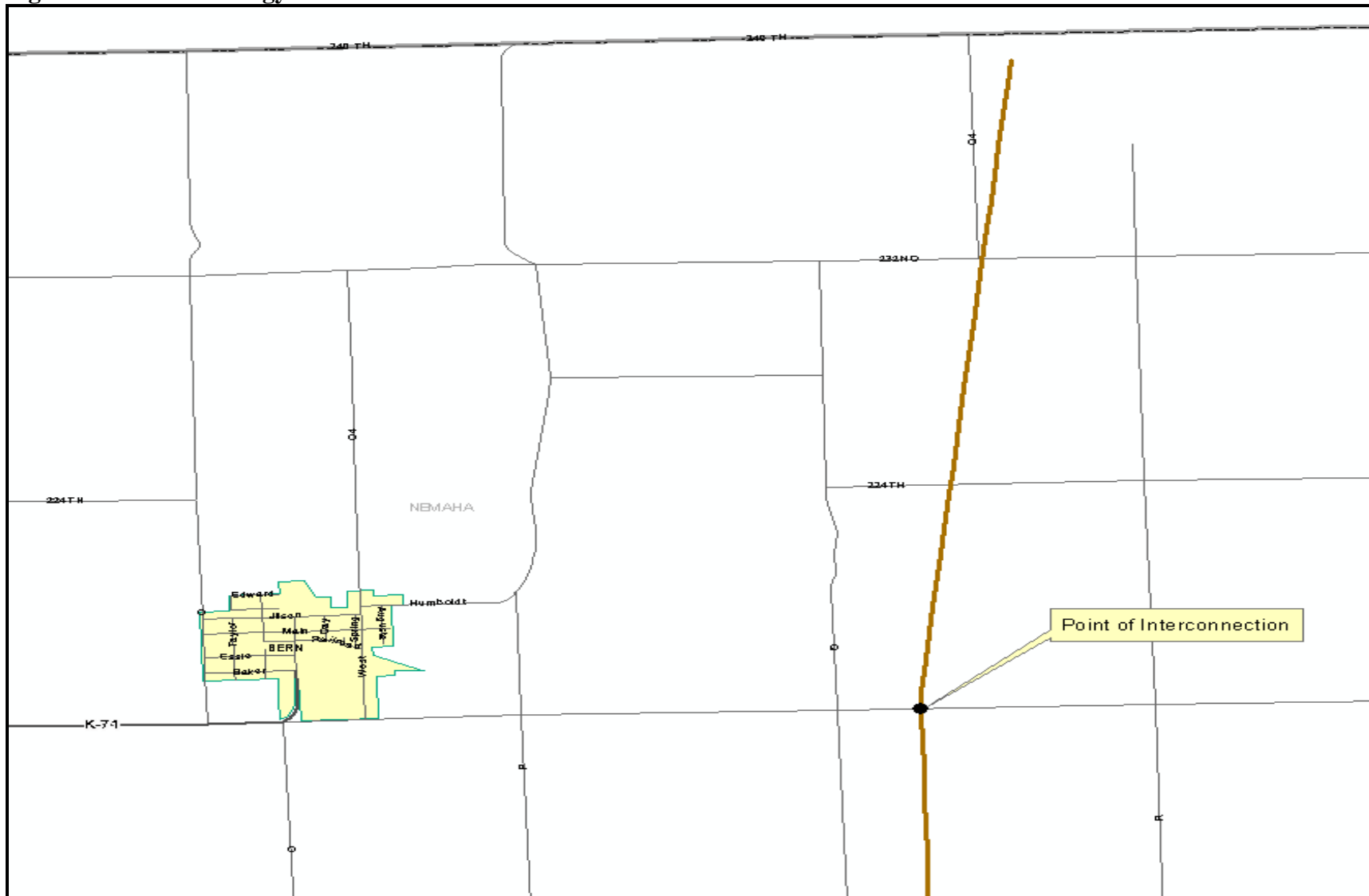
The following approximate time lines for the project are based on WR’s engineering time, average procurement time, and good weather during construction. The amount of time per task may change if consultants are hired to perform this work.

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 (www.westarenergy.com).

Figure 2 – Westar Energy Local Area Transmission



The proposed project is within the Westar Energy service area.

Figure 3 – Interconnection Substation One-Line

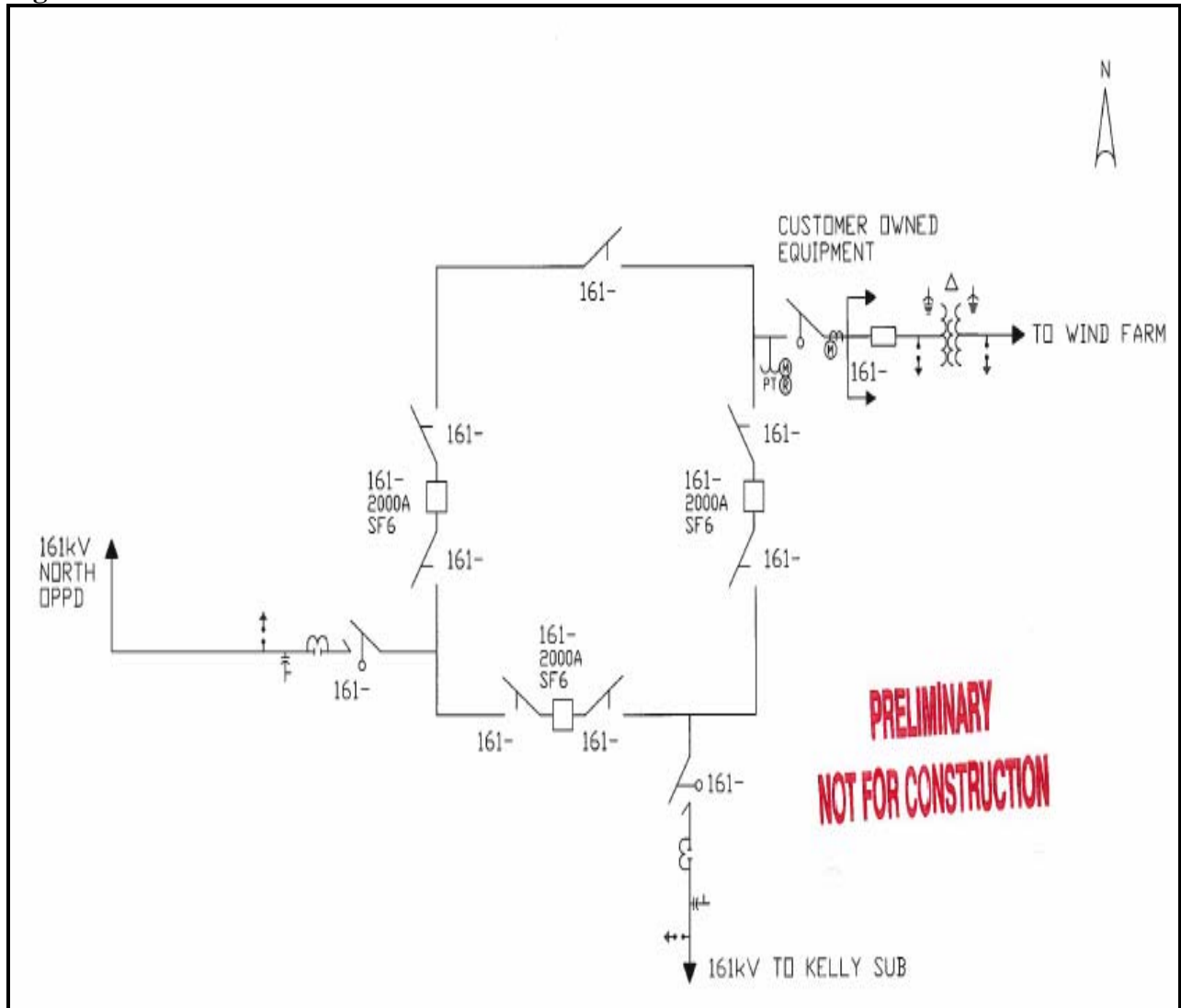


Figure 4 – Substation Layout

