Public Utility Commission of Texas

Memorandum

TO: Chairman Donna L. Nelson
Commissioner Rolando Pablos

FROM: Commissioner Kenneth W. Anderson, Jr.

DATE: May 16, 2012

SUBJECT: Open Meeting of **May 18, 2012, Agenda Item No. 30, Docket No. 37897**: *P.U.C. Proceeding Relating to Resource and Reserve Adequacy and Shortage Pricing.*

Consideration of whether and how to modify the Power Balance Penalty Curve (PBPC) began in earnest with my December 7, 2011, memorandum, in which I stated that the Commission should ask ERCOT and the stakeholders to study, and report back to the Commission . . . on the merits of changes to the magnitude and the shape of the PBPC. I stated that the Commission should be informed, and ultimately opine about (1) where on the offer curve the PBPC should start, (2) how quickly prices should rise as the energy supply is depleted, and (3) the magnitude of the highest price on the PBPC (the PBPC Cap). Since December 7, 2011, the PBPC has been discussed in several open meetings and in several commissioner memoranda.

- On March 6, 2012, Chairman Nelson filed a memorandum proposing to raise the high system-wide offer cap (SWOC) and the PBPC Cap to $4,500.
- On March 21, 2012, Commission Pablos filed a memorandum stating that he hoped the Commission would give the necessary direction at the March 22, 2012 Open Meeting to begin addressing an increase in the PBPC Cap for this summer and supported evaluation of the appropriate starting point and slope of the PBPC as part of a long-term resource adequacy solution after the ERCOT Brattle Group study is completed.
- On March 21, 2012, I filed a memorandum stating that I remain open to the refinement of the slope of the PBPC if that is the preference of the ERCOT market participants, but that I believe that once the PBPC is triggered, there should never be a price reversal and that the starting "bid" should be increased from its current level of $200 to at least $500.
- On April 11, 2012, Chairman Nelson filed a memorandum proposing to raise the PBPC Cap to $4,500, raise the minimum PBPC bid from $200 to $500, and increase the PBPC bid price in $500 or more increments up to the proposed $4,500 cap when more than 50MW of responsive reserves have been deployed.

In addition, on April 22, 2012, ERCOT filed a "back-cast" analysis that used 2011 data, but assumed the existence of various proposed changes to assess the impact these changes would have had if in effect in 2011. As part of its back-cast analysis, ERCOT replaced the current PBPC Cap in each scenario with the various SWOC cap proposals and re-computed the Peaker Net Margin (PNM) total assuming the new SWOC values that have been proposed in Project Nos. 37897 and 40268. Therefore, we know that increasing the SWOC and the PBPC Cap, with no change to the slope of the PBPC, will significantly increase the PNM.

We have two rules in process (Project Nos. 37897 and 40268) that propose increases to the SWOC, and because we have agreed in open meetings that there are too many issues involved with divorcing the SWOC from the PBPC Cap, it is my assumption that we all agree that the PBPC Cap must be raised in synch with the SWOC. It remains then for us, in the absence of stakeholder consensus, to determine the appropriate PBPC starting bid and slope.

I have met with ERCOT, the IMM and stakeholders regarding the appropriate PBPC starting bid and slope. Contrary to my March 21, 2012, memorandum, if we raise the SWOC this summer I am now convinced that because of some of the other ERCOT market initiatives that have been completed, particularly the increase of responsive reserves by 500 MW, the PBPC should have a gentler slope and that the starting energy bid price should remain at $200. The PBPC I propose in this memorandum is as follows:

PROPOSED POWER BALANCE PENALTY CURVE FOR $4,500 CAP

MW Violation	PBPC Level
<1	200
1 to <5	250
5 to <10	300
10 to <20	350
20 to <30	400
30 to <40	500
40 to <50	1000
50 to <75	2000
75 to <100	3400
100 to <150	3600
150 to <200	3800
200 or more	4500

There are two fundamental issues. The first is an operational ramp-rate related issue. When Security Constrained Economic Dispatch (SCED) deploys Regulation Service (Regulation) at higher prices to cover ramping issues, a price reversal is more likely to occur. If SCED determines that a particular unit needs to be generating at a certain level at a certain time, and that unit cannot reach the necessary generation level within the time allowed, the grid is ramp-rate limited. SCED has two choices to deal with this constraint. If the bid stack is not exhausted, SCED can deploy additional more-expensive generation that is not ramp-rate limited to bridge the gap. If the bid stack is exhausted, or as an alternative to deploying briefly higher-cost generation, the PBPC sets a price at which SCED can borrow from Regulation, which looks to SCED like a virtual unit that is always available. By borrowing from Regulation temporarily, SCED can bridge the gap between the time when additional energy is needed, and the time when sufficient ramping can be achieved or loads can respond to provide that energy. In the circumstance that the bid stack is not exhausted, if SCED could not borrow from Regulation until prices hit $500, prices would spike temporarily solely because of ramping constraints and then reverse once ramping is achieved or loads are able to respond. These ramp-rate related price spikes do not contribute to additional generation being built because they are transient and unpredictable. A $200 starting bid allows SCED to borrow from Regulation at a lower price so that price formation can occur on a smooth curve with no inappropriate spikes or reversals. Because of this operational issue, I have reconsidered my earlier position and I would now start the PBPC at $200 rather than $500.

The second issue is the Commission's level of comfort with the amount of time the ERCOT market will clear on administrative prices, which are necessary for an efficient market but are a proxy demand curve. This issue is exacerbated by some of the market initiatives that ERCOT has already completed. Specifically, (1) ERCOT is now procuring more responsive reserves (500 MW), which are unavailable to SCED except through the PBPC following the exhaustion of submitted offers in the supply curve, and (2) online and quick-start non-spinning reserves are now available to SCED (quick-start through a work around). Consequently, the ERCOT market will be clearing on administrative prices more frequently and for longer periods than in the past. For this reason, I think a more gradual PBPC slope makes sense. Increasing bids to the PBPC Cap of $4,500 gradually over 200MW instead of over 50MW will be more efficient than a steep curve because it provides an opportunity for loads and generators to respond before scarcity price signals spike. Even on a more gradual curve, prices will hit $4,500 sooner than they would have hit $3,000 during 2011. Having an efficient proxy demand curve will become even more important when we raise the SWOC above $4,500.

I look forward to discussing this with you at the open meeting.