



***FCS-2011-001 Shared Facility Study  
for  
Transmission Facilities in OKGE***

***(Cimarron – Matthewson 345kV)***

***SPP Tariff Studies***

***(#FCS-2011-001)***

***February 2012***



## Summary

Oklahoma Gas and Electric (OKGE) provided a Facility Study grade estimate at the request of the Southwest Power Pool (SPP) for generation interconnection requests included in FCS-2011-001 Facilities Clustered Study. The requests for generation interconnection were placed with SPP in accordance with SPP's Open Access Transmission Tariff which covers new generation interconnections on the SPP transmission system.

Pursuant to the tariff, OKGE was requested to provide a Facility Study grade estimate for required network upgrades to satisfy the Facility Study Agreement executed by the requesting customers and SPP.

## Generation Interconnection Customers

The generation interconnection requests covered in this document are as follows:

GEN-2010-029
GEN-2011-007
GEN 2011-008
GEN 2011-012
GEN 2011-014
GEN 2011-016
GEN 2011-017
GEN 2011-019
GEN 2011-020
GEN 2011-021
GEN 2011-022
GEN 2011-023
GEN 2011-024

These interconnection customers are included in the DISIS-2010-002 Impact Study which identified the required network upgrades for each customer in order to interconnect to the transmission system.

## Shared Interconnection Upgrade Facilities Costs

The cost to build approximately sixteen miles of 345kV line from Matthewson to Cimarron is **\$42,903,753**. The Interconnection Customers' shared upgrade costs are shown in the following table:

Project	Shared Upgrade Cost
GEN-2010-029	\$3,568,129.33
GEN-2011-007	\$7,387,276.22
GEN 2011-008	\$4,932,035.26
GEN 2011-012	\$647,132.93
GEN 2011-014	\$1,851,584.45
GEN 2011-016	\$1,585,835.26
GEN 2011-017	\$2,227,264.44
GEN 2011-019	\$3,381,501.92
GEN 2011-020	\$3,381,501.92
GEN 2011-021	\$2,518,050.55
GEN 2011-022	\$2,282,278.03
GEN 2011-023	\$2,414,310.64
GEN 2011-024	\$6,726,852.06

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 DISIS-2011-001 Impact Study that withdraw their interconnection request or suspend, terminate, or request unexecuted filings of their GIAs.



## **FACILITY STUDY**

**for**

### **Facility Request DISIS-2011-001**

345kV Single Circuit Transmission Line  
From Cimarron Substation  
Near  
Yukon, Oklahoma  
To  
The New Mathewson Substation  
Near  
Piedmont, Oklahoma

December 20, 2011

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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 request by the SPP for Facility request DISIS-2011-001. The SPP request consists of adding five new 345kV breakers and five terminals in the existing Mathewson Substation, one new breaker and terminal at Cimarron substation and constructing approximately 16 miles of single circuit 345kV H frame transmission line with 3000A capacity. The total cost for OKGE to add five new 345kV breakers and one new terminal at Mathewson substation, one new breaker and one new terminal at Cimarron substation, and construct approximately 16 miles of single-circuit 345kV H frame transmission line is estimated to be \$42,903,753.

The five breaker addition to Mathewson substation is necessary due to the substation configuration going from a ring bus design to a breaker and a half scheme.

The proposed time line for construction would be approximately forty-two months after an NTC is received by OG&E to allow for right of way procurement, engineering, construction and completion.

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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 Canadian County Oklahoma between Mathewson substation and Cimarron substation. The Mathewson Substation is located near Piedmont Oklahoma and Cimarron substation is located near Yukon Oklahoma. Both substations are owned by OKGE.



### **Interconnection Facilities**

The primary objective of this study is to identify attachment facilities. The requirements for connection consist of adding one new 345kV terminal in the Mathewson substation and one new 345kV terminal at Cimarron substation. These 345kV additions will be constructed and maintained by OKGE. No route was proposed for the 345kV line. OG&E will determine a preferred route once the project has been approved.

The total cost for OKGE to add five new 345kV breakers, one new 345kV terminal in the Mathewson substation, and one new breaker and terminal in Cimarron substation, is estimated at \$10,687,226.

The costs of building out the Mathewson substation, adding a breaker and terminal at Cimarron substation and constructing the new 345kV transmission line in 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 DISIS-2011-001 interconnection.

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

Facility	ESTIMATED COST (2011 DOLLARS)
OKGE – <b>Network Upgrades</b> at Mathewson substation, 5-345kV breakers, 1 terminal, line relaying, disconnect switches, metering, and associated equipment and one breaker, line relaying, disconnect switches, and one terminal at Cimarron substation	<b>\$10,687,226</b>
OKGE – <b>Transmission line</b> H Frame, bundled 1590ACSR, 3000A, OPGW shield wire, 16 miles	<b>\$32,216,527</b>
<b>Total</b>	<b>\$42,903,753</b>

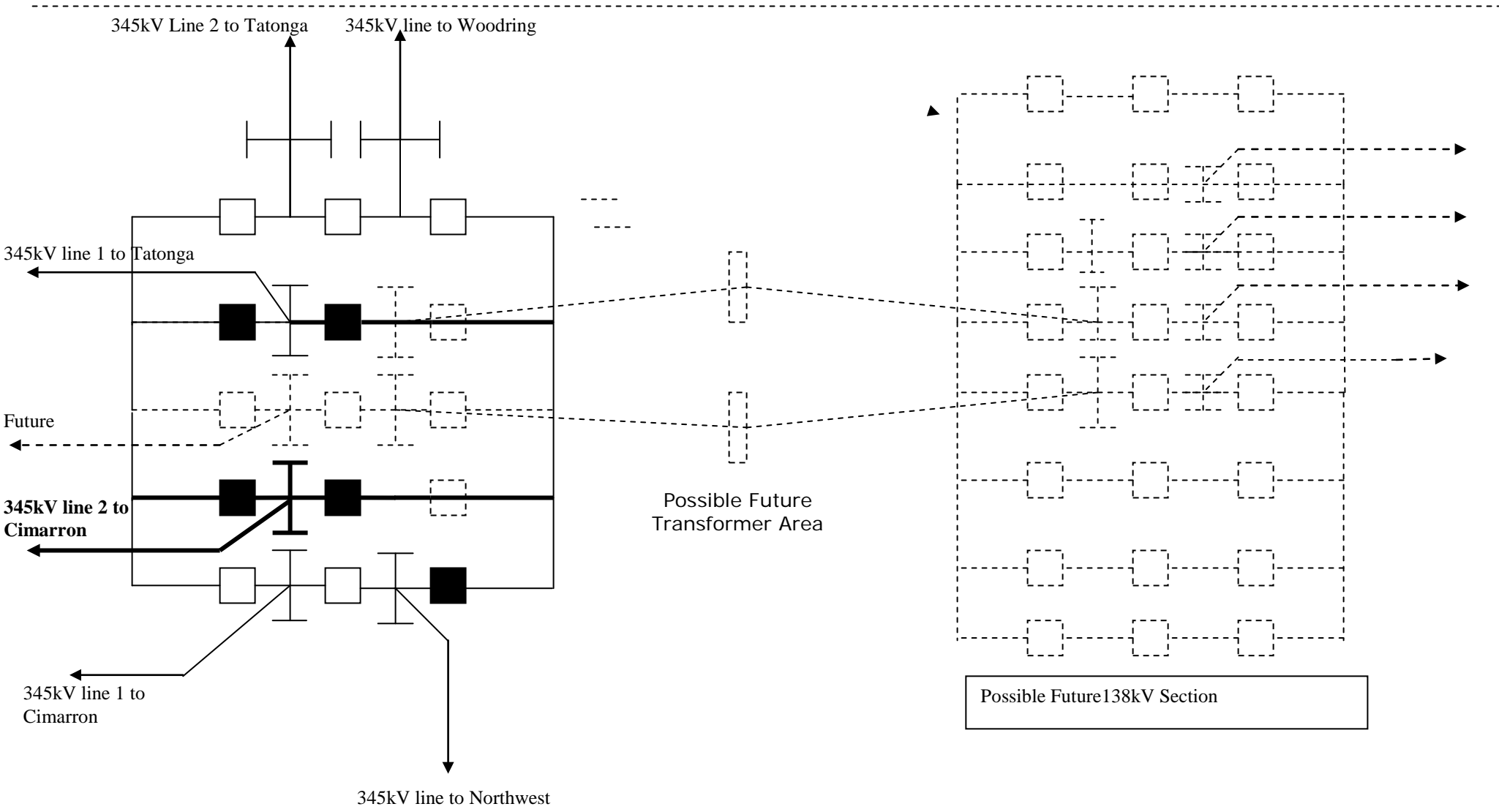
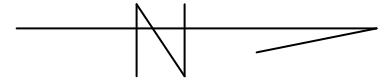
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December 20, 2011

Reviewed by:  
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# Mathewson Substation



# Cimarron Substation

