Southwest Power Pool

System Impact Study
SPP-2014-008
For Transmission Service
Requested By:
UCU

From KCPL to MPS

For a Reserved Amount Of
5 MW
For 6/1/2014 – 10/1/2014

1. Executive Summary

UCU has requested a system impact study for monthly firm transmission service from KCPL to MPS. The period of the transaction is from 6/1/2014 00:00 to 10/1/2014 00:00. The request is for reservation 79555405.

The 170 MW transactions from KCPL have an impact on the following flowgates with no AFC: EASXFREASSTJ, COOPER_S, and IATAN_EASTO. 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

UCU has requested a system impact study for transmission service from KCPL to MPS.

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

- EASXFREASSTJ: Eastowne 345/161 kV transformer for the loss of the Eastowne – St. Joe 345 kV line

- COOPER_S: Cooper – St. Joe 345 kV and Cooper – Fairport 345 kV interface

- IATAN_EASTO: Iatan – Eastowne 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 2014 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)
5496:EASXFREASSTJ	6/1/2014 - 10/1/2014	42%	2
6009:COOPER_S	6/1/2014 - 10/1/2014	15%	1
6104:IATAN_EASTO	6/1/2014 - 10/1/2014	40%	2

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

5496:EASXFREASSTJ			
Increment	**Decrement**	**Sensitivity (%)**	**Redispatch (MW)**
Lake Road	Iatan	61.0%	3
Lake Road	Lawrence EC WR	48.9%	4
Lake Road	Jeffrey EC WR	48.7%	4
Nebraska City OPPD	Iatan	30.3%	7
Cass County OPPD	Iatan	29.8%	7

6009:COOPER_S			
Increment	**Decrement**	**Sensitivity (%)**	**Redispatch (MW)**
Lake Road	Nebraska City OPPD	62.7%	2
Lake Road	Cass County OPPD	59.2%	2
Iatan	Nebraska City OPPD	56.2%	2
Iatan	Cass County OPPD	52.7%	2
Hawthorn	Nebraska City OPPD	51.5%	2
Hawthorn	Cass County OPPD	48.0%	2

6104:IATAN_EASTO			
Increment	**Decrement**	**Sensitivity (%)**	**Redispatch (MW)**
Lake Road	Iatan	73.9%	3
Nebraska City OPPD	Iatan	56.4%	4
Cass County OPPD	Iatan	55.3%	4
Lake Road	Lawrence EC WR	51.3%	4
Lake Road	Jeffrey EC WR	50.8%	4
Nebraska City OPPD	Lawrence EC WR	33.8%	6
Nebraska City OPPD	Jeffrey EC WR	33.3%	6
Cass County OPPD	Lawrence EC WR	32.7%	6
Cass County OPPD	Jeffrey EC WR	32.2%	6

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, agreement to the redispatch options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.