ERCOT

Date: September 13, 2011
To: ERCOT Board of Directors
From: Brad Jones, Technical Advisory Committee (TAC) Chair
Subject: Holistic Approach to Congestion Irrelovable by Security Constrained Economic Dispatch (SCED)

Issue for the ERCOT Board of Directors

ERCOT Board of Directors (ERCOT Board) Meeting Date: September 20, 2011
Agenda Item No.: 12c

Issue:
At its May 17, 2011 meeting, the ERCOT Board of Directors (Board) revised the ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in SCED, as a result ERCOT analysis performed after the number of hours in which the Valley import limit was exceeded resulting in the constraint reaching the Shadow Price cap of $5000. The ERCOT Board also directed TAC to report back to the ERCOT Board with a recommendation for a holistic methodology for setting appropriate Shadow Price caps for constraints not resolvable by SCED and a recommendation for addressing gaps between operations and planning processes to be able to identify constraints not resolvable by SCED. TAC has debated the issues and is presenting its recommendation for a holistic approach to Congestion irresolvable by SCED for ERCOT Board consideration.

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 direction provided at the May 17, 2011 ERCOT Board meeting, the Wholesale Market Subcommittee (WMS) established a task force to develop a holistic approach. At its July 13, 2011 meeting, WMS considered the task force recommendation and voted to recommend to TAC principles for consideration of a holistic approach which can found within the TAC Key Documents at the following link: http://www.ercot.com/calendar/2011/08/20110804-TAC.

The WMS motion passed with one opposing vote from the Cooperative Market Segment and six abstentions from the Municipal, Cooperative (2), Consumer (2) and Independent Retail Electric Provider Market Segments.

At its August 4, 2011 meeting, TAC considered the WMS recommendation as well as comments from Direct Energy and TAC Residential Consumer Representative, Bob Wittmeyer, as summarized below:

- The August 2, 2011 Direct Energy comments recommended revising the WMS recommendation by revising the Shadow Price cap adjustment when the peaker margin threshold is met under the proposal. Direct Energy observed that the WMS recommendation lowers the Shadow Price cap to the currently effective LCAP pursuant to PUC Subst. R. 25.505 when the peaker margin threshold is reached. Direct Energy expressed concern that adjusting the Shadow Price cap to a set value (LCAP) for all irresolvable constraints when the peaker margin is reached will limit the dispatch of generation that can effectively relieve the constraint. Direct Energy proposed the Shadow Price cap necessary to dispatch generation is determined by dividing the Mitigated Offer Cap of the unit with the lowest Shift Factor impact on the constraint by the Shift Factor of the unit with the lowest Shift Factor that relieves the constraint. Direct Energy also proposed including a Shift Factor cutoff of 2% for constraints that have been deemed irresolvable by ERCOT.
- The August 3, 2011 Mr. Wittmeyer comments further revised the Direct Energy comments. Mr. Wittmeyer highlighted an unforeseen consequence when a Shift Factor of 2% is used ($100 Mitigated Offer / .02 SF = $5,000) and suggested capping the C factor (Used after Peaker Net Margin of $95,000/MW in a calendar year, for an irresolvable constraint), at $2,000, rather than "A".
- The Direct Energy and Mr. Wittmeyer comments can be found within the Key Documents of the August 4, 2011 TAC meeting materials: http://www.ercot.com/calendar/2011/08/20110804-TAC.

TAC revised the Mr. Wittmeyer comments to eliminate potential confusion with the use of the PUCT Substantive Rule term "peaker net margin" to "net margin" as utilized in the ERCOT Business Practice. TAC voted via roll call vote to recommend approval of the July 13, 2011 WMS recommendation for setting a Shadow Price Cap on network transmission constraints that are deemed to be irresolvable by SCED, as amended by the August 3, 2011 Mr. Wittmeyer comments and as revised by TAC. The motion passed with 24 in favor, three opposing votes from the Cooperative (2) and Investor Owned Utility (IOU) Market Segments and two abstentions from the IOU and Industrial Consumer Market Segments. Below is a summary of the August 4, 2011 TAC recommended methodology:

When is a constraint identified as irresolvable?

A non-competitive constraint is deemed irresolvable if the constraint cannot be resolved through SCED dispatch for more than two consecutive hours for more than 4 consecutive days or more than 20 hours in a rolling thirty day period. Those hours will be priced at the current shadow price cap pursuant to Section 3.5, Current Values for the Transmission Shadow Price Caps in the ERCOT Business Practice Manual for Setting the Shadow Price Caps and Power Balance Penalties in SCED.

How does ERCOT determine the Irresolvable Shadow Price Cap?

- Irresolvable Shadow Price Cap in a calendar year = Minimum of A or B until peaker net margin threshold exceeded then implement C
  - A = current value for the Transmission Shadow Price Cap in Section 3.5 of the ERCOT Business Practice Manual for Setting Shadow Price Caps and Power Balance Penalties in SCED

  - B = max of (Mitigated Offer Cap of lowest shift factor unit/shift factor of lowest unit used to resolve constraint) or $2000 per MW
- C = If net margin exceeds $95,000 per MW/year, then adjust Transmission Shadow Price Cap for Irresolvable Non-Competitive Constraint to maximum of (Mitigated Offer Cap of lowest shift factor unit/shift factor of lowest unit used to resolve constraint) or currently effective LCAP pursuant to PUC Subst. R. 25.505 for the remainder of the calendar year.
- C shall not exceed $2000 per MW.
- Determine net margin based upon resource node LMP of unit with highest shift factor impact on the irresolvable constraint during congested intervals for the irresolvable constraint

When does ERCOT terminate the Irresolvable Shadow Price Cap for the constraint?
ERCOT terminates the Irresolvable Shadow Price Cap when ERCOT determines the constraint is resolvable and ERCOT must provide 30 day notice to the market before implementation. The Irresolvable Shadow Price cap would increase to the current transmission shadow price cap pursuant to the Business Practice Manual.

ERCOT Staff incorporated the August 4, 2011 TAC irresolvable SCED constraint recommendations into the ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, Version 3.0, and provided the revised business practice to the September 1, 2011 TAC in accordance with the requirements of Protocol 6.5.7.1.11. TAC reviewed the draft document, proposed additional edits to remove a posting requirement and agreed to submit a Nodal Protocol Revision Request to include the posting requirement within the Nodal Protocols. The September TAC voted to confirm the draft business practice as revised by TAC reflects the August 4, 2011 TAC decision on Congestion irresolvable by SCED; to recommend that for any constraint deemed irresolvable in calendar year 2011, the net margin calculation will begin with January 1, 2011; and to recommend an effective date of October 1, 2011 for the business practice document. The vote passed with two abstentions from the Cooperative Market Segment. The TAC further noted, that implicit with Board approval of the TAC recommendations, the Valley Import constraint is deemed an irresolvable non-competitive constraint by SCED for 2011 and, therefore, supports the deletion of Appendix 3, Shadow Price Cap for the Valley Import Constraint, as contained in Version 3 of the draft ERCOT business practice.

The revised ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, Version 3.0, as recommended by the September 1, 2011 TAC is included as Attachment A.

Key Factors Influencing Issue:
As a result of the direction provided at the May 17, 2011 ERCOT Board meeting, the WMS and TAC reviewed alternatives for a holistic approach to Congestion irresolvable by SCED and voted to recommend for Board consideration the revised ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, as included as Attachment A.

Alternatives:

1. Approve the September 1, 2011 TAC recommendation which includes:

    - the added methodology for setting transmission Shadow Price caps for irresolvable non-competitive transmission constraints and the resultant prices; and,
    - the deletion of Appendix 3, Shadow Price Cap for the Valley Import Constraint,

    as described in Version 3.0 of the ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, included as Attachment A, with an effective date of October 1, 2011 and direct ERCOT that the net margin calculation described in the business practice, will begin with January 1, 2011 for any constraint deemed irresolvable in calendar year 2011; or as modified by the ERCOT Board;
2. Reject the TAC recommendation to revise the ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch as described in Attachment A;
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, Version 3.0, included as Attachment A, with an effective date of October 1, 2011 and direct ERCOT that the net margin calculation described in the business practice, will begin with January 1, 2011 for any constraint deemed irresolvable in calendar year 2011.

ERCOT

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 with an effective date of October 1, 2011; and

WHEREAS, the ERCOT Board concurs with the Technical Advisory Committee recommendation and directs ERCOT Staff that the net margin calculation as described in the ERCOT Business Practice, Setting the Shadow Price Caps and Power Balance Penalties in Security Constrained Economic Dispatch, as described in Attachment A, will begin with January 1, 2011for any constraint deemed irresolvable in calendar year 2011.

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 with an effective date of October 1, 2011 and directs ERCOT Staff that the net margin calculation as described in Attachment A will begin with January 1, 2011for any constraint deemed irresolvable in calendar year 2011.

CORPORATE SECRETARY'S CERTIFICATE

I, Bill Magness, Corporate Secretary of ERCOT, do hereby certify that, at its September 20, 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 September, 2011.

____
Bill Magness
Corporate Secretary