



SPP *Southwest
Power Pool*

***System Impact Study
SPP-2014-021
For Transmission Service
Requested By:
KMEA***

***From Spearville to
SECI_KMEA_GARC***

***For a Reserved Amount Of
20 MW
For 1/1/2015 – 10/1/2015***

1. Executive Summary

KMEA has requested a system impact study for monthly firm transmission service from Spearville to SECI_KMEA_GARC. The period of the transaction is from 1/1/2015 00:00 CST to 10/1/2015 00:00 CDT. The request is for reservation 80487773.

The 20 MW transaction from Spearville has an impact on the following flowgates with no AFC: SPEJUDHOLPLY, MEDSUNSPEXFR, 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 Spearville 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:

- SPEJUDHOLPLY: Spearville – Judson Large 115 kV line for the loss of the Holcomb – Plymell 115 kV line
- MEDSUNSPEXFR: Medicine Lodge – Sun City 138 kV line for the loss of the Spearville 230/115 kV transformer
- 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 MW
5436 : SPEJUDHOLPLY	1/1/2015 - 10/1/2015	21.9%	4
5558 : MEDSUNSPEXFR	2/1/2015 - 10/1/2015	16.4%	3
6007 : GENTLMREDWIL	1/1/2015 - 10/1/2015	5.1%	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

5436 : SPEJUDHOLPLY			
Increment	Decrement	Sensitivity (%)	Redispatch Amount (MW)
Fort Dodge	Goodman	67.7%	6
Fort Dodge	Whelan Energy Center	66.9%	6
Cimarron Plant	Goodman	34.0%	12
Cimarron Plant	Whelan Energy Center	33.2%	12

5558 : MEDSUNSPEXFR			
Increment	Decrement	Sensitivity (%)	Redispatch Amount (MW)
Fort Dodge	Flat Ridge Wind	53.1%	6
Fort Dodge	Murray Gill EC	51.4%	6
Fort Dodge	Gordon Evans EC	51.3%	6
Cimarron Plant	Flat Ridge Wind	23.6%	13
Cimarron Plant	Murray Gill EC	21.9%	14
Cimarron Plant	Gordon Evans EC	21.8%	14

6007 : GENTLMREDWIL			
Increment	Decrement	Sensitivity (%)	Redispatch Amount (MW)
McCook	Gentleman	54.7%	2
Garden City	Gentleman	39.3%	3
McCook	Whelan Energy Center	38.9%	3
Holcomb	Gentleman	38.9%	3
Garden City	Whelan Energy Center	23.5%	4
Holcomb	Whelan Energy Center	23.1%	4

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.