System Impact Study
SPP-2025-007
For Transmission Service
Requested By:
OPPM

From OPPD to NPPD.OPPD.LDX

For a Reserved Amount Of
7 MW

From 06/01/2025
To 10/01/2025

1. Executive Summary

OPPM has requested a system impact study for monthly firm transmission service from OPPD to NPPD.OPPD.LDX. The period of the transaction is from 06/01/2025 00:00 to 10/01/2025 00:00. The request is for reservation 105223675.

The 7 MW transaction from OPPD has an impact on the following flowgate(s) with no AFC: SIOTWIRAUHOS, COPSTJCPFRSJ, BEAHARCRESHE. To provide the AFC necessary for this transfer, the impact on these flowgate(s) 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

OPPM has requested a system impact study for transmission service from OPPD to NPPD.OPPD.LDX.

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

- SIOTWIRAUHOS: Sioux City – Twin Church 230 kV for the loss of the Raun – Hoskins 345kV

- COPSTJCPFRSJ: Cooper – St. Joe 345 kV for the loss of St. Joe to Fairport to Cooper 345 kV

- BEAHARCRESHE: Beatrice – Harbine 115kV for the loss of Crete – Sheldon 115kV.

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 2025 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)
5509: SIOTWIRAUHOS	8/1/2025 00:00 - 10/1/2025 00:00	3.13%	0.22
5566: COPSTJCPFRSJ	6/1/2025 00:00 - 10/1/2025 00:00	6.03%	0.42
5646: BEAHARCRESHE	6/1/2025 00:00 - 10/1/2025 00:00	3.51%	0.25

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

5509: SIOTWIRAUHOS			
Increment	**Decrement**	**Sensitivity**	**MW**
CIM-PLT1	WISDOM 2	7.23%	3.04
MCPHGT4	WISDOM 2	6.92%	3.18
LEC U5	WISDOM 2	6.70%	3.29
CIM-PLT1	DEERC_ST-BEG	4.87%	4.51
MCPHGT4	DEERC_ST-BEG	4.57%	4.82
LEC U5	DEERC_ST-BEG	4.34%	5.07
CIM-PLT1	GROTON_2-BEG	4.08%	5.40
MCPHGT4	GROTON_2-BEG	3.77%	5.84
LEC U5	GROTON_2-BEG	3.54%	6.21

5566: COPSTJCPFRSJ			
Increment	**Decrement**	**Sensitivity**	**MW**
LEC U5	WISDOM 2	23.52%	1.79
LEC U5	GROTON_2-BEG	22.66%	1.85
LEC U5	DEERC_ST-BEG	22.63%	1.86
MCPHGT4	WISDOM 2	17.95%	2.34
MCPHGT4	GROTON_2-BEG	17.08%	2.46
MCPHGT4	DEERC_ST-BEG	17.06%	2.46
CIM-PLT1	WISDOM 2	13.13%	3.20
CIM-PLT1	GROTON_2-BEG	12.26%	3.43
CIM-PLT1	DEERC_ST-BEG	12.24%	3.43

5646: BEAHARCRESHE			
Increment	**Decrement**	**Sensitivity**	**MW**
MCPHGT4	WISDOM 2	1.78%	14.04
MCPHGT4	DEERC_ST-BEG	1.65%	15.17
MCPHGT4	GROTON_2-BEG	1.58%	15.86
CIM-PLT1	WISDOM 2	1.39%	17.97
LEC U5	WISDOM 2	1.32%	18.98
CIM-PLT1	DEERC_ST-BEG	1.26%	19.87
CIM-PLT1	GROTON_2-BEG	1.19%	21.08
LEC U5	DEERC_ST-BEG	1.18%	21.11
LEC U5	GROTON_2-BEG	1.11%	22.48

5. Conclusion

Generation redispatch options were studied to relieve the necessary constraints. The results of this study show 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.