



SPP

*Southwest
Power Pool*

***System Impact Study SPP-2002-092
For Transmission Service
Requested By
Coral Power LLC***

From WFEC to EES

***For a Reserved Amount Of 150MW
From 6/1/02
To 9/1/02***

SPP Transmission Planning

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1. Executive Summary

Coral Power LLC has requested a system impact study for Monthly Firm transmission service from WFEC to EES. The period of the transaction is from 6/1/02 to 9/1/02. The request is for reservations 351356, 351357, and 351358 for the amount of 150MW.

The 150MW transaction from WFEC to EES has a positive response on the La Cygne to Stillwell, La Cygne to West Gardner flowgate and the Kildare to Creswell, Woodring to Wichita 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. The impact of this transfer will cause the Kildare to Creswell, 138kV line to overload for the loss of the Woodring to Wichita, 345kV line. To provide the ATC that is necessary for this transfer, the impact on these flowgates must be relieved.

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

Redispatch was looked at as an option to relieving the impact on the La Cygne to Stillwell, La Cygne to West Gardner and the Kildare to Creswell, Woodring to Wichita flowgates caused by the 150MW transfer.

A company owning units, which through increasing or decreasing generation will relieve the impact on the La Cygne to Stillwell, La Cygne to West Gardner and the Kildare to Creswell, Woodring to Wichita flowgates was given the opportunity to participate in the redispatch of those units. The company offered redispatch options/costs to the Customer. The Customer declined.

Another option available to relieve the impact on these flowgates caused by the 150MW WFEC to EES transfer is curtailment of existing service. There was not sufficient interest in curtailment of existing service by other customers owning service with impacts on these flowgates to allow these WFEC to EES requests to flow. Therefore, the only option is redispatch of generation to relieve the impacts of the 150MW transaction on the flowgates with insufficient AFC.

2. Introduction

Coral Power LLC has requested an impact study for transmission service from WFEC to EES.

The La Cygne to Stillwell, La Cygne to West Gardner flowgate has been identified as a limiting constraint for the WFEC 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 150MW transfer from WFEC to EES will cause the La Cygne to Stillwell line to overload should the loss of the La Cygne to West Gardner line occur.

The 150MW transfer is also limited by the Kildare to Creswell, Woodring to Wichita flowgate. For this flowgate, the Kildare to Creswell, 138kV line is monitored during the loss of the Woodring to Wichita, 345kV line. The WFEC to EES transfer will cause the Kildare to Creswell line to overload during the loss of the Woodring to Wichita line.

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

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 and the Kildare to Creswell, Woodring to Wichita flowgates are 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. These generation shift factors were reviewed for impacts on the La Cygne to Stillwell, La Cygne to West Gardner and the Kildare to Creswell, Woodring to Wichita flowgates for the redispatch assessment. SPP generators with both negative and positive impacts were available. Those with negative impacts would reduce 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 WFE to EES transfer is 5.9% for June, 7.0% for July, and 7.0% for August. A redispatch would be required to relieve the 9MW June impact and 10MW July/August impact on the constraint under emergency conditions.

The distribution factor on the Kildare to Creswell, Woodring to Wichita flowgate for the WFE to EES transfer is 6.6% for all months. A redispatch would be required to relieve the 10MW impact on the constraint under emergency conditions.

Table 1 documents the generation shift factors for SPP generators for the La Cygne to Stillwell, La Cygne to West Gardner flowgate.

Table 2 documents the generation shift factors for SPP generators for the Kildare to Creswell, Woodring to Wichita flowgate.

Table 1: Generation Shift Factors for SPP Generators for La Cygne to Stillwell, La Cygne to West Gardner Flowgate

Source	Sink	Factor	Source	Sink	Factor	Source	Sink	Factor
WR_WCGS U1 25.0_1	SWING	31.2	WR_NEC U3 12.0_1	SWING	15.8	WR_COPLT1 269.0_1	SWING	13.6
WR_COPLT1 269.0_7	SWING	13.6	WR_COSUBA 269.0_1	SWING	13.6	WR_COSUBA 269.0_7	SWING	13.6
WR_GETTY 269.0_1	SWING	13.6	WR_GEC U1 12.5_1	SWING	13.4	WR_GEC U2 12.5_1	SWING	13.4
WR_GEC U3 14.4_1	SWING	13.3	WR_GEC U4 14.4_1	SWING	13.2	WR_WACO 4 138_1	SWING	13.2
WR_EEC GT1 13.8_1	SWING	12.7	WR_EEC GT2 13.8_1	SWING	12.7	WR_EEC GT3 18.0_1	SWING	12.7
WR_EEC U1 16.0_1	SWING	12.7	WR_EEC U2 24.0_1	SWING	12.7	WR_WELLING269.0_1	SWING	12.6
WR_WELLING269.0_6	SWING	12.6	WR_WINFLD 269.0_1	SWING	12.4	WR_WINFLD 269.0_OX	SWING	12.4
WR_WINFLD 269.0_T	SWING	12.4	WR_CGENSUB269.0_1	SWING	11.7	WR_CHANP3 269.0_09	SWING	11.7
WR_CHANP3 269.0_10	SWING	11.7	WR_CHANP3 269.0_11	SWING	11.7	WR_CHANP3 269.0_12	SWING	11.7
WR_CHANP3 269.0_13	SWING	11.7	WR_ERIE 269.0_1	SWING	11.7	WR_ERIE 269.0_2	SWING	11.7
WR_ERIE 269.0_3	SWING	11.7	WR_ERIE 269.0_4	SWING	11.7	WR_ERIE 269.0_5	SWING	11.7
WR_IOLA 269.0_1	SWING	9.7	WR_IOLA 269.0_10	SWING	9.7	WR_IOLA 269.0_2	SWING	9.7
WR_IOLA 269.0_4	SWING	9.7	WR_IOLA 269.0_5	SWING	9.7	WR_IOLA 269.0_6	SWING	9.7
WR_IOLA 269.0_7	SWING	9.7						

Table 2 Generation Shift Factors for SPP Generators for Kildare to Creswell, Woodring to Wichita Flowgate

Source	Sink	Factor		Source	Sink	Factor		Source	Sink	Factor
WR_COPLT1 269.0_1	SWING	-0.6		WR_COPLT1 269.0_7	SWING	-0.6		WR_COSUBA 269.0_1	SWING	-0.6
WR_COSUBA 269.0_7	SWING	-0.6		WR_COLBY 3 115_1	SWING	-1.8		WR_NEC U3 12.0_1	SWING	-1.9
WR_IOLA 269.0_1	SWING	-2.1		WR_IOLA 269.0_10	SWING	-2.1		WR_IOLA 269.0_2	SWING	-2.1
WR_IOLA 269.0_4	SWING	-2.1		WR_IOLA 269.0_5	SWING	-2.1		WR_IOLA 269.0_6	SWING	-2.1
WR_IOLA 269.0_7	SWING	-2.1		WR_IOLA 269.0_8	SWING	-2.1		WR_IOLA 269.0_9	SWING	-2.1
WR_CGENSUB269.0_1	SWING	-2.2		WR_CHANP3 269.0_09	SWING	-2.2		WR_CHANP3 269.0_10	SWING	-2.2
WR_CHANP3 269.0_11	SWING	-2.2		WR_CHANP3 269.0_12	SWING	-2.2		WR_CHANP3 269.0_13	SWING	-2.2
WR_ERIE 269.0_1	SWING	-2.2		WR_ERIE 269.0_2	SWING	-2.2		WR_ERIE 269.0_3	SWING	-2.2
WR_ERIE 269.0_4	SWING	-2.2		WR_ERIE 269.0_5	SWING	-2.2		WR_HEC GT1 13.8_1	SWING	-3.8
WR_HEC GT2 13.8_1	SWING	-3.8		WR_HEC GT3 13.8_1	SWING	-3.8		WR_HEC GT4 13.8_1	SWING	-3.8
WR_HEC U3 14.4_1	SWING	-3.8		WR_HEC U4 18.0_1	SWING	-3.8		WR_MCPH PLT12.5_1	SWING	-3.9
WR_MCPHGT1 13.8_1	SWING	-3.9		WR_MCPHGT2 13.8_1	SWING	-3.9		WR_MCPHGT3 13.8_1	SWING	-3.9
WR_MCPHGT4 13.8_1	SWING	-3.9		WR_AEC GT1 13.8_1	SWING	-4.1		WR_LEC U3 14.4_1	SWING	-4.1
WR_LEC U4 14.4_1	SWING	-4.1								

5. Conclusion

The SPP Regional Tariff participants were given the opportunity to include their units for redispatch in order to provide relief on the flowgates impacted by a certain transaction. A participant owning units that would relieve the flowgate impacted by the 150MW WFEC to EES transfer offered to participate in the redispatch of those units. The Customer declined the participants redispatch options/costs. No other options are available to provide the capacity needed for the 150MW transfer. Therefore the request for monthly service from WFEC to EES must be refused due to the impact on the La Cygne to Stillwell, La Cygne to West Gardner and the Kildare to Creswell, Woodring to Wichita flowgates.