**Valley Import Constraint**

**Potomac Economics – April 27, 2011**

The shadow price cap values for transmission constraints and power balance in the nodal market were first approved by the ERCOT Technical Advisory Committee in November 2008, specifying the following initial values and objective:[[1]](#footnote-1)

*This document presents proposed values for the initial nodal constraint shadow price caps and power balance penalty factors for discussion at the August 27, 2008 ERCOT CMWG meeting. It is anticipated that the initial values that are adopted will be used in the Nodal EDS testing environment, which will allow for evaluation of the results and the potential for general (i.e., for a voltage class) or specific (i.e., for a specific constraint) modifications based on experience. The initial proposed values are as follows:*

***Constraints:***

* *Base Case/Voltage: $5,000/MW*
* *N-1*
  + *345 kV: $4,500/MW*
  + *138 kV: $3,500/MW*
  + *69 kV: $2,800/MW*

***Power Balance:***

* *$3,001/MWh*
* *ERCOT has indicated that the ability to specify the power balance penalty factor as a curve is being developed, which will require additional discussion and is not addressed in this document.*

*The objective in establishing the levels of these penalty factor values is to provide an appropriate balance between ensuring reliable system operations, preventing inefficient redispatch, ensuring efficient pricing outcomes during locational or system-wide scarcity conditions, and observing the applicable system-wide offer cap levels.*

The initial values proposed in this TAC-approved document remain in place today, although the potential for modifications based on experience was anticipated. Experience with the Valley Import constraint, which is essentially a radial load pocket, indicates that modification to the shadow price cap value is warranted because the shift factor values are much higher than the typical shift factor distribution associated with a networked base case/voltage constraint.

In consideration of the unique nature of the Valley Import constraint and the factors included in the balancing objective, it is our opinion that the proposal endorsed by the Wholesale Market Subcommittee at its April 15, 2011 meeting, as modified below, represents a reasonable modification to the current $5,000/MWh shadow price cap value for the Valley Import constraint.

As background, the following is a summary of the WMS-endorsed proposal for the Valley Import constraint:

* Reduce the shadow price cap to $200/MWh for violations up to 100 MW over the typical voltage stability import limit (100 MW is the typical “reliability margin” applied to the normal voltage stability limit).
* Reduce the shadow price cap to $2,000/MWh for violations exceeding the normal voltage stability limit (normally 1,200 MW).
* Reduce the shadow price cap to $2,000/MWh for violations of thermal import limits.
* If the regional peaker net margin (“PNM”) for generation resource locations in the Valley exceeds $175,000/MW-yr in a calendar year, reduce the shadow price cap for all Valley import constraints to $200/MWh.

Generally, we support this proposal because it promotes and balances the following objectives:

* Maintains the principle of marginal cost pricing as specified in PUC Subst. R. 25.501, in that the marginal cost of reliably serving demand in the Valley when all resources are exhausted is a function of clearing on the demand side;
* Maintains pricing outcomes within the bounds of the system-wide offer caps specified in PUCT Subst. R. 25.505;[[2]](#footnote-2) and
* Maintains – on a more restrictive, regional basis – the wealth transfer limitation of the ERCOT-wide PNM, as specified in PUC Subst. R. 25.505.

However, unlike the ERCOT-wide PNM mechanism that reduces the system-wide offer cap for the entire market upon reaching the threshold value defined in the rule, the system-wide offer cap would not change based on a regional accrual. Thus, it is possible for the combination of regional and system scarcity events to cause the Valley region to meet the regional threshold and still accrue additional scarcity revenues through the unmodified system-wide offer cap. To account for this difference, we suggest a declining shadow price cap for the values that would otherwise be $2,000/MWh in the WMS-endorsed proposal once the regional PNM for the Valley exceeds $125,000, as follows:

* Valley region PNM < $125,000: $2,000/MWh
* Valley region PNM > $125,000 and < $150,000: $1,000/MWh
* Valley region PNM > $150,000 and < $175,000: $500/MWh
* Valley region PNM > $175,000: $200/MWh

1. <http://www.ercot.com/content/meetings/tac/keydocs/2008/1106/11._CMWG_20080827_Penalty_Factors_Comment.doc> [↑](#footnote-ref-1)
2. Note that under some conditions, such as simultaneous system-wide and Valley shortage conditions, prices in the Valley (and other locations) can still exceed the system-wide offer caps (and fall below the system-wide offer floor). [↑](#footnote-ref-2)