System Impact Study
SPP-2023-047
For Transmission Service
Requested By:
TEA

From CSWS.EASTMAN to ERCOTE

For a Reserved Amount Of
100 MW
From 06/20/2023
To 06/24/2023

1. Executive Summary

TEA has requested a system impact study for daily firm transmission service from CSWS.EASTMAN to ERCOTE. The period of the transaction is from 06/20/2023 00:00 to 06/24/2023 00:00. The request is for reservation 100039322.

The 100 MW transaction from CSWS.EASTMAN has an impact on the following flowgates with no AFC: SABSEMPIRDIA, PSOSWEPCOTIE, PITVALSUNHUG. 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

TEA has requested a system impact study for transmission service from CSWS.EASTMAN to ERCOTE.

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

- SABSEMPIRDIA: Sabin Mining – S.E. Marshall 138kV for the loss of Pirkey – Diana 345kV.

- PSOSWEPCOTIE: PSO – SWEPCO Tie.

- PITVALSUNHUG: Pittsburg – Valiant 345kV for the loss of Sunnyside – Hugo 345kV.

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 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)
5212:SABSEMPIRDIA	6/20/2023 00:00 - 6/24/2023 00:00	16.32%	16.32
5578:PSOSWEPCOTIE	6/20/2023 00:00 - 6/24/2023 00:00	4.61%	4.61
5661:PITVALSUNHUG	6/22/2023 00:00 - 6/23/2023 00:00	3.13%	3.13

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

Table 2

5212:SABSEMPIRDIA			
Increment	**Decrement**	**Sensitivity**	**MW**
KIOWA S1	LEBROC	17.60%	92.72

5578:PSOSWEPCOTIE			
Increment	**Decrement**	**Sensitivity**	**MW**
LIEBR3-1	COM2-1	77.76%	5.93
LIEBR3-1	SEMINL2G	77.31%	5.96
FULTONU1 1	COM2-1	62.01%	7.43
FULTONU1 1	SEMINL2G	61.57%	7.49

5661:PITVALSUNHUG			
Increment	**Decrement**	**Sensitivity**	**MW**
FULTONU1 1	SEMINL2G	40.69%	7.69
FULTONU1 1	COM2-1	38.84%	8.06
LIEBR3-1	SEMINL2G	37.64%	8.32
LIEBR3-1	COM2-1	35.78%	8.75

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.