



**SPP** *Southwest  
Power Pool*

***System Impact Study  
SPP-2013-020  
For Transmission Service  
Requested By:  
KMEA***

***From Spearville to  
SECI\_KMEA\_GARC***

***For a Reserved Amount Of  
10 MW  
For 1/1/2014 – 1/1/2015***

## **1. Executive Summary**

KMEA has requested a system impact study for weekly and monthly firm transmission service from Spearville to SECI\_KMEA\_GARC. The period of the transaction is from 1/1/2014 00:00 to 1/1/2015 00:00. The request is for reservations 79068473 and 79068475.

The 10 MW transaction from Spearville has an impact on the following flowgates with no AFC: SPEJUDHOLPLY and GRBXFRMULXFR. 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 2 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 Holcomb – Plymell 115 kV line.
- GRBXFRMULXFR: Great Bend 230/115 kV transformer for the loss of Mullergren 230/115 kV transformer.

### **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 2013 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**

<b>Flowgate</b>	<b>Duration</b>	<b>Sensitivity (%)</b>	<b>Required Relief (MW)</b>
5436 : SPEJUDHOLPLY	01/01/2014 - 01/01/2015	36.6%	4
5495 : GRBXFRMULXFR	01/10/2014 - 02/01/2014	5.8%	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**

<b>5436 : SPEJUDHOLPLY</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
Judson Large SECI	Spearville KCPL	73.5%	5
Judson Large SECI	NW Great Bend KMEA	68.0%	6
Judson Large SECI	Russell KMEA	67.9%	6
Judson Large SECI	Waldo KMEA	67.9%	6
Judson Large SECI	Gentleman NPPD	67.8%	6
Judson Large SECI	Garden City SECI	65.9%	6
Judson Large SECI	Pratt KMEA	55.7%	7
Pratt KMEA	Spearville KCPL	17.8%	22
Pratt KMEA	NW Great Bend KMEA	12.3%	33
Pratt KMEA	Russell KMEA	12.2%	33
Pratt KMEA	Waldo KMEA	12.2%	33
Pratt KMEA	Gentleman NPPD	12.1%	33
Pratt KMEA	Garden City SECI	10.2%	39

5495 : GRBXFRMULXFR			
Increment	Decrement	Sensitivity	MW
NW Great Bend KMEA	Spearville KCPL	70.6%	1
NW Great Bend KMEA	Goodman MIDW	69.8%	1
NW Great Bend KMEA	Judson Large SECI	66.2%	2
NW Great Bend KMEA	Gentleman NPPD	66.1%	2
Russell KMEA	Spearville KCPL	51.6%	2
Russell KMEA	Goodman MIDW	50.7%	2
Russell KMEA	Judson Large SECI	47.1%	2
Russell KMEA	Gentleman NPPD	47.0%	2
Waldo KMEA	Spearville KCPL	43.3%	2
Waldo KMEA	Goodman MIDW	42.4%	2
Waldo KMEA	Judson Large SECI	38.8%	3
Waldo KMEA	Gentleman NPPD	38.8%	3
Pratt KMEA	Spearville KCPL	30.1%	3
Pratt KMEA	Goodman MIDW	29.3%	3
Pratt KMEA	Judson Large SECI	25.7%	4
Pratt KMEA	Gentleman NPPD	25.6%	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, proof of the necessary relief options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.