



**SPP**

*Southwest  
Power Pool*

***System Impact Study  
SPP-2012-002  
For Transmission Service  
Requested By:  
UCU***

***From AECL to MPS***

***For a Reserved Amount Of  
61 MW  
From 5/31/2012  
To 9/30/2012***

## **1. Executive Summary**

UCU has requested a system impact study for monthly firm transmission service from AECI to MPS. The period of the transaction is from 5/31/2012 to 9/30/2012. The request is for reservation 76732802.

The 61 MW transaction from AECI has an impact on the following flowgates with no AFC: REDARCREDARC, LYDVALVALPIT, and STIREDSTIPEC. 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**

UCU has requested a system impact study for transmission service from AECI to MPS.

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

- REDARCREARC: Redbud – Arcadia 345 kV circuit #1 line for the loss of Redbud – Arcadia 345 kV line circuit #2.
- STIREDSTIPEC: Stillwell – Redel 161 kV line for the loss of Stillwell – Peculiar 345 kV.
- LYDVALVALPIT: Lydia – Valliant 345 kV line for the loss of Valliant – Pittsburg 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, 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>
5207 REDARCREARC	7/1/2012 - 9/1/2012	3.0%	1.85
5219 STIREDSIPEC	6/1/2012 - 10/1/2012	7.7%	4.71
5410 LYDVALVALPIT	6/1/2012 - 7/1/2012	3.6%	2.19

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>5207 REDARCREARC</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
Nevada (MPS)	Chouteau (AECI)	8.1%	22.9
Ralph Green (MPS)	Chouteau (AECI)	6.8%	27.1
Greenwood (MPS)	Chouteau (AECI)	6.8%	27.4
Sibley (MPS)	Chouteau (AECI)	6.7%	27.4
South Harper (MPS)	Chouteau (AECI)	6.7%	27.4
Nevada (MPS)	New Madrid (AECI)	2.0%	92.1
Nevada (MPS)	Dell (AECI)	2.0%	93.2
Nevada (MPS)	Lake Road (MPS)	1.6%	114.5
<b>5219 STIREDSTIPEC</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
Lake Road (MPS)	Ralph Green (MPS)	8.2%	57.4
Nevada (MPS)	Ralph Green (MPS)	7.5%	62.5
TWA (MPS)	Ralph Green (MPS)	7.4%	63.9
Lake Road (MPS)	Greenwood (MPS)	8.0%	58.6
Nevada (MPS)	Greenwood (MPS)	7.4%	64.0
TWA (MPS)	Greenwood (MPS)	7.2%	65.4
Lake Road (MPS)	Chouteau (AECI)	7.6%	61.7
Nevada (MPS)	Chouteau (AECI)	7.0%	67.6
TWA (MPS)	Chouteau (AECI)	6.8%	69.2
<b>5410 LYDVALVALPIT</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
Chouteau (AECI)	Dell (AECI)	9.8%	22.4
Lake Road (MPS)	Dell (AECI)	5.1%	43.3
Sibley (MPS)	Dell (AECI)	5.0%	43.5
Nevada (MPS)	Dell (AECI)	4.9%	44.6
TWA (MPS)	Dell (AECI)	4.8%	45.4
Ralph Green (MPS)	Dell (AECI)	4.8%	45.5
Greenwood (MPS)	Dell (AECI)	4.8%	45.7
Chouteau (AECI)	New Madrid (AECI)	8.8%	24.9
Lake Road (MPS)	New Madrid (AECI)	4.1%	54.0
Sibley (MPS)	New Madrid (AECI)	4.0%	54.2
Chouteau (AECI)	Chamois (AECI)	5.6%	38.8
Chouteau (AECI)	Thomas Hill (AECI)	5.1%	43.0
Chouteau (AECI)	South Harper (MPS)	5.2%	42.1
Chouteau (AECI)	Greenwood (MPS)	5.0%	43.8
Chouteau (AECI)	Ralph Green (MPS)	5.0%	43.9

## **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.