

UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION

New England Power Pool

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Docket No. EL00-83-000

**Affidavit of Peter Cramton<sup>1</sup>**

I have been asked by ISO New England, Inc. (the “ISO”) to comment on the Installed Capability Deficiency Charge. In the complaint, NSTAR argues that the New England Power Pool (“NEPOOL”) electricity markets operated by the ISO suffer from serious design flaws. To mitigate the impact of these flaws, NSTAR requests that NEPOOL and the ISO:

- Temporarily cap energy and reserve prices at \$1,000/MWh.
- Conduct studies to assess the competitiveness of the market, and construct structural screens that will mitigate market power arising from an absence of workable competition.
- Disclose supply curve and individual bid data on an after-the-fact basis.

I agree with NSTAR that the NEPOOL markets suffer from serious design flaws. Moreover, I generally agree with NSTAR’s requests with one important exception. I do not believe that it is necessary to cap the energy price at \$1,000/MWh, provided the ISO’s mitigation tools are enhanced in line with recent ISO filings. In what follows, I argue why (1) a cap on energy prices should be avoided, (2) the markets should be monitored closely, and (3) supply curve and individual bid data should be disclosed after some delay.

**1 A cap on energy prices should be avoided**

Price caps are inconsistent with a competitive market. Efficient markets require that price can freely adjust as supply and demand conditions change. It is the unhampered price signals that motivate efficient behavior from market participants. In this sense, a general bias against price caps is wise.

Still one must recognize that the New England electricity market at this point in time is far from a perfectly competitive market. The supply side is still highly concentrated. New entry is reducing this problem, but the process is slow. The demand side is extremely inelastic. There is little or no drop in demand in response to higher prices. To make matters worse, the NEPOOL markets suffer from design flaws. These flaws, especially at times of capacity shortage, can lead to arbitrarily high prices. In light of these problems, it is essential that the ISO have sufficient tools available to mitigate the exercise of market power.

NSTAR has proposed a temporary cap of \$1,000/MWh on energy and reserve prices as one way to handle arbitrarily high prices. Such a fixed-dollar cap does prevent the \$6,000/MWh energy prices that

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<sup>1</sup> Peter Cramton is Professor of Economics at the University of Maryland and President of Market Design Inc. Over the last 15 years, he has conducted research on auction theory and practice. This research appears in the leading peer-reviewed economics journals. During the last 6 years, Cramton has applied this research in the design and implementation of auction markets in the U.S. and abroad. He has led the design and implementation of several high-stake auction markets in the telecommunications and electricity industries.

occurred for four hours on May 8, 2000. The problem is that such a cap, applied across all markets, is both blunt and arbitrary. Moreover, fixed caps can facilitate tacit collusion by encouraging bidding at the cap. The cap effectively provides a focal point for collusive bids.

I prefer an approach that is more narrowly tailored to the problems of the individual markets. For example, I find that the problems with the capacity markets are so severe, and the benefits of these markets so nebulous, that elimination of these markets is best. The reserve markets also suffer from serious flaws, but reserves are an essential service. A temporary fix for the reserve markets is a cap at the energy price.

Of all the markets, the energy market has performed the best in the first year of operation. It does not share the basic flaws of the reserve markets. The problems in the energy market stem partly from gaming opportunities as a result of the current single settlement system and the absence of congestion management. The timely introduction of the congestion management system/multi-settlement system (“CMS/MSS”) proposal will help.

Other problems in the energy market stem from the energy market’s interdependence with the flawed capacity and reserve markets. The evidence surrounding the \$6,000/MWh energy prices on May 8, 2000 suggests that the prices were caused in part by gaming in the ICap market. As a result of the gaming, some participants found it desirable to rely on external sources to satisfy ICap obligations. This is most easily accomplished if the external source submits an extremely high energy bid, so that it can offer firm energy for the month (an ICap requirement) and yet face little risk of being called. The elimination of the ICap market, as recommended by the ISO, will end this distortion.

Another problem arises when there are insufficient reserves, as in Operating Procedure 4 (“OP 4”). When OP 4 situations can be anticipated, then reserve prices are arbitrarily high, since the bidder knows that all bids will be accepted. This is the “last man bidding” problem. Capping the reserve prices at the energy price is intended to mitigate this problem. However, doing so creates an incentive for arbitrarily high bids in the energy market. Under OP 4, a bidder has an incentive to submit extremely high bids for both energy and reserves. If the energy bid is not accepted, the bidder will be selected for reserves and receive the energy price, which is even better than being selected for energy. Absent bid mitigation, only external energy bids can limit the energy price, and hence, the reserve prices.

In this environment, mitigation tools are essential. The ISO has several. First, there is Market Rule 17, which permits the ISO to mitigate bids in response to the exercise of market power. The ISO has proposed amendments that address potential problems with external contracts. Second, the ISO has emergency rulemaking authority, which enables the ISO to address newly identified market flaws in a timely way. Third, the ISO has established a load response program in order to stimulate some demand elasticity in the near term. And finally, the ISO has proposed amendments to facilitate emergency energy transactions in times of scarcity. These amendments are specifically designed to increase competition in times of scarcity.

I believe that these mitigation tools should be sufficient to maintain workably competitive prices without resorting to a fixed-dollar price cap. If the tools, both existing and proposed, are not available to the ISO, then I would recommend a temporary price cap in the energy market until further progress in both the market structure and market rules is made.

## **2 The markets should be monitored closely**

The NEPOOL markets are still in development. They are far from perfect. As a result, it is important that the markets be monitored closely. I endorse NSTAR’s request that studies be done to determine the competitiveness of the markets. It is important that we understand the situations and regions in which lack

of competition is a serious problem. This understanding would foster the development of structural screens that could be used to quickly mitigate the exercise of market power. These mitigation measures would obviate the need for price caps.

### **3 Supply curve and individual bid data should be disclosed after some delay**

I strongly support the delayed release of bid data. The information can be used for both desirable and undesirable purposes. The desirable use is to increase transparency, facilitate planning, and encourage study of the markets. The undesirable use is to foster collusion. Fortunately, the collusive value of the information decays with time. Thus, it seems clear that the delayed release of information is best.

The question is what information should be released and after how much delay. This is an issue that currently is being addressed by NEPOOL and the ISO. I believe that both the supply curve and individual bid data should be released.

I would recommend releasing aggregate supply curves after a one or two month delay. NSTAR, in contrast, argues that supply curves should be released on the next day. I do not believe that this is desirable. Knowledge of the aggregate supply curve is critical information for a large generator deciding how best to exercise market power. The generator gets to see the likely consequence of its raising a bid block in terms of both the clearing price and the quantity that it supplies. I do not believe that rapid release of the supply curve has any positive use that would more than offset this negative use. Hence, I would recommend against releasing the aggregate supply curve sooner than with a one or two month lag. With a one-day lag, I fear that tacit collusion is a serious problem. Moreover, the unilateral exercise of market power is made more effective. More rapid release of the supply curve may be warranted once the demand side becomes much more price responsive, but significant demand elasticity is unlikely to appear for several years.

I support NSTAR's request that individual bid data be released after a three-month lag. The release of this data is important to enhance transparency, planning, and the study of the markets. The individual bid data enables participants, regulators, and other observers to conduct a detailed analysis of the markets. The researcher can get a better understanding of what makes up the aggregate supply curve and why. Various withholding strategies can be examined. Likely inefficiencies can be seen. With the release of resource-specific information, researchers can get a much better sense of bidding strategies, and how those strategies depend on the portfolio of resources. I believe a three-month lag is warranted. Individual bid data is especially useful in supporting tacit collusion if the information is released too quickly. A three-month lag is sufficient to avoid such a collusive use of the information.

### **4 Conclusion**

The ISO and NEPOOL should continue to work aggressively on a long-term fix to the market design flaws in the energy and reserve markets. The timely implementation of the CMS/MSS proposal is an important step in the right direction. However, realistically it is unlikely that the long-term solution will be implemented until some time in 2001 at best, given the complexity of the issues involved. Hence, it is important that the ISO address market design flaws in the interim, ideally in a way that is consistent with the future markets under CMS/MSS.

At this time, I believe that a price cap in the energy market is not necessary, provided that the ISO has other mitigation measures to address market flaws. I do, however, support NSTAR's other requests for continued market monitoring, for the development of screens to quickly identify and mitigate market power problems, and for the delayed disclosure of supply curves and individual bid data.

**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

June 22, 2000

Subscribed and sworn to before me  
this 22th day of June, 2000.

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Notary Public

My commission expires: \_\_\_\_\_