



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2017-005
For Transmission Service
Requested By:
TEA***

From NPPD.GGS.1 to MEC

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

For 4/1/2017 – 6/1/2017

1. Executive Summary

TEA has requested a system impact study for monthly firm transmission service from NPPD.GGS.1 to MEC. The period of the transaction is from 4/1/2017 00:00 CDT to 6/1/2017 00:00 CDT. The request is for reservations 84401239 and 84401248.

The 50 MW transaction from NPPD has an impact on the following flowgates with no AFC: NEBS56S40S55 and GRIS_LNC. 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 NPPD.GGS.1 to MEC.

There are 2 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanation follows:

- NEBS56S40S55: Nebraska City – Sub 3456 345 kV for the loss of Sub 3740
– Sub 3455 345 kV
- GRIS_LNC: Grand Island – Lincoln interface

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 2017 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 follows:

Table 1

Flowgate	Duration	Sensitivity	Impact
5508:NEBS56S40S55	4/1/2017 - 6/1/2017	15.4%	5
6008:GRIS_LNC	4/1/2017 - 6/1/2017	19.1%	3

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

5508:NEBS56S40S55			
Increment	Decrement	Sensitivity	Redispatch
Sarpy	Nebraska City	46.3%	11
Sarpy	Cass County	46.3%	11
North Omaha	Nebraska City	46.0%	11
North Omaha	Cass County	46.0%	11
Jones	Nebraska City	45.8%	11
Jones	Cass County	45.8%	11
Sarpy	Lake Road	28.6%	17
North Omaha	Lake Road	28.3%	18
Jones	Lake Road	28.2%	18

6008:GRIS_LNC			
Increment	Decrement	Sensitivity	Redispatch
Sheldon	Canaday	56.4%	5
Rokeby	Canaday	56.3%	5
Sheldon	Whelan EC	55.6%	5
Rokeby	Whelan EC	55.5%	5
Sheldon	Gentleman	53.4%	6
Rokeby	Gentleman	53.2%	6
Beatrice	Canaday	52.6%	6
Nebraska City	Canaday	52.6%	6
Beatrice	Whelan EC	51.8%	6
Nebraska City	Whelan EC	51.8%	6
Beatrice	Gentleman	49.5%	6
Nebraska City	Gentleman	49.5%	6

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. Before the Transmission Provider accepts the reservations, agreement to the redispatch costs must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.