SPP Southwest Power Pool

System Impact Study
SPP-2006-037
For Transmission Service
Requested By:
American Electric Power

From OKGE to AEPW

For a Reserved Amount Of
200 MW
From 05/01/06
To 06/01/06

SPP Transmission Planning

1. Executive Summary

American Electric Power has requested a system impact study for monthly firm transmission service from OKGE to AEPW. The period of the transaction is from 05/01/06 to 06/01/06. The request is for reservation 1055230 for the amount of 200 MW.

The 200 MW transaction from OKGE to AEPW has an impact on the following flowgates with no AFC: CRAASHVALLYD, HPPVALPITVAL, MANIPMDOLSWS, ONEBANNESTUL, and PECXFRMUSCLA. 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 five constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- CRAASHVALLYD: Craig Junction to Ashdown West 138 kV line for the loss of Valliant to Lydia 345 kV line

- HPPVALPITVAL: Hugo Power Plant to Valliant 138 kV for the loss of Pittsburg to Valliant 345 kV

- MANIPMDOLSWS: Mansfield to International Paper 138 kV line for the loss of Dolet Hills to S.W. Shreveport 345 kV line

- ONEBANNESTUL: Oneta to Broken Arrow 138 kV line for the loss of Northeast Station to Tulsa 345 kV

- PECXFRMUSCLA: Pecan 345/161 kV XFR for the loss of Muskogee to Clarksville 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 requests 1055230, five flowgates require relief. The flowgates and associated amount of relief is as follows:

Table 1

Flowgates	Sensitivity (%)	Duration	Required Relief (MW)
CRAASHVALLYD	7.5	May 2006	15
HPPVALPITVAL	6.5	May 2006	13
MANIPMDOLSWS	3.7	May 2006	8
ONEBANNESTUL	6.8	May 2006	14
PECXFRMUSCLA	3.7	May 2006	8

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

Table 2

Source	Sink	CRAASHVALLYD Sensitivity (%)	HPPVALPITVAL Sensitivity (%)	MANIPMDOLSWS Sensitivity (%)	ONEBANNESTUL Sensitivity (%)
Wilkes (AEPW)	SWS (AEPW)	16.5	14.9	6.3	-
Welsh (AEPW)	SWS (AEPW)	16.7	16	5.7	-
Welsh (AEPW)	NES (AEPW)	14.1	13.1	6.7	2.7
Wilkes (AEPW)	NES (AEPW)	13.9	11.9	7.3	2.7
Wilkes (AEPW)	RSS (AEPW)	14.5	12.4	7.1	-
RSS (AEPW)	NES (AEPW)	-	-	-	8.3
TPS (AEPW)	NES (AEPW)	-	-	-	10.1

Source	Sink	PECXFRMUSCLA Sensitivity (%)
NES (AEPW)	Welsh (AEPW)	4.0
NES (AEPW)	Wilkes (AEPW)	3.9
RSS (AEPW)	Wilkes (AEPW)	2.5
RSS (AEPW)	Welsh (AEPW)	2.5
NES (AEPW)	Knox Lee(AEPW)	3.8

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

Table 3

Source	Sink	CRAASHVALLYD Relief (MW)	HPPVALPITVAL Relief (MW)	MANIPMDOLSWS Relief (MW))	ONEBANNESTUL Relief (MW)
Wilkes (AEPW)	SWS (AEPW)	91	87	127	-
Welsh (AEPW)	SWS (AEPW)	90	81	140	-
Welsh (AEPW)	NES (AEPW)	106	99	119	519
Wilkes (AEPW)	NES (AEPW)	108	109	110	519
Wilkes (AEPW)	RSS (AEPW)	103	105	113	-
RSS (AEPW)	NES (AEPW)	-	-	-	169
TPS (AEPW)	NES (AEPW)	-	-	-	139

Source	Sink	PECXFRMUSCLA Relief (MW)
NES (AEPW)	Welsh (AEPW)	200
NES (AEPW)	Wilkes (AEPW)	205
RSS (AEPW)	Wilkes (AEPW)	320
RSS (AEPW)	Welsh (AEPW)	320
NES (AEPW)	Knox Lee(AEPW)	211

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.