



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2007-025
For Transmission Service
Requested By:
American Electric Power***

From AEPW to AEPW

***For a Reserved Amount Of
50 MW
From 08/30/2007
To 08/31/2007***

SPP Transmission Planning

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1. Executive Summary

American Electric Power has requested a system impact study for daily firm transmission service from AEPW to AEPW. The period of the transaction is from 08/30/2007 to 08/31/2007. The request is for reservation 1335363 for the amount of 50 MW.

The 50 MW transaction from AEPW to AEPW has an impact on the following flowgates with no AFC: DANMAGANOFTS, FTSXFR500345, RUSDARANOFTS, FLCXFRFLCXFR, and MUSCLAMUSRSS. To provide the AFC 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 the flowgates in question.

2. Introduction

American Electric Power has requested a system impact study for transmission service from AEPW to AEPW.

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

- DANMAGANOFTS: Danville to Magazine 161 kV line for the loss of ANO to Fort Smith 500 kV line.
- FTSXFR500345: Fort Smith 500/161 kV transformer for the loss of Fort Smith 500/345 kV transformer.
- RUSDARANOFTS: Russellville to Dardanelle 161 kV line for the loss of ANO to Fort Smith 500 kV line.
- FLCXFRFLCXFR: Flint Creek 345/161 kV transformer for the loss of the second Flint Creek 345/161 kV transformer.
- MUSCLAMUSRSS: Muskogee to Clarksville 345 kV for the loss of Muskogee to Riverside 345 kV line

3. Study Methodology

A. Description

Southwest Power Pool used Managing and Utilizing System Transmission (MUST) to obtain possible unit pairings that would relieve the constraint. MUST calculates impacts on monitored facilities for all units within the Southwest Power Pool Footprint. The SPP ATC Calculator is used to determine response factors for the time period of the reservation.

B. Model Updates

The 2007 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 Managing and Utilizing System Transmission (MUST), 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 MUST is the amount of redispatch necessary to relieve the impact on the affected flowgate.

4. Study Results

After studying the impacts of request 1335363, five flowgates require relief. The flowgates the associated amount of relief are as follows:

Table 1

Flowgates	Sensitivity (%)	Duration	Required Relief (MW)
DANMAGANOFTS	5.3	August 30	3
FTSXFR500345	6.6	August 30	3
RUSDARANOFTS	8.4	August 30	4
FLCXFRFLCXFR	5.1	August 30	3
MUSCLAMUSRSS	17.0	August 30	9

Tables 2 and 3 display a list of generator pairs that are possible relief options for the flowgates in question.

Table 2

Source	Sink	DANMAGANOFTS Sensitivity (%)	FTSXFR500345 Sensitivity (%)	RUSDARANOFTS Sensitivity (%)
Fitzhugh	Fulton	9.0	30.0	32.0
Fitzhugh	Dolet Hills	8.0	28.0	32.0
Fitzhugh	Arsenal Hill	8.0	27.0	32.0
Fitzhugh	Lieberman	8.0	27.0	31.0
Weleetka	Fulton	7.0	19.0	10.0
Weleetka	Dolet Hills	6.0	19.0	10.0
Weleetka	Arsenal Hill	6.0	18.0	10.0
Weleetka	Lieberman	6.0	18.0	10.0

Table 3

Source	Sink	FLCXFRFLCXFR Sensitivity (%)	MUSCLAMUSRSS Sensitivity (%)
Flint Creek	NES	42.0	-
Flint Creek	TPS	40.0	-
Flint Creek	Weleetka	40.0	-
Flint Creek	SWS	40.0	-
Matson5	NES	34.0	-
Matson5	TPS	34.0	-
OEC	Fitzhugh	-	36.0
OEC	Kiowa	-	36.0
OEC	Welsh	-	32.0
OEC	Lonestar	-	32.0
OEC	Wilkes	-	32.0
NES	Fitzhugh	-	29.0
NES	Kiowa	-	29.0
TPS	Fitzhugh	-	29.0
TPS	Kiowa	-	29.0

Tables 4 and 5 display the amount of redispatch capacity necessary for each generator pair.

Table 4

Source	Sink	DANMAGANOFTS (MW)	FTSXFR500345 (MW)	RUSDARANOFTS (MW)
Fitzhugh	Fulton	33	10	13
Fitzhugh	Dolet Hills	38	11	13
Fitzhugh	Arsenal Hill	38	11	13
Fitzhugh	Lieberman	38	11	13
Weleetka	Fulton	43	16	40
Weleetka	Dolet Hills	50	16	40
Weleetka	Arsenal Hill	50	17	40
Weleetka	Lieberman	50	17	40

Table 5

Source	Sink	FLCXFRFLCXFR (MW)	MUSCLAMUSRSS (MW)
Flint Creek	NES	7	-
Flint Creek	TPS	8	-
Flint Creek	Weleetka	8	-
Flint Creek	SWS	8	-
Matison5	NES	9	-
Matison5	TPS	9	-
OEC	Fitzhugh	-	25
OEC	Kiowa	-	25
OEC	Welsh	-	28
OEC	Lonestar	-	28
OEC	Wilkes	-	28
NES	Fitzhugh	-	31
NES	Kiowa	-	31
TPS	Fitzhugh	-	31
TPS	Kiowa	-	31

5. Conclusion

Reservation curtailment and generation redispatch options were studied in order to relieve the necessary constraints. The results of this study shows that the constraints on the flowgates in question could be relieved by executing one or more of the options described in the Study Results section of this document. Before the Transmission Provider accepts the reservations, proof of the necessary relief options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.