



**Facility Study
For
Generation Interconnection
Request
GEN-2012-004**

*SPP Generation
Interconnection Studies*

(#GEN-2012-004)

November 2012

Summary

Oklahoma Gas and Electric (OKGE) performed a detailed Facility Study at the request of Southwest Power Pool (SPP) for Generation Interconnection request GEN-2012-004 (41.4MW/Wind) located in Carter County near Tatum, Oklahoma. Generation Interconnection request GEN-2012-004 is an addition to the Generation Interconnection request GEN-2011-040. The originally proposed in-service date for GEN-2012-004 was December, 2013, however SPP has proposed a new in-service date that will be after the assigned Interconnection Facilities Upgrades are completed. 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 new OKGE 138kV substation located on the Ratliff – Pooleville 138kV line. The new 138kV substation costs are assigned to GEN-2011-040, which GEN-2012-004 is contingent upon. The new 138kV substation will be owned and operated by Oklahoma Gas and Electric (OKGE). The 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.

Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades

To allow interconnection the Transmission Owner will need to construct a new 138kV substation with four new 138kV terminal breakers and extending an existing 138kV transmission line approximately three fourths of a mile from the existing Pooleville substation. Extending the existing line to the new right bus will eliminate a three terminal line and allow adequate relay protection. This new 138kV substation costs are assigned to Generation Interconnection request GEN-2011-040, and will be needed to be completed for GEN-2012-004 to interconnect. At this time GEN-2012-004 is responsible for \$0 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades.

Shared Network Upgrades

The interconnection customer was studied within the DIS-2012-001 Impact Study. At this time, the Interconnection Customer is allocated \$0 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 Network Upgrades

Certain Other Network Upgrades are not the cost responsibility of the Customer but will be required for full Interconnection Service. No Other Network Upgrades are currently assigned to this Customer.

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.

Conclusion

Interconnection Service for GEN-2012-004 will be delayed until the Transmission Owner Interconnection Facilities assigned to GEN-2011-040 are constructed. The Customer is responsible for \$0 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades. At this time, the Interconnection Customer is allocated \$0 for Shared Network Upgrades. After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 41.4MW, as requested by GEN-2012-004, can be allowed. At this time the total allocation of costs of Interconnection Service for GEN-2012-004 are estimated at \$0.



FACILITY STUDY

for

Generation Interconnection Request 2012-004

41.4 MW Addition to an Existing 111 MW Wind Generating Facility
In Carter County
Near
Tatum, Oklahoma

November 26, 2012

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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-2012-004. 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 requirements for interconnection are the same as those previously found in Generation Interconnection Request Gen-2011-040 and consist of building a new substation with four new 138kV breakers a terminal and extending an existing 138kV transmission line approximately three fourths of a mile from the existing Pooleville substation. Extending the existing line to the new ring bus will eliminate a three terminal line and allow adequate relay protection. The total cost for OKGE to build the new substation with four new 138kV breakers and a terminal in a new substation, the interconnection facility, and extending an existing 138kV transmission line approximately three fourths of a mile is provided in Gen-2011-040. There are no other costs for the additional 41.4 MW requested in this study.

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Introduction

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting an additional 41.4 MW of wind generation to an existing 111 MW of wind generation within the service territory of OG&E Electric Services (OKGE) in Carter County, Oklahoma. The proposed 138kV point of interconnection is at a new substation in Carter County. This substation will be owned by OKGE. The proposed in-service date is October 01, 2013.

A Facility Study was performed for the interconnection of the existing 111 MW of wind generation under Generation Interconnect Request Gen-2011-040. The Facility Study for Gen-2011-040 identified new facilities and upgrades to existing facilities required to interconnect the 111 MW of wind generation. The additional 41.4 MW of wind generation requested in this study (Gen-2012-004), will utilize the same point of interconnection, facilities, and upgrades as required for the existing 111 MW of wind generation (Gen-2011-040).

Power flow analysis has indicated that for the power flow cases studied, it is possible to interconnect the additional 41.4 MW to the existing 111 MW of generation with no additional transmission system reinforcements within the local transmission system.

Other Network Constraints in the American Electric Power West (AEPW), Oklahoma Gas & Electric (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. No additional facilities or upgrades to existing facilities beyond those facilities identified in Gen-2011-040 are required for interconnection.

The total cost for OKGE to add a new 138kV terminal in a new substation, the interconnection facility, is included in Gen-2011-040. This cost does not include building 138kV line from the Customer substation into the new substation. The Customer is responsible for this 138kV line up to the point of interconnection. This cost does not include the Customer's 138-34.5kV substation and the cost estimate should be determined by the Customer.

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 re-closer 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 41.4 MW to the existing 111 MW of 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-2012-004 interconnection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2011 DOLLARS)
OKGE – Interconnection Facilities - No new interconnection facilities necessary	\$0
OKGE – Network Upgrades No new network upgrades necessary	\$0
Total	\$0

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**New Substation Identified for Gen-2011-040
To be utilized as point of interconnection for Gen-2012-004**

