



**SPP**

*Southwest  
Power Pool*

***System Impact Study  
SPP-2005-041  
For Transmission Service  
Requested By:  
Sunflower Electric Power  
Corporation***

***From WR to SECI***

***For a Reserved Amount Of  
75 MW***

***From 04/25/05  
To 04/26/05***

# ***SPP Transmission Planning***

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## **1. Executive Summary**

Sunflower Electric Power Corporation has requested a system impact study for monthly firm transmission service from WR to SECI. The period of the transaction is from 04/25/05 to 04/26/05. The request is for reservation 878462 for the amount of 75 MW.

The 75 MW transaction from WR to SECI has an impact on the following flowgates with no ATC: CREKILWICWOO, SPHWMCSUMEMC, and To provide the ATC necessary for this transfer, the impact on these flowgates must be relieved.

After studying many scenarios using curtailment of reservations and generation redispatch, there are several feasible scenarios that will relieve the flowgate in question.

## 2. Introduction

Sunflower Power Electric Corporation has requested a system impact study for transmission service from WR to SECI.

There is one constrained flowgate that requires relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- CREKILWICWOO: Creswell to Kildare 138 kV line for the loss of Wichita to Woodring 345 KV line
- SPHWMCSUMEMC: South Phillips to West McPherson 115 kV line for the loss of Summit to East McPherson 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 2005 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 request 878642, two flowgates require relief. The flowgate and associated amount of relief is as follows:

**Table 1**

Flowgates	Sensitivity Redirect (%)	Sensitivity Original (%)	Duration	Required Relief (MW)
CREKILWICWOO	3.4	-	April 25	3
SPHWMCSUMEMC	8.7		April 25	7

Table 2 displays a list of generator pairs that are possible relief options for the flowgates in question.

**Table 2**

Source	Sink	CREKILWICWOO Sensitivity (%)	SPHWMCSUMEMC Sensitivity (%)
Jeffrey Energy Center (WR)	Murray Gill (WR)	7.2	-
Tecumseh (WR)	Murray Gill (WR)	7.2	-
Tecumseh (WR)	Gordon Evans (WR)	4.7	-
Jeffrey Energy Center (WR)	Gordon Evans (CA)	4.7	-
Hutchinson (WR)	Murray Gill (WR)	-	14.5
Hutchinson (WR)	Murray Gill (WR)	-	14.5

Table 3 displays the amount of redispatch capacity necessary for each generator pair.

**Table 3**

Source	Sink	CREKILWICWOO Sensitivity (MW)	SPHWMCSUMEMC Sensitivity (MW)
Jeffrey Energy Center (WR)	Murray Gill (WR)	36	
Tecumseh (WR)	Murray Gill (WR)	36	
Tecumseh (WR)	Gordon Evans (WR)	55	
Jeffrey Energy Center (WR)	Gordon Evans (CA)	55	
Hutchinson (WR)	Murray Gill (WR)	-	45
Hutchinson (WR)	Murray Gill (WR)	-	45

## **5. Conclusion**

Reservation curtailment and generation redispatch options were studied in order to relieve the necessary constraint. 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 one of these relief options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.