



**Facility Study  
For  
Generator Interconnection  
Request  
GEN-2014-005  
(IFS-2014-001-05)**

***SPP Generator  
Interconnection Studies***

***(#GEN-2014-005)***

**January 2015**

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## Revision History

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Date	Author	Change Description
1/12/2015	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-2014-005 (5.7 MW/Wind) located in Grady County, Oklahoma. GEN-2014-005 is an interconnection capacity uprate to GEN-2011-010. The Interconnection Request has been assigned the Interconnection Queue position of IFS-2014-001-5 SPP has proposed the in-service date will be delayed until after a fully executed a Generation Interconnection Agreement (GIA) for GEN-2014-005. 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 Oklahoma Gas and Electric (OKGE) owned 345kV bus at Minco Substation. GEN-2014-005 generation will utilize the GEN-2011-010 generator lead from the Customer Substation to OKGE Minco 345kV. 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 DISIS-2014-001 study shows the need for approximately 13.0Mvars of reactors or other means<sup>1</sup> to compensate for reactive injection into the transmission system.

## **Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades**

To allow interconnection the Transmission Owner has verified that the associated terminal equipment is acceptable for the addition of the Interconnection Customer’s Interconnection Facilities. At this time GEN-2014-005 is responsible for \$0 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades.

## **Shared Network Upgrades**

The Interconnection Customer was studied within the DISIS-2014-001 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. At this time, the Interconnection Customer is allocated the following cost for Shared Network Upgrade:

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<sup>1</sup> Such as the G.E. “Wind Free” option

Share Network Upgrade Description	Allocated Cost	Total Cost
None	\$0	\$0
Total	\$0	

**Other Network Upgrades**

Certain Other Network Upgrades are currently not the cost responsibility of the Customer but will be required for full Interconnection Service. Currently, no Other Network Upgrades are required.

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-2014-005 will be delayed until after a fully executed Generation Interconnection Agreement (GIA) for GEN-2014-005. The Interconnection 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 5.7 MW, as requested by GEN-2014-005, can be allowed.

At this time the total allocation of costs assigned to GEN-2014-005 for Interconnection Service are estimated at \$0.



## **FACILITY STUDY**

**for**

### **Generation Interconnection Request 2014-005**

Uprate to a combined total of 106.5 MW at Existing Wind Generating Facility  
In Grady County  
Near  
Minco, Oklahoma

November 20, 2014

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**OG&E Electric Services**

## **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-2014-005. 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 5.7 MW to an existing 100.8 MW Point of Interconnection. There are no requirements for the uprate to 106.5 MW at 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 adding wind generation to a total of 106.5 MW at an existing Point of Interconnection within the service territory of OG&E Electric Services (OKGE) in Grady County Oklahoma. The proposed 345kV point of interconnection is at the existing Minco Substation in Grady County. This substation is owned by OKGE. The proposed in-service date for the additional generation is unknown.

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 Minco 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 adding generation to total 106.5 MW at the Customer’s generators 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-2014-005 interconnection.

**Table 1: Required Interconnection Network Upgrade Facilities**

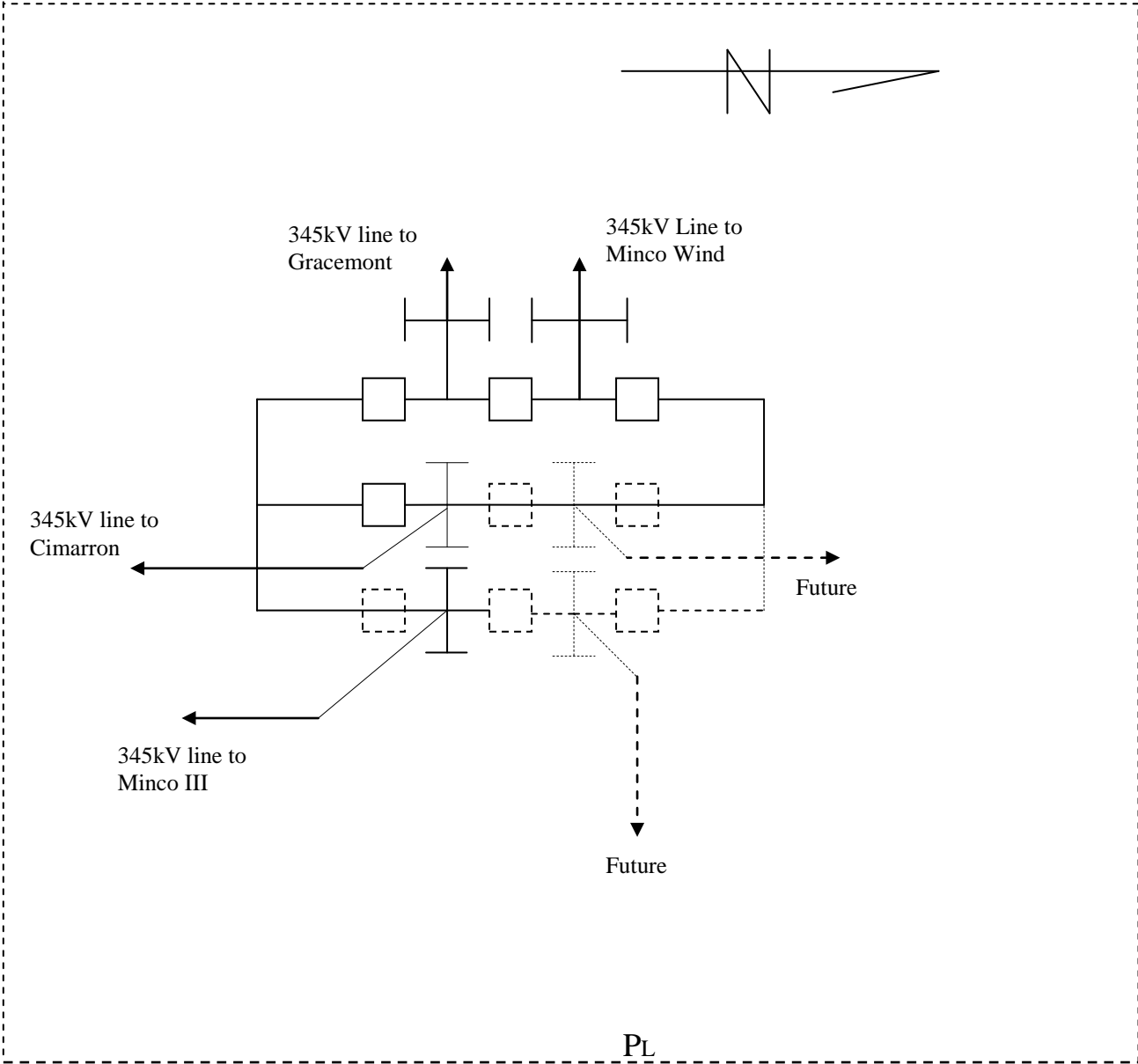
Facility	ESTIMATED COST (2014 DOLLARS)
OKGE – <b>Interconnection Facilities</b> - No new interconnection facilities necessary	<b>\$0</b>
OKGE – <b>Network Upgrades</b> No new network upgrades necessary	<b>\$0</b>
OKGE - Right-of-Way for 345kV terminal addition	No Additional ROW
<b>Total</b>	<b>\$0</b>

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November 20, 2014

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# Minco Substation



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