



SPP

*Southwest
Power Pool*

System Impact Study

SPP-2003-230

For Transmission Service

Requested By:

***Southwestern Public Service
Company***

From SPS to WR

For a Reserved Amount Of

25 MW

From 01/01/04

To 06/01/04

SPP Transmission Planning

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1. Executive Summary

Southwestern Public Service Company has requested a system impact study for Monthly Firm transmission service from SPS to WR. The period of the transaction is from 01/01/04 to 06/01/04. The request is for reservation 602833 for the amount of 25 MW and is a redirect of original confirmed service 297076 from SPS to AMRN.

The 25 MW transaction from SPS to WR has created greater impacts on the JUDGRNSPEMUL flowgate. To provide the ATC 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 upgrades to the system that would relieve these flowgates.

After studying many scenarios using curtailment of reservations, there is a scenario that will relieve the flowgates in question.

2. Introduction

Southwestern Public Service Company has requested an impact study for transmission service from SPS to WR.

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

- JUDGRNSPEMUL: Judge Large to Greensburg 115 KV line for the loss of the Spearville to Mullergren 230 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 comparing impacts of original request 297076 and redirect request 602833, one flowgate remains unrelieved. The flowgate and associated amount of relief is as follows:

Table 1

Flowgates	Sensitivity Numbers (%)	MW of relief required
JUDGRNSPEMUL	5.2	2

Table 2 represents reservations that, if curtailed, would offer relief for the flowgate in question.

Table 2

Transaction Path	Sensitivity Numbers (%)	MW needed to be available for curtailment
SECI – WR	9.3	22
WPEK – WR	13.6	15
SECI – KCPL	8.9	23
WPEK – KCPL	13.9	15
WPEK – MPS	13.1	16
SECI – MPS	8.8	23
SPS - AMRN	-	-

Note: - represents an impact of less than five percent.

Table 3 represents the amount of relief offered by various generator pairs.

Table 3

Source Generator	Sink Generator	Sensitivity Numbers (%)	MW needed to be available for redispatch
Mullergen (WPEK)	Judson Large (WPEK)	-25.1	8
Mullergen (WPEK)	Haggard (WPEK)	-25.1	8
Gordon Evans (WR)	Judson Large (WPEK)	-21.5	9
Gordon Evans (WR)	Haggard (WPEK)	-21.5	9
Murray Gill (WR)	Haggard (WPEK)	-20.5	10
Murray Gill (WR)	Judson Large (WPEK)	-20.5	10

5. Conclusion

Reservation curtailment and generation redispatch options were studied in order to relieve the necessary constraint. The results of this study shows that the constraint on the flowgate in question could be relieved by executing one of the options described in the Study Results section of this document. Prior to the reservation being accepted, proof of one of these relief options must be presented to Southwest Power Pool.