



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2003-229
For Transmission Service
Requested By:
The Energy Authority***

From WR to KACY

***For a Reserved Amount Of
25 MW
From 09/30/03
To 10/01/03***

SPP Transmission Planning

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1. Executive Summary

The Energy Authority has requested a system impact study for daily firm transmission service from WR to KACY. The period of the transaction is from 09/30/03 to 10/01/03. The request is for reservation 602633 for the amount of 25 MW.

The 25 MW transaction from WR to KACY has impacts on flowgate LACWGRLACSTI, which is constrained for the period of the request. To provide the ATC necessary for this transfer, the impact of this request on these flowgates must be relieved.

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

After studying many scenarios using redispatch of unit pairs, there is a feasible solution to relieve the flowgates in question.

2. Introduction

The Energy Authority has requested an impact study for transmission service from WR to KACY.

There is one constrained flowgate that requires relief in order for this reservation to be accepted. The flowgate and explanation is as follows:

- LACWGRLACSTI: Lacygne to West Gardner 345 KV line for the loss of the Lacygne to Stillwell 345 KV line.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews curtailment of existing reservations 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 SPP ATC Calculator is used to determine response factors for the time period of the reservation.

B. Model Updates

The 2003 Southwest Power Pool 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 constraints for the transfer are identified. The response factor of the transfer on each constraint is also determined.

The product of the transfer amount and the response factor is the impact of a transfer on a limiting flowgate that must be relieved. With multiple flowgates affected by a transfer, relief of the largest impact may also provide relief of smaller impacts.

Using the NERC Generator Sensitivity Factor (GSF) Viewer, specific generator pairs are chosen to reflect the units available for redispatch. The quotient of the amount of impact that must be relieved and the generation sensitivity factor calculated by the Viewer is the amount of redispatch necessary to relieve the impact on the affected flowgate.

4. Study Results

After studying the impacts of request 602633, it was determined that one flowgate is constrained. Table 1 indicates the constrained flowgate, the percent impact reservation 602633 has on the flowgate, and the amount of relief that must be provided in order for reservation 602633 to be accepted.

Table 1

Flowgates	Sensitivity Numbers (%)	MW of relief required
LACWGRLACSTI	13.8	4

Table 2 provides a list of generator pairs that will relieve the LACWGRLACSTI flowgate.

Table 2

Source	Sink	Sensitivity Factor (%) For LACWGRLACSTI
WR_HEC GT4 13.8_1	KCPL_LAC G1 122.0_1	-51.9
WR_JEC U1 26.0_1	KCPL_LAC G1 122.0_1	- 56
WR_LEC U3 14.4_1	KCPL_LAC G1 122.0_1	- 57.6

Table 3 provides the amount of MWs needed for each unit to move in order to relieve 4 MWs off the LACWGRLACSTI flowgate.

Table 3

Source	Sink	Redispatch Needs (MW)
WR_HEC GT4 13.8_1	KCPL_LAC G1 122.0_1	8
WR_JEC U1 26.0_1	KCPL_LAC G1 122.0_1	8
WR_LEC U3 14.4_1	KCPL_LAC G1 122.0_1	7

5. Conclusion

Redispatch options were studied in effort to relieve the LACWGRACSTI flowgate. Based on these results, reservation 602633 will be accepted when Southwest Power Pool has received proof of a redispatch agreement between Western Resources and The Energy Authority concerning one of the relief options provided in this study.