



SPP *Southwest Power Pool*

***System Impact Study
SPP-2013-009
For Transmission Service
Requested By:
TERM***

From CPV_CIMRN to PSCO_LOAD

***For a Reserved Amount Of
165 MW
From 5/1/2013
To 4/1/2014***

1. Executive Summary

TERM has requested a system impact study for monthly firm transmission service from CPV_CIMRN to PSCO_LOAD. The period of the transaction is from 5/1/2013 00:00 to 4/1/2014 00:00. The request is for reservation 77975574

The 165 MW transaction from CPV_CIMRN has an impact on the following flowgates with no AFC: REDWILLMINGO, TUCXFRHOLFIN, and GENTLMREDWIL. 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

TERM has requested a system impact study for transmission service from CPV_CIMRN to PSCO_LOAD.

There are 3 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- REDWILLMINGO: Red Willow to Mingo 345 kV line.
- TUCXFRHOLFIN: Tuco 345/230 kV transformer for the loss of the Holcomb – Finney 345 kV line.
- GENTLMREDWIL: Gentleman to Red Willow 345 kV line.

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 2013 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, three flowgates require relief. The flowgates and associated amount of relief are as follows:

Table 1

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5221 : REDWILLMINGO	11/01/2013 - 04/01/2014	4.5%	7
5460 : TUCXFRHOLFIN	05/01/2013 - 04/01/2014	37.6%	62
6007 : GENTLMREDWIL	05/01/2013 - 04/01/2014	3.5%	6

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

5221 : REDWILLMINGO			
Increment	Decrement	Sensitivity	MW
Garden City SECI	Gentleman NPPD	48.1%	15
Holcomb SECI	Gentleman NPPD	47.7%	15
Judson Large SECI	Gentleman NPPD	37.6%	19
Blackhawk SPS	Gentleman NPPD	37.1%	19
Harrington SPS	Gentleman NPPD	36.5%	19
Nichols SPS	Gentleman NPPD	36.5%	19
Garden City SECI	Whelan Energy Center NPPD	35.0%	20
Plant X SPS	Gentleman NPPD	34.6%	20
Holcomb SECI	Whelan Energy Center NPPD	34.6%	20
TOLK SPS	Gentleman NPPD	34.5%	20
Garden City SECI	Sheldon NPPD	32.1%	22
Garden City SECI	Fremont OPPD	32.1%	22
Holcomb SECI	Sheldon NPPD	31.7%	22
Holcomb SECI	Fremont OPPD	31.6%	22
Garden City SECI	Nebraska City OPPD	31.1%	22
Holcomb SECI	Nebraska City OPPD	30.7%	23
Judson Large SECI	Whelan Energy Center NPPD	24.5%	29
Blackhawk SPS	Whelan Energy Center NPPD	24.0%	29
Harrington SPS	Whelan Energy Center NPPD	23.5%	30
Nichols SPS	Whelan Energy Center NPPD	23.4%	30

5460 : TUCXFRHOLFIN			
Increment	Decrement	Sensitivity	MW
Massengale SPS	Hugo WFEC	64.3%	96
Cooke SPS	Hugo WFEC	64.2%	97
Jones SPS	Hugo WFEC	64.2%	97
Massengale SPS	Seminole OKGE	64.0%	97
Cooke SPS	Seminole OKGE	63.9%	97
Massengale SPS	Turk CSWS	63.9%	97
Jones SPS	Seminole OKGE	63.9%	97
Massengale SPS	Welsh CSWS	63.9%	97
Cooke SPS	Turk CSWS	63.9%	97
Cooke SPS	Welsh CSWS	63.8%	97
Massengale SPS	Wilkes CSWS	63.8%	97
Massengale SPS	Eastman Gas CSWS	63.8%	97
Massengale SPS	Pirkey CSWS	63.8%	97
Jones SPS	Turk CSWS	63.8%	97
Cooke SPS	Wilkes CSWS	63.8%	97
Jones SPS	Welsh CSWS	63.8%	97
Cooke SPS	Eastman Gas CSWS	63.8%	97
Cooke SPS	Pirkey CSWS	63.8%	97
Jones SPS	Wilkes CSWS	63.7%	97
Jones SPS	Eastman Gas CSWS	63.7%	97
Jones SPS	Pirkey CSWS	63.7%	97

6007 : GENTLMREDWIL			
Increment	Decrement	Sensitivity	MW
Garden City SECI	Gentleman NPPD	42.0%	14
Holcomb SECI	Gentleman NPPD	41.6%	14
Judson Large SECI	Gentleman NPPD	33.7%	18
Blackhawk SPS	Gentleman NPPD	33.3%	18
Harrington SPS	Gentleman NPPD	32.9%	18
Nichols SPS	Gentleman NPPD	32.9%	18
Plant X SPS	Gentleman NPPD	31.4%	19
TOLK SPS	Gentleman NPPD	31.3%	19
Cunningham SPS	Gentleman NPPD	31.1%	19
Hobbs SPS	Gentleman NPPD	31.1%	19
Garden City SECI	Whelan Energy Center NPPD	27.1%	22
Holcomb SECI	Whelan Energy Center NPPD	26.7%	22
Garden City SECI	Sheldon NPPD	25.1%	24
Garden City SECI	Fremont OPPD	25.1%	24
Holcomb SECI	Sheldon NPPD	24.8%	24
Holcomb SECI	Fremont OPPD	24.7%	24
Garden City SECI	Nebraska City OPPD	24.4%	25
Holcomb SECI	Nebraska City OPPD	24.0%	25

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.