SPP Southwest Power Pool

Facility Study for Generation Interconnection Request GEN – 2005 – 005

SPP Tariff Studies
(#GEN-2005-005)

February, 2006

Summary

Pursuant to the tariff and at the request of the Southwest Power Pool (SPP), Oklahoma Gas & Electric (OG&E) performed the following Facility Study to satisfy the Facility Study Agreement executed by the requesting customer and SPP for SPP Generation Interconnection request Gen-2005-005. 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.

Order #661A Compliance

Stability Analysis was originally performed for this request in October, 2005 by ABB. The Study indicated no stability problems existed for the request. However, the original study did not include analysis of the latest FERC Order #661A low voltage ride through specification. Order #661A was released in December, 2005 and requires wind farms to be able to meet low voltage ride through requirements. As long as an Interconnection agreement is signed this year, this request will be subject to the transitional requirements of the order in which the turbines should stay on line for a fault down to 0.15 pu at the point of interconnection for a period of 4-9 cycles.

An additional contingency was simulated using data from the Impact study to confirm Order #661A compliance. A three phase fault was simulated at the 138kV bus for 5 cycles, followed by a trip of the line to Mooreland, followed 20 cycles later by another 5 cycle fault, followed by a lockout of the transmission line.

The results indicate that the Siemens wind turbines can withstand the fault and therefore this request is compliant with Order #661A. A plot of the power output of the Siemens turbines is shown in Figure 1.

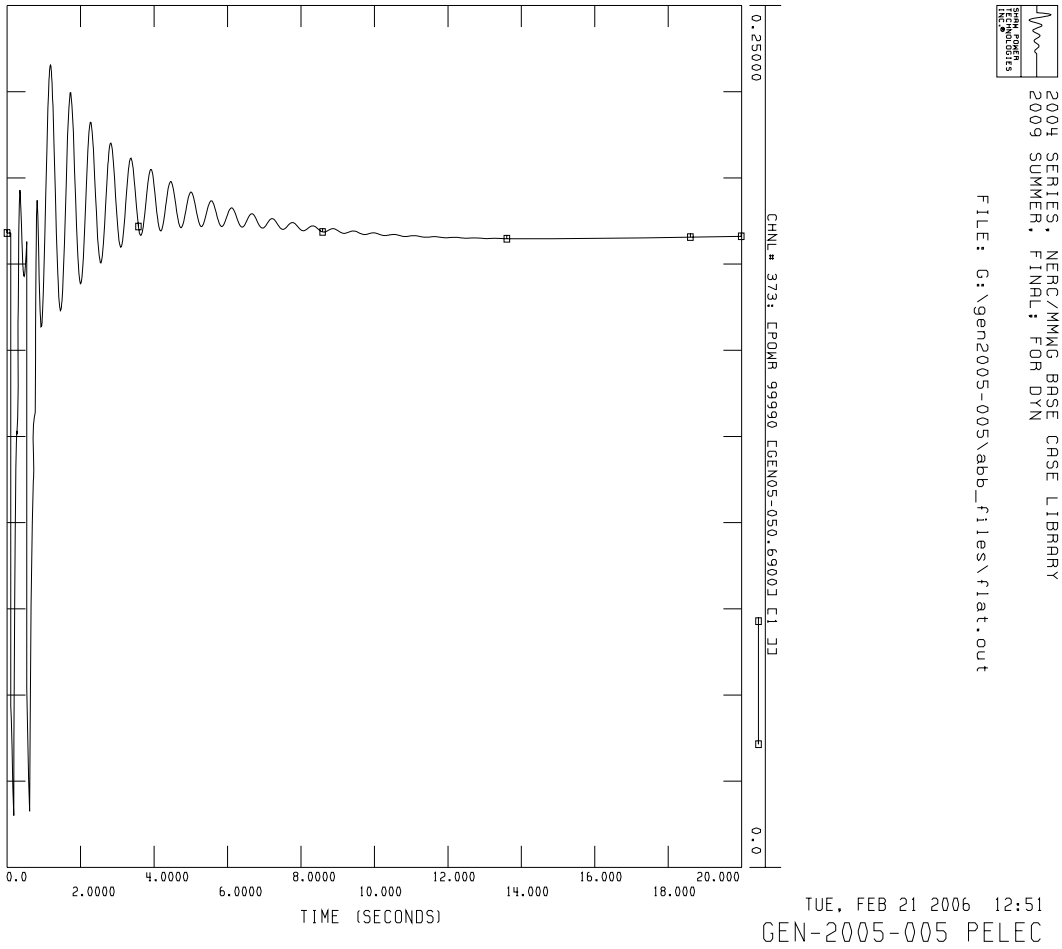

Figure 1. - Output of the Siemens Turbines during an Order #661A Fault Simulation

FACILITY STUDY

for

FP&LE Energy LLC.
Woodward County Wind Farm
Generation Interconnection Request 2005-005

18 MW Addition
to the Existing 102 MW Wind Generating Facility, 120 MW Total, near Mooreland, Oklahoma

January 25, 2006

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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 Generation Interconnection request Gen-2005-005. 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. No new facilities are needed for interconnecting additional 18 MW to the existing 102 MW facilities making 120 MW.

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Introduction

FP&LE Energy LLC, herein FP&LE, requested an 18 MW addition to an existing wind powered generating facility interconnected to the OG&E Electric Services transmission system. The Southwest Power Pool (SPP) evaluated the request to add this additional capacity in a System Impact Study dated October 24, 2005. A Facility Study Agreement authorizing OG&E to proceed with this Facility Study was executed on December 06, 2005. The additional wind powered generating capacity is to be interconnected to the existing OG&E switching station located in Woodward County, Oklahoma, near the WFEC Mooreland Generating station.

The existing wind powered generating plant consists of sixty-seven GE wind-turbine generators rated 1.5 Mega-Watts each, with a sixteen MPH wind, for a total output rating of 102 Mega-Watts. The addition to this facility consists of 18 MW using Siemens Mk II wind-turbine generators, bringing the total interconnected generating capacity to 120MW.

Interconnection Facilities

The project requires no upgrades at the interconnection point located in the existing OG&E switching station. However, additional metering CTs, PTs and associated metering equipment will be required at the Wind Generation substation to include the expansion portion to the existing Wind farm metering scheme.

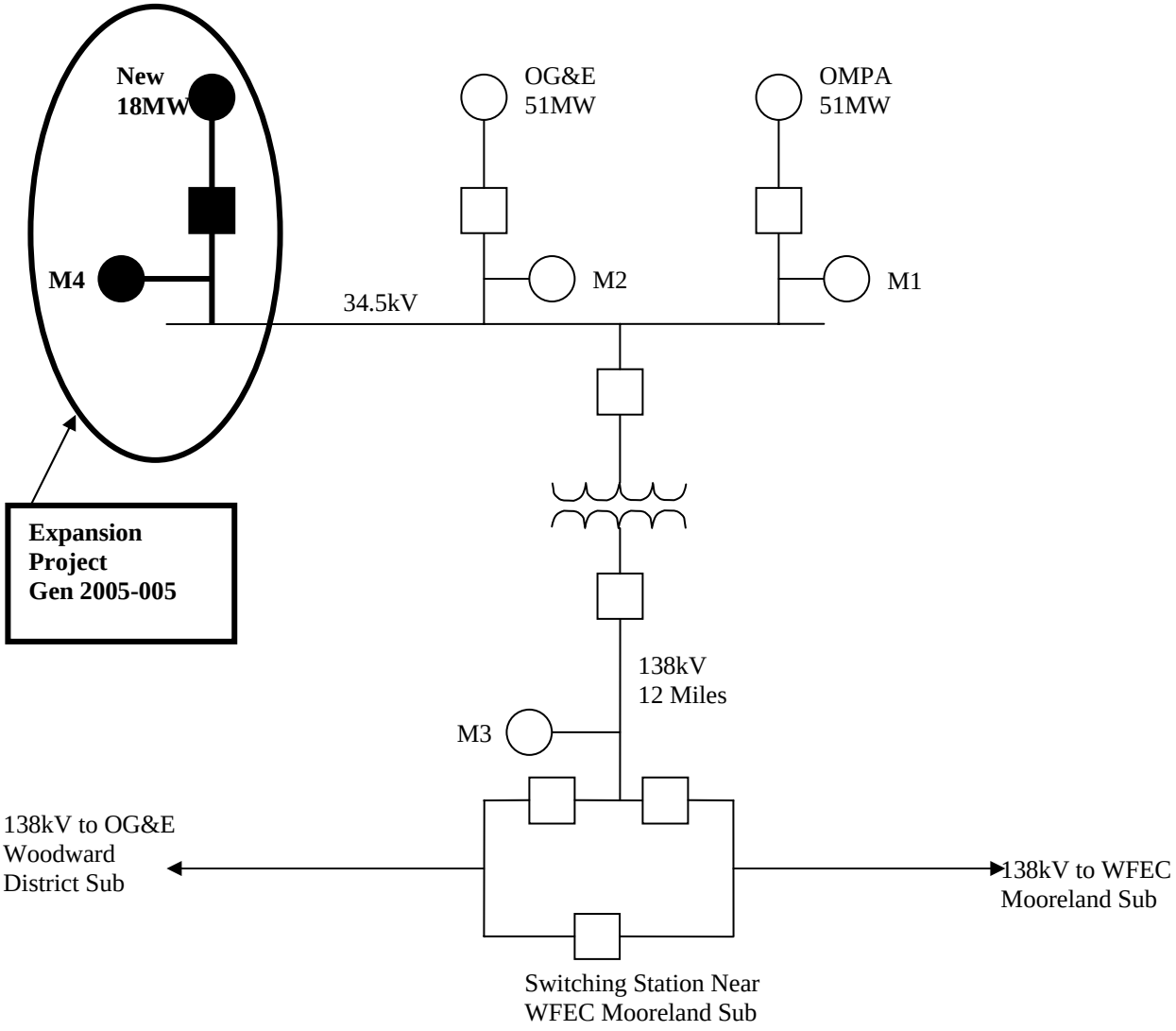
Short Circuit Fault Duty Evaluation

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 generator interconnection, no breakers were found to exceed their interrupting capability after the addition of the Customer's 18 MW generation and related facilities. OG&E found no breakers that exceeded their interrupting capabilities on their system. Therefore there are no short circuit upgrade costs associated with the Gen-2005-005 interconnection.

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.

One Line Diagram of Interconnection



Interconnection Costs

Facility	ESTIMATED COST (2006 DOLLARS)
OKGE – No additional power supply facilities are required in the existing 138kV switching station that is located in the Mooreland – Woodward 138kV line.	$0
Total	**$0**

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