



SPP

*Southwest
Power Pool*

System Impact Study

SPP-2003-059

For Transmission Service

Requested By:

***Southwestern Public Service
Company***

From OKGE to SPS

For a Reserved Amount Of

50 MW

From 03/1/03

To 1/1/04

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 OKGE to SPS. The period of the transaction is from 03/1/03 to 01/1/04. The request is for reservation 490302 for the amount of 50MW and is a redirect of original confirmed service 381168 from AMRN to SPS.

The 50MW transaction from OKGE to SPS has created new constraints on the DRAXFRDRAXFR and the LACSTILACWGR flowgates. To provide the ATC 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 upgrades to the system that would relieve these flowgates.

After studying many scenarios using redispatch and 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 OKGE to SPS.

There are two constrained flowgates that need relief in order for this reservation to be accepted. The flowgates and their explanations are as follows:

- The Draper 345/138 KV Transformer makes up the DRAXFRDRAXFR flowgate.
- The Lacygne to Stillwell, 345 KV line, is monitored for the loss of the Lacygne to West Gardner, 345 KV line. This makes up the LACSTILACWGR flowgate

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews redispatch and 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 381168 and redirect request 490302, two flowgates remain unrelieved. These flowgates with the amount that is needed to be relieved are as follows:

- DRAXFRDRAXFR (3.2 MW)
- LACSTILACWGR (3.2 MW)

The only flowgate that was able to be relieved using curtailment of reservations was the LACSTILACWGR flowgate. Since this was a new constraint, the total impact of the reservation on this flowgate had to be relieved. With a sensitivity factor of 0.063, the impact is as stated, 3.2 MW. In order to relieve this amount of constraint, a SPS to AMRN reservation would have to be curtailed by 49 MW, since the sensitivity factor of this particular reservation was 0.073 on this flowgate.

Note: This relief procedure will only be need through June 30, 2003 because of the Lacygne to Stillwell upgrade.

After running all generation scenarios, it was determined that there are two possible scenarios that will relieve the flowgate DRAXFRDRAXFR by 3 MW.

1. The Seminole Units would have to be decreased by 15 MW and the Mustang Units would have to be increased by 15 MW.
2. The Seminole Units would have to be decreased by 15 MW and the Horseshoe Units would have to be increased by 15 MW.

Both scenarios have 23 percent impact factors.

Note: The unit dispatch is only needed during March 1 through June 1 and October 1 through January 1.

5. Conclusion

Redispatch and curtailment options given by Southwestern Public Service Company were exhausted in this study to relieve the constraints necessary. The results of the study showed that the constraints on the flowgates in question could be relieved.