SPP Southwest Power Pool

System Impact Study
SPP-2003-120
For Transmission Service
Requested By:
Tenaska Power Services

From CSWS to CSWS

For a Reserved Amount Of
620 MW
From 04/18/03
To 04/21/03

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1. Executive Summary

Tenaska has requested a system impact study for Daily Firm transmission service from a specific source within CSWS to a sink in CSWS. The period of the transaction is from 04/18/03 to 04/21/03. The request is for reservation 518541 for the amount of 620 MW.

The 620MW transaction from a specific source within CSWS to a sink in CSWS has created a new constraint on the PITSEMPITSUN flowgate. To provide the ATC necessary for this transfer, the impact on this flowgate must be relieved.

It has been determined that there is not sufficient time available to complete upgrades to the system that would relieve these flowgates.

After studying many scenarios using redispatch, there are feasible solutions that will relieve the flowgates in question. If Tenaska chooses a redispatch option(s), a written agreement between Tenaska and the generator owners must be supplied to SPP and the effectiveness of the redispatch must be verified by SPP before acceptance of reservation.

2. Introduction

Tenaska has requested an impact study for transmission service from a specific source within CSWS to a sink in CSWS.

There is one constrained flowgate that needs relief in order for this reservation to be accepted. The flowgate and its explanation is as follows:

- PITSEMPITSUN: Pittsburg to Seminole 345 KV line monitored for the loss of the Pittsburg to Sunnyside 345 KV line.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews redispatch as an option to relieving the transmission constraint.

3. Study Methodology

A. Description

Southwest Power Pool used the NERC Generator Sensitivity Factor (GSF) Viewer to obtain possible unit pairings that would relieve the constraint. The GSF viewer calculates impacts on monitored facilities for all units above 20MW in the Eastern Interconnection. The SPP ATC Calculator is used to determine response factors for the time period of the reservation.

B. Model Updates

A Southwest Power Pool EMS state-estimator model reflecting system conditions expected to exist during the time frame of service requested 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 all constraints is required.

Using the NERC Generator Sensitivity Factor (GSF) Viewer, 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 the Viewer is the amount of redispatch necessary to relieve the impact on the affected flowgate.

4. Study Results

A 620 MW reservation from a specific source within CSWS to a sink in CSWS will overload the PITESEMPITSUN flowgate by 126 MW. Forty percent of the output of the requested source will flow on the PITSEMPITSUN flowgate.

Listed below are Generator Sensitivity Factors of generator pairs that have the greatest impact on the PITSEMPITSUN flowgate.

Source	Sink	PITSEMPITSUN (GSF)
Seminole 1(OKGE)	Welsh (CSWS)	-20.3
Seminole 1(OKGE)	Pirkey (CSWS)	-20.6
Seminole 1(OKGE)	Knox Lee (CSWS)	-20.6
Seminole 1(OKGE)	Northeastern (OKGE)	-22.9
Seminole 1(OKGE)	Muskogee (OKGE)	-25.8
Seminole 1(OKGE)	Broken Bow (SPA)	-16.0

Source	Sink	PITSEMPITSUN (GSF)
Seminole 2 or 3 (OKGE)	Welsh (CSWS)	-47.4
Seminole 2 or 3 (OKGE)	Pirkey (CSWS)	-45.9
Seminole 2 or 3 (OKGE)	Knox Lee (CSWS)	-46.2
Seminole 2 or 3 (OKGE)	Northeastern (CSWS)	-28.9
Seminole 2 or 3 (OKGE)	Muskogee (OKGE)	-36.0
Seminole 2 or 3 (OKGE)	Broken Bow (SPA)	-43.2

5. Conclusion

Redispatch options were investigated in this study to relieve the constraints necessary. The results of the study showed that the constraint on the flowgate in question could be relieved via redispatch. Therefore, the request for daily service from a specific source within CSWS to a sink in CSWS will be accepted if appropriate redispatch options are obtained by Tenaska and communicated to SPP as previously described.