



**SPP** *Southwest  
Power Pool*

***System Impact Study  
SPP-2023-023  
For Transmission Service  
Requested By:  
TNSK***

***From SPRM\_SPRM to SPA***

***For a Reserved Amount Of  
25 MW***

***From 03/01/2023  
To 03/08/2023***

## **1. Executive Summary**

TNSK has requested a system impact study for weekly firm transmission service from SPRM\_SPRM to SPA. The period of the transaction is from 03/01/2023 00:00 to 03/08/2023 00:00. The request is for reservation 99152921.

The 25 MW transaction from SPRM\_SPRM has an impact on the following flowgate(s) with no AFC: TAHH59MUSFTS. To provide the AFC necessary for this transfer, the impact on this flowgate 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**

TNSK has requested a system impact study for transmission service from SPRM\_SPRM to SPA.

There is one constrained flowgate that requires relief for this reservation to be accepted. The flowgate and its explanation is as follows:

- TAHH59MUSFTS: Talequah – Highway 59 161 kV for the loss of Muskogee – Ft. Smith 345 kV.

### **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 2023 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 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, one flowgate requires relief. The flowgate and associated amount of relief is as follows:

**Table 1**

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5223:TAHH59MUSFTS	3/1/2023 00:00 - 3/8/2023 00:00	4.03%	1.01

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**

5223:TAHH59MUSFTS			
Increment	Decrement	Sensitivity	MW
1CROSSRDS G1	GRDA17-1	6.28%	16.10
EDE_1PLUMPT	GRDA17-1	5.87%	17.22
1CROSSRDS G1	MUSKOG5G	5.77%	17.50
1CROSSRDS G1	OECGT1-1	5.61%	17.99
EDE_1PLUMPT	MUSKOG5G	5.36%	18.83
EDE_1PLUMPT	OECGT1-1	5.21%	19.40
ARSHILL1	GRDA17-1	5.15%	19.60
ARSHILL1	MUSKOG5G	4.65%	21.73
ARSHILL1	OECGT1-1	4.49%	22.49

## **5. Conclusion**

Generation redispatch options were studied in order to relieve the necessary constraint(s). The results of this study shows 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.