



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

(Tatonga - 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 2011-008
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 Tatonga to Matthewson is **\$104,260,473**. The Interconnection Customers' shared upgrade costs are shown in the following table:

Project	Shared Upgrade Cost
GEN-2010-029	\$7,387,353.22
GEN 2011-008	\$10,166,717.96
GEN 2011-012	\$2,692,481.56
GEN 2011-014	\$6,286,739.11
GEN 2011-016	\$3,283,268.10
GEN 2011-017	\$4,353,751.51
GEN 2011-019	\$11,485,936.14
GEN 2011-020	\$11,485,936.14
GEN 2011-021	\$8,857,495.56
GEN 2011-022	\$8,362,282.12
GEN 2011-023	\$4,987,053.32
GEN 2011-024	\$24,911,458.26

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 Tatonga Substation
Near
Oakwood, 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 a new substation, Mathewson Substation, adding five breakers and one terminal to the existing Tatonga substation and constructing approximately 61 miles of single circuit 345kV single pole transmission line with 3000A capacity. The total cost for OKGE to build a new substation with five new 345kV breakers and five new terminals and adding five breakers and one terminal to the existing Tatonga substation and constructing 61 miles of single-circuit 345kV single pole transmission line is estimated to be \$104,260,473.

The new five breaker ring at Mathewson will accommodate the new single circuit transmission line from Tatonga, the existing line from Tatonga, as well as the line from Northwest substation, a line from Cimarron substation, and a line to Woodring substation. It is necessary to convert Tatonga substation from a ring bus configuration to a breaker and a half configuration in order to accommodate the new terminal.

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 connecting a new 345kV transmission line within the service territory of OG&E Electric Services (OKGE) in Canadian County Oklahoma and building out the new Mathewson substation to a five breaker ring. The proposed 345kV transmission line is from Tatonga substation near Oakwood, Oklahoma to Mathewson Substation near Piedmont, Oklahoma. This new substation will be owned by OKGE. Tatonga substation is an existing substation owned by OKGE.

New Facilities

The primary objective of this study is to identify attachment facilities. The requirements for connecting the new facility consist of adding five 345kV terminals in the new Mathewson Substation and adding one new terminal at Tatonga substation. This 345kV addition shall be constructed and maintained by OKGE. An existing route is proposed for the 345kV line, in the common right of way with the existing 345kV line that extends from Northwest substation to Tatonga substation. The portion from the new Mathewson site to Tatonga will be utilized. This route could change when actual line routing begins, due to obstructions or unforeseen consequences. OG&E will determine a preferred route once the project has been approved.

The total cost for OKGE to add five new 345kV breakers and five new 345kV terminals in the new Mathewson Substation, the new facility, and five breakers and one terminal at the existing Tatonga facility is estimated at \$22,120,573.

The costs of building out the Mathewson substation and Tatonga substation and constructing the new 345kV transmission line 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 connection, 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 this DISIS-2011-001 connection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2011 DOLLARS)
OKGE – Network Upgrades at Mathewson substation, new substation with 5-345kV breakers, 5 terminals, line relaying, disconnect switches, and associated equipment. At Tatonga, add five breakers, line relaying, disconnect switches and one terminal	\$22,120,573
OKGE – Transmission line monopole, bundled 1590ACSR, 3000A, OPGW shield wire, 66 miles	\$ 82,139,900
Total	\$ 104,260,473

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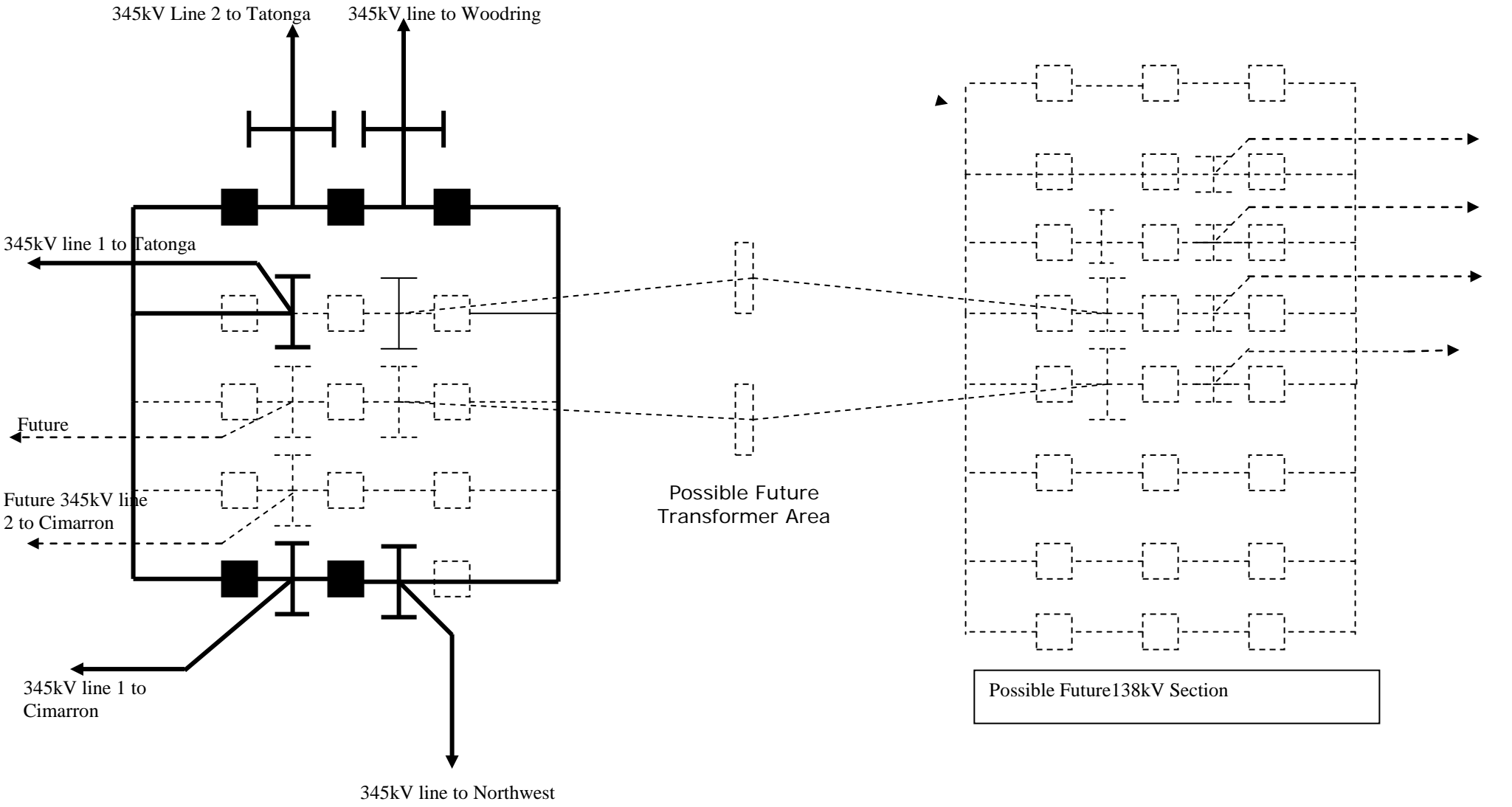
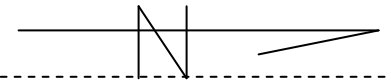
December 20, 2011

Reviewed by:

Travis D Hyde *13 January 2012*

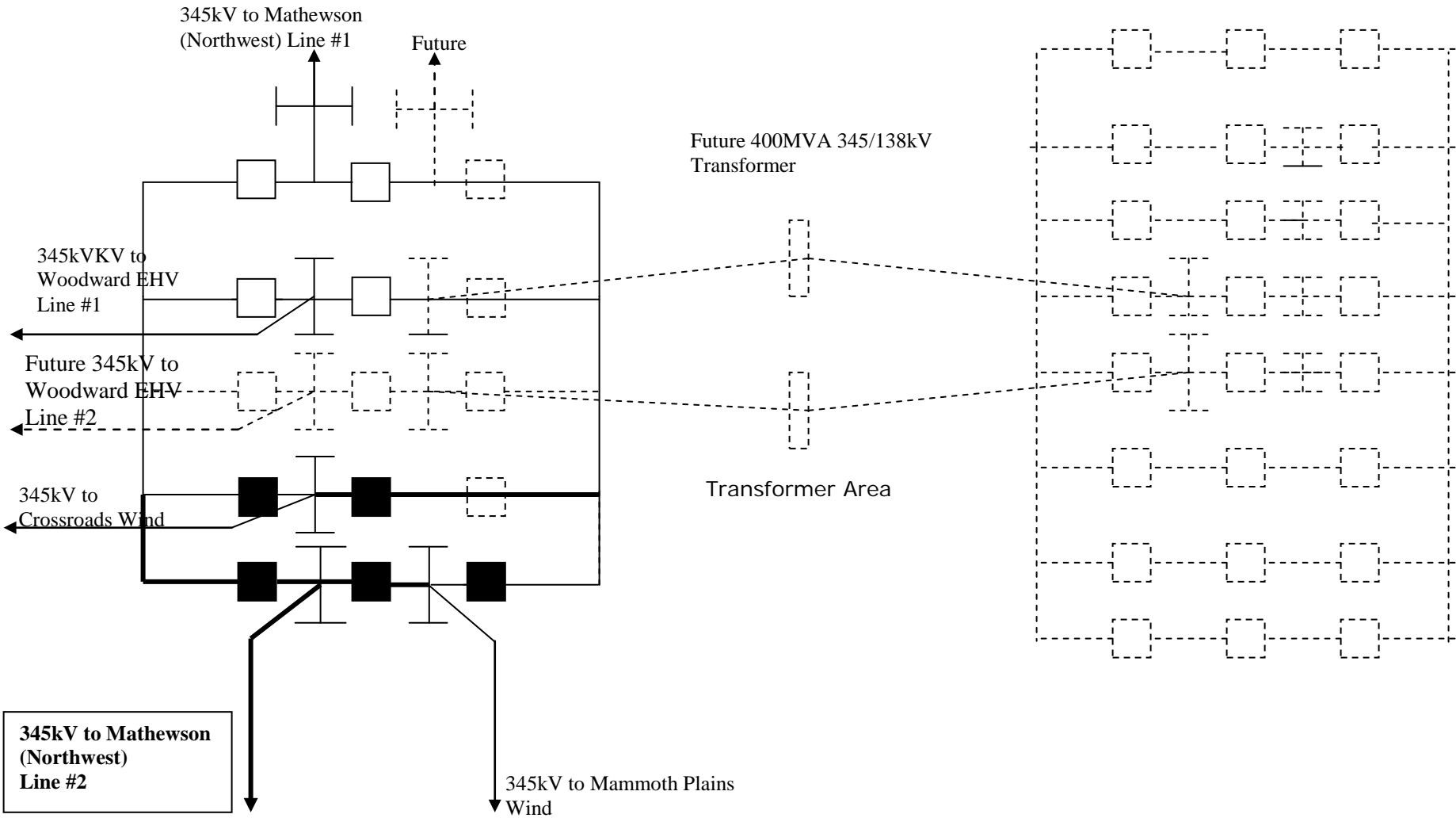
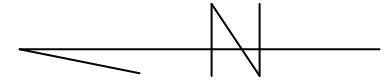
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Mathewson Substation



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Tatonga Substation



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