System Impact Study
SPP-2013-015
For Transmission Service
Requested By:
WRGS

From MPS to WAUE

For a Reserved Amount Of
250 MW
For 10/1/2013 – 9/29/2014

1. Executive Summary

WRGS has requested a system impact study for monthly firm transmission service from MPS to WAUE. The period of the transaction is from 10/1/2013 00:00 to 9/29/2014 00:00. The request is for reservation 78419588.

The 250 MW transaction from Dogwood has an impact on the following flowgates with no AFC: LACNEOEMPWIC, IATAN_STJOE, and SUBTEKFTCRAU. 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

WRGS has requested a system impact study for transmission service from MPS to WAUE.

There are 3 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- LACNEOEMPWIC: Lacygne - Neosho 345 kV line for the loss of Lang – Wichita 345 kV line.

- IATAN_STJOE: Iatan – St. Joe 345 kV line.

- SUBTEKFTCRAU: Sub 1226 – Tekamho 161 kV line for the loss of Fort Calhoun – Raun 345 kV line.

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 2013 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)
5022 : LACNEOEMPWIC	6/1/2014 - 8/1/2014	6.5%	16
5022 : LACNEOEMPWIC	9/1/2014 - 10/1/2014	6.5%	16
6104 : IATAN_STJOE	11/1/2013 - 3/1/2014	15.3%	38
6104 : IATAN_STJOE	5/1/2014 - 10/1/2014	14.8%	37
6126 : SUBTEKFTCRAU	11/1/2013 - 12/1/2013	5.6%	14

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

5022 : LACNEOEMPWIC			
Increment	**Decrement**	**Sensitivity**	**MW**
Gordon Evans EC	Lawrence EC	12.7%	126
Gordon Evans EC	Emporia EC	12.2%	131
Gordon Evans EC	Tecumseh EC	11.9%	135
Hutchinson EC	Lawrence EC	8.3%	194
Hutchinson EC	Emporia EC	7.8%	205
Hutchinson EC	Tecumseh EC	7.5%	214

6104 : IATAN_STJOE			
Increment	**Decrement**	**Sensitivity**	**MW**
Lake Road MPS	Iatan KCPL	66.0%	58
Nebraska City OPPD	Iatan KCPL	55.9%	68
Cass County OPPD	Iatan KCPL	54.9%	69
N Omaha OPPD	Iatan KCPL	54.1%	70
Jones OPPD	Iatan KCPL	54.1%	70
Sarpy OPPD	Iatan KCPL	54.1%	70
Lake Road MPS	Jeffrey EC	42.0%	90
Lake Road MPS	Lawrence EC	41.6%	91
Lake Road MPS	Tecumseh EC	40.1%	95
Nebraska City OPPD	Jeffrey EC	31.9%	119
Nebraska City OPPD	Lawrence EC	31.6%	120
Cass County OPPD	Jeffrey EC	30.9%	123
Cass County OPPD	Lawrence EC	30.5%	124
N Omaha OPPD	Jeffrey EC	30.1%	126
Jones OPPD	Jeffrey EC	30.1%	126
Sarpy OPPD	Jeffrey EC	30.1%	126
Nebraska City OPPD	Tecumseh EC	30.0%	127
N Omaha OPPD	Lawrence EC	29.8%	128
Jones OPPD	Lawrence EC	29.8%	128
Sarpy OPPD	Lawrence EC	29.8%	128
Cass County OPPD	Tecumseh EC	29.0%	131
N Omaha OPPD	Tecumseh EC	28.2%	135
Jones OPPD	Tecumseh EC	28.2%	135
Sarpy OPPD	Tecumseh EC	28.2%	135

6126 : SUBTEKFTCRAU			
Increment	**Decrement**	**Sensitivity**	**MW**
Fremont OPPD	N Omaha OPPD	15.8%	88
Fremont OPPD	Jones OPPD	15.5%	91
Fremont OPPD	Sarpy OPPD	15.1%	93
Fremont OPPD	Cass County OPPD	14.2%	98
Columbus NPPD	N Omaha OPPD	9.4%	149
Columbus NPPD	Jones OPPD	9.0%	155
Columbus NPPD	Sarpy OPPD	8.6%	162
Columbus NPPD	Cass County OPPD	7.8%	180
Arsenal Hill / Stall CSWS	N Omaha OPPD	6.9%	203
Lieberman CSWS	N Omaha OPPD	6.9%	203
Arsenal Hill / Stall CSWS	Jones OPPD	6.5%	215
Lieberman CSWS	Jones OPPD	6.5%	215
Arsenal Hill / Stall CSWS	Sarpy OPPD	6.1%	228
Lieberman CSWS	Sarpy OPPD	6.1%	228
Arsenal Hill / Stall CSWS	Cass County OPPD	5.3%	265
Lieberman CSWS	Cass County OPPD	5.3%	265

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, 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.