



**Facility Study
For
Generator Interconnection
Request
GEN-2013-025**

*SPP Generator
Interconnection Studies*

(#GEN-2013-025)

April 2014

Revision History

Date	Author	Change Description
4/28/2014	SPP	Facility Study Report Issued

Summary

Oklahoma Gas and Electric (OKGE) performed a detailed Facility Study at the request of Southwest Power Pool (SPP) for Generation Interconnection request GEN-2013-025 (50.0 MW wind) located in Kingfisher County, Oklahoma. Full Interconnection Service will require the Network Upgrades listed in the “Other Network Upgrades” section. 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.

Phases of Interconnection Service

It is not expected that interconnection service will require phases however, interconnection service will not be available until all interconnection facilities and network upgrades can be placed in service.

Interconnection Customer Interconnection Facilities

The Interconnection Customer will be responsible for all of the transmission facilities connecting the customer owned substation to the Point of Interconnection (POI), at the existing Oklahoma Gas and Electric (OKGE) 345kV Mathewson Substation. GEN-2013-025 will specifically connect to the 34.5kV Collector bus of GEN-2011-007. The Interconnection Customer will also be responsible for any equipment located at the Customer substation necessary to maintain a power factor of 0.95 lagging to 0.95 leading at the POI. Additionally, reactive power analysis within the DIS-2013-002 shows the need for approximately 9.0 Mvar of reactors to compensate for reactive injection into the system under low wind conditions.

Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades

To allow interconnection the Transmission Owner has verified the associated terminal equipment is adequate for the addition of the Interconnection Customer’s Interconnection Facilities. At this time GEN-2013-025 is responsible for \$0.00 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades.

Shared Network Upgrades

The Interconnection Customer was studied within the DISIS-2013-002 Impact Study. At this time, the Interconnection Customer is allocated \$0.00 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. At this time, the Interconnection Customer is allocated the following cost for Shared Network Upgrade:

Share Network Upgrade Description	Allocated Cost	Total Cost
None	\$0.00	\$0.00
Total	\$0.00	

Other Network Upgrades

Certain Other Network Upgrades are currently not the cost responsibility of the Customer but will be required for full Interconnection Service. These Other Network Upgrades include:

1. Woodward – Border – TUCO 345 kV, assigned as Balanced Portfolio Project, scheduled for 5/19/2014 in-service
2. TUCO 345/230/13.2kV Transformer Circuit #2, assigned as Balanced Portfolio Project, scheduled for 5/19/2014 in-service
3. Mathewson – Cimarron 345 kV Circuit #2, assigned to DISIS-2011-001 Interconnection Customers.

Depending upon the status of higher or equally queued customers, the Interconnection Customer's in-service date is at risk of being delayed or their Interconnection Service is at risk of being reduced until the in-service date of these Other Network Upgrades. Additionally, restudies may be performed that may assign additional Network Upgrade costs to the Interconnection Customer.

Conclusion

The Interconnection Customer is responsible for \$0.00 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades. At this time, the Interconnection Customer is allocated \$0.00 for Shared Network Upgrades. After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 50.0 MW as requested by GEN-2013-025, can be allowed. At this time the total allocation of costs assigned to GEN-2013-025 for Interconnection Service are estimated at \$0.00



FACILITY STUDY

for

Generation Interconnection Request 2013-025

50 MW Addition to Existing 250MW Wind Generating Facility
In Kingfisher County
Near
Piedmont, Oklahoma

April 10, 2014

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Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP), Oklahoma Gas and Electric (OG&E) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer for SPP Generation Interconnection request Gen-2013-025. 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. The request is for adding 50MW to an existing Point of Interconnection established under Gen-2011-007. There are no requirements for addition of 50MW to the existing Point of Interconnection. No new or additional facilities are necessary to accommodate the additional generation.

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Introduction

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting an additional 50 MW of wind generation to an existing Point of Interconnection within the service territory of OG&E Electric Services (OKGE) in Kingfisher County Oklahoma. The proposed 345kV point of interconnection is at the existing Mathewson Substation in Kingfisher County. This substation is owned by OKGE. The proposed in-service date is September 1, 2015.

Network Constraints in the American Electric Power West (AEPW), OKGE and Western Farmers Electric Cooperative (WFEC) systems may be verified with a transmission service request and associated studies.

Interconnection Facilities

The primary objective of this study is to identify attachment facilities. There are no requirements for additional interconnection facilities at the existing Mathewson Substation.

This Facility Study does not guarantee the availability of transmission service necessary to deliver the additional generation to any specific point inside or outside the Southwest Power Pool (SPP) transmission system. The transmission network facilities may not be adequate to deliver the additional generation output to the transmission system. If the customer requests firm transmission service under the SPP Open Access Transmission Tariff at a future date, Network Upgrades or other new construction may be required to provide the service requested under the SPP OATT.

The costs of interconnecting the facility to the OKGE transmission system are listed in Table 1.

Short Circuit Fault Duty Evaluation

It is standard practice for OG&E to recommend replacing a circuit breaker when the current through the breaker for a fault exceeds 100% of its interrupting rating with recloser de-rating applied, as determined by the ANSI/IEEE C37.5-1979, C37.010-1979 & C37.04-1979 breaker rating methods.

For this generator interconnection, no breakers were found to exceed their interrupting capability after the addition of the Customer’s 50MW generation and related facilities. OG&E found no breakers that exceeded their interrupting capabilities on their system. Therefore, there is no short circuit upgrade costs associated with the Gen-2013-025 interconnection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2014 DOLLARS)
OKGE – Interconnection Facilities - No new interconnection facilities necessary	\$0
OKGE – Network Upgrades No new network upgrades necessary	\$0
OKGE - Right-of-Way for 345kV terminal addition	No Additional ROW
Total	\$0

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April 10, 2014

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Mathewson Substation

