SPP Southwest Power Pool

System Impact Study
SPP-2004-045
For Transmission Service
Requested By:
Central and South West Services

From CSWS to CSWS

For a Reserved Amount Of
150 MW
From 06/01/04
To 10/01/04

SPP Transmission Planning

1. Executive Summary

Central and South West Services has requested a system impact study for monthly firm transmission service from CSWS to CSWS. The period of the transaction is from 06/01/04 to 10/1/04. The request is for reservation 648149 for the amount of 150 MW.

The 150 MW transaction from CSWS to CSWS has an impact on the following flowgates: FTSXFR500345, MUSCLAMUSRSS, NWTPATLYDVAL, and PITSEMPITSUN. To provide the ATC necessary for this transfer, the impact on these flowgates must be relieved.

After studying many scenarios using curtailment of reservations and generation redispatch, there are several feasible scenarios that will relieve that flowgates in question.

2. Introduction

Central and South West Services has requested a system impact study for transmission service from CSWS to CSWS.

There are four constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- FTSXFR500345: Fort Smith 500/161 XFR for the loss of the Fort Smith 500/345 XFR

- MUSCLAMUSRSS: Muskogee to Clarksville 345 KV line for the loss of the Muskogee to Riverside Station 345 KV line.

- NWTPATLYDVAL: North West Texarkana to Patterson 138 kV line for the loss of the Lydia to Valliant 345 kV line.

- PITSEMPITSUN: Pittsburg to Seminole 345 kV line for the loss of the Pittsburg to Sunnyside 345 kV line.

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 2004 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 648149, three flowgates require relief. The flowgates and associated amount of relief is as follows:

Table 1

Flowgates	Sensitivity (%)	Required Relief (MW)
FTSXFR500345	7.04	9
MUSCLAMUSRSS	8.3	10
NWTPATLYDVAL	8.13	11
PITSEMPITSUN	12	17

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

Table 2

Transactions Path	FTSXFR500345 Sensitivity (%)	MUSCLAMUSRSS Sensitivity (%)	NWTPATLYDVAL Sensitivity (%)	PITSEMPITSUN Sensitivity (%)
CSWS – ERCOTE	-	-	-	-
CSWS - AMRN	-	-	-	8.4
CSWS - EES	-	-	-	-
ERCOTE - EES	-	-	10.5	9.8

Table 3 represents generation redispatch options that would offer relief for the flowgates in question.

Table 3

Source	Sink	FTSXFR500345 Sensitivity (%)	MUSCLAMUSRSS Sensitivity (%)	NWTPATLYDVAL Sensitivity (%)	PITSEMPITSUN Sensitivity (%)
Flint Creek	Welsh	-11.4	-23.1	-15.5	-17.6
Flint Creek	Wilkes	-12.1	-22.9	-13.6	-16.4
Northeastern	Welsh	-12.6	-21.5	-13.9	-18.1
Northeastern	Wilkes	-11.9	-21.7	-15.8	-19.3
Tulsa	Welsh	-12.9	--24.1	-16.1	-19.5
Tulsa	Wilkes	-13.6	-23.9	-14.2	-18.3
SWS	Welsh	-10.6	-6.4	-15.4	-35.5
SWS	Wilkes	-9.9	-6.6	-17.3	-36.7

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. Before the Transmission Customer accepts the reservations, proof of one of these relief options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.