SPP Southwest Power Pool

System Impact Study
SPP-2011-002
For Transmission Service
Requested By:
AEPM

From CSWS to CSWS

For a Reserved Amount Of
250 MW
From 12/06/2011
To 10/05/2012

1. Executive Summary

AEPM has requested a system impact study for monthly firm transmission service from CSWS to CSWS (Source: CSWS.ONETA Sink: CSWS). The period of the transaction is from 12/6/2011 to 10/5/2012. The request is for reservation 76028508.

The 250 MW transaction from CSWS has an impact on the following flowgates with no AFC: HPPVALPITVAL, REDARCREDARC, VALLYDELDLON, VALIANTLYDIA, ONEBANNESTUL, PITVALELDLON 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

AEPM has requested a system impact study for transmission service from CSWS to CSWS.

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

HPPVALPITVAL: Hugopp4 to Valiant 138 kV line for the loss of Pittsburg to Valiant 345 kV line.

REDARCREDARC: Redbud to Arcadia 345 kV line for the loss of Redbud to Arcadia 345 kV line.

VALLYDELDLON: Valiant to Lydia 345 kV line for the loss of El Dorado to Longwood 345 kV line.

VALIANTLYDIA: Valiant to Lydia 345 kV line.

ONEBANNESTUL: Oneta to Broken Arrow North 138 kV line for the loss of Northeastern Station to Tulsa North 345 kV.

PITVALELDLON: Pittsburg to Valiant 345 kV line for the loss of El Dorado to Longwood 345 kV line.

3. Study Methodology

A. Description

Southwest Power Pool used Managing and Utilizing System Transmission (MUST) to obtain possible unit pairings that would relieve the constraint. MUST 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 2011 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 Managing and Utilizing System Transmission (MUST), 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 MUST is the amount of redispatch necessary to relieve the impact on the affected flowgate.

4. Study Results

After studying the impacts of the request, six flowgates require relief. The flowgates and associated amount of relief are as follows:

Table 1

Flowgates	Duration	Required Relief (MW)
HPPVALPITVAL	12/6/11 – 10/5/12	9.9
REDARCREDARC	12/6/11 – 10/5/12	22.6
VALLYDELDLON	12/6/11 – 10/5/12	42.6
VALIANTLYDIA	12/6/11 – 10/5/12	34.6
ONEBANNESTUL	12/6/11 – 10/5/12	18.05
PITVALELDLON	12/6/11 – 10/5/12	38.3

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

Table 2

HPPVALPITVAL				REDARCREDARC			
Increment Unit	Decrement Unit	(Sensitivity)	(MW)	Increment Unit	Decrement Unit	(Sensitivity)	(MW)
Welsh (AEPM)	SW Station (AEPM)	.16	62	SW Station (AEPM)	Cogentrix (AEPM)	.27	84
Welsh (AEPM)	Comanche (AEPM)	.16	62	Comanche (AEPM)	Cogentrix (AEPM)	.27	84
Welsh (AEPM)	Weleetka (AEPM)	.15	66	Comanche (AEPM)	Riverside St. (AEPM)	.24	94
Lonestar (AEPM)	SW Station (AEPM)	.15	66	SW Station (AEPM)	Tulsa Power St. (AEPM)	.24	94
Welsh(AEPM)	Kiowa (AEPM)	.15	66	Comanche (AEPM)	Tulsa Power St. (AEPM)	.24	94
Wilkes (AEPM)	SW Station (AEPM)	.15	66	Kiowa (AEPM)	Cogentrix (AEPM)	.22	103
VALLYDELDLON				VALIANTLYDIA			
Increment Unit	Decrement Unit	(Sensitivity)	(MW)	Increment Unit	Decrement Unit	(Sensitivity)	(MW)
Welsh (AEPM)	Kiowa (AEPM)	.62	69	Welsh (AEPM)	Kiowa (AEPM)	.56	62
Wilkes (AEPM)	Kiowa (AEPM)	.59	72	Lonestar (AEPM)	Kiowa (AEPM)	.52	67
Lonestar (AEPM)	Kiowa (AEPM)	.59	72	Wilkes (AEPM)	Kiowa (AEPM)	.52	67
Welsh (AEPM)	Comanche (AEPM)	.56	76	Lebrock (AEPM)	Kiowa (AEPM)	.52	67
Welsh (AEPM)	SW Station (AEPM)	.56	76	Welsh (AEPM)	Comanche (AEPM)	.49	71
Wilkes (AEPM)	SE Station (AEPM)	.53	80	Welsh (AEPM)	SW Station (AEPM)	.49	71
				Lonestar (AEPM)	Comanche (AEPM)	.46	75
ONEBANNESTUL				PITVALELDLON			
Increment Unit	Decrement Unit	(Sensitivity)	(MW)	Increment Unit	Decrement Unit	(Sensitivity)	(MW)
NE Station (AEPM)	Oneta (AEPM)	.19	95	Welsh (AEPM)	Kiowa (AEPM)	.6	64
NE Station (AEPM)	Cogentrix (AEPM)	.15	120	Lonestar (AEPM)	Kiowa (AEPM)	.58	66
NE Station (AEPM)	Riverside (AEPM)	.14	129	Wilkes (AEPM)	Kiowa (AEPM)	.58	66
NE Station (AEPM)	Tulsa Power St. (AEPM)	.14	129	Welsh (AEPM)	Comanche (AEPM)	.49	78
NE Station (AEPM)	Kiowa (AEPM)	.13	139	Welsh (AEPM)	SW Station (AEPM)	.48	80
				Wilkes (AEPM)	Comanche (AEPM)	.47	81

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, proof of the necessary relief options must be presented to Southwest Power Pool. Noncompliance with this guideline will result in the refusal of the reservation.