



***Facility Study
For
Generation Interconnection
Request
GEN-2006-034***

SPP Tariff Studies

(#GEN-2006-034)

February 2008

Executive Summary

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for interconnecting an 81 MW wind powered generation facility in Sherman County, Kansas to the transmission system of Sunflower Electric Power Company (SUNC). The wind powered generation facility studied was proposed to comprise of fifty-four (54) General Electric 1.5 MW wind turbines with the LVRT II low voltage ride through package. The original requested in-service date for the facility is August 30, 2008. The wind powered generation facility will interconnect into a new ring bus substation to be constructed on the Ruleton - Tribune 115 kV transmission line.

The generation facility was studied to interconnect into the SUNC Ruleton – Tribune 115 kV transmission line. SUNC will construct a new 115 kV three breaker ring bus substation on the line. The total cost of the interconnection facilities and network upgrades for this interconnection request are approximately \$2,800,000.

The Customer will have certain facility requirements in their substation to interconnect the generation facility. The Customer will be required to install a 34.5kV, 5000 kVar capacitor bank (or other industry standard size) in the Customer substation. This device shall be placed on the 34.5kV bus of the substation transformer.

1. Introduction

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for interconnecting an 81 MW wind powered generation facility in Sherman County, Kansas to the transmission system of Sunflower Electric Power Company (SUNC). The wind powered generation facility studied was proposed to comprise of fifty-four (54) General Electric 1.5MW wind turbines with the LVRT II low voltage ride through package. The original requested in-service date for the facility is August 30, 2008. The wind powered generation facility will interconnect into a new ring bus substation to be constructed on the Ruleton - Tribune 115 kV transmission line.

2. Interconnection Facilities

All required interconnection facilities are tabulated in Table 1 and are shown in Figure 1.

- 2.1. **SUNC 115 kV Substation** - The Customer will be interconnecting into a new 115kV three breaker ring bus substation to be constructed on the Ruleton - Tribune 115 kV line in Sherman County. The substation is proposed to be constructed, owned, and maintained by SUNC. The substation will be constructed using applicable SUNC engineering and construction standards. The Customer will be responsible for the cost of this substation.

The costs for the substation work is estimated below

- Install 115kV revenue metering for the Customer generation facility. 115kV dead end structure and miscellaneous line terminal equipment to service Customer generation facility.

Subtotal \$ 250,000

- Construct a 115kV ring bus substation. Substation to include three (3) 115kV circuit breakers, associated disconnect switches, structural steel, foundations, relaying, control house, station battery, arresters, line traps/line tuners, ground grid, conduit system, RTU, communication equipment, security fence, and crushed rock surfacing.

Subtotal \$ 2,550,000

**Total Interconnection Facilities and
Network Upgrades**

\$2,800,000

Table 1: Required Interconnection Facilities and Network Upgrades

Project	Description	Estimated Cost
1	115kV Ring-Bus Switching Station	\$2,550,000
2	Metering and Line Terminal Equipment	\$ 250,000
	Total:	\$ 2,800,000

2.2. Customer Facilities – The Customer will be responsible for its Generating Facility and its 115/34.5kV substation that will contain its 115/34.5kV transformer(s) and wind turbine collector feeders. In addition, the Customer will be required to install the following equipment in its facilities.

2.2.1. 34.5kV Capacitor Banks – In its responsibility in maintaining a unity power factor at the wind farm, the Customer will be required to install a 34.5kV, 5000 kVar capacitor bank on the Customer’s 115/34.5kV transformer 34.5kV bus.

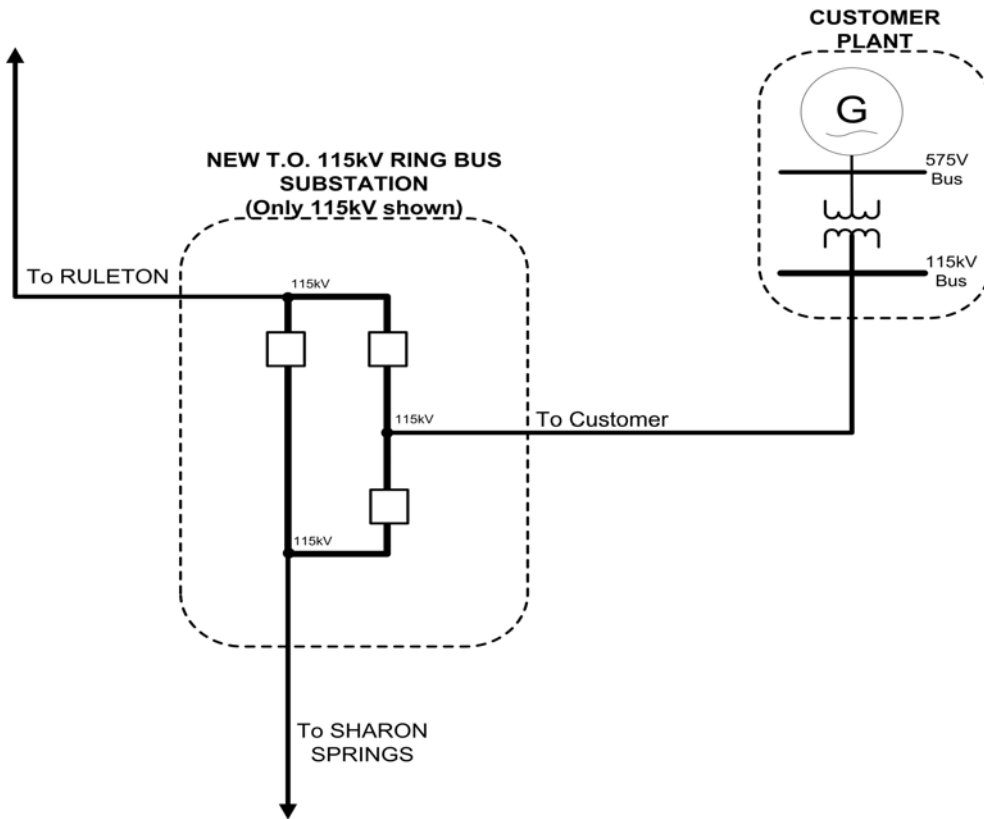


Figure 1. Interconnection Facilities for GEN-2006-021

3. Short Circuit Study

SUNC has indicated that no SUNC facilities will be affected due to short circuit contribution by the interconnection of GEN-2006-034.

4. Conclusion

The cost to interconnect the GEN-2006-034 generation interconnection request for 81 MW is estimated by this Facility Study to cost approximately \$2,800,000. The Customer has certain facilities they are required in their substation as a requirement to the Interconnection Agreement.

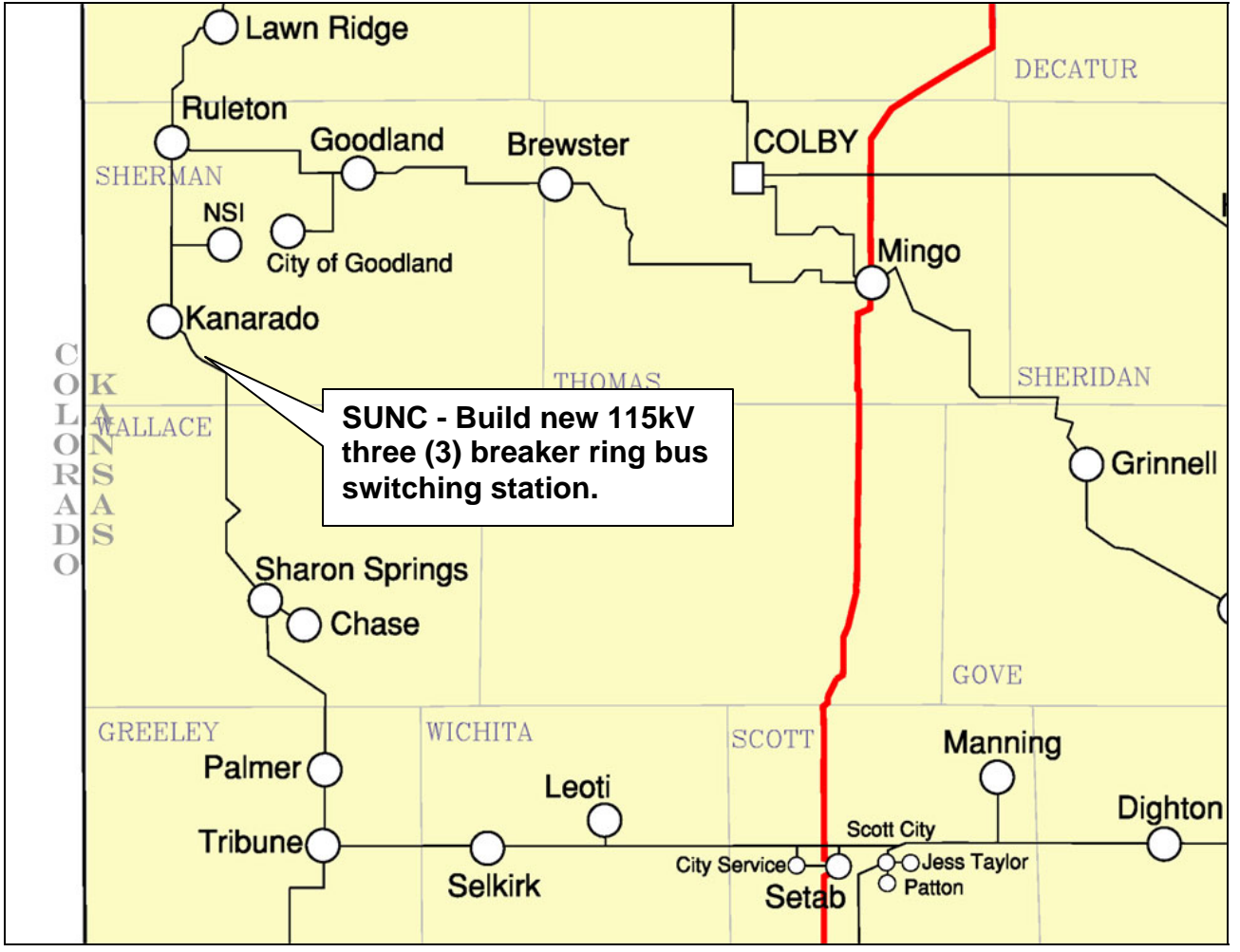


FIGURE 2. MAP OF THE LOCAL AREA