



**SPP** *Southwest  
Power Pool*

***System Impact Study  
SPP-2014-017  
For Transmission Service  
Requested By:  
KMEA***

***From WR.FR2W to  
SECI\_KMEA\_GARC***

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

## **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 1/1/2015 00:00 CST to 12/30/2015 00:00 CST. The request is for reservation 80181068.

The 20 MW transaction from WR has an impact on the following flowgates with no AFC: WDRCIMSPRNRW, SPEJUDHOLPLY, TUCXFRTUCXF2, MEDSUNSPEXFR, 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 5 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 the Spring Creek – Northwest Station 345 kV line
- SPEJUDHOLPLY: Spearville – Judson Large 115 kV line for the loss of the Holcomb – Plymell 115 kV line
- TUCXFRTUCXF2: Tuco 345/230 kV transformer for the loss of the Tuco 345/230 kV transformer #2
- MEDSUNSPEXFR: Medicine Lodge – Sun City 138 kV line for the loss of the Spearville 230/115 kV transformer
- 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 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, five flowgates require relief. The flowgates and associated amount of relief are as follows:

**Table 1**

Flowgate	Duration	Sensitivity	Impact
5214 : WDRCIMSPRNRW	2/1/2015 - 3/1/2015	11.5%	2
5436 : SPEJUDHOLPLY	1/1/2015 - 1/1/2016	17.3%	3
5547 : TUCXFRTUCXF2	1/1/2015 - 1/1/2016	5.0%	1
5558 : MEDSUNSPEXFR	2/1/2015 - 1/1/2016	16.9%	3
6104 : IATAN_EASTO	1/1/2015 - 1/1/2016	3.7%	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**

5214 : WDRCIMSPRNRW			
Increment	Decrement	Sensitivity	Redispatch Required
McClain	Sooner	33.5%	6
McClain	Spring Creek	33.5%	6
Smith Center	Sooner	33.4%	6
Smith Center	Spring Creek	33.4%	6
Anadarko	Sooner	33.0%	6
Anadarko	Spring Creek	33.0%	6
Mustang OKGE	Sooner	32.9%	6
Mustang OKGE	Spring Creek	32.9%	6
McClain	Flat Ridge 2	24.1%	8
Smith Center	Flat Ridge 2	24.0%	8
Anadarko	Flat Ridge 2	23.6%	8
Mustang OKGE	Flat Ridge 2	23.5%	9

5436 : SPEJUDHOLPLY			
Increment	Decrement	Sensitivity	Redispatch Required
Fort Dodge	Cimarron CPV	40.8%	7
Fort Dodge	Mullergren	40.4%	7
Cimarron River	Cimarron CPV	20.5%	15
Cimarron River	Mullergren	20.1%	15
Rubart	Cimarron CPV	13.0%	23
Rubart	Mullergren	12.6%	24

<b>5547 : TUCXFRTUCXF2</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>Redispatch Required</b>
Antelope	Commanche	61.1%	2
Antelope	Southwest Station	59.1%	2
Antelope	Anadarko	59.1%	2
Jones Sub	Commanche	57.9%	2
Jones Sub	Southwest Station	55.9%	2
Jones Sub	Anadarko	55.8%	2
Mustang SPS	Commanche	52.7%	2
Mustang SPS	Southwest Station	50.7%	2
Mustang SPS	Anadarko	50.7%	2

<b>5558 : MEDSUNSPEXFR</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>Redispatch Required</b>
Fort Dodge	Pratt	19.8%	15
Fort Dodge	Murray Gill	13.6%	22
Fort Dodge	Gordon Evans	13.4%	22
Cimarron River	Pratt	13.0%	23
Rubart	Pratt	10.5%	29
Garden City	Pratt	8.9%	34

<b>6104 : IATAN_EASTO</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>Redispatch Required</b>
Lake Road	latan	73.8%	1
Nebraska City	latan	56.2%	2
Lake Road	Jeffrey	50.8%	2
Nebraska City	Jeffrey	33.2%	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.