



**SPP** *Southwest  
Power Pool*

***System Impact Study  
SPP-2012-004  
For Transmission Service  
Requested By:  
EXGN***

***From WFEC to ERCOTN***

***For a Reserved Amount Of  
198 MW  
From 9/1/2012  
To 10/1/2012***

## **1. Executive Summary**

EXGN has requested a system impact study for monthly firm transmission service from WFEC to ERCOTN. The period of the transaction is from 8/31/2012 23:00 CST to 9/30/2012 23:00 CST. The request is for reservation 76995955.

The 198 MW transaction from WFEC has an impact on the following flowgates with no AFC: SPSNORTH\_STH, ANACORSWSNOR, POTXFRHITXFR, and GRAXFRGRANIC. 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**

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

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

- SPSNORTH\_STH: SPS North to SPS South interface.
- ANACORSWSNOR: Anadarko – Corn Tap 138 kV line for the loss of the Southwestern Station – Norge 138 kV line.
- POTXFRHITXFR: Potter 345/230 kV transformer for the loss of the Hitchland 345/230 kV transformer.
- GRAXFRGRANIC: Grapevine 230/115 kV transformer for the loss of the Grapevine – Nichols 230 kV line.

### **3. Study Methodology**

#### **A. Description**

Southwest Power Pool used Managing and Utilizing System Transmission (MUST) to obtain possible unit pairings that would relieve the constraint. MUST 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 2012 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 Managing and Utilizing System Transmission (MUST), 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 MUST is the amount of redispatch necessary to relieve the impact on the affected flowgate.

## **4. Study Results**

After studying the impacts of the request, two 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>
5196 SPSNORTH_STH	9/1/2012 – 10/1/2012	15.5%	30.76
5358 ANACORSWSNOR	9/1/2012 – 10/1/2012	6.8%	13.5
5420 POTXFRHITXFR	9/1/2012 – 10/1/2012	5.3%	10.44
5421 GRAXFRGRANIC	9/1/2012 – 10/1/2012	4.8%	9.57

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>5196 SPSNORTH_STH</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
SPS Plant X	SPS Harrington	88.5%	35
SPS Plant X	SPS Nichols	88.5%	35
SPS Plant X	SPS Riverview	87.3%	35
SPS Plant X	SPS Blackhawk	87.2%	35
SPS Cunningham	SPS Harrington	86.3%	36
SPS Cunningham	SPS Nichols	86.3%	36
SPS Cunningham	SPS Riverview	85.1%	36
SPS Cunningham	SPS Blackhawk	85.1%	36
SPS Mustang	SPS Harrington	86.1%	36
SPS Mustang	SPS Nichols	86.1%	36
SPS Mustang	SPS Riverview	84.9%	36
SPS Mustang	SPS Blackhawk	84.8%	36

<b>5358 ANACORSWSNOR</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
OKGE Seminole	WFEC Anadarko/ORME/Genco	12.4%	109
OKGE Seminole	CSWS Southwest Station	6.8%	197
OKGE Seminole	SPS Jones	2.5%	534
OKGE Mustang	WFEC Anadarko/ORME/Genco	12.0%	112
OKGE Mustang	CSWS Southwest Station	6.5%	207
OKGE Mustang	SPS Jones	2.2%	612
OKGE Horseshoe Lake	WFEC Anadarko/ORME/Genco	12.0%	113
OKGE Horseshoe Lake	CSWS Southwest Station	6.4%	209
OKGE Horseshoe Lake	SPS Jones	2.1%	633

<b>5420 POTXFRHITXFR</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
SPS Harrington	SECI Holcomb	40.6%	26
SPS Harrington	SECI Garden City	40.4%	26
SPS Harrington	SECI Judson Large	35.4%	29
SPS Nichols	SECI Holcomb	40.3%	26
SPS Nichols	SECI Garden City	40.2%	26
SPS Nichols	SECI Judson Large	35.2%	30
SPS Plant X	SECI Holcomb	37.4%	28
SPS Plant X	SECI Garden City	37.3%	28
SPS Plant X	SECI Judson Large	32.3%	32

<b>5421 GRAXFRGRANIC</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
SPS Nichols	WFEC Mooreland	16.7%	57
SPS Nichols	CSWS Southwest Station	14.9%	64
SPS Nichols	WFEC Anadarko/ORME/Genco	14.8%	65
SPS Riverview	WFEC Mooreland	16.1%	59
SPS Riverview	CSWS Southwest Station	14.4%	67
SPS Riverview	WFEC Anadarko/ORME/Genco	14.2%	67
SPS Blackhawk	WFEC Mooreland	16.1%	60
SPS Blackhawk	CSWS Southwest Station	14.3%	67
SPS Blackhawk	WFEC Anadarko/ORME/Genco	14.1%	68
SPS Harrington	WFEC Mooreland	15.3%	63
SPS Harrington	CSWS Southwest Station	13.5%	71
SPS Harrington	WFEC Anadarko/ORME/Genco	13.4%	72

## **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.