



***Facility Study
For
Generation Interconnection
Request
GEN-2006-032***

SPP Tariff Studies

(#GEN-2006-032)

January 2008

Executive Summary

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff for the purpose of interconnecting 201MW of generation into the transmission facilities of Midwest Energy Inc. (MIDW) in Ellis County, Kansas. The proposed in-service date of the generation is December 2007.

The proposed method of interconnection is to add a new 230kV terminal into the South Hays 230/115kV substation that is proposed to be in service by 2007 Winter Peak. The South Hays substation is owned by MIDW. The total cost of the interconnection facilities for this interconnection request is approximately \$1,200,000.

The Customer will be required to install 50 Mvars of 34.5kV capacitor banks in its substation in order to maintain a unity power factor at the wind farm and a zero reactive power flow exchange at the point of interconnection. This capacitor bank shall be placed on the 34.5kV bus of the substation transformer and shall be sized such that excessive voltage excursions do not occur on the South Hays 230kV bus.

Additionally, the Customer will need to purchase the Gamesa G80 wind turbines with the manufacturer's low voltage ride through package in order to comply with FERC Order #661A Low Voltage Ride Through provisions.

Operational Restrictions

No deliverability of energy is associated with the interconnection of GEN-2006-032. Under certain conditions, the South Hays – Vine 115kV transmission may overload for either the outage of the South Hays – Knoll 230kV transmission line or the Knoll 230/115kV autotransformer. Therefore, if the GEN-2006-032 interconnection request goes into service without any approved long term firm transmission service, one or more flowgates will be instituted to prevent the overloads from occurring.

1. Introduction

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff for the purpose of interconnecting 201MW of generation into the transmission facilities of Midwest Energy Inc. (MIDW) in Ellis County, Kansas. The proposed in-service date of the generation is December 2007.

2. Interconnection Facilities

Figure 1 shows the interconnection facilities for this project, and Figure 2 shows the location of the South Hays Substation. The next two subsections describe the interconnection facilities and the Customer facilities and their estimated costs.

2.1. South Hays Substation

Table 1 shows the required interconnection facilities and the estimated cost for those facilities. The interconnection facilities will be constructed using the applicable MIDW engineering and construction standards. The Customer will be responsible for the costs as shown in Table 1.

Table 1: Required Interconnection Facilities

Facility	ESTIMATED COST (2008 DOLLARS)
MIDW – Add one 230kV line terminal including one circuit breaker and associated equipment into the South Hays 230/115kV substation.	\$1,200,000
Total	\$1,200,000

2.2. Other Network Facilities

As indicated in the Impact Study and Impact ReStudy for GEN-2006-032, certain thermal overloads occur for the addition of the interconnection request. These overload constraints will be mitigated when the Customer requests transmission service through the SPP OASIS. In the event the Customer does not request long term transmission service, one or more flowgates will be established to mitigate the effects of the constraints.

2.3. Customer Facilities

Table 2 shows direct assignment facilities for which the Customer is responsible. These facilities include the Generating Facility and its 230/34.5kV substation which will contain its 230/34.5kV transformer and wind

turbine collector feeders The Customer will be required to install 50 Mvars of 34.5kV capacitor banks in its substation in order to maintain a unity power factor at the wind farm and a zero reactive power flow exchange at the point of interconnection. This capacitor bank shall be placed on the 34.5kV bus of the substation transformer and shall be sized such that excessive voltage excursions do not occur on the South Hays 230kV bus.

In order to comply with FERC Order #661A Low Voltage Ride Through provisions, the Customer will need to install purchase the Gamesa G8X wind turbines with the manufacturer’s low voltage ride through package for compliance with Order #661A low voltage ride through provisions.

The cost of the direct assignment facilities is to be determined by the Customer.

Table 2: Direct Assignment Facilities

Facility	ESTIMATED COST (2008 DOLLARS)
Customer – 230-34.5 kV Substation facilities.	*
Customer – 230kV transmission line facilities between Customer facilities and South Hays 230/115kV substation.	*
Customer - Right-of-Way for Customer facilities.	*
Customer – 50Mvars of 34.5kV capacitor bank(s) in Customer substation. Banks shall be staged and sized to avoid excessive voltage excursions.	*
Total	*

Note: *Estimates of cost to be determined by the Customer

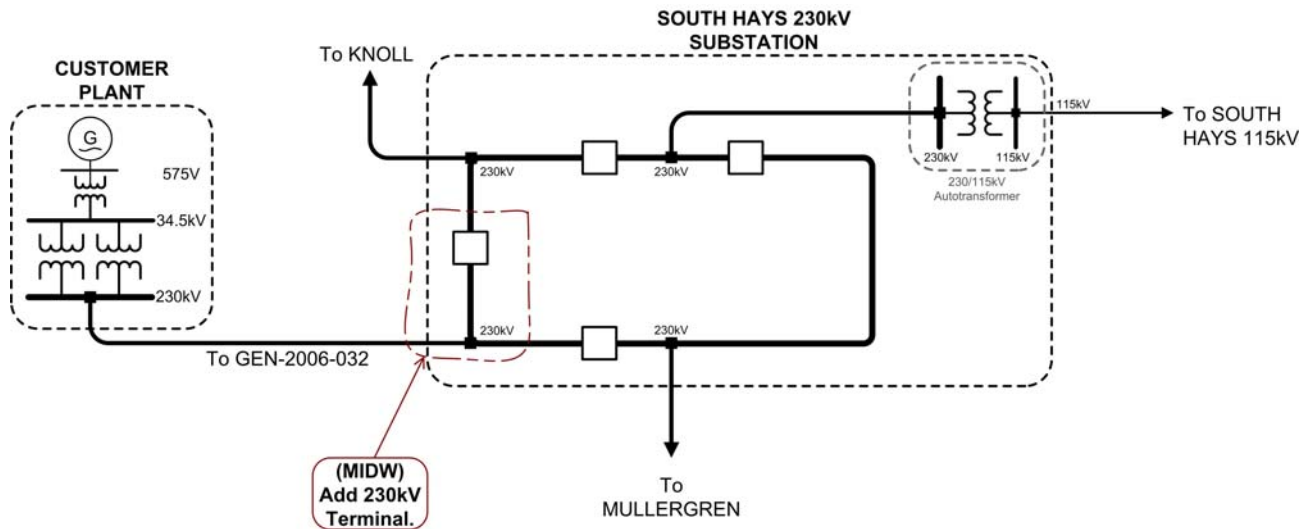


Figure 1: Interconnection Facilities for GEN-2006-032

3. Short Circuit Study

MIDW has indicated that no MIDW facilities will be affected due to short circuit contribution by the interconnection of GEN-2006-032.

4. Conclusion

The cost to interconnect the GEN-2006-032 generation interconnection request for 201MW is estimated by this Facility Study to be \$1,200,000. The cost of the Customer facilities is to be determined by the Customer. The Customer will be required to install in its facilities a 50 Mvars of 34.5kV capacitor banks on the 230/34.5kV transformer 34.5kV bus in order to maintain unity power factor at the wind farm and a zero reactive power flow exchange at the point of interconnection. Additionally, the Customer will need to install the manufacturer's low voltage ride through package to its Gamesa G80 2.0 MW wind turbines in order to comply with FERC Order #661A Low Voltage Ride Through provisions.



Figure 2: Map of the Local Area