



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2006-094
For Transmission Service
Requested By:
American Electric Power***

From AEPW to AEPW

***For a Reserved Amount Of
100 MW
From 08/18/06
To 08/19/06***

SPP Transmission Planning

1. EXECUTIVE SUMMARY	4
2. INTRODUCTION	6
3. STUDY METHODOLOGY.....	8
A. DESCRIPTION	8
B. MODEL UPDATES	8
C. TRANSFER ANALYSIS	8
4. STUDY RESULTS	10
5. CONCLUSION.....	16

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 08/18/2006 to 08/18/2006. The request is for reservation 1140082 for the amount of 100 MW.

The 100 MW transaction from AEPW to AEPW has an impact on the following flowgates with no AFC: ONEBANNESTUL, ONEBA1ONERSS, and PECXFRMUSFTS. 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 flowgate(s) in question.

2. Introduction

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

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

- ONEBANNESTUL: Oneta to Broken Arrow 138 kV line for the loss of Northeast Station to Tulsa 345 kV
- ONEBA1ONERSS: Oneta to Broken Arrow 138kV line for the loss of Oneta to Riverside 345 kV
- PECXFRMUSFTS: Pecan 345/161 kV XFR for the loss of Muskogee to Fort Smith 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 2005 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 1140082, three flowgates require relief. The flowgates and associated amount of relief is as follows:

Table 1

Flowgates	Sensitivity (%)	Duration	Required Relief (MW)
PECXFRMUSFTS	5.2	August 18	5.2
ONEBANNESTUL	8.9	August 18	8.9
ONEBA1ONERSS	11.6	August 18	11.6

Table 2 displays a list of generator pairs that are possible relief options for the flowgates in question.

Table 2

Source	Sink	ONEBANNESTUL Sensitivity (%)	ONEBA1ONERSS Sensitivity (%)	PECXFRMUSFTS Sensitivity (%)
Welsh (AEPW)	NES (AEPW)	2.7	1.8	2.4
Wilkes (AEPW)	NES (AEPW)	2.7	1.8	2.7
Wilkes (AEPW)	SWS (AEPW)	-	-	2.2
Welsh (AEPW)	SWS (AEPW)	-	-	2.0
Wilkes (AEPW)	RSS (AEPW)	-	-	2.5
TPS (AEPW)	Dolet Hills (AEPW)	7.5	6.8	-
TPS (AEPW)	Lieberman (AEPW)	7.0	7.0	-
TPS (AEPW)	Arsenal Hill (AEPW)	7.0	7.0	-
TPS (AEPW)	Pirkey (AEPW)	7.0	7.0	-
TPS (AEPW)	Welsh (AEPW)	7.0	6.8	-
TPS (AEPW)	Commanche (AEPW)	7.0	6.0	-
TPS (AEPW)	NES (AEPW)	10.1	6.1	-
RSS (AEPW)	Dolet Hills (AEPW)	5.0	5.0	-
RSS (AEPW)	Arsenal Hill (AEPW)	5.0	5.0	-
RSS (AEPW)	Pirkey (AEPW)	5.0	5.0	-
RSS (AEPW)	Knox Lee (AEPW)	5.0	5.0	-
RSS (AEPW)	Wilkes (AEPW)	5.0	5.0	-
RSS (AEPW)	NES (AEPW)	8.3	4.7	-
Weleetka (AEPW)	NES (AEPW)	-	-	4.4
Weleetka (AEPW)	RSS (AEPW)	-	-	4.3
Weleetka (AEPW)	SWS (AEPW)	-	-	4.0
Weleetka (AEPW)	TPS (AEPW)	-	-	4.0
Dolet Hills (AEPW)	Commanche (AEPW)	-	-	3.0
Dolet Hills (AEPW)	RSS (AEPW)	-	-	3.0

Table 3 displays the amount of redispatch capacity necessary for each generator pair.

Table 3

Source	Sink	ONEBANNESTUL Relief (MW)	ONEBA1ONERSS Relief (MW)	PECXFRMUSFTS Relief (MW)
Welsh (AEPW)	NES (AEPW)	330	644	217
Wilkes (AEPW)	NES (AEPW)	330	644	193
Wilkes (AEPW)	SWS (AEPW)	-	-	236
Welsh (AEPW)	SWS (AEPW)	-	-	260
Wilkes (AEPW)	RSS (AEPW)	-	-	208
TPS (AEPW)	Dolet Hills (AEPW)	119	170	-
TPS (AEPW)	Lieberman (AEPW)	127	166	-
TPS (AEPW)	Arsenal Hill (AEPW)	127	166	-
TPS (AEPW)	Pirkey (AEPW)	127	166	-
TPS (AEPW)	Welsh (AEPW)	127	170	-
TPS (AEPW)	Commanche (AEPW)	127	193	-
TPS (AEPW)	NES (AEPW)	88	190	-
RSS (AEPW)	Dolet Hills (AEPW)	178	232	-
RSS (AEPW)	Arsenal Hill (AEPW)	178	232	-
RSS (AEPW)	Pirkey (AEPW)	178	232	-
RSS (AEPW)	Knox Lee (AEPW)	178	232	-
RSS (AEPW)	Wilkes (AEPW)	178	232	-
RSS (AEPW)	NES (AEPW)	107	247	-
Weleetka (AEPW)	NES (AEPW)	-	-	118
Weleetka (AEPW)	RSS (AEPW)	-	-	121
Weleetka (AEPW)	SWS (AEPW)	-	-	130
Weleetka (AEPW)	TPS (AEPW)	-	-	130
Dolet Hills (AEPW)	Commanche (AEPW)	-	-	173
Dolet Hills (AEPW)	RSS (AEPW)	-	-	173

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 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.