



SPP *Southwest
Power Pool*

***System Impact Study
SPP-2018-010
For Transmission Service
Requested By:
DCT***

From OPPD to MEC

***For a Reserved Amount Of
50 MW
From 01/22/2018
To 02/05/2018***

1. Executive Summary

DCT has requested a system impact study for weekly firm transmission service from OPPD to MEC. The period of the transaction is from 01/22/2018 00:00 to 02/05/2018 00:00. The request is for reservation 86174028.

The 50 MW transaction from KCPL has an impact on the following flowgates with no AFC: IATSTRNASHAW, NEBS56S40S55 and COOPER_S. 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

DCT has requested a system impact study for transmission service from OPPD 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:

- IATSTRNASHAW: Iatan – Stranger 345 kV for the loss of the Nashua - Hawthorn 345 kV
- NEBS56S40S55: Nebraska City – Sub 3456 345 kV for the loss of Sub 3740 – Sub 3455 345 kV
- COOPER_S: Fairport to Cooper to St. Joe 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 2018 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)
5228:IATSTRNASHAW	1/22/2018 00:00 - 2/5/2018 00:00	3.79%	2
5508:NEBS56S40S55	1/22/2018 00:00 - 2/5/2018 00:00	35.41%	17
6009:COOPER_S	1/22/2018 00:00 - 2/5/2018 00:00	10.98%	5

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

5228:IATSTRNASHAW			
Increment	Decrement	Sensitivity	MW
Lawrence Energy Center	latan	64.94%	3
Emporia Energy Center	latan	59.73%	3
McPherson	latan	56.20%	4
Lawrence Energy Center	Lake Road	50.89%	4
Emporia Energy Center	Lake Road	45.69%	4
McPherson	Lake Road	42.15%	5
Lawrence Energy Center	Cass County	31.63%	6
Emporia Energy Center	Cass County	26.43%	8
McPherson	Cass County	22.89%	9

5508:NEBS56S40S55			
Increment	Decrement	Sensitivity	MW
Sarpy	Cass County	46.29%	37
North Omaha	Cass County	45.97%	37
Stateline	Cass County	45.97%	37
Sarpy	Lake Road	28.37%	60
North Omaha	Lake Road	28.04%	61
Stateline	Lake Road	28.04%	61
Sarpy	latan	28.00%	61
North Omaha	latan	27.68%	61
Stateline	latan	27.68%	61

6009:COOPER_S			
Increment	Decrement	Sensitivity	MW
Hawthorn	Cass County	38.74%	13
Nearman	Cass County	38.66%	13
Quindaro	Cass County	38.61%	13
Hawthorn	Rokeby	38.00%	13
Nearman	Rokeby	37.92%	13
Quindaro	Rokeby	37.87%	13
Hawthorn	Sheldon	37.85%	13
Nearman	Sheldon	37.78%	13
Quindaro	Sheldon	37.73%	13

5. Conclusion

Generation redispatch (and reservation curtailment) 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, 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.