



**Date:** May 10, 2011  
**To:** ERCOT Board of Directors  
**From:** Brad Jones, Technical Advisory Committee (TAC) Chair  
**Subject:** Valley Import Constraint – Revised Maximum Shadow Price Cap

**Issue for the ERCOT Board of Directors**

**ERCOT Board of Directors (ERCOT Board) Meeting Date:** May 17, 2011

**Agenda Item No.:** 6c

**Issue:**

Recognizing the number of hours in which the Valley import limit was exceeded and resulted in the constraint reaching the Shadow Price cap, ERCOT performed an analysis on the appropriateness of a \$5,000 Shadow Price cap for the Valley Import limit and proposed a revised methodology to the Wholesale Market Subcommittee (WMS) and TAC. Nodal Protocol 6.5.7.1.11, Transmission Network and Power Balance Constraint Management, requires that ERCOT determine the methodology for setting maximum Shadow Prices for network constraints and for the power balance constraint and that after TAC recommendation, the ERCOT Board approves the final methodology. ERCOT proposed a revision to the current methodology (previously approved by the ERCOT Board on November 16, 2010), and TAC brings the following recommendation to the ERCOT Board for review and approval of the methodology.

**Background/History:**

Paragraph (4) of Nodal Protocol 6.5.7.1.11, Transmission Network and Power Balance Constraint Management, states that:

ERCOT shall determine the methodology for setting maximum Shadow Prices for network constraints and for the power balance constraint. Following review and recommendation by TAC, the ERCOT Board shall review the recommendation and approve a final methodology.

As a result of the number of hours in which the Valley import limit was exceeded resulting in the constraint reaching the Shadow Price cap of \$5,000, ERCOT performed an analysis on the appropriateness of a \$5,000 Shadow Price cap for the Valley Import limit. The Valley constraint is a Non-Competitive Constraint in which all generators in the valley have a Shift Factor impact greater than 0.95. The current Protocols limit the generation offers for Non-Competitive Constraints to their mitigated offer curve. The mitigated offer curve divided by a 0.95 Shift Factor results in a Shadow Price calculation of less than \$75. There is currently a large difference between the \$75 Shadow Price that results in maximizing the generation in the Valley and the current Valley Shadow Price cap of \$5000. ERCOT developed a revised methodology for setting the maximum Shadow Price for the Valley Import Constraint and presented it to the April 2011 WMS.

On April 15, 2011, at a special WMS meeting, WMS considered the ERCOT proposal as well as an alternative proposal from EDF Trading. WMS voted via roll call vote to recommend



approval of the EDF Trading business practice proposal as amended by the April 15, 2011 WMS. This WMS recommendation would set the maximum Shadow Price for the Valley Import Constraint as:

- The Maximum Shadow Price for the Valley Import Constraint with the limit set considering a margin for reliability should be \$200.
- The Maximum Shadow Price for the Valley Import Constraint with the limit set without considering a margin for reliability should be \$2000.
- Upon reaching Valley region Peaker Net Margin of \$175,000 per MW during a calendar year at the Resource Node that has the maximum impact to the constraint, then Maximum Shadow Price for the Valley Import should be based only on the constraint with the limit with reliability limit margin at \$200 and the Valley Import Constraint with the limit without the reliability limit margin should not be considered for the remainder of that year.

The WMS motion passed with 73.3% in favor, 26.7% opposed and four (4) abstentions. The opposing votes were cast by the Investor Owned Utility (IOU) (2), Independent Generator (3) and Independent Power Marketer (IPM) Market Segments. The four (4) abstentions were cast by the Cooperative, Municipal, Independent Generator and IPM Market Segments.

A subsequent WMS vote to recommend rejection of ERCOT's proposal failed via roll call vote with 35.6% in favor, 64.4% against and six (6) abstentions. The opposing votes were cast in the Cooperative, Municipal (4), IOU, Consumer (2), and Independent Retail Electric Provider (IREP) (2) Market Segments. The abstentions were cast by the Cooperative (2), Independent Generator, IREP (2) and IPM Market Segments.

The WMS recommendation and voting ballots can be found under the Key Documents section at the following link on the ERCOT website:  
<http://www.ercot.com/calendar/2011/04/20110415-WMS>.

At its May5, 2011 meeting, TAC reviewed both the ERCOT and WMS recommendations for revising the maximum Shadow Price for the Valley Import Constraint as well as the April 27, 2011 Independent Market Monitor (IMM) comments to revise the WMS recommendation. The IMM comments would have adjusted the WMS proposal by including a declining Shadow Price cap for the values that would otherwise be \$2,000/MWh in the WMS recommendation once the regional Peaker Net Margin for the Valley exceeds \$125,000 as follows:

- Valley region Peaker Net Margin < \$125,000: \$2,000/MWh
- Valley region Peaker Net Margin > \$125,000 and < \$150,000: \$1,000/MWh
- Valley region Peaker Net Margin > \$150,000 and < \$175,000: \$500/MWh
- Valley region Peaker Net Margin > \$175,000: \$200/MWh

A TAC vote to recommend approval of the April 15, 2011 WMS recommendation as revised by the IMM, which would sunset upon the approval of a revised "holistic" methodology for setting appropriate shadow price caps for constraints not resolvable by Security Constrained Economic Dispatch (SCED) failed via roll call vote with 16 in favor, ten (10) opposed and two (2) abstentions. The ten (10) opposing votes were cast by the Cooperative (3), Municipal (3), IOU



(2), and Consumer (2) Market Segments. The two (2) abstentions were cast by the Municipal and IREP Market Segments.

A subsequent TAC vote to recommend to the Board the approval of the ERCOT proposal for the revised maximum Shadow Price for the Valley Import Constraint (which would sunset upon the approval of a revised “holistic” methodology for setting appropriate shadow price caps for constraints not resolvable by SCED) and to address the gap between operations and planning processes to be able to identify these constraints passed via roll call vote with 19 votes in favor, six (6) opposing votes from the IOU, Independent Generator, and IPM (4) Market Segments and four (4) abstentions from the Independent Generator (3) and Cooperative Market Segments. The proposals reviewed at TAC and the TAC vote ballots can be found under the Key Documents on the ERCOT website at: <http://www.ercot.com/calendar/2011/05/20110505-TAC>.

The revised ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, to reflect the TAC recommendation to the Board is included as Attachment A.

**Key Factors Influencing Issue:**

Recognizing the number of hours in which the Valley import limit was exceeded and resulted in the constraint reaching the Shadow Price cap of \$5,000, ERCOT performed an analysis on the appropriateness of a \$5,000 Shadow Price cap for the Valley Import limit and proposed a revised methodology to WMS and TAC. TAC reviewed the recommendations before them and voted to recommend to the ERCOT Board the approval of the ERCOT methodology as described herein.

**Alternatives:**

1. Approve the TAC recommendation on the revised maximum Shadow Price for the Valley Import Constraint, as described in Attachment A or as modified by the ERCOT Board;
2. Reject the TAC recommendation;
3. Defer decision on the TAC recommendation; or
4. Remand the issue to TAC with instructions.

**Conclusion/Recommendation:**

As more specifically described above, TAC recommends that the ERCOT Board approve the revised ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, as described in Attachment A.



**ELECTRIC RELIABILITY COUNCIL OF TEXAS, INC.**  
**BOARD OF DIRECTORS RESOLUTION**

WHEREAS, paragraph (4) of Nodal Protocol Section 6.5.7.1.11, Transmission Network and Power Balance Constraint Management, requires the Electric Reliability Council of Texas, Inc. (ERCOT) Board of Directors (Board) approval of a final methodology for setting maximum Shadow Prices for network constraints; and

WHEREAS, the ERCOT Board deems it desirable and in ERCOT's best interest to approve revised ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, as described in Attachment A.

THEREFORE be it RESOLVED, that the ERCOT Board hereby approves the revised ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, as described in Attachment A.

**CORPORATE SECRETARY'S CERTIFICATE**

I, Bill Magness, Corporate Secretary of ERCOT, do hereby certify that, at its May 17, 2011 meeting, the ERCOT Board passed a motion approving the above Resolution by \_\_\_\_\_.

IN WITNESS WHEREOF, I have hereunto set my hand this \_\_\_\_ day of May, 2011.

\_\_\_\_\_  
Bill Magness  
Corporate Secretary