



SPP *Southwest
Power Pool*

**System Impact Study
SPP-2022-117
For Transmission Service
Requested By:
TEA**

From BEPC.HANCOCK to MEC

***For a Reserved Amount Of
50 MW***

***From 06/20/2022
To 06/24/2022***

1. Executive Summary

TEA has requested a system impact study for daily firm transmission service from BEPC.HANCOCK to MEC. The period of the transaction is from 06/20/2022 00:00 to 06/24/2022 00:00. The request is for reservation 97103602.

The 50 MW transaction from BEPC.HANCOCK has an impact on the following flow gates with no AFC: RAUFTCBV RGRI, NEBS56S40S55. To provide the AFC necessary for this transfer, the impact on these flow gates must be relieved.

After studying many scenarios using generation redispatch, there are several feasible scenarios that will relieve the flow gate(s) in question.

2. Introduction

TEA has requested a system impact study for transmission service from BEPC.HANCOCK to MEC.

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

- RAUFTCBVRGRI: Raun – Sub 3451 345kV for the loss of Grimes – Beaver Creek 345 kV.
- NEBS56S40S55: Nebraska City – Sub 3456 345 kV for the loss of Sub 3740 – Sub 3455 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 2022 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 flow gate that must be relieved. With multiple flow gates 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 flow gate.

4. Study Results

After studying the impacts of the request, two flow gates require relief. The flow gates and associated amount of relief are as follows:

Table 1

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5143:RAUFTCBVRGRI	6/22/2022 00:00 - 6/24/2022 00:00	8.80%	4.4
5508:NEBS56S40S55	6/12/2022 14:00 - 6/12/2022 23:00	3.10%	1.55

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

Table 2

5143:RAUFTCBVRGRI			
Increment	Decrement	Sensitivity	MW
LES_CBLUF3	Wisdom 2	28.59%	15.39
LES_CBLUF3	Spirit 2	26.93%	16.34
Sheldon 2	Wisdom 2	22.09%	19.91
Sheldon 2	Spirit 2	20.43%	21.54

5508:NEBS56S40S55			
Increment	Decrement	Sensitivity	MW
LES_CBLUF3	CASS 1G	45.70%	3.39
Rokeby 2	CASS 1G	26.61%	5.83
Sheldon 2	CASS 1G	25.13%	6.17

5. Conclusion

Generation redispatch options were studied in order to relieve the necessary constraints. The results of this study show s that the constraints on the flow gates 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.