SPP Southwest Power Pool

System Impact Study
SPP-2017-001
For Transmission Service
Requested By:
WRGS

From OKGE to ERCOTN

For a Reserved Amount Of
50 MW
For 1/7/2017

1. Executive Summary

WRGS has requested a system impact study for monthly firm transmission service from OKGE to ERCOTN. The period of the transaction is from 1/7/2017 00:00 CST to 1/8/2017 00:00 CST. The request is for reservation 84034139.

The 50 MW transaction from OGKE has an impact on the following flowgates with no AFC: MIDFRNPHAWET, SPSNORTH_STH, and REDARCREDARC. 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 OKGE to ERCOTN.

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

- MIDFRNPHAWET: Midwest – Franklin 138 kV for the loss of Trans Canada – Cromwell 138 kV

- SPSNORTH_STH: SPS North to South stability interface

- REDARCREDARC: Redbud – Arcadia 345 kV for the loss of Redbud – Arcadia 345 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, three flowgates require relief. The flowgates and associated amount of relief follows:

Table 1

Flowgate	Duration	Sensitivity	Impact
5096 : MIDFRNPHAWET	1/7/2017	4.02%	2
5196 : SPSNORTH_STH	1/7/2017	13.99%	7
5207 : REDARCREDARC	1/7/2017	19.92%	10

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

5096 : MIDFRNPHAWET			
Increment	**Decrement**	**Sensitivity**	**Redispatch MW**
Anadarko	McClain	15.48%	13
Anadarko	Horseshoe Lake	14.72%	14
Anadarko	Smith Co	14.64%	14
Anadarko	Mustang OKGE	14.26%	14
Southwest Station	McClain	12.21%	16
Southwest Station	Horseshoe Lake	11.45%	17
Southwest Station	Smith Co	11.37%	18
Southwest Station	Mustang OKGE	10.99%	18
Commanche	McClain	9.80%	20

5196 : SPSNORTH_STH			
Increment	**Decrement**	**Sensitivity**	**Redispatch MW**
Plant X	Harrington	81.89%	9
Plant X	Nichols	81.85%	9
Tolk	Harrington	80.59%	9
Tolk	Nichols	80.55%	9
Cunningham	Harrington	79.03%	9
Cunningham	Nichols	78.99%	9

5207 : REDARCREDARC			
Increment	**Decrement**	**Sensitivity**	**Redispatch MW**
Horseshoe Lake	Redbud	87.80%	11
Mustang OKGE	Redbud	87.43%	11
Spring Creek	Redbud	87.39%	11
Smith Co	Redbud	87.35%	11
Horseshoe Lake	Jenks	22.69%	44
Mustang OKGE	Jenks	22.32%	45
Spring Creek	Jenks	22.28%	45
Smith Co	Jenks	22.23%	45

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.