



***Feasibility Study
For
Generation Interconnection
Request
GEN-2003-010***

***SPP Tariff Studies
(#GEN-2003-010)***

January 27, 2004

Executive Summary

<OMITTED TEXT> (Customer) has requested a feasibility study for the purpose of interconnecting 50MW of generation in Cherokee County, Kansas within the service territory of Empire District Electric Company (EMDE). The proposed point of interconnection is an existing 161kV station approximately 9 miles west of Joplin, MO. The proposed in-service date is March 1, 2007.

Power flow analysis has indicated that for the powerflow cases studied, it is possible to interconnect the 50 MW of generation without significant transmission system reinforcements within the local transmission system. Dynamic Stability studies performed as part of the impact study will provide guidance regarding controls.

The requirements for interconnection do not include a new station in the existing network. Modifications in the existing Riverton Station will be the responsibility of the Customer. As there are no new station requirements and the customer will be connecting to an existing 161kV bus, the Network Upgrade cost is \$0. However, expenses associated with the Direct Assignment facilities to connect the new generator to the existing bus will be the responsibility of the Customer.

This feasibility study does not take into account static system reinforcements triggered by other generation projects that are positioned ahead in the queue. In the event that these generation projects and the system reinforcements triggered by these projects are not built, this feasibility study may have to be revisited, potentially changing the requirements necessary for interconnecting this Customer's 50 MW of generation.

Introduction

<OMITTED TEXT> (Customer) has requested a feasibility study for the purpose of interconnecting a 50 MW generator in Cherokee County, Kansas within the service territory of Empire District Electric Company. The proposed point of interconnection is in the existing Riverton Station at the 161kV bus. The proposed in-service date is March 1, 2007.

Interconnection Facilities

The primary objective of this study is to identify the system problems associated with connecting the plant to the area transmission system and estimated costs of system modifications needed to alleviate the system problems. The Feasibility and other subsequent Interconnection Studies are designed to identify attachment facilities and other direct assignment facilities needed to accept power into the grid at the interconnection receipt point.

The requirements for interconnection do not include a new station in the existing network. Modifications in the existing Riverton Station will be the responsibility of the Customer. As there are no new station requirements, the Network Upgrade cost is \$0. However, expenses associated with the Direct Assignment facilities to connect the new generator to an existing 161kV bus will be the responsibility of the Customer. The new Direct Assignment facilities will be constructed and maintained by the Customer. **This cost does not include any cost that might be associated with short circuit**

study results or dynamic stability study results. These costs will be determined when and if a System Impact Study is conducted.

Powerflow Analysis

A powerflow analysis was conducted for the facility using modified versions of the 2009 Summer Peak and 2009 Winter Peak models. The output of the Customer's facility was offset in each model by a reduction in output of existing online EMDE generation. The proposed in-service date of the generator is March 1, 2007. The next available seasonal models were the 2009 peak models. This is the end of the current SPP planning horizon.

The local transmission system including the facilities of EMDE, Westar Energy (WERE), American Electric Power (AEP) and the Grand River Dam Authority (GRDA) were outaged and monitored. The analysis of the Customer's project indicates that, given the requested generation level of 50 MW and location, additional criteria violations will not occur on the existing local EMDE, WERE, AEP and GRDA facilities under steady state conditions in all seasons out to the end of SPP's planning horizon.

Powerflow Analysis Methodology

The Southwest Power Pool (SPP) criteria states that: The transmission system of the SPP region shall be planned and constructed so that the contingencies as set forth in the Criteria will meet the applicable *NERC Planning Standards* for System Adequacy and Security – Transmission System Table I hereafter referred to as NERC Table I) and its applicable standards and measurements.

Using the created models and the ACCC function of PSS\E, single contingencies in the local transmission systems in the EMDE, WERE, AEP and GRDA control areas were applied and the resulting scenarios analyzed. This satisfies the 'more probable' contingency testing criteria mandated by NERC and the SPP criteria.

Conclusion

The requirements for interconnection do not include a new station in the existing network. Modifications in the existing Riverton Station will be the responsibility of the Customer. As there are no new station requirements, the Network Upgrade cost is \$0. However, expenses associated with the Direct Assignment facilities to connect the new generator to an existing 161kV bus will be the responsibility of the Customer.

These interconnection costs do not include any cost that may be associated with short circuit or transient stability analysis. These studies will be performed if the Customer signs a system impact study agreement.

The costs do not include any costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer requests transmission service through Southwest Power Pool's OASIS.