SPP Southwest Power Pool

Revised System Impact Study
SPP-2003-069
For Transmission Service
Requested By:
Calpine Energy Services

From CSWS to OKGE

For a Reserved Amount Of
110 MW
From 06/1/03
To 10/1/03

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1. Executive Summary

Calpine Energy Services has requested a system impact study for Monthly Firm transmission service from CSWS to OKGE. The period of the transaction is from 06/1/03 to 10/1/03. The request is for reservation 484954 for the amount of 110 MW.

The 110 MW transaction from CSWS to OKGE is impacting a constrained flow gate BLUBRIRIVRED. 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 this flowgate.

After studying many scenarios using generation re-dispatch, there is a scenario that will relieve the flowgate in question for all months requested.

2. Introduction

Calpine Energy Services has requested an impact study for transmission service from CSWS to OKGE.

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

- BLUBRIRIVRED: Bluebell – Bristow 138 kV line is monitored for the loss of Riverside – Redbud 345 kV line.

There are no facilities upgrades available to relieve this flow gate that can be completed in the time period available. This impact study reviews generation redispatch as an option to relieving the transmission constraints.

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 20 MW in the Eastern Interconnection. The SPP ATC Calculator is used to determine response factors for the time period of the reservation.

B. Model Updates

The 2003 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 all constraints is required.

Using the NERC Generator Sensitivity Factor (GSF) Viewer, specific generator pairs are chosen to reflect the units available for re-dispatch. The quotient of the amount of impact that must be relieved and the generation sensitivity factor calculated by the Viewer is the amount of re-dispatch necessary to relieve the impact on the affected flowgate.

4. Study Results

After studying impacts of request 484954, one flowgate remains constrained. This flowgate and the amount of required relief is as follows:

BLUBRIRIVRED: 7.48 MW

Using the provided generators in OKGE that are available for re-dispatch (pending OKGE approval), three re-dispatch pairs will relieve the 7.48 MW impact:

- Raising Mustang while dropping Muskogee (6.6% impact) should relieve the impact of this reservation. In order to relieve the 7.48 MW of impact, Mustang should be raised 113 MW while decreasing generation at Muskogee by 113 MW.
- Raising Seminole while dropping Muskogee (5.4% impact) should relieve the impact of this reservation. In order to relieve the 7.48 MW of impact, Seminole should be raised 138 MW while decreasing generation at Muskogee by 138 MW.

Note: These re-dispatch options must be agreed upon by OKGE. SPP must obtain, from Calpine, a copy of the re-dispatch agreement between OKGE and Calpine.

5. Conclusion

Re-dispatch options provided to SPP by Calpine Energy Services were examined. The results of the study showed that the constraints on flow gate BLUBRIRIVRED could be relieved by one of two different re-dispatch options within OKGE (pending OKGE approval).