



SPP *Southwest
Power Pool*

***System Impact Study
SPP-2024-033
For Transmission Service
Requested By:
UGPM***

From NPPD.ELKHNWIND to EWA

***For a Reserved Amount Of
3 MW***

***From 05/08/2024
To 06/01/2024***

1. Executive Summary

UGPM has requested a system impact study for weekly firm transmission service from NPPD.ELKHNWIND to EWA. The period of the transaction is from 05/08/2024 00:00 to 06/01/2024 00:00. The request is for reservation 1025600625.

The 3 MW transaction from NPPD.ELKHNWIND has an impact on the following flowgate(s) with no AFC: RAUFTCBVRGRI, SCOVICSTESTG, FTTXFRFTTXFR. 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

UGPM has requested a system impact study for transmission service from NPPD.ELKHNDWIND to EWA.

There are three constrained flowgates that require relief for this reservation to be accepted. The flowgates and their explanations are as follows:

- RAUFTCBVRGRI: Raun – Sub 3451 345 kV for the loss of Grimes – Beaver Creek 345 kV.
- SCOVICSTESTG: Scott Bluff – Victory Hill 115 kV for the loss of Stegall 345/230/13.8 kV XFMR.
- FTTFXFRFTTFXFR: Ft. Thompson 345/230/13.8 kV XFMR Ckt 2 for the loss of the Ft. Thompson 345/230/13.8 kV XFMR Ckt 1

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 2024 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, three flowgates require relief. The flowgates and associated amount of relief are as follows:

Table 1

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5143:RAUFTCBVRGRI	5/8/2024 00:00 - 6/1/2024 00:00	6.27%	0.19
5700:SCOVICSTESTG	5/8/2024 00:00 - 6/1/2024 00:00	3.58%	0.11
5701:FTTXFRFTTXFR	5/15/2024 00:00 - 6/1/2024 00:00	6.27%	0.19

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

5143:RAUFTCBVRGRI			
Increment	Decrement	Sensitivity	MW
N OMA 3G	LELAND_2-BEG	25.36%	0.75
CASS 1G	LELAND_2-BEG	23.08%	0.82
LES_CBLUF4	LELAND_2-BEG	23.04%	0.82
N OMA 3G	LRS_1-MBG	15.85%	1.20
N OMA 3G	GENTLM1G	14.18%	1.34
CASS 1G	LRS_1-MBG	13.57%	1.40
LES_CBLUF4	LRS_1-MBG	13.53%	1.40
CASS 1G	GENTLM1G	11.91%	1.60
LES_CBLUF4	GENTLM1G	11.87%	1.60

5700:SCOVICSTESTG			
Increment	Decrement	Sensitivity	MW
N OMA 3G	LRS_1-MBG	12.60%	0.87
LES_CBLUF4	LRS_1-MBG	12.60%	0.87
CASS 1G	LRS_1-MBG	12.51%	0.88
N OMA 3G	GENTLM1G	4.37%	2.52
LES_CBLUF4	GENTLM1G	4.37%	2.52
CASS 1G	GENTLM1G	4.28%	2.57

5701:FTTXFRFTTXFR			
Increment	Decrement	Sensitivity	MW
N OMA 3G	LELAND_2-BEG	25.52%	0.74
LES_CBLUF4	LELAND_2-BEG	25.44%	0.75
CASS 1G	LELAND_2-BEG	25.22%	0.75
N OMA 3G	GENTLM1G	2.05%	9.28
LES_CBLUF4	GENTLM1G	1.96%	9.69
CASS 1G	GENTLM1G	1.74%	10.92

5. Conclusion

Generation redispatch options were studied to relieve the necessary constraint(s). The results of this study show that the constraints on the flowgate(s) in question could be relieved by executing one or more of the options described in the Study Results section of this document.