



***FCS-2008-001 Shared Facility Study  
for  
Transmission Facilities in OGE  
(Gracemont Substation to Texas/Oklahoma Border  
345 kV Ckt 1)***

***SPP Tariff Studies***

***(#FCS-2008-001)***

***March 2010***

## Summary

Oklahoma Gas and Electric (OG&E) performed the following Facility Study at the request of the Southwest Power Pool (SPP) for certain Generation Interconnection requests included in FCS-2008-001. The requests for interconnection were 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, Oklahoma Gas and Electric was asked to perform a detailed Facility Study of the generation interconnection requests to satisfy the Facility Study Agreement executed by the requesting customers and SPP.

## Shared Interconnection Upgrade Facilities Costs

The FCS-2008-001 Interconnection Customers are included in the 1<sup>st</sup> Cluster Study approved in FERC Docket #ER09-262. The Interconnection Customers' shared upgrade costs are \$164,324,211 and are broken down as follows for each project:

GEN-2007-005:	\$13,281,000
GEN-2007-008:	\$31,849,000
GEN-2007-034:	\$12,832,000
GEN-2007-045:	\$20,322,000
GEN-2007-046:	\$11,992,000
GEN-2007-048:	\$30,866,000
GEN-2007-057:	\$2,380,000
GEN-2008-008:	\$5,179,000
GEN-2008-009:	\$5,133,000
GEN-2008-014:	\$9,089,000
GEN-2008-016:	\$21,402,000

This cost allocation is subject to change for restudies conducted by the Transmission Provider in response to the higher queued customers or other customers in the 1<sup>st</sup> Cluster that withdraw their interconnection request or suspend, terminate, or request unexecuted filings of their LGIAs. The costs shown in this report are only for the Oklahoma portion of the upgrades. There are additional costs for the upgrades on the Texas portion and will be reported in a separate study.



## **FACILITY STUDY**

**for**

### **Facility Request FCS-2008-001**

345kV Transmission Line  
From Caddo County  
Near  
Anadarko, Oklahoma  
To  
Texas/Oklahoma State Line

December 09, 2009

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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 Facility request FCS-2008-001. The request for interconnection was placed with SPP in accordance SPP's Open Access Transmission Tariff, which covers new interconnections on SPP's transmission system. The requirements for interconnection consist of adding one new 345kV breaker and a terminal in the future Gracemont Substation and constructing 110 miles of 345kV H frame transmission line with 3000A capacity. The total cost for OKGE to add one new 345kV breaker and a terminal in the Gracemont substation, the interconnection facility, and construct 110 miles of 345kV H frame transmission line is estimated at \$164,324,211.

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## **Introduction**

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting a new 345kV transmission line within the service territory of OG&E Electric Services (OKGE) in Caddo County Oklahoma. The proposed 345kV point of interconnection is at the future Gracemont Substation in Caddo County. This substation is owned by OKGE. There is no proposed in-service date.

Power flow analysis has indicated that for the power flow cases studied, it is possible to interconnect the transmission line with transmission system reinforcements within the local transmission system. Given the Point of Interconnection at an existing substation, there are additional requirements for interconnection including bus, breaker, switches, relaying, metering, etc.

The cost for adding a new 345kV terminal to the future Gracemont Substation, the required interconnection facility, is estimated at \$1,099,958. Other 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. The requirements for interconnection consist of adding a new 345kV terminal in the future Gracemont Substation. This 345kV addition shall be constructed and maintained by OKGE. The Customer did not propose a route for the 345kV line. OG&E will determine a preferred route once the project has been approved.

The total cost for OKGE to add a new 345kV terminal in the Gracemont substation, the interconnection facility, is estimated at \$1,099,958. This cost does not include building 345kV line to the future Gracemont 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 interconnection, no breakers were found to exceed their interrupting capability after the addition of the 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 FCS-2008-001 interconnection.

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

Facility	ESTIMATED COST (2009 DOLLARS)
OKGE – <b>Interconnection Facilities</b> - Add a single 345kV line terminal to the future Gracemont Substation. Dead end structure, line switch, line relaying, interconnect metering including CTs and PTs	<b>\$1,099,958</b>
OKGE – <b>Network Upgrades</b> at Gracemont sub, 1-345kV breaker, line relaying, disconnect switches, and associated equipment	<b>\$2,707,042</b>
OKGE – <b>Transmission line</b> H frame, bundled 1590ACSR, 3000A, steel shield wire	<b>\$147,408,670</b>
OKGE - <b>Right-of-Way</b> (150ft) for 345kV transmission line	<b>\$13,108,541</b>
<b>Total</b>	<b>\$164,324,211</b>

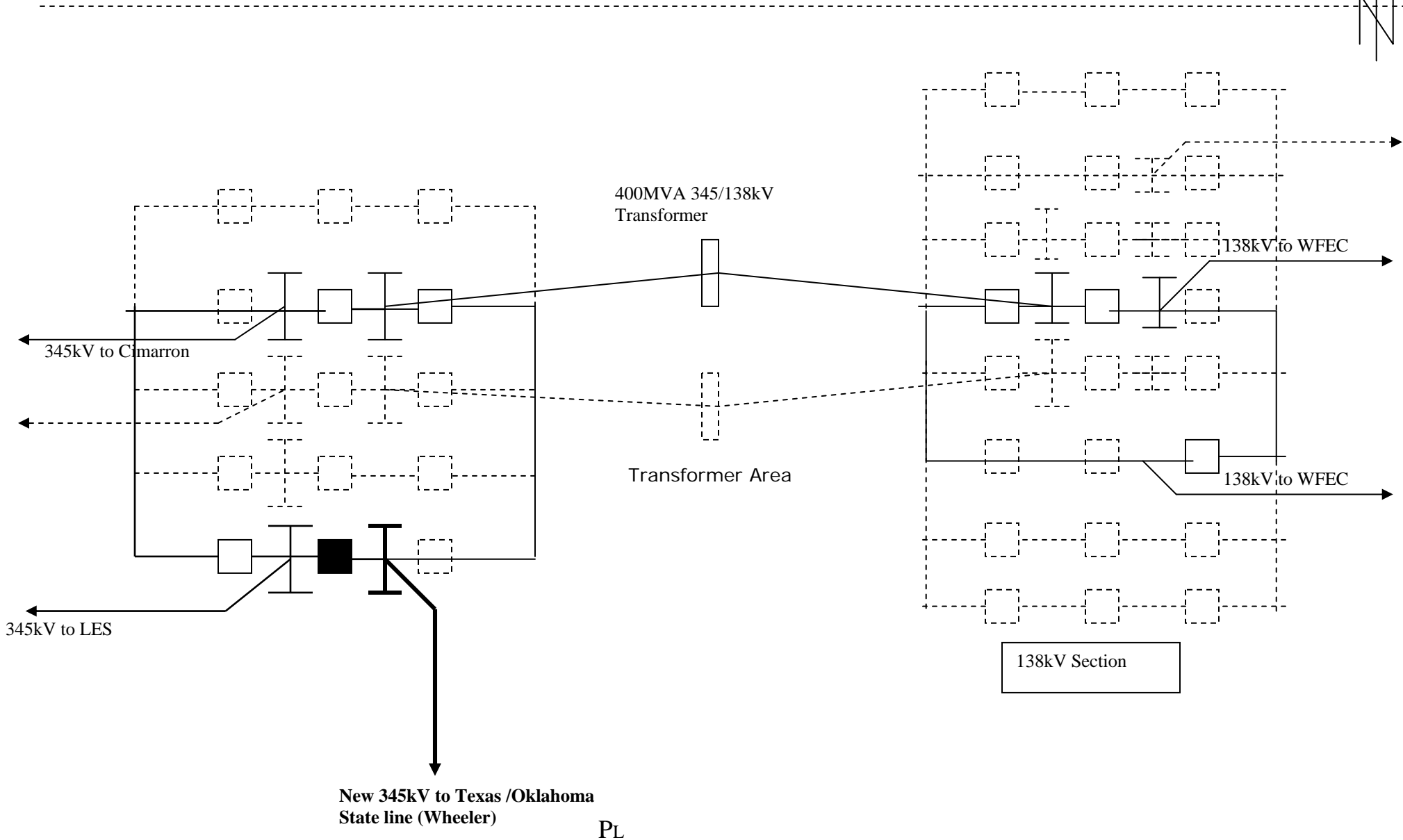
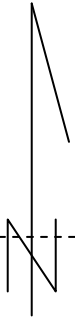
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December 09, 2009

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# Gracemont EHV Substation



PL

# Transmission Line Route From Gracemont substation to Texas Oklahoma border

