



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

***Beaver County – Gray County (Buckner) 345kV
Transmission Line***

(OG&E)

SPP Generation Interconnection

(#FCS-2011-001)

July 2012

Summary

Oklahoma Gas and Electric (OG&E) provided Facility Studies 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, OG&E was requested to provide costs for required network upgrades to satisfy the Facility Study Agreement executed by the requesting customer and SPP. The specific network upgrade is the addition of a 345kV transmission line from Beaver County to Gray County (Buckner).

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-2011-021
GEN-2011-022
GEN-2011-023

These interconnection customers are included in the DISIS-2011-001 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 add the 345kV transmission line from Beaver County to Gray County (Buckner) is \$105,609,050. The Interconnection Customers' total shared upgrade costs are broken down as follows for each project:

Project	Shared Upgrade Cost
GEN-2010-029	\$ 18,131,565.89
GEN-2011-008	\$ 18,431,438.21
GEN-2011-012	\$ 3,584,926.04
GEN-2011-014	\$ 10,668,198.90
GEN-2011-016	\$ 8,058,473.73
GEN-2011-017	\$ 10,734,512.93
GEN-2011-021	\$ 15,835,808.23
GEN-2011-022	\$ 10,979,126.04
GEN-2011-023	\$ 9,185,000.04

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

DISIS 2010-002

New Transmission Line
From Beaver County Oklahoma
To
Gray County Kansas

June 15, 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 a Southwest Power Pool request in conjunction with DISIS 2010-002. The requirements of the study consist of installing seven new breakers and three new line terminals at an existing substation, Beaver County Substation, reprogram relays at Woodward District EHV substation and constructing half of the proposed transmission line between Beaver County Substation and Gray County Substation approximately 48 miles. The total cost for OKGE to install seven new 345kV breakers, three new line terminals, reprogramming relays at Woodward District EHV substation and constructing half of the proposed transmission line between Beaver County Substation and Gray County Substation approximately 48 miles into the existing Beaver County substation, the interconnection facility, is estimated at \$105,609,050.

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Introduction

The Southwest Power Pool has requested a Facility Study for the purpose of interconnecting OG&E Beaver County Substation within the service territory of OG&E Electric Services (OKGE) in Beaver County Oklahoma to the Gray County Substation in Kansas located in the Sunflower Electric service territory. This facility Study is for the cost of adding seven new breakers, three new line terminals and constructing half of the proposed transmission line between Beaver County Substation and Gray County Substation approximately 48 miles. This will terminate the Woodward District EHV line #2 and the Hitchland line #2 into Beaver County Substation. Woodward District EHV line #1 and Hitchland line #1 will be terminated when Beaver County Substation is built. Beaver County substation is proposed to be built in conjunction with Facility Study Gen-2008-047.

The cost for adding seven new breakers and three new 345kV terminals to the Beaver County Substation, and constructing approximately 48 miles of bundled 1590ACSR H frame transmission line, is estimated at \$105,609,050.

Interconnection Facilities

The requirements for interconnection consist of installing seven new breakers and three new line terminals at an existing substation, Beaver County Substation, and resetting relays at Woodward District EHV substation

The total cost for OKGE to add three new 345kV terminals in the existing Beaver County Substation, the interconnection facility, is estimated at \$3,971,426.

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 new transmission 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-2010-002 interconnection.

Table 1: Required Interconnection Network Upgrade Facilities

Facility	ESTIMATED COST (2011 DOLLARS)
OKGE – Interconnection Facilities - Add three 345kV line terminals at Beaver County Substation. Dead end structure, line switch, line relaying, interconnect metering including CTs and PTs	\$3,971,426
OKGE – Network Upgrades at Beaver County sub, Install 7-345kV 5000A breakers, line relaying, disconnect switches, and associated equipment, reset relays at Woodward District EHV	\$14,630,926
OKGE – Transmission line H frame, bundled 1590ACSR, 3000A, 1-OPGW shield, 1-steel shield	\$ 87,006,698
OKGE - Right-of-Way for 345kV terminal addition	ROW included in Transmission Line Costs
Total	\$105,609,050

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June 15, 2011

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June 21, 2011

Beaver County Substation



