



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2014-018
For Transmission Service
Requested By:
KMEA***

***From WPEK.KPP to
SECI_KMEA_GARC***

***For a Reserved Amount Of
16 MW
For 10/1/2014 – 12/1/2014***

1. Executive Summary

KMEA has requested a system impact study for monthly firm transmission service from WPEK.KPP to SECI_KMEA_GARC. The period of the transaction is from 10/1/2014 00:00 CST to 12/1/2014 00:00 CST. The request is for reservations 80266326, 80267581, and 80267588.

The 16 MW transaction from WPEK has an impact on the following flowgates with no AFC: CUDKISSPEFTD, REDMINAXTPOS, and GENTLMREDWIL. 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.KPP to SECI_KMEA_GARC.

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

- CUDKISSPEFTD: Cudahy - Kismet 115 kV line for the loss of the Spearville – Fort Dodge 115 kV line
- REDMINAXTPOS: Red Willow - Mingo 345 kV line for the loss of the Axtell – Post Rock 345 kV line
- GENTLMREDWIL: Gentleman – Red Willow 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	Impact
5494 : CUDKISSPEFTD	10/1/2014 - 10/7/2014	65.5%	10
5494 : CUDKISSPEFTD	10/7/2014 - 11/1/2014	68.0%	11
5494 : CUDKISSPEFTD	11/1/2014 - 12/1/2014	38.3%	6
5526 : REDMINAXTPOS	10/1/2014 - 10/6/2014	3.9%	1
6007 : GENTLMREDWIL	10/1/2014 - 10/6/2014	4.0%	1

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

5494 : CUDKISSPEFTD			Redispatch Amount		
Increment	Decrement	Sensitivity	10/1/2014-10/7/2014	10/7/2014-11/1/2014	11/1/2014-12/1/2014
Cimarron River	Ensign Wind	81.2%	12	14	7
Rubart	Ensign Wind	70.6%	14	16	8
Cimarron River	Judson Large	70.5%	14	16	9
Cimarron River	Gray County Wind	70.4%	14	16	9
Holcomb	Ensign Wind	63.8%	16	17	9
Garden City	Ensign Wind	63.6%	16	17	9
Rubart	Judson Large	59.9%	17	18	10
Rubart	Gray County Wind	59.8%	17	18	10
Cimarron River	Shooting Star Wind	54.6%	18	20	11
Holcomb	Judson Large	53.1%	19	21	11
Holcomb	Gray County Wind	53.0%	19	21	11
Garden City	Judson Large	52.9%	19	21	11
Garden City	Gray County Wind	52.8%	19	21	11
Rubart	Shooting Star Wind	44.0%	23	25	14
Holcomb	Shooting Star Wind	37.2%	27	30	16
Garden City	Shooting Star Wind	37.0%	27	30	16

5526 : REDMINAXTPOS			
Increment	Decrement	Sensitivity	Redispatch Amount
Garden City	McCook	61.6%	2
Holcomb	McCook	61.1%	2
Rubart	McCook	60.5%	2
Cimarron River	McCook	58.6%	2
Garden City	Gentleman	52.0%	2
Holcomb	Gentleman	51.5%	2
Rubart	Gentleman	50.9%	2
Cimarron River	Gentleman	49.0%	2

6007 : GENTLMREDWIL			
Increment	Decrement	Sensitivity	Redispatch Amount
McCook	Gentleman	54.7%	2
Garden City	Gentleman	39.3%	3
Holcomb	Gentleman	38.9%	3

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.