



SPP

*Southwest
Power Pool*

***System Impact Study
SPP-2016-005
For Transmission Service
Requested By:
MOWR***

From KCPL to MPS

***For a Reserved Amount Of
18 MW
For 6/1/2016 – 12/1/2016***

1. Executive Summary

MOWR has requested a system impact study for monthly firm transmission service from KCPL to MPS. The period of the transaction is from 6/1/2016 00:00 CDT to 12/1/2016 00:00 CDT. The request is for reservation 82603843.

The 18 MW transaction from KCPL has an impact on the following flowgates with no AFC: NORCROGRACRO, LACNEOEMPWIC, STIREDSTIPEC, IATSTRSTJHAW, SPEJUDHOLPLY, EASXFREASSTJ, and IATAN_EASTO. 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

MOWR has requested a system impact study for transmission service from KCPL to MPS.

There are 7 constrained flowgates that require relief in order for this reservation to be accepted. The flowgates and the explanations are as follows:

- NORCROGRACRO: Northeast – Crosstown 161kV FTLO Grand Ave - Crosstown 161kV.
- LACNEOEMPWIC: Lacygne – Neosho 345kV FTLO Emporia –Wichita 345kV
- STIREDSTIPEC: Stilwell – Redel 161kV FTLO Stilwell – Peculiar 345kV
- IATSTRSTJHAW: Iatan – Stranger 345kV FTLO Nashua – Hawthorn 345kV
- SPEJUDHOLPLY: Spearville – North Fort Dodge 115kV FTLO Holcomb – Plymell 115kV
- EASXFREASSTJ: Easttown 345/161kV Xfmr FTLO Easttown – St. Joe 345kV
- IATAN_EASTO: Iatan – Easttown 345kV PTDF flowgate.

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 2016 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, seven flowgates require relief. The flowgates and associated amount of relief are as follows:

Table 1

Flowgate	Duration	Sensitivity	Impact
5022:LACNEOEMPWIC	6/1/2016-12/1/2016	3.32%	1
5219:STIREDSTIPEC	6/1/2016-12/1/2016	5.46%	1
5228:IATSTRNASHAW	8/1/2016-12/1/2016	3.09%	1
5436:SPEJUDHOLPLY	6/1/2016-8/1/2016	3.25%	1
5496:EASXFREASSTJ	6/1/2016-12/1/2016	6.96%	1
5499:NORCROGRACRO	8/1/2016-12/1/2016	3.88%	1
6104:IATAN_EASTO	6/1/2016-12/1/2016	8.07%	1

Table 2 displays a list of generator pairs that are possible relief options for each flowgate in question and the amount of redispatch capacity needed.

Table 2

5499:NORCROGRACRO			
Increment	Decrement	Sensitivity	Redispatch
Osawa CT	Northeast	26.77%	4
S. Harper	Northeast	26.74%	4
West Gardner	Northeast	26.71%	4
Osawa CT	Hawthorne	15.78%	6
S. Harper	Hawthorne	15.72%	6
West Gardner	Hawthorne	15.66%	6
Osawa CT	Blue Valley	12.52%	8
S. Harper	Blue Valley	12.47%	8
West Gardner	Blue Valley	12.39%	8
5022:LACNEOEMPWIC			
Increment	Decrement	Sensitivity	Redispatch
Asbury	Lacygne	34.51%	3
Northeast	Lacygne	34.28%	3
GRDA	Lacygne	33.03%	3
Asbury	West Gardner	25.30%	4

Northeast	West Gardner	25.07%	4
GRDA	West Gardner	23.82%	4
Asbury	S. Harper	23.87%	4
Northeast	S. Harper	23.64%	4
GRDA	S. Harper	22.37%	4
5219:StiRedStiPec			
Increment	Decrement	Sensitivity	Redispatch
Pleasant Hill	Osawa CT	21.43%	5
Sibley	Osawa CT	15.57%	6
S. Harper	Osawa CT	15.41%	6
Pleasant Hill	Lacygne	17.66%	6
Sibley	Lacygne	11.81%	8
S. Harper	Lacygne	11.64%	9
Pleasant Hill	West Gardner	15.98%	6
Sibley	West Gardner	10.12%	10
S. Harper	West Gardner	9.96%	10
5228:IATSTRSTJHAW			
Increment	Decrement	Sensitivity	Redispatch
JEC	Iatan	60.68%	2
LEC	Iatan	59.06%	2
TEC	Iatan	58.35%	2
JEC	Lake Road	46.72%	2
LEC	Lake Road	45.10%	2
TEC	Lake Road	44.39%	2
JEC	Nebraska City	33.38%	3
LEC	Nebraska City	31.76%	3
TEC	Nebraska City	31.05%	3
5436:SPEJUDHOLPLY			
Increment	Decrement	Sensitivity	Redispatch
Ft Dodge	Goodman	39.87%	3
Cimarron	Goodman	20.21%	5
Rubart	Goodman	12.95%	8

Ft Dodge	McPherson	39.42%	3
Cimarron	McPherson	19.76%	5
Rubart	McPherson	12.50%	8
Ft Dodge	HEC	39.31%	3
Cimarron	HEC	19.66%	5
Rubart	HEC	12.40%	8
5496:EASXFREASSTJ			
Increment	Decrement	Sensitivity	Redispatch
Lake Road	latan	45.45%	2
Nebraska City	latan	13.06%	8
Cass County	latan	12.70%	8
Lake Road	LEC	45.07%	2
Nebraska City	LEC	16.67%	8
Cass County	LEC	12.32%	8
Lake Road	JEC	45.05%	2
Nebraska City	JEC	12.67%	8
Cass County	JEC	12.30%	8
6104:IATAN_EASTO			
Increment	Decrement	Sensitivity	Redispatch
Lake Road	latan	63.23%	2
Nebraska City	latan	44.95%	2
Cass County	latan	43.89%	2
Lake Road	LEC	47.41%	2
Nebraska City	LEC	29.13%	3
Cass County	LEC	28.08%	4
Lake Road	JEC	47.40%	2
Nebraska City	JEC	29.12%	3
Cass County	JEC	28.07%	4

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, agreement to the redispatch costs must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.