



**SPP**

*Southwest  
Power Pool*

***System Impact Study  
SPP-2016-001  
For Transmission Service  
Requested By:  
CRGL***

***From WFEK to ERCOTN***

***For a Reserved Amount Of  
200 MW  
For 5/1/2016 – 9/1/2016***

## **1. Executive Summary**

CRGL has requested a system impact study for monthly firm transmission service from WFEC to ERCOTN. The period of the transaction is from 5/1/2016 00:00 CDT to 9/1/2016 00:00 CDT. The request is for reservation 82065796.

The 200 MW transaction from WFEC has an impact on the following flowgates with no AFC: PITSEMPITJHN, SPSNORTH\_STH, POTXFRHITXFR and HARRANNICAMA. 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**

CRGL has requested a system impact study for transmission service from WFEC to ERCOTN.

There are 4 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- PITSEMPITJHN: Pittsburgh to Seminole 345kV FTLO Pittsburgh to Johnson County 345kV.
- SPSNORTH\_STH: SPS North to South interface stability limit.
- POTXFRHITXFR: Potter County 345/230 Xfmr FTLO Hitchland 345/230 Xfmr
- HARRANNICAMA: Harrington to Randall 230kV FTLO Nichols to Amarillo South 230kV

### **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 2016 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, four flowgates require relief. The flowgates and associated amount of relief are as follows:

**Table 1**

Flowgate	Duration	Sensitivity	Impact
5099:PITSEMPITJHN	7/1/2016-9/1/2016	3.16%	6
5196:SPSNORTH_STH	5/1/2016-9/1/2016	13.82%	27
5420:POTXFRHITXFR	5/1/2016-9/1/2016	4.87%	9
5534:HARRANNICAMA	6/1/2016-9/1/2016	3.63%	7

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**

<b>5099 : PITSEMPITJHN</b>			
Increment	Decrement	Sensitivity	Redispatch
Seminole	Hugo	36.00%	17
McClain	Hugo	27.77%	22
HSL	Hugo	27.04%	22
Seminole	Turk	33.70%	18
McClain	Turk	25.47%	24
HSL	Turk	24.73%	24
Seminole	Welsh	33.33%	18
McClain	Welsh	25.10%	24
HSL	Welsh	24.37%	25
<b>5196 : SPSNORTH_STH</b>			
Increment	Decrement	Sensitivity	Redispatch
Plant X	Harrington	81.45%	33
Tolk	Harrington	80.16%	34
Cunningham	Harrington	78.58%	34
Plant X	Nichols	81.41%	33
Tolk	Nichols	80.12%	34
Cunningham	Nichols	78.55%	34
Plant X	Blackhawk	78.62%	34
Tolk	Blackhawk	77.33%	35
Cunningham	Blackhawk	75.76%	36

<b>5420 :POTXFRHITXFR</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>Redispatch</b>
Harrington	Holcomb	35.16%	26
Nichols	Holcomb	34.97%	26
Blackhawk	Holcomb	29.34%	31
Harrington	S2	35.11%	26
Nichols	S2	34.92%	26
Blackhawk	S2	29.29%	31
Harrington	Rubart	34.84%	26
Nichols	Rubart	34.66%	26
Blackhawk	Rubart	29.02%	31
<b>5534 : HARRANNICAMA</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>Redispatch</b>
Plant X	Harrington	23.39%	30
Jones	Harrington	23.06%	30
Mustang	Harrington	22.80%	31
Plant X	Nichols	22.94%	31
Jones	Nichols	22.60%	31
Mustang	Nichols	22.34%	31
Plant X	Blackhawk	18.14%	39
Jones	Blackhawk	17.81%	39
Mustang	Blackhawk	17.55%	40

## **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.