



**SPP** *Southwest  
Power Pool*

***System Impact Study  
SPP-2011-003  
For Transmission Service  
Requested By:  
AEPM***

***From CSWS to CSWS***

***For a Reserved Amount Of  
200 MW  
From 12/06/2011  
To 10/05/2012***

## **1. Executive Summary**

AEPM has requested a system impact study for monthly firm transmission service from CSWS to CSWS (Source: CSWS.EASTMAN Sink: CSWS). The period of the transaction is from 12/6/2011 to 10/5/2012. The request is for reservation 76028462.

The 200 MW transaction from CSWS has an impact on the following flowgates with no AFC: NWTPATLYDVAL, DOLXFRELDXFR, PITSEMPITSUN, FLCXFRFLCXFR, RUSDARANOFTS, WELLYDWELNWT, NESTULNESONE. 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**

AEPM has requested a system impact study for transmission service from CSWS to CSWS.

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

- NWTPATLYDVAL: N.W.Texarkana to Patterson 138 kV line for the loss of Lydia to Valiant 345 kV line.  
  
DOLXFRELDXFR: Dolet Hills 346/230 kV transformer for the loss of El Dorado 345/500 transformer.
- PITSEMPITSUN: Pittsburg to Seminole 345 kV line for the loss of Pittsburg to Sunnyside 345 kV line.
- FLCXFRFLCXFR: Flint Creek 345/161 kV transformer 1 for the loss of Flint Creek transformer 2.
- RUSDARANOFTS: Russellville to Dardanelle 161 kV for the loss of ANO to Fort Smith 500 kV line
- WELLYDWELNWT: Welch to Lydia 345 kV line for the loss of Welch to N.W. Texarkana 345 kV line.
- NESTULNESONE: Northeast Station to Tulsa North 345 kV line for the loss of Northeast Station to Oneta 345 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 2011 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, seven flowgates require relief. The flowgates and associated amount of relief are as follows:

**Table 1**

<b>Flowgates</b>	<b>Duration</b>	<b>Required Relief (MW)</b>
NWTPATLYDVAL	12/6/11 – 10/5/12	16.9
DOLXFRELDXFR	12/6/11 – 10/5/12	17.8
PITSEMPITSUN	12/6/11 – 10/5/12	25.5
FLCXFRFLXXFR	12/6/11 – 10/5/12	8.4
RUSDARANOFTS	12/6/11 – 10/5/12	12.7
WELLYDWELNWT	12/6/11 – 10/5/12	48
NESTULNESONE	12/6/11 – 10/5/12	6.9

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**

NWTPATLYDVAL				DOLXFRELDXFR			
Increment Unit	Decrement Unit	(Sensitivity)	(MW)	Increment Unit	Decrement Unit	(Sensitivity)	(MW)
Narrows (AEPM)	Welsh (AEPM)	.37	46	Fitzhugh (AEPM)	Dolet Hills (AEPM)	.41	43
Narrows (AEPM)	Wilkes (AEPM)	.36	47	NE Station (AEPM)	Dolet Hills (AEPM)	.38	47
Fulton (AEPM)	Welsh (AEPM)	.29	58	Fitzhugh (AEPM)	Lieberman (AEPM)	.22	81
Fulton (AEPM)	Lebrock (AEPM)	.27	63	Lebrock (AEPM)	Dolet Hills (AEPM)	.21	85
Kiowa (AEPM)	Welsh (AEPM)	.18	94				
PITSUMPITSUN				FLCXFRFLCXFR			
Increment Unit	Decrement Unit	(Sensitivity)	(MW)	Increment Unit	Decrement Unit	(Sensitivity)	(MW)
SW Station (AEPM)	Kiowa (AEPM)	.44	56	Flint Creek (AEPM)	NE Station (AEPM)	.42	20
Comanche (AEPM)	Kiowa (AEPM)	.40	64	Flint Creek (AEPM)	Tulsa Power Station (AEPM)	.40	21
Weleetka (AEPM)	Kiowa (AEPM)	.39	65	Flint Creek (AEPM)	Weleetka (AEPM)	.40	21
SW Station (AEPM)	Welsh (AEPM)	.24	106	Flint Creek (AEPM)	SW Station (AEPM)	.40	21
				Flint Creek (AEPM)	Comanche (AEPM)	.40	21
				Matison (AEPM)	Tulsa Power Station (AEPM)	.33	25
				Matison (AEPM)	Welsh (AEPM)	.32	26
RUSDARANOFTS				WELLYDWELNWT			
Increment Unit	Decrement Unit	(Sensitivity)	(MW)	Increment Unit	Decrement Unit	(Sensitivity)	(MW)
Fitzhugh (AEPM)	Fulton (AEPM)	.24	53	Kiowa (AEPM)	Welsh (AEPM)	.57	84
Fitzhugh (AEPM)	Dolet Hills (AEPM)	.24	53	Narrows (AEPM)	Welsh (AEPM)	.56	86
Fitzhugh (AEPM)	Arsenal Hills (AEPM)	.24	53	Comanche (AEPM)	Welsh (AEPM)	.52	92
Fitzhugh (AEPM)	Lieberman (AEPM)	.24	53	SW Station (AEPM)	Welsh (AEPM)	.52	92
				Weleetka (AEPM)	Welsh (AEPM)	.50	96
				Kiowa (AEPM)	Lebrock (AEPM)	.49	98
NESTULNESONE							
Increment Unit	Decrement Unit	(Sensitivity)	(MW)				
Tulsa Power Station (AEPM)	NE Station (AEPM)	.75	9				
Riverside Station (AEPM)	NE Station (AEPM)	.75	9				
Oneta Energy Center (AEPM)	NE Station (AEPM)	.74	9				
Weleetka (AEPM)	NE Station (AEPM)	.71	10				
Tulsa Power Station (AEPM)	Dolet Hills (AEPM)	.10	69				

## **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.