



***Facility Study
For
Generation Interconnection
Request
GEN-2008-079
(Revision #2)***

***SPP Generation
Interconnection***

(#GEN-2008-079)

November 2021

Summary

Mid Kansas Power Company, LLC (MKEC) performed the following Study at the request of the Southwest Power Pool (SPP) for Generation Interconnection request Gen-2008-079. 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, MKEC 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 Interconnection Facilities

The Interconnection Customer will be responsible for the 115 kV transmission line from the point of interconnection to its 115/34.5 kV substation that will contain its 115/34.5 kV transformer(s) and wind turbine collector feeders. In addition, the Customer will be required to maintain a power factor from 0.95 lagging and 0.950 leading at the point of interconnection (a new MKEC 115 kV switching station on the Judson Large-Cudahy 115 kV transmission line).

Transmission Owner Interconnection Facilities and Non Shared Network Upgrades

Per the following Facility Study, the Interconnection Customer is responsible for \$4,484,903 of Transmission Owner Interconnection Facilities and non-shared network upgrades.

In addition, SPP has identified the following network upgrades, which are shared upgrades with other Interconnection Customers. Sunflower has provided the following Facility Study estimate for these facilities.

- Spearville Substation – Add 345/115kV autotransformer and 345kV and 115kV terminal positions for autotransformer and new line terminal to Judson Large
 - Allocated Cost - \$6,700,000
- Spearville – Judson Large 115kV transmission line – Build approximately 16 miles of 115kV transmission line.
 - Cost - \$8,000,000
- Judson Large Substation – Add 115kV line terminal
 - Cost - \$1,500,000

Customer's total Interconnection Responsibility is \$20,684,903.

Executive Summary

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for interconnecting a 98.9 MW wind powered generation facility in Gray County, Kansas to the transmission system of Mid Kansas Power Company, LLC (MKEC). The wind powered generation facility studied is proposed to comprise of twelve (12) Siemens 2.3 MW + twenty-eight (28) Seiemens 2.66 MW + 3 GE 2.3 MW Wind Turbine Generation Systems with a total capacity of 108.98 MW that will be limited by a Power Plant Controll to 98.9 MW. The wind powered generation facility will interconnect into a the Crooked Creek 115kV Substation.

The Interconnection Customer's non shared network upgrades, shared network upgrades, and interconnection facilities are estimated at \$20,684,903.

The Customer will have certain facility requirements in its substation to interconnect the generation facility. The Customer will be required to maintain a power factor from 0.95 lagging and 0.95 leading at the point of interconnection.

1. Introduction

<OMITTED TEXT> (Customer) has requested a Facility Study under the Southwest Power Pool Open Access Transmission Tariff (OATT) for interconnecting a 100.5 MW wind powered generation facility in Gray County, Kansas to the transmission system of Mid Kansas Power Company, LLC (MKEC). The wind powered generation facility studied is proposed to comprise of twelve (12) Siemens 2.3 MW + twenty-eight (28) Seiemens 2.66 MW + 3 GE 2.3 MW Wind Turbine Generation Systems with a total capacity of 108.98 MW that will be limited by a Power Plant Controll to 98.9 MW. The wind powered generation facility will interconnect into a the Crooked Creek 115kV Substation.

2. Interconnection Facilities and Network Upgrades

The cost for the Interconnection Facilities and Network Upgrades is listed below in Table 1. The one-line diagram is shown in Figure 1.

Table 1: Required Interconnection Facilities, Non Shared Network Upgrades, and Shared Network Upgrades

Project	Description	Estimated Cost
1	MKEC-Build 115 kV switching station, breakers, and terminate GEN-2008-079 wind farm.	\$4,484,903
2	Spearville 345/115kV autotransformer – 345kV substation ring bus position; 115kV substation work Total E&C cost \$16,470,000. Listed is customer's allocated costs	\$6,700,000
3	Judson Large – North Judson Large 115kV transmission line – approximately 16 miles	\$8,000,000
4	Judson Large – North Judson Large Substation work	\$1,500,000
	Total:	\$20,684,903

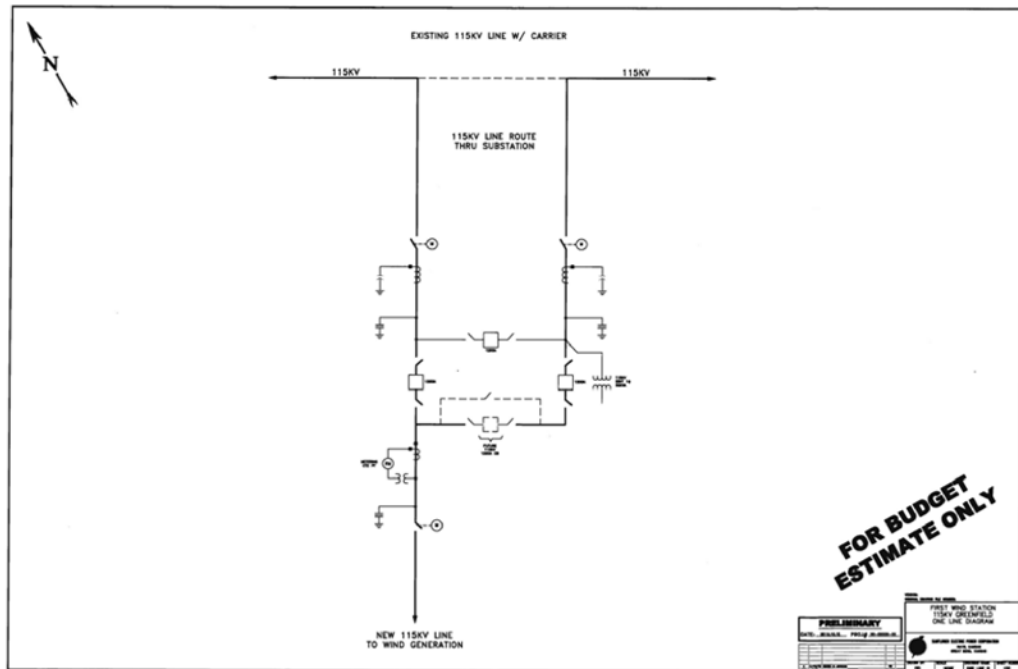


Figure 1. Interconnection Configuration for GEN-2008-079

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

2.1.1. Reactive Power Equipment – Per the Impact Study, the Interconnection Customer may be required to install capacitor banks as necessary in addition to the studied GE 1.6 MW wind turbines to maintain the required 0.95 lagging and 0.950 leading power factor at the point of interconnection.

3. Conclusion

The Interconnection Customer's interconnection facilities are estimated at \$20,684,903.