SPP Southwest Power Pool

System Impact Study SPP-2003-072 For Transmission Service Requested By: Southwestern Public Service Company

From MEC to SPS

For a Reserved Amount Of 50 MW From 03/1/03 To 04/1/03

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1. Executive Summary

Southwestern Public Service Company has requested a system impact study for Monthly Firm transmission service from MEC to SPS. The period of the transaction is from 03/1/03 to 04/1/03. The request is for reservation 492257 for the amount of 50MW and is a redirect of original confirmed service 381169 from AMRN to SPS.

The 50MW transaction from MEC to SPS has created greater impacts on the SPPSPSTIES and the WNE_WKS flowgates. To provide the ATC necessary for this transfer, the impact on these flowgates 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 curtailment of reservations, there is a scenario that will relieve the flowgates in question.

2. Introduction

Southwestern Public Service Company has requested an impact study for transmission service from MEC to SPS.

There are two constrained flowgates that need relief in order for this reservation to be accepted. The flowgates and their explanations are as follows:

- The Tuco to Oklaunion, 345 KV, line is monitored for the loss of the Grapevine to Elk City, 230 KV line, the Holcomb to Finney/Potter Co., 345 KV line, the Shamrock to Mcclean, 115 KV line, the Liberal to Texas Co., 115 KV line, and the Jericho to Kirby, 115 KV line. This makes up the SPPSPSTIES flowgate.

- The Gentleman to Red Willow, 345 KV line makes up the WNE_WKS flowgate.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews curtailment of existing reservations 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 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

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 the largest impact may also provide relief of smaller impacts.

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

After comparing impacts of original request 381168 and redirect request 490302, two flowgates remain unrelieved. These flowgates with the amount that is needed to be relieved are as follows:

- SPPSPSTIES (1 MW)
- WNE_WKS (2.0 MW)

The SPPSPSTIES flowgate had an impact from the original request of 0.977 (49 MW) and the impact of the redirect is 0.99 (50 MW). Once the original impact is taken away from the redirect impact, a 1 MW constraint is left to be relieved off the SPPSPSTIES flowgate. Note: once the redirect is approved; the original will no longer be used. To relieve this constraint, an AMRN to SPS schedule needs curtailed by 1 MW (0.977 impact factor).

The WNE_WKS flowgate had an impact from the original request of .155 (8 MW) and the redirect has an impact of .199 (10 MW). Once the original impact is taken away from the redirect impact, a 2 MW constraint is left to be relieved off the WNE_WKS flowgate. To relieve this constraint, an AMRN to SPS schedule needs to be curtailed by 14 MW (0.157 impact factor).

5. Conclusion

Redispatch and curtailment options given by Southwestern Public Service Company were exhausted in this study to relieve the constraints necessary. The results of the study showed that the constraints on the flowgates in question could be relieved by the curtailment of an AMRN to SPS schedule.