



**SPP**

*Southwest  
Power Pool*

***System Impact Study  
SPP-2003-001  
For Transmission Service  
Requested By:  
Aquila Energy Marketing  
Corporation***

***From AECL to ERCOTE***

***For a Reserved Amount Of  
50 MW  
From 03/1/03  
To 01/1/04***

# ***SPP Transmission Planning***

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## **1. Executive Summary**

Aquila has requested a system impact study for Monthly Firm transmission service from AECl to ERCOTE. The period of the transaction is from 03/1/03 to 01/1/04. The request is for reservation 473324 for the amount of 50MW and is a redirect of original confirmed service 369808 from CLECO to ERCOTE.

The 50MW transaction from AECl to ERCOTE has created new constraints on the NESONENESTUL, CRAASHVALLYD, THMMOBTHMSAL, STJLAKIATSTR, and WEBRERICHARD 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 redispatch and curtailment of reservations, there are no feasible solutions that will relieve the flowgates in question.

## **2. Introduction**

Aquila has requested an impact study for transmission service from AECl to ERCOTE.

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

- The Northeastern Station to Oneta (NESONEENESTUL) flowgate has been identified as the limiting constraint for the AECl to ERCOTE transfer. For this flowgate, the Northeastern Station to Oneta, 345kV line is monitored during the loss of the Northeastern Station to Tulsa North, 345kV line. It has been determined that the 50MW transfer from AECl to ERCOTE will cause the Northeastern Station to Oneta line to overload should the loss of the Northeastern Station to Tulsa North line occur.
- The Craig Jct. to Ashdown, 138 KV line makes up the CRAASHVALLYD flowgate. Craig Jct. to Ashdown is monitored during the loss of the Valliant to Lydia 345 KV line.
- The Thomas Hill to Moberly, 161 KV line makes up the THMMOBTHMSAL flowgate. Thomas Hill to Moberly is monitored during the loss of the Thomas Hill to Salisbury 161 KV line.
- The St. Joe to Hawthorne, 345 KV line makes up the STJLAKIATSTR flowgate. St. Joe to Hawthorne is monitored during the loss of either the Lake Rd. to Nashua 161 KV line or the Iatan to Stranger Creek 345 KV line.
- The Webre to Richard 500 KV line makes up the WEBRERICHARD flowgate.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews redispatch and 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 369808 and redirect request 473324, five flowgates remain unrelieved. These flowgates with the amount that is needed to be relieved are as follows:

- NESONENESTUL (4.9 MW)
- CRAASHVALLYD (3.1 MW)
- WEBRERICHARD (5.8 MW)
- THMMOBTHMSAL (5.6 MW)
- STJLAKIATSTR (7.9 MW)

The only flowgates that were relieved using curtailment of reservations were the WEBRERICHARD and CRAASHVALLYD flowgates. Since WEBRERICHARD was a new constraint, the total impact of the reservation on WEBRERICHARD had to be relieved. With a sensitivity factor of 0.116, the impact is as stated, 5.8 MW. In order to relieve this amount of constraint, a CSW to ERCOTE reservation would have to be curtailed by 106 MW, since the sensitivity factor of this particular reservation was 0.055 on this flowgate. Likewise, the CRAASHVALLYD impact of 3.1 MW could either be relieved with a curtailment of 43 MW from a CSWS-ERCOTE request (s.f. 0.071) or 48 MW from a CLEC – ERCOTE request (s.f. 0.064). This was possible with the reservations available to curtail.

After running all generation scenarios, it was determined that it would take more generation than what was available in order to relieve the constraints on NESONENESTUL, STJLAKIATSTR, and THMMOBTHMSAL. The generation, available for redispatch, is too far removed from these flowgates.

## **5. Conclusion**

Redispatch and curtailment options given by Aquila Energy Marketing Corporation 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 not be relieved. Therefore, the request for monthly service from AECl to ERCOTE will be refused.