



SPP *Southwest
Power Pool*

***System Impact Study
SPP-2014-009
For Transmission Service
Requested By:
KMEA***

From SPS to SECI

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

1. Executive Summary

KMEA has requested a system impact study for monthly firm transmission service from SPS to SECI. The period of the transaction is from 6/1/2014 00:00 to 10/1/2014 00:00. The request is for reservation 79627698.

The 10 MW transaction from SPS has an impact on the following flowgates with no AFC: ELKXFRTUCOKU, REDWILLMINGO, HOLPLYBUCSPE, HOLFLEHOLPLY, LUBXFRLUBJON, CUDKISSPEFTD, 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 SPS to SECI.

There are 7 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- ELKXFRTUCOKU: Elk City 230/138 kV transformer for the loss of the Tuco – Oklaunion 345 kV line
- REDWILLMINGO – Red Willow – Mingo 345 kV interface
- HOLPLYBUCSPE – Holcomb – Plymell 115 kV line for the loss of the Buckner Tap – Spearville 345 kV line
- HOLFLEHOLPLY – Holcomb – Fletcher 115 kV line for the loss of the Holcomb – Plymell 115 kV line
- LUBXFRLUBJON – Lubbock South 230/115 kV transformer for the loss of the Lubbock East – Jones Sub 230 kV line
- CUDKISSPEFTD – Cudahy – Kismet 115 kV line for the loss of the Spearville – Fort Dodge 115 kV line
- GENTLMREDWIL: Gentleman – Red Willow 345 kV interface

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

Table 1

Flowgate	Duration	Sensitivity (%)	Impact (MW)
5014:ELKXFRTUCOKU	6/1/2014 - 10/1/2014	14.1%	1
5221:REDWILLMINGO	6/1/2014 - 10/1/2014	11.5%	1
5385:HOLPLYBUCSPE	7/1/2014 - 10/1/2014	38.6%	4
5434:HOLFLEHOLPLY	6/1/2014 - 10/1/2014	42.3%	4
5483:LUBXFRLUBJON	6/1/2014 - 10/1/2014	7.7%	1
5494:CUDKISSPEFTD	6/1/2014 - 10/1/2014	6.8%	1
6007:GENTLMREDWIL	6/1/2014 - 10/1/2014	9.0%	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

5014:ELKXFRTUCOKU			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
SW Station AEP	Nichols SPS	19.3%	5
SW Station AEP	Harrington SPS	19.1%	5
Anadarko/Genco/Orme WFEC	Nichols SPS	18.7%	5
Anadarko/Genco/Orme WFEC	Harrington SPS	18.6%	5
Comanche AEP	Nichols SPS	18.3%	5
Comanche AEP	Harrington SPS	18.2%	5

5221:REDWILLMINGO			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
Garden City	McCook NPPD	55.7%	2
Holcomb SECI	McCook NPPD	55.2%	2
Garden City	Gentleman NPPD	44.5%	2
Holcomb SECI	Gentleman NPPD	44.0%	2
Garden City	Canaday NPPD	37.8%	3
Holcomb SECI	Canaday NPPD	37.3%	3

5385:HOLPLYBUCSPE			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
Cimarron River Plant SECI	Holcomb SECI	43.3%	9
Cimarron River Plant SECI	Garden City	42.9%	9
Cimarron River Plant SECI	McCook NPPD	37.6%	11
Fort Dodge SECI	Holcomb SECI	16.5%	24
Fort Dodge SECI	Garden City	16.1%	25

5434:HOLFLEHOLPLY			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
Cimarron River Plant SECI	Holcomb SECI	45.4%	9
Cimarron River Plant SECI	Garden City	44.4%	9
Fort Dodge SECI	Holcomb SECI	16.9%	24
Fort Dodge SECI	Garden City	15.9%	25

5483:LUBXFRLUBJON			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
Antelope GSEC	Jones SPS	9.1%	11
Comanche AEP	Jones SPS	9.0%	11
SW Station AEP	Jones SPS	9.0%	11
Anadarko/Genco/Orme WFEC	Jones SPS	9.0%	11
Antelope GSEC	Mustang SPS	2.3%	43
Comanche AEP	Mustang SPS	2.2%	45
SW Station AEP	Mustang SPS	2.2%	45
Anadarko/Genco/Orme WFEC	Mustang SPS	2.2%	45

5494:CUDKISSPEFTD			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
Cimarron River Plant SECI	Fort Dodge SECI	70.5%	1
Holcomb SECI	Fort Dodge SECI	53.0%	2
Garden City	Fort Dodge SECI	52.8%	2
Cimarron River Plant SECI	Murray Gill WR	21.9%	5
Cimarron River Plant SECI	Gordon Evans WR	21.8%	5

6007:GENTLMREDWIL			
Increment	Decrement	Sensitivity (%)	Redispatch (MW)
McCook NPPD	Gentleman NPPD	54.7%	2
Garden City	Gentleman NPPD	39.1%	3
McCook NPPD	Whelan Energy Center	38.9%	3
Holcomb SECI	Gentleman NPPD	38.7%	3
McCook NPPD	Canaday NPPD	38.4%	3
Garden City	Whelan Energy Center	23.3%	4
Holcomb SECI	Whelan Energy Center	22.9%	4
Garden City	Canaday NPPD	22.8%	4
Holcomb SECI	Canaday NPPD	22.4%	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 options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.