UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New England Power Pool) Docket Nos. EL00-62-000; ER00-2052-000

Affidavit of Peter Cramton[1]

I have been asked by ISO New England, Inc. ("ISO-NE") to comment on recent events in the Installed Capability ("ICap") market and the actions taken by ISO-NE in response to these events. In December 1999 and January 2000, there was a noticeable change in bidding in the ICap market. In particular, there were several large-quantity bids at $20,000/MW or higher. Also in January 2000, the required quantity of ICap quadrupled. In January 2000, if bids were not mitigated, this would have resulted in a clearing price of $10,000/MW. Mitigating a single bid from $20,000/MW to $0/MW resulted in an adjusted clearing price of $0/MW.

The purpose of the capacity markets is to assure that there is sufficient capacity in the system to cover peak demand. New England Power Pool ("NEPOOL") began with two capacity markets, the monthly ICap market and the daily Operable Capability ("OpCap") market. Both ICap and OpCap are structured in the same way, and both have similar flaws. Because of these flaws, the OpCap market was eliminated in March 2000.

The ICap market is a residual market. Only the difference between a participant's installed capability resources and its installed capability obligation is traded through the ISO. Trading in this market occurs monthly. Bids are submitted in $/MW on the last day before the month begins. At the end of the month, a clearing price is calculated based on the bids of those participants with excess installed capability. The quantity traded is the sum of the quantities for those participants with a deficit. Participants who are deficient in installed capability pay the clearing price for each MW to those who are in surplus and who bid a price less than or equal to the clearing price.

I wish to make three points.

- The marginal cost of ICap is zero. Hence, the appropriate bid mitigation is zero.
- A forward reserve market focusing on peaking units is a superior alternative to an ICap market.
- The ICap market is not necessary. It should be eliminated.

1 The marginal cost of ICap is zero

Consider a unit participating in the NEPOOL market. The unit has fixed and variable costs associated with providing energy and dispatch flexibility. But what is the additional cost of the unit if it is

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designated for one additional MW of ICap? The answer is zero. ICap has a marginal cost of zero, since there is no change in the cost of the unit whether it is designated for an additional unit of ICap.

In the ICap market, *there is no difference in the costs or risks incurred by those participants who receive payment in the market and those who do not.* Every participant is providing the same ICap service, but only those designated are paid. As a result the only rational bids in the market are a bid of zero (to insure selection in the hope there is any positive price) or a bid that is an attempt to set the clearing price. The winning bidders are receiving payment for product delivered, but the losing bidders are delivering the product as well without receiving any payment.

If the market is competitive (so that the bidder does not think that it can influence the market price), then the rational bid is zero. Hence, the appropriate bid mitigation is to set the questionable bid to zero, the competitive level, which also equals the bidder's marginal cost.

2 A forward reserve market is superior to an ICap market

The main problem with ICap is that it is not a meaningful product. It does not assure that energy and dispatch flexibility will be offered at attractive prices. A better approach is to purchase dispatch flexibility in a forward reserve market. NEPOOL and ISO-NE are in the process of developing a forward reserve market. In such a market, generators are offering an option to provide energy at a specific strike price. Those designated to provide reserves in this forward market are financially committed to provide either reserves or energy at specific prices. Those that are not designated are not making such a commitment, and therefore do not incur the cost of the commitment. In contrast to ICap, forward reserves are a meaningful product.

A forward reserve market provides appropriate incentives to peaking units for standing ready to provide energy as needed at specified prices. These are the units the ISO needs to respond to contingencies. A well-designed forward reserve market will send useful price signals, promoting efficient entry of peaking units. In contrast, the ICap market does not send the right price signals and does not encourage efficient entry.

3 The ICap market is not necessary

ICap is a holdover from an electricity market with regulated prices. Under regulated pricing, capacity requirements assured that the system would have sufficient capacity to meet peak demand at regulated prices. ICap has no role in a competitive electricity market. All the electricity market needs are well-designed energy and reserve markets. The ICap market does not contribute in any way.

What the ISO needs to run the system is energy and dispatch flexibility. The ISO is better off buying these products directly in well-designed energy and reserve markets, rather than buying them indirectly in an ICap market. Whether a unit provides a valuable service (either energy or dispatch flexibility) has nothing to do with whether it provided ICap. A unit designated for ICap may offer energy and reserves at extremely high prices, and a unit not designated for ICap may offer energy and reserves at attractive prices.

At best the ICap market is redundant. But more likely it is destructive to efficiency. It can stand as an entry barrier, since only certain capacity is able to supply ICap. For example, a new entrant is only eligible to supply ICap after certain conditions have been met. Finally, ICap discourages entry by rewarding nearly-mothballed capacity. This capacity may be able to limp along on OpCap and ICap payments, and not provide any useful service (it may submit extremely high bids in energy and reserve markets with long minimum run times and little ramping capability). Its presence discourages the entry of more useful capacity.

The ICap market does not contribute to the reliability of the system. Reliability stems primarily from having a sufficient quantity of flexible resources. Payments in the ICap market have nothing to do with a unit's responsiveness. It rewards capacity in a highly imperfect and indirect way. I strongly endorse the immediate elimination of the ICap market.

Attestation

I am the witness identified in the foregoing affidavit. I have read the affidavit and am familiar with its contents. The facts set forth therein are true to the best of my knowledge, information, and belief.

Peter Cramton

May 4, 2000

Subscribed and sworn to before me

this 4th day of May, 2000.

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Notary Public

My commission expires: _____