SPP Southwest Power Pool

System Impact Study
SPP-2016-024
For Transmission Service
Requested By:
WRGS

From SPS to EDDY

For a Reserved Amount Of
50 MW
For 8/1/2016 – 8/8/2016

1. Executive Summary

WRGS has requested a system impact study for monthly firm transmission service from SPS to EDDY. The period of the transaction is from 8/1/2016 00:00 CDT to 8/8/2016 00:00 CDT. The request is for reservation 83084751.

The 50 MW transaction from SPS has an impact on the following flowgates with no AFC: SPSNORTHSOUTH, OSGCANBUSDEA, SPSNMTIES, HARPOTHARROL, and CARLPDLUBWOL. 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 to EDDY.

There are 5 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- SPSNORTH_STH: SPS North to South interface stability limit.

- OSGCANBUSDEA: Osage to Canyon East 115kV FTLO Bushland to Deafsmith 230kV

- SPSNMTIES: SPS to New Mexico interface limit

- HARPOTHARROL: Harrington East to Potter County 230kV FTLO Harrington West to Rolling Hills 230kV

- CARLPDLUBWOL: Carlisle to LP-Doud Tp 115kV FTLO Lubbock South to Wolfforth 230kV

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 2016 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	Impact
5056:CARLPDLUBWOL	8/1/2016-8/8/2016	10.28%	5
5196:SPSNORTH_STH	8/1/2016-8/8/2016	26.71%	13
5371:OSGCANBUSDEA	8/1/2016-8/8/2016	5.98%	3
5477:HARPOTHARROL	8/1/2016-8/8/2016	7.78%	4
5529:SPSNMTIES	8/1/2016-8/8/2016	69.79%	35

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

Table 2

5196:SPSNORTH_STH			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
Plant X	Harrington	81.52%	16
Tolk	Harrington	80.23%	16
Cunningham	Harrington	78.69%	17
Plant X	Nichols	81.49%	16
Tolk	Nichols	80.20%	16
Cunningham	Nichols	78.66%	17
Plant X	Blackhawk	78.56%	17
Tolk	Blackhawk	77.27%	17
Cunningham	Blackhawk	75.73%	17
5371:OSGCANBUSDEA			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
Plant X	Nichols	12.67%	24
Tolk	Nichols	12.43%	24
Cunningham	Nichols	11.90%	25
Plant X	Harrington	12.04%	25
Tolk	Harrington	11.80%	25
Cunningham	Harrington	11.27%	27
Plant X	Blackhawk	11.82%	25
Tolk	Blackhawk	11.58%	26
Cunningham	Blackhawk	11.06%	27

5477:HARPOTHARROL			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
Holcomb	Harrington	47.86%	8
S2	Harrington	47.83%	8
Rubart	Harrington	47.68%	8
Holcomb	Nichols	47.04%	9
S2	Nichols	47.01%	9
Rubart	Nichols	46.86%	9
Holcomb	Blackhawk	32.99%	12
S2	Blackhawk	32.96%	12
Rubart	Blackhawk	32.81%	12
5529:SPSNMTIES			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
Hobbs	Tolk	79.76%	44
Cunningham	Tolk	79.66%	44
Maddox	Tolk	70.00%	50
Hobbs	Plant X	79.20%	44
Cunningham	Plant X	79.10%	44
Maddox	Plant X	69.46%	50
Hobbs	Harrington	78.44%	45
Cunningham	Harrington	78.34%	45
Maddox	Harrington	68.70%	51
5056:CARLPDLUBWOL			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
Mustang	Massengale	32.88%	15
Maddox	Massengale	28.84%	17
Hobbs	Massengale	28.83%	17
Mustang	Jones	32.51%	15
Maddox	Jones	28.46%	18
Hobbs	Jones	28.45%	18
Mustang	Antelope	28.48%	18
Maddox	Antelope	24.44%	20
Hobbs	Antelope	24.43%	20
5057:SUNXFRUNAMO			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
Mustang	Jones	21.09%	9
Maddox	Jones	17.02%	12
Hobbs	Jones	17.01%	12

Mustang	Massengale	20.75%	10
Maddox	Massengale	16.68%	12
Hobbs	Massengale	16.67%	12
Mustang	Antelope	17.96%	11
Maddox	Antelope	13.89%	14
Hobbs	Antelope	13.88%	14

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, agreement to the redispatch costs must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.