



**SPP**

*Southwest  
Power Pool*

***System Impact Study  
SPP-2017-013  
For Transmission Service  
Requested By:  
REMC***

***From SPS.SJUANWIND1 to EDDY***

***For a Reserved Amount Of  
40 MW***

***From 06/19/2017  
To 06/23/2017***

## **1. Executive Summary**

REMC has requested a system impact study for daily firm transmission service from SPS.SJUANWIND1 to EDDY. The period of the transaction is from 06/19/2017 00:00 to 06/23/2017 00:00. The request is for reservation 85009364.

The 40 MW transaction from SPS has an impact on the following flowgates with no AFC: CARLPDLUBWOL, TUCJONPLASUN, SPSNMTIES, and PLXSUNTOLYOA. 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**

REMC has requested a system impact study for transmission service from SPS.SJUANWIND1 to EDDY.

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

- CARLPDLUBWOL: Carlisle – Doud 115 kV for the loss of the Lubbock South - Wolfforth 230 kV.
- TUCJONPLASUN: JONESSUB 230 kV for the loss of the PLXSUB – SUNDOWN 230 kV.
- SPSNMTIES: CROSSRDS – EDDY\_CO 345 kv.
- PLXSUNTOLYOA: PLXSUB – SUNDOWN 230 kV for the loss of TOKSUB – YOAKUM 230 kV.

### **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 2017 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 (%)	Required Relief (MW)
5056:CARLPDLUBWOL	6/22/2017 - 6/23/2017	3.7%	1
5482:TUCJONPLASUN	6/19/2017 - 6/23/2017	4.1%	2
5529:SPSNMTIES	6/19/2017 - 6/23/2017	89.6%	36
5591:PLXSUNTOLYOA	6/21/2017 - 6/23/2017	8.5%	3

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**

5056:CARLPDLUBWOL			
Increment	Decrement	Sensitivity	MW
Mustang	Massengale	32.11%	3
Mustang	Jones	31.71%	3
LCE Gas	Massengale	29.85%	3
LCE Gas	Jones	29.45%	3
Hobbs	Massengale	28.67%	3
Hobbs	Jones	28.27%	4
Mustang	Antelope	27.59%	4
LCE Gas	Antelope	25.33%	4
Hobbs	Antelope	24.15%	4

5482:TUCJONPLASUN			
Increment	Decrement	Sensitivity	MW
Jones	Antelope	55.92%	4
Jones	Comanche	52.43%	4
Jones	SW Station	52.22%	4
Massengale	Antelope	49.41%	4
Massengale	Comanche	45.92%	4
Massengale	SW Station	45.72%	4
Mustang	Antelope	26.43%	8
Mustang	Comanche	22.94%	9
Mustang	SW Station	22.74%	9

<b>5529:SPSNMTIES</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
Hobbs	Tolk	76.81%	47
Cunningham	Tolk	76.69%	47
Hobbs	Plant X	76.20%	47
Cunningham	Plant X	76.08%	47
Hobbs	Harrington	75.39%	48
Cunningham	Harrington	75.27%	48
Maddox	Tolk	65.94%	55
Maddox	Plant X	65.33%	55
Maddox	Harrington	64.52%	56

<b>5591:PLXSUNTOLYOA</b>			
<b>Increment</b>	<b>Decrement</b>	<b>Sensitivity</b>	<b>MW</b>
Mustang	Plant X	34.86%	9
Mustang	Tolk	31.52%	10
LCE Gas	Plant X	31.06%	10
Hobbs	Plant X	29.16%	10
LCE Gas	Tolk	27.72%	11
Mustang	Harrington	26.12%	11
Hobbs	Tolk	25.83%	12
LCE Gas	Harrington	22.32%	13
Hobbs	Harrington	20.43%	15

## **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.