



**SYSTEM IMPACT STUDY FOR
NETWORK TRANSMISSION SERVICE
GOLDEN SPREAD ELECTRIC COOPERATIVE, INC.**

April 12, 2007

Xcel Energy Services, Inc.
Transmission Planning

Executive Summary

Golden Spread Electric Cooperative, Inc. (the “Requester”) has requested the interconnection of a new 150 MW Combustion Turbine (CT) to the Southwestern Public Service Company (SPS), a New Mexico Corporation and wholly owned subsidiary of Xcel Energy Inc., transmission system for a new network resource (“NR”) at the Mustang Station generating plant. The Mustang Station is an existing facility where the requester currently owns four (4) generating units with nominal capacity of 640 MW. The new unit is a simple cycle combustion turbine GE 7F-A intended to be used as a summer peaking unit, with limited hours of operation allowed. The new unit is expected to be operational by April 30, 2007.

Mustang Station is located about 5 miles east of Denver City, Texas and one-half (1/2) mile north of County Road 390. Further describe as located in Section 887, Block D of the John H. Gibson Survey of Yoakum County, Texas. See Appendix A, Figure 1 for a map of the area.

Power flow analysis was performed by SPP according to the Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07) to determine impacts and mitigations as a result of the required transmission service from this new Network Resource onto the SPS transmission grid. The result of the study is shown in Table 3, page 27 of 73 of the SPP-Aggregate Facility Study SPP-2006-AG2-AFS-4.

Connection of the new NR to the existing transmission system will require SPS to upgrade equipment at the Mustang Interchange due to increased generation capacity. The existing disconnect switches on the 230 kV bus connecting to the generating units and the 230/115 kV autotransformer will require upgrades. Also, required for this interconnection are the billing metering and SCADA interfaces for Unit #5 Generator Step-up Transformer and Auxiliary Transformer.

SPS at their discretion reserves the right to change these system upgrades required for this transmission service request. The upgrades could be changed in order to meet present and long-term goals; however, changes will be accomplished provided the new upgrades meet the same level of system reliability and safety.

Table of Contents

- 1. Introduction 4
- 2. Study Methodology 4
- 3. Results 4
 - 3.1. System Intact Conditions 5
 - 3.2. Thermal/Voltage Single Contingency Analysis 5
- 4. Requirements For Transmission Service 5
- 5. Estimated Costs 6
- 6. Construction Schedule 6
- 7. General Description of Modification/Additions to SPS Facilities 6
- Appendix A..... 7

1. Introduction

Golden Spread Electric Cooperative, Inc. (the “Requester”) has requested that the network service presently provided by SPS be modified to include a new NR. The Requester will use the new NR to serve customer load requirements. The point of receipt for the power produced from the new NR will be at the existing 230 kV bus currently serving Units #3 and #4 at Mustang Interchange. The back feed to the GSU and commercial operation date for delivery of power from the generator is April 1, 2007 and April 30, 2007, respectively. A map showing the location of new NR and the local SPS transmission system is shown in Appendix A, Figure 1.

The objective of this study is to determine adverse system impacts introduced by the addition of this new NR and the upgrades required to mitigate the impacts. The area of study includes the entire the SPP and first tier Non - SPP control area systems as identified by Southwest Power Pool (SPP) Aggregate Facility Study SPP-2006-AG2-AFS-4, revised 2-26-07, (“SPP Study”).

2. Study Methodology

A system impact analysis was conducted by the SPP Study to determine the steady-state impact of the requested service on the SPP and first tier Non - SPP control area systems. The steady state analysis was done to ensure current SPP Criteria and NERC Reliability Standards requirements are fulfilled. The Southwest Power Pool conforms to the NERC Reliability Standards, which provide the strictest requirements, related to voltage violations and thermal overloads during normal conditions and during a contingency. It requires that all facilities be within normal operating ratings for normal system conditions and within emergency ratings after a contingency. Normal operating ratings and emergency operating ratings monitored are Rate A and B in the SPP MDWG models, respectively. The upper bound and lower bound of the normal voltage range monitored is 105% and 95%. The upper bound and lower bound of the emergency voltage range monitored is 110% and 90%. The SPS Tuco 230 kV bus voltage is monitored at 92.5% due to predetermined system stability limitations.

The contingency set includes all SPP control area branches and ties 69kV and above, first tier Non - SPP control area branches and ties 115 kV and above, any defined contingencies for these control areas, and generation unit outages for the control areas with SPP reserve share program re-dispatch. The monitor elements include all SPP control area branches, ties, and buses 69 kV and above, and all first tier Non – SPP control area branches and ties 69 kV and above. Voltage monitoring was performed for SPP control area buses 69 kV and above.

A 3 % transfer distribution factor (TDF) cutoff was applied to all SPP control area facilities. For first tier Non – SPP control area facilities, a 3 % TDF cutoff was applied to AECL, AMRN, and ENTR and a 2 % TDF cutoff was applied to MEC, NPPD, and OPPD. For voltage monitoring, a 0.02 per unit change in voltage must occur due to the transfer or modeling upgrades to be considered a valid limit to the transfer.

3. Results

The results presented in this study report are only valid for the power flow cases noted in Section 2. The results are not for all the variations that could exist in load, generation patterns and network transmission service that could be granted by the SPP. The result is

contingent upon the results of the Southwest Power Pool Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07) completed in January 29, 2007 available at: <http://sppoasis.spp.org/documents/swpp/transmission/AggTransStudies.cfm?YearType=2006%20Aggregate%20Facility%20Study>.

3.1. System Intact Conditions

The result of the study with the introduction of the new NR to the SPS network transmission system is included in SPP Impact Study (AG2-2006-133) as Table 3, incorporated in the Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07) completed in January 29, 2007. See Appendix A, Figure 3 for reference.

3.2. Thermal/Voltage Single Contingency Analysis

The result of the study is referred to Table 3; page 27 of the SPP Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07) completed in January 29, 2007 as shown Appendix A, Figure 3.

4. Requirements For Transmission Service

The requirements for granting transmission service for this NR include the upgrades of two 230 kV disconnect switches and the 230/115 kV autotransformer as shown in Appendix A, Figure 1 and contingent upon SPP's Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07) completed in January 29, 2007. Any variations in the dispatch could change the required upgrades. It is also recommended that the upgrade be accomplished as soon as possible (considering the lead-time for the new equipment).

These transmission system upgrades, however, at the discretion of SPS, may be changed to develop an improved transmission system plan that encompasses other projects while maintaining present and long-term goals, yet meeting equivalent reliability requirements and safety measures.

Network transmission service for this new NR can be granted contingent upon the results of SPP's Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07) completed in January 29, 2007 indicated on Table 3, page 27 shown in Appendix A, Figure 1, with the understanding that the new generator could be subject to curtailment for contingencies that cause thermal and voltage violations within the local transmission system in accordance with the Xcel Energy OATT, Sections 30.5 and 33.2. This report identifies the condition under which Network Service can be accommodated, but should not be interpreted as a commitment by Xcel Energy that network transmission service will be granted to the Customer solely on this report.

5. Estimated Costs

The cost estimates for the required transmission system upgrades for this transmission service request are noted below.

Table 1 - Cost Estimates for the Required System Upgrades

Required Transmission System Upgrades ¹	Estimated Cost ²	Proposed In-Service Date
Mustang Interchange		
230/115 kV Autotransformer Upgrade	\$1,900,829.00	6/1/2007
Disconnect Switch Upgrade	\$ 29,545.00	4/2/2007
Total Mustang Interchange Upgrade	\$1,930,374.00	6/1/2007

6. Construction Schedule

The construction schedule for the system upgrade is scheduled to be completed on April 2nd, 2007 for the disconnect switch upgrade and “Metering & SCADA” installation while the 230/115 kV autotransformer upgrade is scheduled to be completed by June 1, 2007.

7. General Description of Modification/Additions to SPS Facilities

The SPS transmission element requiring modification is the upgrade of the Mustang Interchange autotransformer and 230 kV disconnect switches. The scope involves changing out the existing 150 MVA 230/115 kV unit which was previously mentioned in Transmission Service Study for Mustang Unit #4, it will be replaced with a new 225 MVA unit and the existing relay settings will be modified. Due to increase generation capacity, the existing disconnect switches on the 230 kV bus connecting to the generation units will require upgrade from 1200 Amps to 2000 Amps capacity. The disconnect switch location is shown in Appendix A, Figure 2.

¹ Southwestern Public Service Company at their discretion reserves the right to change these system upgrades in order to meet present and long-term goals provided the same level of system reliability and safety is met.

² The cost estimates are 2007 dollars with an accuracy level of plus minus 30%, no AFUDC added.

Appendix A

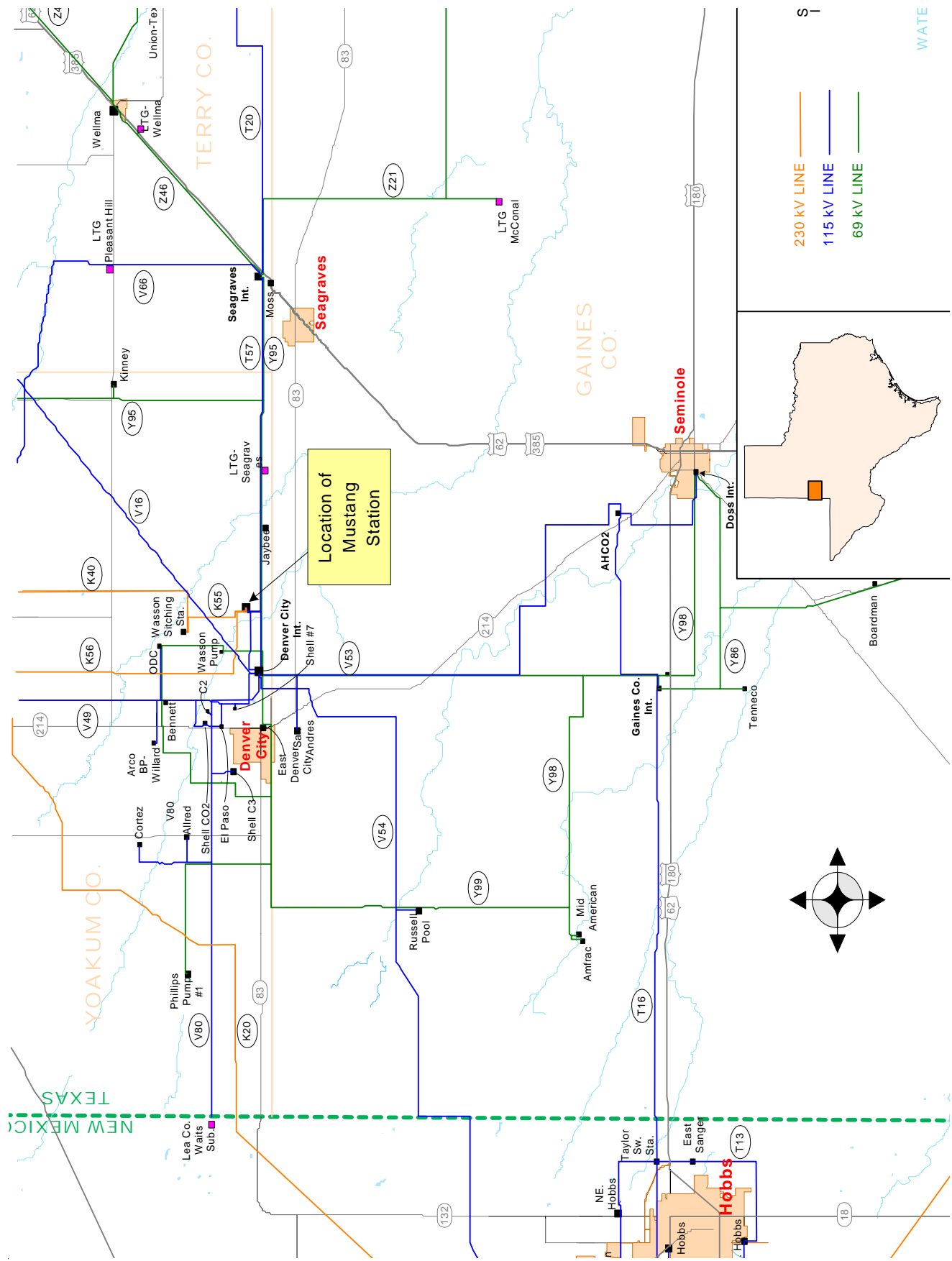
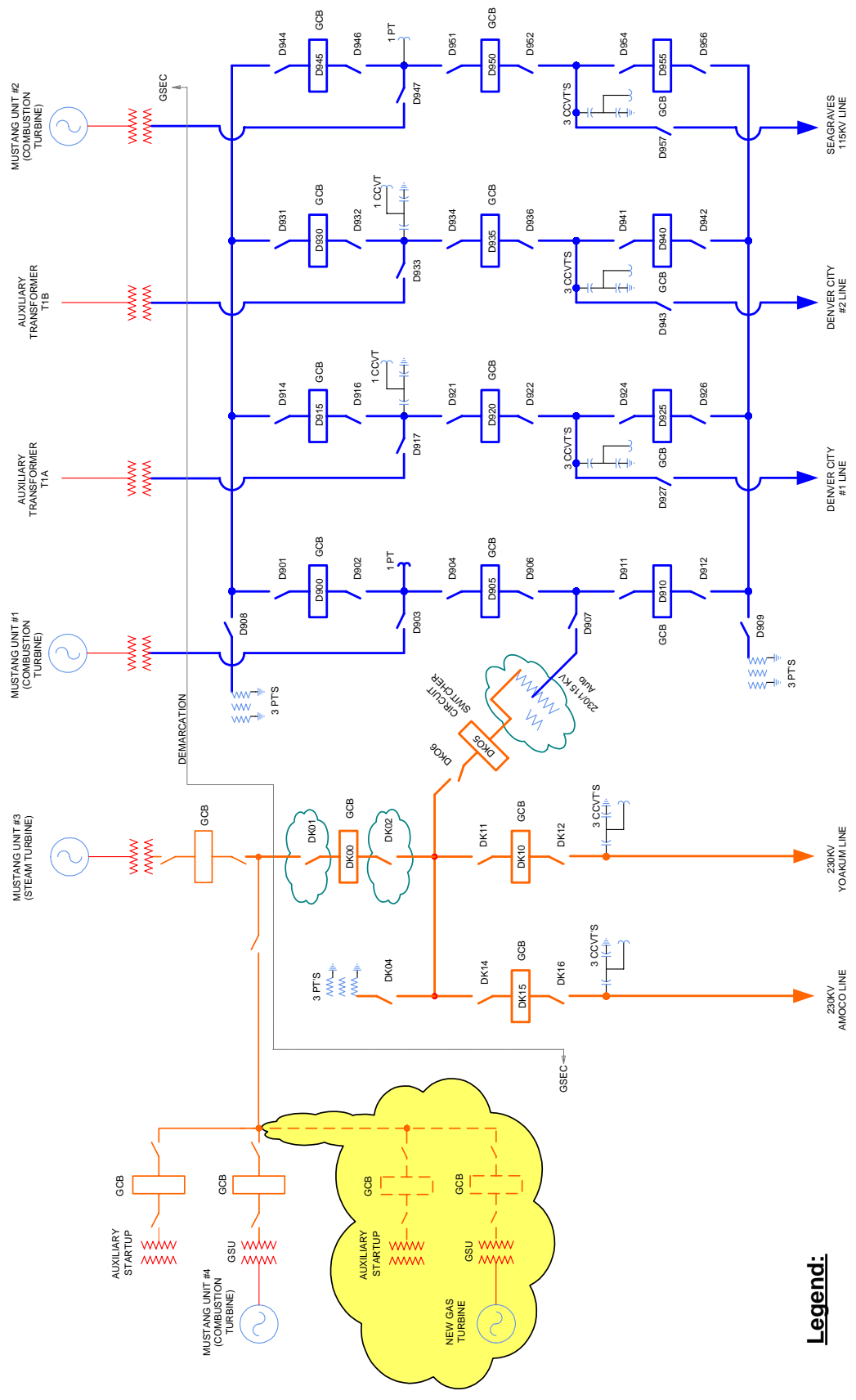


Figure 1, Location of GSEC Mustang Plant and Switching Facility



Legend:

-  Added or modified facilities
-  Proposed facility upgrade

ONE LINE DIAGRAM

Figure 2, One Line Diagram of Mustang Interchange

Study Number
AG2-2006-133

Customer	Reservation	POR	POD	Requested Amount	Requested Start Date	Requested Stop Date	Deferred Start Date w/out Re-dispatch	Deferred Stop Date w/out Re-dispatch	Potential Base Plan Funding Allowable	Point-To Point Base Rate	Allocated E & C Cost	Total Revenue Requirements
GSEC	1090487	SPS	SPS	150	4/1/2007	4/1/2017	6/12/2009	6/1/2009	\$ 288,620		\$ 288,620	\$ 569,903
									\$ 288,620		\$ 288,620	\$ 569,903

Reservation	Upgrade Name	COD	EOC	Earliest Service Start Date	Redispatch Available	Allocated E&C Cost	Total E & C Cost	Total Revenue Requirement
1090487	Mustang-San Andr-Amerada Hess 115kV Displacement	4/1/2007	6/1/2008		Yes	\$ 288,620	\$ 1,742,892	\$569,903
1090487	Yoakum Interchange 230/115 kV Transformer Ckt1 Displacement	6/1/2007	6/1/2008		Yes	-	\$ 2,500,000	-
					Total	\$ 288,620	\$ 4,242,620	\$569,903

Expansion Plan - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	COD	EOC	Earliest Service Start Date	Redispatch Available
1090487	BC-EARTH INTERCHANGE 115KV	6/1/2016	6/1/2016		
	CURRY COUNTY INTERCHANGE - ROOSEVELT COUNTY INTERCHANGE 115KV CKT 2	6/1/2013	6/1/2013		
	Hart Interchange 230/115 kV	6/1/2011	6/1/2011		
	Hitchland 345 and 115 kV Interchange	6/1/2010	6/1/2010		
	KRESS INTERCHANGE 115/69KV TRANSFORMERS	4/1/2007	4/1/2007		
	LC-SOL3 115KV	6/1/2016	6/1/2016		
	MUSTANG STATION 230/115KV TRANSFORMER CKT 1	4/1/2007	6/1/2008		Yes
	Potter - Roosevelt 345KV	6/1/2013	6/1/2013		
	Pringle - Etter 115 kV	6/1/2010	6/1/2010		
	ROOSEVELT COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1	6/1/2013	6/1/2013		
	Seven Rivers to Pecos to Potash Junction 230kV	6/1/2007	6/1/2009		Yes
	Tex-Hitchland-Sherman Tap 115 kV ckt	6/1/2010	6/1/2010		
	TUCO INTERCHANGE 115/69KV TRANSFORMER	6/1/2008	6/1/2008		

Construction Pending - The requested service is contingent upon completion of the following upgrades. Cost is not assignable to the transmission customer.

Reservation	Upgrade Name	COD	EOC	Earliest Service Start Date	Redispatch Available
1090487	TERRY COUNTY INTERCHANGE 115/69KV TRANSFORMERS	6/1/2007	6/1/2007		

Figure 3, Table 3 Extracted from SPP Aggregate Facility Study SPP-2006-AG2-AFS-4 (Revised 2-26-07)

– END OF REPORT –