



SPP *Southwest Power Pool*

***System Impact Study SPP-2001-045
For Transmission Service
Requested By
Tenaska***

From OKGE to EES

***For a Reserved Amount Of 50MW
From 5/24/01
To 9/1/01***

SPP Transmission Planning

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1. Executive Summary

Tenaska has requested a system impact study for Monthly Firm transmission service from OKGE to EES. The period of the transaction is from 5/24/01 to 9/1/01. The request is for reservation 237408 for the amount of 50MW.

The 50MW transaction from OKGE to EES has a positive response on the La Cygne to Stillwell, La Cygne to West Gardner flowgate. The impact of this transfer on the La Cygne to Stillwell, 345kV line will cause an overload for the loss of the La Cygne to West Gardner, 345kV line during the time period of this request. To provide the ATC that is necessary for this transfer, the impact on this flowgate must be relieved.

It has been determined that there is not sufficient time available to complete any upgrades to the system that would relieve this flowgate.

Redispatch was looked at as an option to relieving the impact on the La Cygne to Stillwell, La Cygne to West Gardner flowgate caused by the 50MW transfer.

The Transmission Owners were given the opportunity to participate in the redispatch of their generation resources in order to relieve a system constraint caused by a transfer. Those companies owning units, which through increasing or decreasing generation will relieve the impact on the La Cygne to Stillwell, La Cygne to West Gardner flowgate, declined to participate in redispatching. There are no additional options available to relieve the impact on this flowgate caused by the 50MW OKGE to EES transfer.

2. Introduction

Tenaska has requested an impact study for transmission service from OKGE control area with a sink of EES.

The La Cygne to Stillwell, La Cygne to West Gardner flowgate has been identified as a limiting constraint for the OKGE to EES transfer. For this flowgate, the La Cygne to Stillwell, 345kV line is monitored during the loss of the La Cygne to West Gardner, 345kV line. It has been determined that the 50MW transfer from OKGE to EES will cause the La Cygne to Stillwell line to overload should the loss of the La Cygne to West Gardner line occur.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews redispatch as an option to relieving the transmission restraint.

3. Study Methodology

A. Description

Southwest Power Pool used the NERC Generator Sensitivity Factor (GSF) Viewer to obtain possible unit pairings that would relieve the constraint. The GSF viewer calculates impacts on monitored facilities for all units above 20MW in the Eastern Interconnection. The La Cygne to Stillwell, La Cygne to West Gardner flowgate is included in the flowgate list.

B. Model Updates

The 2001 Southwest Power Pool Summer Peak model was used for the study. This model was updated to reflect the most current information available.

C. Transfer Analysis

Using the short-term calculator, the limiting constraint for the transfer is identified. The response factor of the transfer on that constraint is also determined.

4. Study Results

A. Study Analysis Results

NERC calculates shift factors on specified facilities for all generation units over 20MW in the Eastern Interconnection. NERC also provides a list of the Top 100 Relief pairs for a specified constraint. These generation shift factors were reviewed for impacts on the La Cygne to Stillwell, La Cygne to West Gardner flowgate for the redispatch assessment. SPP generators with both negative and positive impacts were available. Those with negative impacts would reduce transformer flows when unit output is increased. The generators with positive impacts would increase flows when unit output is increased and reduce flows when unit output is decreased. There are several redispatch options within SPP for pairing units with positive impacts to units with negative impacts.

The distribution factor on the La Cygne to Stillwell, La Cygne to West Gardner flowgate for the OKGE to EES transfer is 7.9%. A redispatch would be required to relieve the 4.0MW impact on the constraint under emergency conditions.

Table 1 documents 40 relief pairs of SPP generators for the La Cygne to Stillwell, La Cygne to West Gardner flowgate.

Table 1: Top 40 Relief Pairs of SPP Generators for La Cygne to Stillwell, La Cygne to West Gardner Flowgate

Source	Sink	Factor	Source	Sink	Factor	Source	Sink	Factor
KCPL_HAW G9 113.8_9	KCPL_LAC G1 122.0_1	-69	KCPL_HAW G9 113.8_9	KCPL_LAC G2 124.0_2	-69	KCPL_HAWCT8 113.8_8	KCPL_LAC G2 124.0_2	-69
KCPL_HAWCT8 113.8_8	KCPL_LAC G1 122.0_1	-69	KCPL_HAW G5 122.0_5	KCPL_LAC G1 122.0_1	-69	KCPL_HAWCT7 113.8_7	WR_WCGS U1 25.0_1	-50.6
KCPL_HAWCT6 116.0_6	WR_WCGS U1 25.0_1	-50.6	KCPL_HAWCT6 116.0_6	WR_NEC U3 12.0_1	-36.1	KCPL_HAWCT7 113.8_7	WR_NEC U3 12.0_1	-36.1
KCPL_HAW G5 122.0_5	WR_CHANUTE269.0_1	-34.4	KACY_QUIN 269.0_5	WR_CHANUTE269.0_1	-34.3	KACY_QUIN 269.0_5	WR_IOLA 269.0_1	-33.9
KACY_QUIN 269.0_4	WR_IOLA 269.0_1	-33.9	KACY_QUIN 269.0_4	WR_SUB A 269.0_1	-33.8	KACY_KAW 269.0_3	WR_SUB A 269.0_1	-33.8
KACY_KAW 269.0_3	WR_AUGUSTA269.0_1	-33.4	KACY_NEARMAN5 161_1	WR_AUGUSTA269.0_1	-33.4	KACY_NEARMAN5 161_1	WR_GETTY 269.0_1	-32.8
KCPL_NE CTS 113.8_8	WR_GETTY 269.0_1	-32.8	KCPL_NE CTS 113.8_8	WR_GEC U1 12.5_1	-32.5	KCPL_GA CT 113.8_9	WR_GEC U1 12.5_1	-32.5
KCPL_GA CT 113.8_9	WR_WELLING269.0_1	-32.1	KCPL_NE CTN 113.8_2	WR_WELLING269.0_1	-32.1	KCPL_NE CTN 113.8_2	WR_WINFLD 269.0_1	-32.1
KCPL_MONTG3 118.0_3	WR_WINFLD 269.0_1	-30.3	KCPL_MONTG3 118.0_3	CSWS_NES3 -1PB22.0_1	-28.7	KCPL_MONTG2 122.0_2	CSWS_NES3 -1PB22.0_1	-28.7
KCPL_MONTG2 122.0_2	OKGE_CONTEMPG13.2_1	-27.4	KCPL_IAT G1 124.0_1	OKGE_CONTEMPG13.2_1	-27	KCPL_IAT G1 124.0_1	OKGE_OMPONCA269.0_1	-27
WR_LEC U4 14.4_1	CSWS_NES2 -1PB22.0_1	-26.7	KCPL_CTY HIG269.0_1	SPA_KEY1&2 113.8_1	-25.9	WR_TEC GT 13.8_1	GRDA_BOOMER 269.0_1	-25.5
WR_JEC U1 26.0_1	OKGE_SOONER1G22.0_1	-24.6	WPEK_CLIFTON113.8_1	CSWS_CALSTM 118.0_1	-23.2	WR_AEC GT1 13.8_1	CSWS_CALGT1-118.0_1	-23
WR_MCPHGT3 13.8_1	CSWS_RSS1 -1PT24.0_1	-21.5	WR_COLBY 3 115_1	OKGE_SOONER2G20.0_1	-20.4	SPA_TRU123 113.8_2	GRDA_GRDA17-122.8_2	-19.5
WPEK_MULGREN113.8_3	EDE_A1G349 113.8_1	-18.8						

5. Conclusion

The Transmission Owners were given the opportunity to include their units for redispatch in order to provide relief on the flowgates impacted by a certain transaction. The participants owning units that would relieve the flowgate impacted by the 50MW OKGE to EES transfer declined to participate in the redispatch of those units. No other options are available to provide the capacity needed for the 50MW transfer. Therefore the request for monthly service from OKGE to EES must be refused due to the impact on the La Cygne to Stillwell, La Cygne to West Gardner flowgate.