



SPP *Southwest
Power Pool*

***System Impact Study
SPP-2015-011
For Transmission Service
Requested By:
KMEA***

***From WR.FR2W.TSA to
SECI_KMEA_GARC***

***For a Reserved Amount Of
15 MW
For 12/30/2015 – 12/1/2016***

1. Executive Summary

KMEA has requested a system impact study for monthly firm transmission service from WR.FR2W.TSA to SECI_KMEA_GARC. The period of the transaction is from 12/30/2015 00:00 CST to 12/1/2016 00:00 CST. The request is for reservation 81823764.

The 15 MW transaction from WR has an impact on the following flowgates with no AFC: WDRCIMSPRNRW, REDWILLMINGO, REDMINAXTPOS, TUCXFRTUCXF2, HOLXFRDOBGAN, GENTLMREDWIL, 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

KMEA has requested a system impact study for transmission service from WR.FR2W.TSA to SECI_KMEA_GARC.

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

- WDRCIMSPRNRW: Woodring - Cimarron 345 kV line for the loss of Spring Creek – Northwest Station 345 kV line.
- REDWILLMINGO: Red Willow - Mingo 345 kV line.
- REDMINAXTPOS: Red Willow - Mingo 345 kV line for the loss of Axtell – Post Rock 345 kV line.
- TUCXFRTUCXF2: Tuco 345/230 kV transformer for the loss of Tuco 345/230 kV transformer #2.
- HOLXFRDOBGAN: Holcomb 345/115 kV transformer for the loss of Dobson – Gano 115 kV line.
- GENTLMREDWIL: Gentleman – Red Willow 345 kV line.
- 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 2015 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
5214 : WDRCIMSPRRRW	1/1/2016 - 10/1/2016	13.17%	2
5221 : REDWILLMINGO	12/1/2015 - 12/1/2016	9.54%	1
5526 : REDMINAXTPOS	12/1/2015 - 11/1/2016	10.97%	2
5547 : TUCXFRTUCXF2	12/1/2015 - 12/1/2016	3.77%	1
5552 : HOLXFRDOBGAN	12/1/2015 - 4/1/2016	40.74%	6
6007 : GENTLMREDWIL	12/1/2015 - 12/1/2016	7.48%	1
6104 : IATAN_EASTO	12/1/2015 - 12/1/2016	3.64%	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

5214 : WDRCIMSPRRRW			
Increment	Decrement	Sensitivity	Redispatch
Mustang	Sooner	32.97%	6
Mustang	Spring Creek	32.96%	6
Mcclain	Sooner	32.86%	6
Mcclain	Spring Creek	32.85%	6
Anadarko	Sooner	32.15%	6
Anadarko	Spring Creek	32.14%	6

5221 : REDWILLMINGO			
Increment	Decrement	Sensitivity	Redispatch
Garden City	Mccook	55.82%	2
Holcomb	Mccook	55.31%	2
Garden City	Gentleman	44.67%	2
Garden City	Kingsley	44.45%	2
Holcomb	Gentleman	44.15%	2
Holcomb	Kingsley	43.93%	2

5526 : REDMINAXTPOS			
Increment	Decrement	Sensitivity	Redispatch
Garden City	Mccook	61.55%	3
Holcomb	Mccook	61.09%	3
Garden City	Gentleman	51.94%	4
Garden City	Kingsley	51.59%	4
Holcomb	Gentleman	51.48%	4
Holcomb	Kingsley	51.14%	4

5547 : TUCXFR TUCXF2			
Increment	Decrement	Sensitivity	Redispatch
Antelope	Commanche	60.17%	2
Antelope	Southwest Station	58.07%	2
Antelope	Anadarko	58.03%	2
Jones	Commanche	57.37%	2
Jones	Southwest Station	55.27%	2
Jones	Anadarko	55.22%	2
Mustang Interchange	Commanche	52.34%	2
Mustang Interchange	Southwest Station	50.25%	2
Mustang Interchange	Anadarko	50.20%	2

5552 : HOLXFR DOBGAN			
Increment	Decrement	Sensitivity	Redispatch
Holcomb	Blackhawk	88.68%	7
Holcomb	Harrington	88.63%	7
Holcomb	Nichols	88.63%	7
Garden City	Blackhawk	88.58%	7
Garden City	Harrington	88.54%	7
Garden City	Nichols	88.53%	7

6007 : GENTLMREDWIL			
Increment	Decrement	Sensitivity	Redispatch
Mccook	Gentleman	54.71%	2
Mccook	Kingsley	49.85%	2
Garden City	Gentleman	39.27%	3
Holcomb	Gentleman	38.87%	3
Garden City	Kingsley	34.42%	3
Holcomb	Kingsley	34.01%	3

6104 : IATAN_EASTO			
Increment	Decrement	Sensitivity	Redispatch
Lake Road	latan	62.11%	2
Lake Road	Lawrence EC	48.18%	2
Lake Road	Jeffrey EC	47.34%	2
Nebraska City	latan	43.29%	2
Cass County	latan	42.22%	2
Nebraska City	Lawrence EC	29.36%	3
Nebraska City	Jeffrey EC	28.52%	4
Cass County	Lawrence EC	28.29%	4
Cass County	Jeffrey EC	27.44%	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.