



**SPP** *Southwest  
Power Pool*

***System Impact Study  
SPP-2024-036  
For Transmission Service  
Requested By:  
UGPM***

***From NPPD.ELKHNWND to EWA***

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

***From 06/01/2024  
To 11/01/2024***

## **1. Executive Summary**

UGPM has requested a system impact study for monthly firm transmission service from NPPD.ELKHNWND to EWA. The period of the transaction is from 06/01/2024 00:00 to 11/01/2024 00:00. The request is for reservation 102574394.

The 3 MW transaction from NPPD.ELKHNWND has an impact on the following flowgate(s) with no AFC: STEGALLXFMR, FTTXFRFTTXFR. To provide the AFC necessary for this transfer, the impact on these flowgate(s) 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.ELKHNWND to EWA.

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

- STEGALLXFMR: Stegall 345/230/13.8 kV XFMR.
- FTTFRFTTFR: 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, two flowgates require relief. The flowgates and associated amount of relief are as follows:

**Table 1**

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5569:STEGALLXFMR	9/1/2024 00:00 - 11/1/2024 00:00	3.82%	0.11
5701:FTTXFRFTTXFR	6/1/2024 00:00 - 11/1/2024 00:00	5.45%	0.16

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**

5569:STEGALLXFMR			
Increment	Decrement	Sensitivity	MW
BIGSTON JOU	GENTLM1G	8.03%	1.37
K223SIOU-NI8	GENTLM1G	7.10%	1.55
N OMA 3G	GENTLM1G	5.79%	1.90
BIGSTON JOU	HOLCGEN1	4.45%	2.47
BIGSTON JOU	EGYCTR2G	3.76%	2.92
K223SIOU-NI8	HOLCGEN1	3.52%	3.12
K223SIOU-NI8	EGYCTR2G	2.84%	3.88
N OMA 3G	HOLCGEN1	2.21%	4.99
N OMA 3G	EGYCTR2G	1.52%	7.24

5701:FTTXFRFTTXFR			
Increment	Decrement	Sensitivity	MW
K223SIOU-NI8	EGYCTR2G	8.32%	1.92
K223SIOU-NI8	GENTLM1G	7.05%	2.27
K223SIOU-NI8	HOLCGEN1	6.58%	2.43
N OMA 3G	EGYCTR2G	3.33%	4.81
BIGSTON JOU	EGYCTR2G	3.08%	5.19
N OMA 3G	GENTLM1G	2.05%	7.82
BIGSTON JOU	GENTLM1G	1.80%	8.88
N OMA 3G	HOLCGEN1	1.58%	10.13
BIGSTON JOU	HOLCGEN1	1.34%	11.99

## **5. Conclusion**

Generation redispatch options were studied 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.