System Impact Study
SPP-2016-002
For Transmission Service
Requested By:
KMEA

From WPEK to SECI

For a Reserved Amount Of
27 MW
For 5/1/2016 – 6/1/2016

1. Executive Summary

KMEA has requested a system impact study for monthly firm transmission service from WPEK to SECI. The period of the transaction is from 5/1/2016 00:00 CDT to 6/1/2016 00:00 CDT. The request is for reservation 82207531.

The 27 MW transaction from WPEK has an impact on the following flowgates with no AFC: REDMINAXTPOS, REDWILLMINGO, GENTLMREDWIL and SETSCOHOLXFR. 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

KMEA has requested a system impact study for transmission service from WPEK to SECI.

There are 4 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- REDMINAXTPOS: Red Willow to Mingo 345kV FTLO Axtell to Post Rock 345kV.

- REDWILLMINGO: Red Willow to Mingo 345kV PTDF interface limit.

- GENTLMREDWIL: Gentleman to Red Willow 345kV PTDF limit.

- SETSCOHOLXFR: Setab to Scott City 115kV FTLO Holcomb 345/115kV

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 2016 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, four flowgates require relief. The flowgates and associated amount of relief are as follows:

Table 1

Flowgate	Duration	Sensitivity	Impact
5038:SETSCOHOLXFR	5/1/2016-6/1/2016	20.31%	5
5221:REDWILLMINGO	5/1/2016-6/1/2016	5.01%	1
5526:REDMINAXTPOS	5/1/2016-6/1/2016	3.59%	1
6007:GENTLMREDWIL	5/1/2016-6/1/2016	3.97%	1

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

5038:SETSCOHOLXFR			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
McCook	S2	48.57%	10
Cimarron	S2	48.28%	10
Gentleman	S2	47.99%	10
McCook	Holcomb	44.53%	11
Cimarron	Holcomb	44.24%	11
Gentleman	Holcomb	43.95%	11
McCook	Rubart	34.70%	14
Cimarron	Rubart	34.41%	15
Gentleman	Rubart	34.11%	15
5221:REDWILLMINGO			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
S2	McCook	55.81%	2
Holcomb	McCook	55.30%	2
Rubart	McCook	54.46%	2
S2	Gentleman	44.65%	2
Holcomb	Gentleman	44.14%	2
Rubart	Gentleman	43.30%	2
S2	Laramie	42.22%	2
Holcomb	Laramie	41.70%	2
Rubart	Laramie	40.87%	2

6007:GENTLMREDWIL			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
McCook	Gentleman	54.70%	2
S2	Gentleman	39.26%	3
Holcomb	Gentleman	38.85%	3
McCook	Laramie	49.93%	2
S2	Laramie	34.48%	3
Holcomb	Laramie	34.08%	3
McCook	Kingsley	49.85%	2
S2	Kingsley	34.40%	3
Holcomb	Kingsley	34.00%	3
5526:REDMINAXTPOS			
Increment	**Decrement**	**Sensitivity**	**Redispatch**
S2	McCook	61.53%	2
Holcomb	McCook	61.08%	2
Rubart	McCook	60.42%	2
S2	Gentleman	51.92%	2
Holcomb	Gentleman	51.46%	2
Rubart	Gentleman	50.81%	2
S2	Kingsley	51.57%	2
Holcomb	Kingsley	51.12%	2
Rubart	Kingsley	50.46%	2

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 costs must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.