



***Facility Study for Generation
Interconnection Request
GEN – 2007– 032***

***SPP Tariff Studies
(#GEN-2007-032)
March, 2010***

***SPP Tariff Studies
(#GEN-2007-032)***

Summary

Western Farmers Electric Cooperative (WFEC) performed the following Study at the request of the Southwest Power Pool (SPP) for Generation Interconnection request Gen-2007-032. 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.

Pursuant to the tariff, WFEC was asked to perform a detailed Facility Study of the generation interconnection request to satisfy the Facility Study Agreement executed by the requesting customer and SPP.

Interconnection Customer Interconnection Facilities

The Interconnection Customer will be responsible for the 138kV transmission line from the point of interconnection to its 138/34.5kV substation that will contain its 138/34.5kV transformer(s) and wind turbine collector feeders. In addition, the Customer will be required to maintain a +/- 98 % leading/lagging power factor at the point of interconnection (PSO Clinton Junction – WFEC Clinton 138kV transmission line). Using the studied Acciona 1.5MW wind turbines and collector system, additional capacitive sources may be required.

Transmission Owner Interconnection Facilities and Non Shared Network Upgrades

Per the following Facility Study, the Interconnection Customer is responsible for \$2,200,000 for both Transmission Owner Interconnection Facilities and non shared Network Upgrades on the WFEC system. In addition there are \$150,000 in non-shared upgrades on the AEP system.

Shared Network Upgrades

The GEN-2007-032 Interconnection Customer is included in the 1st Cluster Study approved in FERC Docket #ER09-262. The Interconnection Customer's shared upgrade costs are \$0. This cost is subject to change depending upon the Facility Study for the shared network upgrades. This cost is also subject to change for restudies conducted by the Transmission Provider in response to the higher queued customers or other customers in the 1st Cluster that withdraw their interconnection request or suspend, terminate, or request unexecuted filings of their LGIAs.

***Generation Interconnection Facility
Study
For
GEN-2007-032***

***Western Farmers Electric Cooperative
January, 2010***

Table of Contents

Table of Contents	4
Introduction	5
Interconnection Facilities	6
Interconnection Costs	6
One-line Diagram of New Switching Station	7
WFEC lines in Gen-2007-032 Area	9

Introduction

The Southwest Power Pool (SPP) has requested a Facility Study for interconnecting Gen-2007-032 150 MW wind farm to a new switching station on the Western Farmers Electric Cooperative (WFEC) Clinton and Public Service Oklahoma (PSO) Clinton Junction transmission line.

The wind farm will be connected to a new switching station with approximately a 13 mile radial 138 kV transmission line. The new switching station will be connected to the transmission line inbetween PSO Clinton Jct and WFEC Clinton .

Below is a table for the required PF requirement. Because no stability problems were found in the impact study, the reactive resources need not be high speed or continuously controlled. However, any change in the wind turbine model or controls could change the stability results, possibly resulting in the need for a high-speed reactive power supply.

Project	MW	Turbine	POI	Final PF Requirement	
				Lagging	Leading
GEN-2007-32	150	Acciona 1.5 MW	Clinton Jct. Clint 138kV	0.9999	0.9818

Short Circuit Fault Duty Evaluation

It is standard practice for WFEC 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 the addition of the Customer's 150MW generation and related facilities. WFEC found no breakers that exceeded their interrupting capabilities on the systems. Therefore there are no short circuit upgrade costs associated with the Gen-2007-032 interconnection.

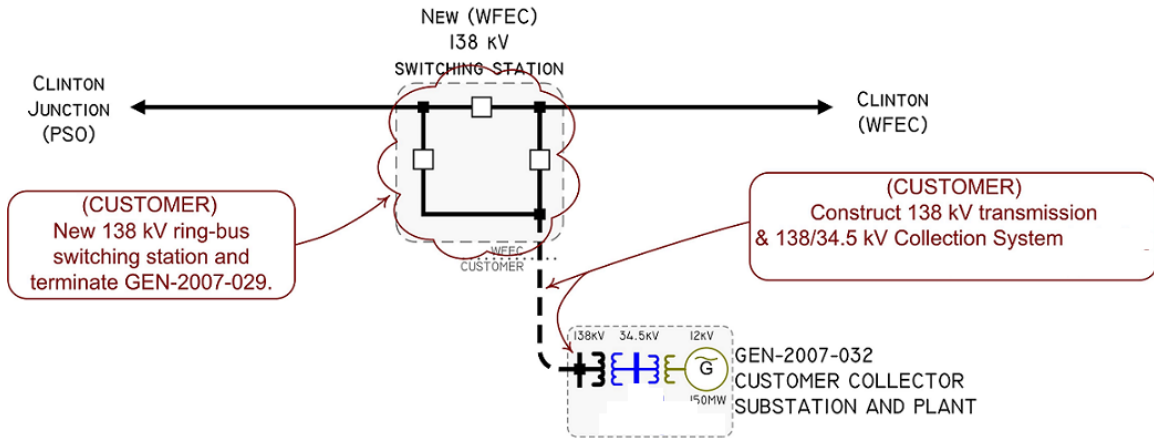
Interconnection Costs

Listed below are the cost associated with interconnecting the Customer's 150 MW wind farm generation facility to the Southwest Power Pool transmission system.

SYSTEM IMPROVEMENT	COST (2009 DOLLARS)
Engineering and oversight provided by WFEC to facilitate the construction and interconnection of the 3-breaker switching station	\$200,000
Construction of a new switching station to interconnect 150 MW of generation in between PSO Clinton Jct. and WFEC Clinton	\$2,000,000

The cost to the consumer associated with WFEC's involvement in interconnecting will just be \$200,000 because the Consumer is building the new switching station, the 138/34.5 kV collector substation, and the interconnecting transmission.

One Line Diagram



WFEC lines in Gen-2007-032 Area

