



SPP *Southwest
Power Pool*

***System Impact Study
SPP-2009-006
For Transmission Service
Requested By:
GRDA***

From Redbud - GRDA

***For a Reserved Amount Of
307 MW
From 10/01/2009
To 9/01/2010***

1. Executive Summary

GRDA has requested a system impact study for monthly firm transmission service from Redbud to GRDA. The period of the transaction is from 10/1/2009 to 9/1/2010. The request is for reservation 1612461.

The 307 MW transaction from Redbud to GRDA has an impact on the following flowgates with no AFC: KILCREWOOWIC, MUSCLAMUSRSS, PITVALELDLON. 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

GRDA has requested a system impact study for transmission service from Redbud to GRDA.

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

KILCREWOOWIC: Kildare to Creswell 138 kV line for the loss of Woodring to Wichita 345 kV line

MUSCLAMUSRSS: Muskogee to Clarksville 345 kV line for the loss of Muskogee to Riverside Station 345 kV line

PITVALELDLON: Pittsburg to Valiant 345 kV line for the loss of El Dorado to Longwood 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 2009 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

Flowgates	Sensitivity (%)	Duration	Required Relief (MW)
KILCREWOOWIC	3.8	Oct 2009 – Sept 2010	11.7
MUSCLAMUSRSS	7.8	Oct 2009 – Sept 2010	23.9
PITVALELDLON	5.0	Oct 2009 – Sept 2010	15.3

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

Table 2

Source	Sink	KILCREWOOWIC Sensitivity (%)	MUSCLAMUSRSS Sensitivity (%)	PITVALELDLON Sensitivity (%)
Fitzhugh (AEPW)	Lebrock (AEPW)	14	-	-
Fitzhugh (AEPW)	Narrows (AEPW)	14	-	-
Fitzhugh (AEPW)	Lonestar (AEPW)	14	-	-
Fitzhugh (AEPW)	Flintcreek (AEPW)	14	-	-
Fitzhugh (AEPW)	Pirkey (AEPW)	13	-	-
Fitzhugh (AEPW)	Welsh (AEPW)	13	-	-
Fitzhugh (AEPW)	Wilkes (AEPW)	13	-	-
Ellis (AEPW)	Fulton (AEPW)	10	-	-
Ellis (AEPW)	Arsenal Hill (AEPW)	10	-	-
Ellis (AEPW)	Flint Creek (AEPW)	10	-	-
Flint Creek (AEPW)	Muskogee (OKGE)	-	50	-
NES (AEPW)	Muskogee (OKGE)	-	47	-
TPS (AEPW)	Muskogee (OKGE)	-	42	-
NES (AEPW)	Kiowa (OKGE)	-	22	16
Flint Creek (AEPW)	Welsh (AEPW)	-	21	-
Welsh (AEPW)	Kiowa (OKGE)	-	-	59
Wilkes (AEPW)	Kiowa (OKGE)	-	-	57
Arsenal Hill (AEPW)	Seminole (OKGE)	-	-	46

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

Table 3

Source	Sink	KILCREWOOWIC Relief (MW)	MUSCLAMUSRSS Relief (MW)	PITVALELDLON Relief (MW)
Fitzhugh (AEPW)	Lebrock (AEPW)	84	-	-
Fitzhugh (AEPW)	Narrows (AEPW)	84	-	-
Fitzhugh (AEPW)	Lonestar (AEPW)	84	-	-
Fitzhugh (AEPW)	Flintcreek (AEPW)	84	-	-
Fitzhugh (AEPW)	Pirkey (AEPW)	90	-	-
Fitzhugh (AEPW)	Welsh (AEPW)	90	-	-
Fitzhugh (AEPW)	Wilkes (AEPW)	90	-	-
Ellis (AEPW)	Fulton (AEPW)	117	-	-
Ellis (AEPW)	Arsenal Hill (AEPW)	117	-	-
Ellis (AEPW)	Flint Creek (AEPW)	117	-	-
Flint Creek (AEPW)	Muskogee (OKGE)	-	48	-
NES (AEPW)	Muskogee (OKGE)	-	51	-
TPS (AEPW)	Muskogee (OKGE)	-	57	-
NES (AEPW)	Kiowa (OKGE)	-	109	96
Flint Creek (AEPW)	Welsh (AEPW)	-	114	-
Welsh (AEPW)	Kiowa (OKGE)	-	-	26
Wilkes (AEPW)	Kiowa (OKGE)	-	-	27
Arsenal Hill (AEPW)	Seminole (OKGE)	-	-	33

5. Conclusion

Generation redispatch options were studied in order to relieve the necessary constraints. The results of this study show 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.