System Impact Study
SPP-2018-004
For Transmission Service
Requested By:
DCT

From OPPD to MEC

For a Reserved Amount Of
50 MW
From 01/12/2018
To 01/15/2018

1. Executive Summary

DCT has requested a system impact study for daily firm transmission service from OPPD to MEC. The period of the transaction is from 01/12/2018 00:00 to 01/15/2018 00:00. The request is for reservation 86175299.

The 50 MW transaction from OPPD has an impact on the following flowgates with no AFC: NEBS56S40S55, COPSTJCPFRSJ, 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:

- NEBS56S40S55: Nebraska City – Sub 3456 345 kV for the loss of Sub 3740 – Sub 3455 345 kV

- COPSTJCPFRSJ: Cooper – St. Joe 345 kV for the loss of St. Joe to Fairport to Cooper 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)
5508:NEBS56S40S55	1/12/2018 00:00 - 1/15/2018 00:00	34.17%	17
5566:COPSTJCPFRSJ	1/12/2018 18:00 - 1/15/2018 00:00	7.11%	4
6009:COOPER_S	1/12/2018 00:00 - 1/15/2018 00:00	9.51%	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

5508:NEBS56S40S55			
Increment	**Decrement**	**Sensitivity**	**MW**
Walter Scott	Cass County	47.33%	36
Sarpy	Cass County	46.29%	37
North Omaha	Cass County	45.97%	37
Sarpy	Lake Road	28.37%	60
North Omaha	Lake Road	28.04%	61
Sarpy	Iatan	28.00%	61
North Omaha	Iatan	27.68%	61

5566:COPSTJCPFRSJ			
Increment	**Decrement**	**Sensitivity**	**MW**
Quindaro	Cass County	31.77%	13
Hawthorn	Cass County	31.68%	13
Sibley	Cass County	30.09%	13
Quindaro	Rokeby	31.09%	13
Hawthorn	Rokeby	30.99%	13
Sibley	Rokeby	29.41%	14
Quindaro	Sheldon	30.93%	13
Hawthorn	Sheldon	30.84%	13
Sibley	Sheldon	29.26%	14

6009:COOPER_S			
Increment	**Decrement**	**Sensitivity**	**MW**
Hawthorn	Cass County	38.74%	13
Quindaro	Cass County	38.61%	13
Sibley	Cass County	37.38%	13
Hawthorn	Rokeby	38.00%	13
Quindaro	Rokeby	37.87%	13
Sibley	Rokeby	36.64%	14
Hawthorn	Sheldon	37.85%	13
Quindaro	Sheldon	37.73%	13
Sibley	Sheldon	36.50%	14

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.