SPP Southwest Power Pool

System Impact Study
SPP-2007-027
For Transmission Service
Requested By:
Oklahoma Municipal Power Authority

From McClain to WFEC

For a Reserved Amount Of
15 MW
From 11/01/2007
To 01/01/2008

SPP Transmission Planning

1. Executive Summary

Oklahoma Municipal Power Authority (OMPA) has requested a system impact study for monthly firm transmission service from McClain to WFEC. The period of the transaction is from 11/01/2007 to 01/01/2008. The request is for reservation 1365705 for the amount of 15 MW.

The 15 MW transaction from McClain to WFEC has an impact on the following flowgates with no AFC: VALXFRVALXFR and WELLYDWELNWT. 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

Oklahoma Municipal Power Authority has requested a system impact study for transmission service from McClain to WFEC.

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

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

- WELLYDWELNWT: Welsh to Lydia 345 kV line for the loss of the Welsh to Northwest Texarkana 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 1365705, two flowgates require relief. The flowgates and the associated amount of relief are as follows:

Table 1

Flowgates	Sensitivity (%)	Duration	Required Relief (MW)
VALXFRVALXFR	19.7	Nov, Dec 2007	3
WELLYDWELNWT	4.6	Nov, Dec 2007	1

Table 2 displays the SPA - WFEC path that offers relief for the constrained flowgates.

Table 2

Transaction	VALXFRVALXFR Sensitivity (%)	WELLYDWELNWT Sensitivity (%)
SPA – WFEC	18.4	14.7

Table 3 displays a list of generator pairs that are possible relief options for the flowgates in question.

Table 3

Source	Sink	VALXFRVALXFR Sensitivity (%)	WELLYDWELNWT Sensitivity (%)
Hugo1 (WFEC)	OMFAIRV2 (WFEC)	41	12
Hugo1 (WFEC)	OMLAVRN2 (WFEC)	41	12
Hugo1 (WFEC)	SLPBEAR4 (WFEC)	41	12
Hugo1 (WFEC)	MORLND1 (WFEC)	41	12
Hugo1 (WFEC)	MORLND1 (WFEC)	41	12
Hugo1 (WFEC)	MORLND1 (WFEC)	41	12
Hugo1 (WFEC)	OMMANGM2 (WFEC)	40	11
Hugo1 (WFEC)	BLUCAN14 (WFEC)	40	11
Hugo1 (WFEC)	ANADRK1 (WFEC)	40	11
Hugo1 (WFEC)	ANADRK 1-6 (WFEC)	40	11
Hugo1 (WFEC)	GENCO1_4 (WFEC)	40	11
Hugo1 (WFEC)	GENCO2_4 (WFEC)	40	11

Table 4 displays the amount of capacity required to relieve the constrained flowgates.

Table 4

Transaction	VALXFRVALXFR Curtailment Amount (MW)	WELLYDWELNWT Curtailment Amount (MW)
SPA – WFEC	16	7

Table 5 displays the amount of dispatch capacity necessary for each generator pair.

Table 5

Source	Sink	VALXFRVALXFR (MW)	WELLYDWELNWT (MW)
Hugo1 (WFEC)	OMFAIRV2 (WFEC)	7	8
Hugo1 (WFEC)	OMLAVRN2 (WFEC)	7	8
Hugo1 (WFEC)	SLPBEAR4 (WFEC)	7	8
Hugo1 (WFEC)	MORLND1 (WFEC)	7	8
Hugo1 (WFEC)	MORLND1 (WFEC)	7	8
Hugo1 (WFEC)	MORLND1 (WFEC)	7	8
Hugo1 (WFEC)	OMMANGM2 (WFEC)	8	9
Hugo1 (WFEC)	BLUCAN14 (WFEC)	8	9
Hugo1 (WFEC)	ANADRK1 (WFEC)	8	9
Hugo1 (WFEC)	ANADRK 1-6 (WFEC)	8	9
Hugo1 (WFEC)	GENCO1_4 (WFEC)	8	9
Hugo1 (WFEC)	GENCO2_4 (WFEC)	8	9

If a dispatch pair is used to provide relief, a source and sink must be available to respectively raise and lower generation by the MW amount listed in Table 5.

5. Conclusion

Reservation curtailment and generation redispatch options were studied in order to relieve the necessary constraints. The results of this study show 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.