



**SPP**

*Southwest  
Power Pool*

***System Impact Study  
SPP-2015-013  
For Transmission Service  
Requested By:  
KMEA***

***From GRDA\_HUB to  
SECI\_KMEA\_GARC***

***For a Reserved Amount Of  
4 MW  
For 1/1/2016 – 12/1/2016***

## **1. Executive Summary**

KMEA has requested a system impact study for monthly firm transmission service from GRDA\_HUB to SECI\_KMEA\_GARC. The period of the transaction is from 1/1/2016 00:00 CST to 12/1/2016 00:00 CST. The request is for reservation 81823782.

The 4 MW transaction from WR has an impact on the following flowgates with no AFC: CATXFRCATXFR, REDMINAXTPOS, and HOLXFRDOBGAN. 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 GRDA\_HUB 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:

- CATXFRCATXFR: Catoosa 161/138 kV transformer #1 for the loss of Catoosa 161/138 kV transformer #2.
- REDMINAXTPOS: Red Willow - Mingo 345 kV line for the loss of Axtell – Post Rock 345 kV line.
- HOLXFRDOBGAN: Holcomb 345/115 kV transformer for the loss of Dobson – Gano 115 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, three flowgates require relief. The flowgates and associated amount of relief are as follows:

**Table 1**

Flowgate	Duration	Sensitivity %	Impact MW
5005 : CATXFRCATXFR	1/1/2016 - 12/1/2016	13.30%	1
5526 : REDMINAXTPOS	1/1/2016 - 11/1/2016	13.70%	1
5552 : HOLXFRDOBGAN	1/1/2016 - 12/1/2016	40.73%	2

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**

5005 : CATXFRCATXFR			
Increment	Decrement	Sensitivity	Redispatch
NE Power Station	GRDA Unit	18.15%	6
Tulsa Power Station	GRDA Unit	17.33%	6
Riverside	GRDA Unit	16.69%	6
NE Power Station	Flint Creek	10.16%	10
Tulsa Power Station	Flint Creek	9.34%	11
Riverside	Flint Creek	8.69%	12

5526 : REDMINAXTPOS			
Increment	Decrement	Sensitivity	Redispatch
Garden City	McCook	61.55%	2
Holcomb	McCook	61.09%	2
Garden City	Gentleman	51.94%	2
Garden City	Kingsley	51.59%	2
Holcomb	Gentleman	51.48%	2
Holcomb	Kingsley	51.14%	2

5552 : HOLXFRDOBGAN			
Increment	Decrement	Sensitivity	Redispatch
Holcomb	Blackhawk	88.68%	2
Holcomb	Harrington	88.63%	2
Holcomb	Nichols	88.63%	2
Garden City	Blackhawk	88.58%	2
Garden City	Harrington	88.54%	2
Garden City	Nichols	88.53%	2

## **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.