



SPP

*Southwest
Power Pool*

***Facility Study
For
Generation Interconnection
Request
GEN-2008-098***

***SPP Generation
Interconnection***

(#GEN-2008-098)

April 2011

Summary

Westar Energy (Westar) performed a detailed Facility Study at the request of Southwest Power Pool (SPP) for Generation Interconnection request GEN-2008-098. The interconnection of the 100.8 MW wind energy facility located in Coffey County, Kansas is in the control area of the Kansas Gas and Electric Company (KGE) transmission network. The request for interconnection was placed with SPP in accordance with SPP's Open Access Transmission Tariff, which covers new generation interconnections on SPP's transmission system.

The requested in-service date of the generating facility is December 31, 2011. 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 Generator Interconnection Agreement.

Interconnection Customer Interconnection Facilities

The Interconnection Customer will be responsible for the 345 kV transmission line from the Wind turbine Collector Substation to the Point of Interconnection (POI), a new KGE 345 kV ring bus substation on the Wolf Creek – LaCygne 345 kV line near Waverly, KS. In addition, the customer will be responsible for reactive power compensation equipment to maintain 95% lagging (providing vars) and 95% leading (absorbing vars) power factor at the point of interconnection. Any capacitor banks installed by the Customer shall not cause voltage or other distortion on the transmission system in accordance with Article 9.7.6 of the Standard GIA, Power Quality.

Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades

Per the following Facility Study, the Interconnection Customer is responsible for **\$8,259,000** of Transmission Owner Interconnection Facilities and non-shared network upgrades.

Shared Network Upgrades

The interconnection customer was studied within the DISIS-2010-001 Impact Study. At this time, the Interconnection Customer is allocated **\$0** of the costs for shared network upgrades.

If higher queued interconnection customers withdraw from the queue, suspend or terminate their GIA, restudies will have to be conducted to determine the Interconnection Customers' allocation of shared network upgrades. All studies have been conducted on the basis of higher queued interconnection requests and the upgrades associated with those higher queued interconnection requests being placed in service.

Other System Network Upgrades

Kansas City Power & Light (KCPL) has been contacted to determine any impacts to LaCygne Power Station or its substation due to the interconnection of the Customer's generation. If any impacts are determined by KCPL, the Interconnection Customer will be notified and those impacts will be included in the GIA.



**Generation Interconnection Facilities
Study**

For

**Generation Interconnection Request
SPP-GEN-2008-098**

December 20, 2010

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 phase I request by the interconnection customer for 100 MW of wind-powered generation near Waverly in Coffey County, Kansas, to the transmission system of Kansas Gas and Electric Company (KGE). The proposed interconnection is on the KGE transmission system on the Wolf Creek – LaCygne 345 kV line near Waverly, Kansas. 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, 2011. 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 in Coffey County in east central Kansas. The interconnection will be effected at a new 345 kV ring-bus substation on the Wolf Creek – LaCygne 345 kV line near Waverly, Kansas. The substation will connect to Customer facilities at 345 kV. Figure 1 shows the Regional Transmission Facilities and Figure 2 shows the transmission facilities in the local area as well as the service areas of other utilities at the point of interconnection. The proposed project is not within the Westar Energy service area.

Interconnection Facilities

Interconnection to the KGE transmission system will be by way of a new 345 kV three position ring-bus switching station on the existing Wolf Creek – LaCygne 345 kV transmission line. The new substation terminal will look towards Customer's facilities. Construction of this new substation terminal requires of additional land adjacent to the existing transmission line right-of-way.

345 kV Interconnection Revenue Metering

The estimated cost is for three (3) 345 kV VTs, three (3) 345 kV CTs, and revenue interconnection metering plus all associated site, yard and conduit work.

\$ 418,000

345 kV Ring Bus Substation (no metering or customer equipment included)

The estimated cost is for three (3) 345 kV breakers, seven (7) 345 kV switches, two (2) 345 kV motor operated switches, six (6) 345 kV CCVTs, four (4) 345 kV wave traps, new redundant primary relaying, relaying setting changes and trap tuning at Wolf Creek and LaCygne, two (2) 345 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, excluding metering.

\$6,685,000

345 kV Substation (Equipment on customer side of meter)

The estimated cost is for three (3) 345 kV arresters, one (1) 3000A switch, three (3) 345 kV arrester stands, one (1) 345 kV full tension dead-end structure, and one (1) 3-phase bus support, plus foundations, grounding and rock associated with this part of the substation.

\$275,000

345 kV Transmission Line Work

The estimated cost is for two three-pole steel dead end and turning structures to connect the existing Wolf Creek – LaCygne 345 kV transmission line into the interconnection substation plus associated foundations and labor.

\$881,000

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

\$6,685,000	345 kV Ring-bus Substation Stand Alone Network Upgrades
\$ 275,000	345 kV Transmission Owner Interconnection Facility
\$ 418,000	345 kV Interconnection Revenue Metering
\$ 881,000	345 kV Transmission Line Work
\$8,259,000	

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 fluctuations 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 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.

20 weeks	Engineering Time
28 weeks	Procurement Time
38 weeks	Construction Time
86 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.wr.com).

Figure 1 – Westar Energy Regional Transmission

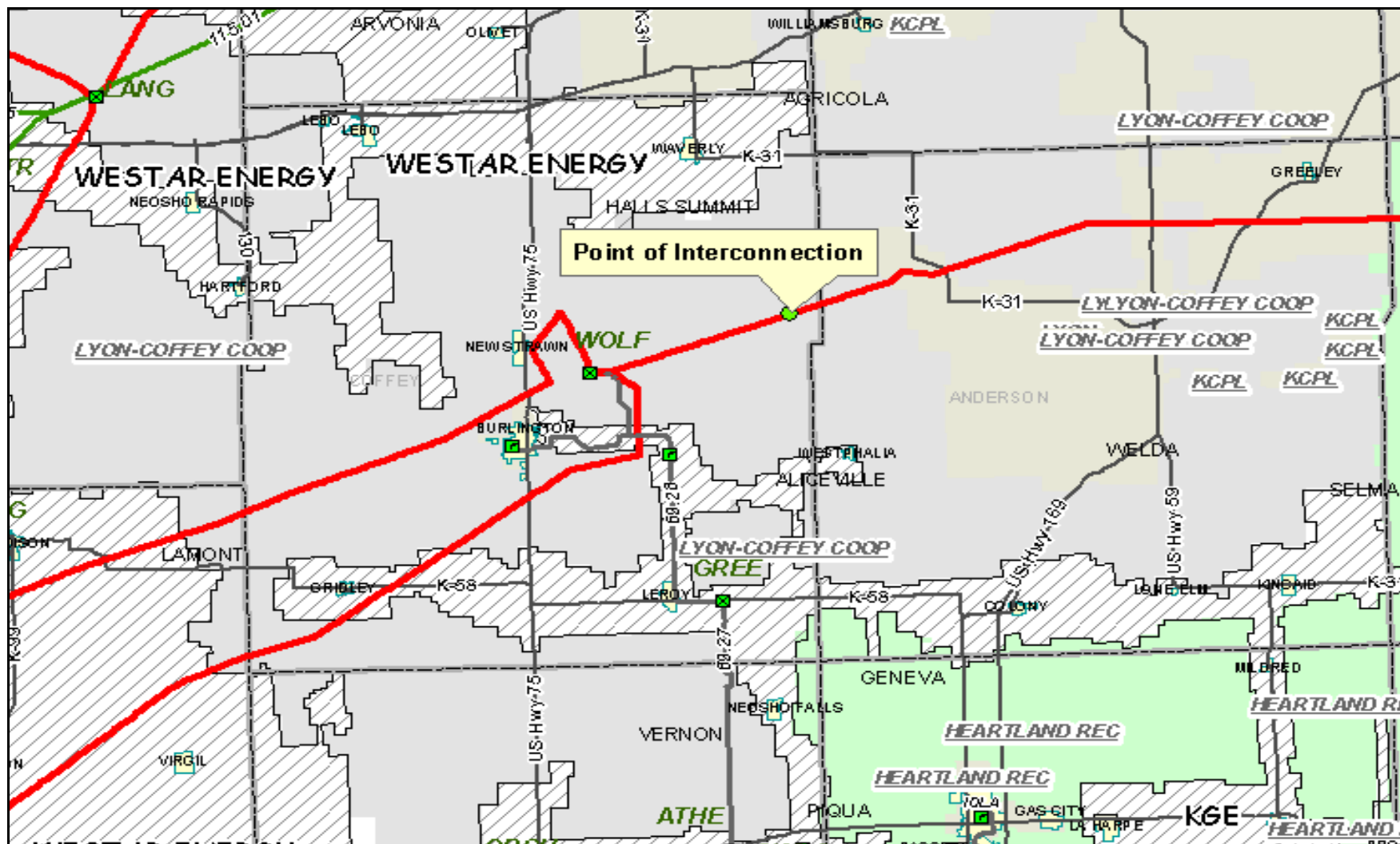
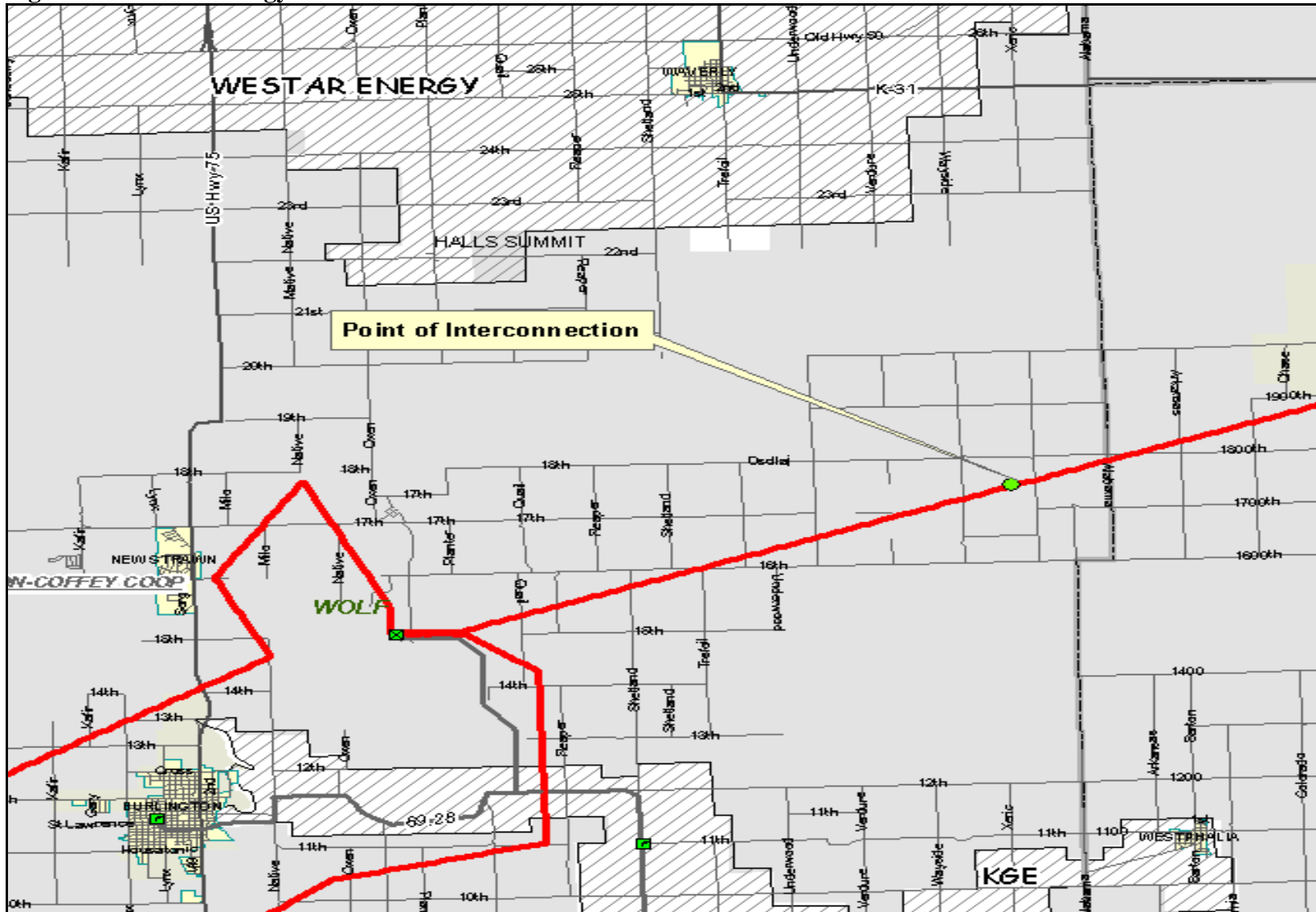


Figure 2 – Westar Energy Local Area Transmission



The proposed project is not within the Westar Energy service area.

Figure 3 – Interconnection Substation One-Line

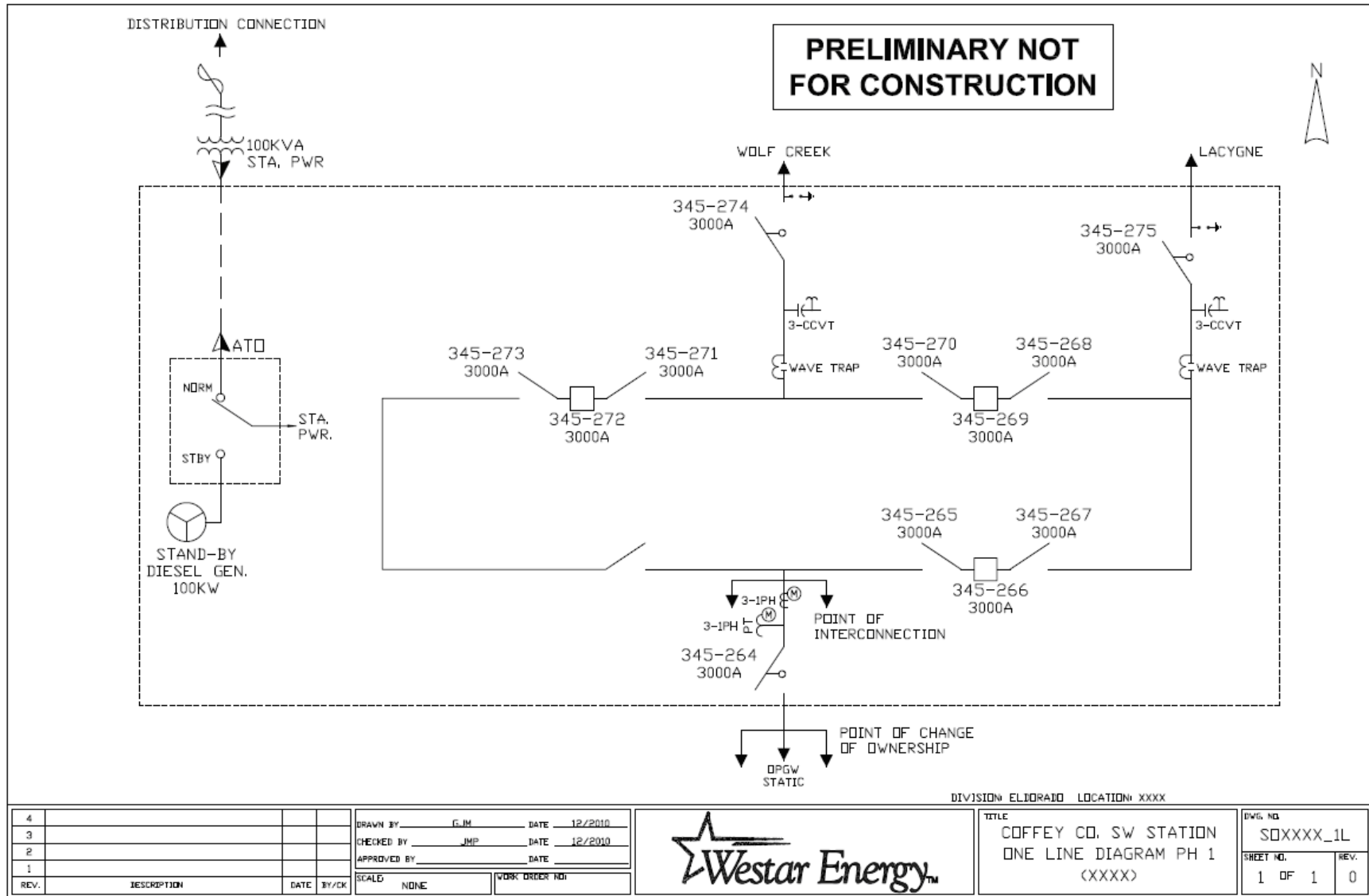


Figure 4 – Substation Layout

