



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2017-032
For Transmission Service
Requested By:
TEA***

From NPPD.GGS.2 to MEC

***For a Reserved Amount Of
50 MW
From 10/01/17
To 01/01/18***

SPP Transmission Planning

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1. Executive Summary

TEA has requested a system impact study for monthly firm transmission service from NPPD.GGS.2 to MEC. The period of the transaction is from 10/1/2017 to 1/1/2018. The request is for reservation 85310169 for the amount of 50 MW.

The 50 MW transaction from NPPD to MEC has an impact on the following flowgates with no AFC: NEBS56S40S55, SWEGRISWEEXT, 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 3 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- NEBS56S40S55: Nebraska City – Sub 3456 345 kV for the loss of Sub 3740 – Sub 3455 345 kV
- SWEGRISWEEXT: Grand Island – Sweetwater 345 kV for the loss of Sweetwater – Axtell 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 request 85310169, 3 flowgates require relief. The flowgates and associated amount of relief is as follows:

Table 1

Flowgate	Duration	Sensitivity	Impact
5508:NEBS56S40S55	10/1/2017 00:00 - 1/1/2018 00:00	13.87%	7
5530:SWEGRISWEEXT	10/1/2017 00:00 - 1/1/2018 00:00	20.93%	2
6008:GRIS_LNC	10/1/2017 00:00 - 1/1/2018 00:00	25.04%	5

Table 2 displays a list of reservation paths that offer relief for the flowgates in question.

Table 2

5508:NEBS56S40S55			
Increment	Decrement	Sensitivity	Redispatch
Sarpy	Nebraska City	46.39%	15
Sarpy	Case County	46.38%	15
North Omaha	Nebraska City	46.07%	15
North Omaha	Case County	46.07%	15
Jones	Nebraska City	45.90%	15
Jones	Case County	45.90%	15
Sarpy	Lake Road	28.44%	25
North Omaha	Lake Road	28.13%	25
Jones	Lake Road	27.96%	25

5530:SWEGRISWEEXT			
Increment	Decrement	Sensitivity	Redispatch
Nplatte	Gentleman	47.53%	4
Whelan EC	Gentleman	45.67%	4
Sheldon	Gentleman	44.64%	4
Nplatte	Laramie	39.82%	5
Whelan EC	Laramie	37.96%	5
Sheldon	Laramie	36.93%	5
Nplatte	Canaday	19.30%	10
Whelan EC	Canaday	17.44%	11
Sheldon	Canaday	16.41%	12

6008:GRIS_LNC			
Increment	Decrement	Sensitivity	Redispatch
Sheldon	Canaday	57.38%	9
Sheldon	Whelan EC	56.89%	9
Nebraska City	Canaday	54.07%	9
Sheldon	Gentleman	54.00%	9
Sarpy	Canaday	53.91%	9
Nebraska City	Whelan EC	53.58%	9
Sarpy	Whelan EC	53.42%	9
Nebraska City	Gentleman	50.70%	10
Sarpy	Gentleman	50.53%	10

5. Conclusion

Generation redispatch options were studied in order to relieve the necessary constraint. 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.