SPP Southwest Power Pool

System Impact Study
SPP-2007-014
For Transmission Service
Requested By:
Western Farmers Electric Cooperative

From OKGE to WFEC

For a Reserved Amount Of
225 MW
From 06/01/07
To 08/31/07

1. Executive Summary

Western Farmers Electric Cooperative has requested a system impact study for monthly firm transmission service from OKGE to WFEC. The period of the transaction is from 06/01/2007 to 08/31/2007. The request is for reservation 1238165.

The 225 MW transaction from OKGE to WFEC has an impact on the following flowgates with no AFC: MIDFRNPHAWET and VALXFRVALXFR. To provide the AFC necessary for this transfer, the impact on these flowgates must be relieved.

After studying many scenarios using generation redispatch, there are several feasible scenarios that will relieve the flowgate(s) in question.

2. Introduction

Western Farmer Electric Cooperative has requested a system impact study for transmission service from OKGE to WFEC.

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

MIDFRNPHAWET: Midwest to Franklin Switch 138 kV line for the loss of Pharoah to Wetumka 138 kV line.

VALXFRVALXFR: Valliant 345/138 kV transformer for the loss of the second Valliant 345/138 kV transformer.

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 2006 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 the request, two flowgates require relief. The flowgates and associated amount of relief are as follows:

Table 1

Flowgates	Sensitivity (%)	Duration	Required Relief (MW)
MIDFRNPHAWET	7.0	June – August 2007	16
VALXFRVALXFR	17.1	June – August 2007	38

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

Table 2

Source	Sink	MIDFRNPHAWET Sensitivity (%)	VALXFRVALXFR Sensitivity (%)
SWS (AEPW)	Flintcreek (AEPW)	12.0	-
SWS (AEPW)	Arsenal Hill (AEPW)	12.0	-
SWS (AEPW)	Lieberman (AEPW)	12.0	-
SWS (AEPW)	Knoxlee (AEPW)	12.0	-
SWS (AEPW)	Lebrock (AEPW)	12.0	-
SWS (AEPW)	Pirkey (AEPW)	12.0	-
SWS (AEPW)	Wilkes (AEPW)	12.0	-
SWS (AEPW)	Lonestar (AEPW)	12.0	-
SWS (AEPW)	NES (AEPW)	12.0	-
SWS (AEPW)	TPS (AEPW)	12.0	-
SWS (AEPW)	RSS (AEPW)	12.0	-
Narrows (AEPW)	Welsh (AEPW)	-	15.0
Narrows (AEPW)	Lebrock (AEPW)	-	15.0
Narrows (AEPW)	Wilkes (AEPW)	-	15.0
Narrows (AEPW)	Knoxlee (AEPW)	-	15.0
Narrows (AEPW)	Kiowa (AEPW)	-	14.0

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

Table 3

Source	Sink	MIDFRNPHAWET Relief (MW)	VALXFRVALXFR Relief (MW)
SWS (AEPW)	Flintcreek (AEPW)	133	-
SWS (AEPW)	Arsenal Hill (AEPW)	133	-
SWS (AEPW)	Lieberman (AEPW)	133	-
SWS (AEPW)	Knoxlee (AEPW)	133	-
SWS (AEPW)	Lebrock (AEPW)	133	-
SWS (AEPW)	Pirkey (AEPW)	133	-
SWS (AEPW)	Wilkes (AEPW)	133	-
SWS (AEPW)	Lonestar (AEPW)	133	-
SWS (AEPW)	NES (AEPW)	133	-
SWS (AEPW)	TPS (AEPW)	133	-
SWS (AEPW)	RSS (AEPW)	133	-
Narrows (AEPW)	Welsh (AEPW)	-	253
Narrows (AEPW)	Lebrock (AEPW)	-	253
Narrows (AEPW)	Wilkes (AEPW)	-	253
Narrows (AEPW)	Knoxlee (AEPW)	-	253
Narrows (AEPW)	Kiowa (AEPW)	-	271

5. Conclusion

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.