System Impact Study
SPP-2017-045
For Transmission Service
Requested By:
WRGS

From SPS.SJUANWIND1 to EDDY

For a Reserved Amount Of
40 MW
From 11/04/2017
To 11/05/2017

1. Executive Summary

WRGS has requested a system impact study for daily firm transmission service from SPS.SJUANWIND1 to EDDY. The period of the transaction is from 11/04/2017 00:00 to 11/05/2017 00:00. The request is for reservation 85799824.

The 40 MW transaction from SPS.SJUANWIND1 has an impact on the following flowgates with no AFC: SPSNMTIES, PLXSUNTOLYOA and TOLPLXTOLPLX. 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

WRGS has requested a system impact study for transmission service from SPS.SJUAN1WIND1 to EDDY.

There are 3 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- SPSNMTIES: CROSSRDS – EDDY_CO 345 kV.
- PLXSUNTOLYOA: PLXSUB – SUNDOWN 230 kV for the loss of TOKSUB – YOAKUM 230 kV.
- TOLPLXTOLPLX: TOLKSUB – PLXSUB 230 kV Circuit 1 for the loss of TOLKSUB – PLXSUB 230 Circuit 2

3. Study Methodology

A. Description

Southwest Power Pool used Transmission Adequacy & Reliability Assessment (TARA) to obtain possible unit pairings that would relieve the constraint. TARA 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 2017 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 Transmission Adequacy & Reliability Assessment (TARA), 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 TARA 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

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5529:SPSNMTIES	11/4/2017 00:00 - 11/5/2017 00:00	89.63%	36
5591:PLXSUNTOLYOA	11/4/2017 00:00 - 11/5/2017 00:00	8.29%	3
5637:TOLPLXTOLPLX	11/4/2017 00:00 - 11/5/2017 00:00	3.93%	2

Table 2 displays a list of generator pairs that are possible relief options for each flowgates in question and the amount of redispatch capacity needed.

Table 2

5529:SPSNMTIES			
Increment	**Decrement**	**Sensitivity**	**MW**
Hobbs	Tolk	78.41%	46
Cuningham	Tolk	78.29%	46
Hobbs	Plant X	77.83%	46
Cuningham	Plant X	77.71%	46
Hobbs	Harrington	77.08%	47
Cuningham	Harrington	76.96%	47
Maddox	Tolk	68.28%	53
Maddox	Plant X	67.70%	53
Maddox	Harrington	66.96%	54

5591:PLXSUNTOLYOA			
Increment	**Decrement**	**Sensitivity**	**MW**
Mustang	Plant X	36.32%	8
Mustang	Tolk	32.98%	9
Maddox	Plant X	28.80%	10
Hobbs	Plant X	28.33%	11
Mustang	Harrington	27.58%	11
Maddox	Tolk	25.46%	12
Hobbs	Tolk	24.98%	12
Maddox	Harrington	20.06%	15
Hobbs	Harrington	19.58%	15

5637:TOLPLXTOLPLX			
Increment	**Decrement**	**Sensitivity**	**MW**
Nichols	Tolk	55.55%	4
Blackhawk	Tolk	54.92%	4
Holcomb	Tolk	50.17%	4
Nichols	Antelope	16.40%	12
Blackhawk	Antelope	15.77%	13
Nichols	Massengale	14.30%	14
Blackhawk	Massengale	13.67%	15
Holcomb	Antelope	11.01%	18
Holcomb	Massengale	8.92%	22

5. Conclusion

Generation redispatch (and reservation curtailment) 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.