



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2013-010
For Transmission Service
Requested By:
WRGS***

From Dogwood to OPPD

***For a Reserved Amount Of
150 MW
From 6/1/2013
To 10/1/2013***

1. Executive Summary

WRGS has requested a system impact study for monthly firm transmission service from DOGWOOD to OPPD. The period of the transaction is from 6/1/2013 00:00 to 10/1/2013 00:00. The request is for reservations 77981239 and 77981240.

The 150 MW transactions from DOGWOOD has an impact on the following flowgates with no AFC: LACNEOLANWIC and GRIS_LNC. 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

WRGS has requested a system impact study for transmission service from DOGWOOD to OPPD.

There are 2 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- LACNEOLANWIC: Lacygne to Neosho 345 kV line for the loss of the Lang to Wichita 345 kV line.
- GRIS_LNC: Grand Island to Lincoln interface PTDF

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

Table 1

Flowgate	Duration	Sensitivity (%)	Required Relief (MW)
5022 : LACNEOLANWIC	06/01/2013 - 10/01/2013	5.0%	8
6008 : GRIS_LNC	06/01/2013 - 10/01/2013	9.6%	14

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

5022 : LACNEOLANWIC			
Increment	Decrement	Sensitivity	MW
Asbury EDE	Lacygne KCPL/WR	34.9%	23
Stateline EDE	Lacygne KCPL/WR	34.4%	23
GRDA 1	Lacygne KCPL/WR	33.8%	24
Northeast Gas CSWS	Lacygne KCPL/WR	33.5%	24
GRDA 2	Lacygne KCPL/WR	33.5%	24
Riverside CSWS	Lacygne KCPL/WR	32.4%	25
Asbury EDE	Lawrence Energy Center WR	24.5%	33
Asbury EDE	Quindaro KACY	24.1%	33
Asbury EDE	Emporia Energy Center WR	24.1%	33
Stateline EDE	Lawrence Energy Center WR	24.0%	33
Stateline EDE	Quindaro KACY	23.6%	34
Stateline EDE	Emporia Energy Center WR	23.6%	34
GRDA 1	Lawrence Energy Center WR	23.4%	34
Northeast Gas CSWS	Lawrence Energy Center WR	23.1%	35
GRDA 2	Lawrence Energy Center WR	23.1%	35
GRDA 1	Quindaro KACY	23.0%	35
GRDA 1	Emporia Energy Center WR	23.0%	35
Northeast Gas CSWS	Quindaro KACY	22.7%	35
GRDA 2	Quindaro KACY	22.7%	35
Northeast Gas CSWS	Emporia Energy Center WR	22.7%	35
GRDA 2	Emporia Energy Center WR	22.6%	35
Riverside CSWS	Lawrence Energy Center WR	22.0%	36
Riverside CSWS	Quindaro KACY	21.6%	37
Riverside CSWS	Emporia Energy Center WR	21.6%	37

6008 : GRIS_LNC			
Increment	Decrement	Sensitivity	MW
Sheldon NPPD	Whelan Energy Center NPPD	58.4%	24
Sheldon NPPD	Gentleman NPPD	57.3%	24
Nebraska City OPPD	Whelan Energy Center NPPD	56.2%	25
Nebraska City OPPD	Gentleman NPPD	55.1%	25
Fremont OPPD	Whelan Energy Center NPPD	53.6%	26
Fremont OPPD	Gentleman NPPD	52.5%	27
Iatan KCPL	Whelan Energy Center NPPD	46.6%	30
Hawthorn KCPL	Whelan Energy Center NPPD	45.9%	30
Sibley MPS	Whelan Energy Center NPPD	45.9%	31
Iatan KCPL	Gentleman NPPD	45.5%	31
Quindaro KACY	Whelan Energy Center NPPD	45.5%	31
Hawthorn KCPL	Gentleman NPPD	44.8%	31
Sibley MPS	Gentleman NPPD	44.8%	31
Quindaro KACY	Gentleman NPPD	44.4%	32
Sheldon NPPD	Garden City SECI	42.2%	33
Sheldon NPPD	Holcomb SECI	42.1%	33
Nebraska City OPPD	Garden City SECI	40.0%	35
Nebraska City OPPD	Holcomb SECI	39.9%	35
Sheldon NPPD	Judson Large SECI	39.1%	36
Fremont OPPD	Garden City SECI	37.5%	37
Fremont OPPD	Holcomb SECI	37.3%	37
Nebraska City OPPD	Judson Large SECI	36.9%	38
Fremont OPPD	Judson Large SECI	34.3%	41
Iatan KCPL	Garden City SECI	30.4%	46
Iatan KCPL	Holcomb SECI	30.3%	46
Hawthorn KCPL	Garden City SECI	29.8%	47
Sibley MPS	Garden City SECI	29.7%	47
Hawthorn KCPL	Holcomb SECI	29.7%	47
Sibley MPS	Holcomb SECI	29.6%	47
Quindaro KACY	Garden City SECI	29.3%	48
Quindaro KACY	Holcomb SECI	29.2%	48
Iatan KCPL	Judson Large SECI	27.3%	51
Hawthorn KCPL	Judson Large SECI	26.6%	53
Sibley MPS	Judson Large SECI	26.6%	53
Quindaro KACY	Judson Large SECI	26.2%	53

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.