

**UNITED STATES OF AMERICA**  
**BEFORE THE**  
**FEDERAL ENERGY REGULATORY COMMISSION**

New York Independent System Operator, Inc. )

Docket No. ER07-360-000

**AFFIDAVIT OF**

**PETER CRAMTON, Ph.D.**  
**on behalf of Consolidated Edison Company of New York, Inc.**

**8 February 2007**

**1 Qualifications**

My name is Peter Cramton. I am Professor of Economics at the University of Maryland and Chairman of Market Design Inc. Over the last 20 years, I have published research on auction theory and practice in the leading peer-reviewed economics journals. During the last 12 years, I have applied this research in the design and implementation of auction markets worldwide, especially in North America and Europe. I have led the design and implementation of dozens of high-stake electricity auctions in the United States, France, and Belgium, as well as gas auctions in France and Germany. I have advised several energy companies on auction strategy in major energy and capacity auctions in the United States and Canada. I have advised several countries in the design and implementation of spectrum auctions. I have advised telecommunications firms on bidding strategy in more than 25 spectrum auctions.

Since 1998, I have advised ISO New England on electricity market design. I was one of two lead experts retained by the ISO for the proposed forward capacity market in New England. I also led the design of the capacity market adopted in Colombia in 2006.

I received my B.S. in Engineering from Cornell University and my Ph.D. in Business from Stanford University. My vita, which includes a list of my publications and other experience, is attached.

**2 Introduction**

I have been asked to comment on the Installed Capacity market power mitigation proposal (Mitigation Measures) that was adopted by the Management Committee of the NYISO on 29

September 2006. I have reviewed the NYISO filing as well as the comments of experts on the merits of the proposal.

The Mitigation Measures seek to address the clear exercise of supplier market power in the In-City capacity market that is not adequately addressed with the current measures. The Mitigation Measures effectively reduce the bid cap for pivotal suppliers in the market to a reference price that is closer to competitive levels. This lower bid cap reduces both the incentive to exercise market power as well as the negative impact of market power. As a result, the spot capacity market sends a better price signal, properly motivating investment in new capacity.

For this reason, I support the Mitigation Measures. They should be implemented immediately. The high capacity price in times of surplus is not a competitive market price, but the result of a blatant exercise of market power. Letting the behavior persist, simply transfers millions of dollars from consumers to suppliers. The lower bid caps are fully justified on economic grounds.

Consumers get nothing from paying high prices in the short term. Today's high prices are the result of the exercise of supplier market power. The high prices do not motivate long-run investment in supply. Long-run investments are based on long-run expectations about future prices. A potential investor would recognize that the high prices today are artificial and unlikely to be sustainable. Rather the potential investor will anticipate a regulatory intervention to address the exercise of market power. This is what the investor has observed in other markets, such as New England and PJM.

### **3 Spot capacity markets must address supplier market power**

New York has a spot capacity market. A key element of the market is an administrative demand curve, which is intended to represent the marginal value to consumers of additional capacity beyond the minimum needed for reliability. As capacity increases its marginal value falls. The demand curve is set administratively, since there is no way for consumers to effectively express their preferences for additional capacity. The demand curve is set so that, absent market power, the market will send the right short term investment signal. During times of shortage, the capacity price is high—a signal to build; whereas during times of surplus, the capacity price is low—a signal not to build at that time.

Addressing supplier market power is essential in any spot capacity market. The reason is that in the short-run nearly all capacity costs are sunk, implying a near-zero short-run marginal cost of providing capacity. Since the demand curve is steep near the target level of capacity, a large supplier has a strong unilateral incentive to economically withhold capacity to maximize profits. Doing so yields a larger percentage increase in price compared with the percentage decrease in quantity, and so is profitable. Without mitigation, bids would tend toward the maximum price (the deficiency charge), except in situations of very large surpluses.

The exercise of supplier market power, through economic withholding, leads to higher capacity prices, and a wealth transfer from consumers to suppliers. Consumers get little from the higher capacity payment, since potential investors are not apt to invest based on high prices derived from the exercise of market power. Market power is a fickle thing for an investor to rely on, since the investor can anticipate that the regulator will address obvious instances of market power.

Fortunately, supplier market power can be addressed effectively.

The simplest and most direct approach is setting the capacity price from the demand curve, based on the quantity of supply in the market. Under this approach, suppliers are unable to exercise market. The capacity price is set from the quantity of capacity in the market, rather than the bids of the suppliers. This is equivalent to setting a bid cap of \$0. Then only entry and exit decisions impact the capacity price.

A second approach is to set a low but positive bid cap, as in the Mitigation Measures. Although the low cap does not eliminate all supplier market power, it does limit the harm, and push the market toward more competitive outcomes.

#### **4 New York’s In-City capacity market has been plagued by the clear exercise of insufficiently mitigated supplier market power**

It is undisputed that KeySpan, as a pivotal supplier of capacity, exercised market power to keep the In-City capacity price at or near the KeySpan bid cap, the highest cap among the Divested Generation Owners (DGOs). KeySpan did this by bidding a sufficiently large quantity at its bid cap—economically withholding some of its supply.

KeySpan's withholding strategy is profit maximizing, so long as KeySpan is able to sell a sufficiently large quantity of capacity at the bid cap and it does not anticipate that other large suppliers will withhold at high prices. In adopting this strategy, KeySpan is accepting some reduction in quantity for a much larger percentage increase in price.

There are two factors that can make such a strategy difficult. The first is the size of the capacity surplus. As the capacity surplus increases, more withholding is required and the profitability of the withholding strategy falls. The introduction of about 1000 MW of new supply in 2006 created a surplus of about 800 MW. The second factor is the coordination problem among suppliers. Each supplier hopes that the other suppliers will withhold quantity to set the price at the bid cap. In circumstances like the In-City capacity market, with multiple pivotal suppliers, the fact that several can profitably withhold may result in too little withholding. Each relies on the others, and collectively there is too little withholding to peg the price at the bid cap.

KeySpan, however, is in a position to overcome these two problems and set the price at its bid cap. To begin with KeySpan has the highest bid cap among the DGOs, so only KeySpan can set the capacity price at the highest level. This makes KeySpan the obvious choice to engage in an aggressive withholding strategy. Second and more important, as stated by the City of New York in its comments in this proceeding, KeySpan negotiated a large swap agreement with Morgan Stanley that greatly strengthens its profit incentive to withhold supply relative to the other DGOs.

I view the swap as compelling evidence that KeySpan has a long-term strategy of exercising market power in the In-City capacity market. Hence, the problems of 2006, which cost consumers roughly \$157 million, are almost sure to repeat absent an immediate regulatory solution.

Let me explain how the swap works. For a period of three years, from 1 May 2006 to 31 April 2009, KeySpan receives from Morgan Stanley a monthly payment equal to 1,800,000 times the difference between the monthly auction price and \$7.57 kW-month, whenever the price is above \$7.57, or KeySpan pays Morgan Stanley 1,800,000 times the difference between \$7.57 kW-month and the monthly auction price, whenever the auction price is below \$7.57. Effectively, KeySpan has bought 1,800,000 kW-month of capacity from Morgan Stanley at the fixed price of \$7.57 kW-month, and sold the same quantity back to Morgan Stanley at the

auction price. The financial instrument is called a swap, since it is both a buy and a sell of the same quantity.

Typically, swaps are used as an instrument of risk management. For example, a supplier can reduce its exposure to a volatile spot price with a swap by selling at a fixed price and buying at a floating price (the spot price). In this way, the supplier locks in the fixed price. It ultimately sells its capacity in the spot market, balancing the purchase in the swap, and what is left is a sale of capacity at a fixed price. The swap has eliminated spot price risk for the supplier.

Interestingly, the KeySpan-Morgan Stanley swap works in just the opposite direction. In the swap, KeySpan buys at a fixed price and sells at the floating price, thereby doubling its exposure to the spot price, and doubling its incentive to exercise market power. The quantity of the swap, 1,800 MW, is nearly as large as KeySpan's In-City Capacity of 2,382 MW.

KeySpan is "gambling" that the spot price will be high. Actually, there is no gamble, because KeySpan can unilaterally set the capacity price at its bid cap—and has a much larger incentive to do so. Thanks to the swap, KeySpan gets the higher price not only for its fleet of in-City capacity resources, but also the capacity included in the swap. Morgan Stanley knows this, so why would it agree to the swap? Because US PowerGen for the same three-year term had sold this capacity to Morgan Stanley. The swap simply balanced Morgan Stanley's position.

The fact that US PowerGen agreed for the three-year period to sell its In-City capacity at a fixed price of \$7.57/kW-month less Morgan Stanley's fee suggests that US PowerGen believed, absent the swap, the expected spot price would be somewhere in the neighborhood of \$7.57/kW-month.

The KeySpan-Morgan Stanley swap appears to be a financial instrument specifically negotiated to strengthen the incentive for, and the likelihood of, the exercise of market power by KeySpan. It difficult to think of another explanation. Even if the motivation for the swap was the sell side, it is clear that KeySpan entered into a long-term swap that exacerbates the market power problem and does so for many years. An immediate regulatory response is warranted.

## **5 Other issues with the capacity market do not warrant a delay of the regulatory response**

KeySpan, NRG, and their experts have argued that there are other issues with the In-City capacity market that should be addressed before actions are taken to limit the exercise of supplier market power. This argument is not surprising, since the incumbent suppliers benefit enormously from the status quo. The wealth transfer from consumers to suppliers is dramatic (about \$157 million per year). However, no economic argument is given for why delaying the Mitigation Measures would be beneficial.

The thrust of the supplier argument is that capacity prices produced from the demand curve are too low. Economic withholding by suppliers raises prices, and this, they argue, is desirable.

The reality is that the demand curve was determined in a lengthy regulatory process. Whether it produces prices that are too high or too low will always be a source of regulatory debate. It is safe to say that suppliers will argue that the curve is too low and consumers will argue that the curve is too high. The appropriate place for this debate is during the periodic review of the demand curve.

One cannot justify the blatant exercise of market power by simply arguing that prices are too low. For the demand curve to perform as intended it requires competitive bids. Only then does it send the appropriate market signal: build during scarcity and do not build during surplus. It would make little sense to design a market where the market signal was simply a function of how clever and effective the suppliers are at exercising market power. Effective mitigation of supplier market power is essential to any spot capacity market, but especially locational spot markets, like the In-City capacity market where the incentives to exercise supplier market power are extreme.

Another supplier argument for why capacity prices are too low is monopsony market power. The argument is based on a fictitious world in which consumers act as one buyer and build surplus capacity in order to reduce the spot capacity price. In this fictitious world, the capacity is not economic on its own merits, but is profitable to the monopsony buyer as a result of the reduced capacity prices the monopsony buyer pays on all of its demand.

This argument has at least three problems.

First, it is not clear how an actual buyer benefits from building non-economic capacity. This would depend on the buyer's contractual and regulatory obligations. For example, Con Edison is

a large buyer of capacity. However, its capacity costs are passed through to customers and subject to regulatory oversight, so Con Edison does not gain from reducing the capacity price. Further, building non-economic capacity has real long-term costs. In a retail access environment, such as exists in New York State, an incumbent utility, such as Con Edison, cannot enter into many long term contracts because Con Edison's load may decrease with increasing penetrations of retail access and Con Edison would be party to a contract it does not need, which could add regulatory uncertainty.

Second, through its retail access program, Con Edison encourages new entry by buyers (i.e., LSEs) into the market and these LSEs automatically become buyers in the NYISO's capacity markets. Further, there are no significant barriers to entry into the capacity market for buyers. In short, Con Edison does not exclude competition; Con Edison facilitates competition.

Third, even if monopsony power is a legitimate concern, the appropriate regulatory response is to address the issue through the capacity market rules. The possibility of monopsony market power does not justify the clear and sustained exercise of market power by pivotal suppliers in the In-City capacity market.

## **6 Conclusion**

When a pivotal capacity supplier economically withholds capacity in the In-City capacity market, the effect of such exercise of market power is to raise prices to consumers above competitive levels, and to transfer dollars from consumers to the incumbent supplier. Such an exercise of market power is inconsistent with efficient auction markets. Nor is it a valid economic justification for pivotal suppliers in the City to economically withhold capacity today on grounds that they believe the market should be revised so as to set improved signals for new entry in the future. No matter how the In-City capacity market is designed now, or in the future, it is simply not economically benign for a pivotal supplier to withhold capacity and raise prices above competitive levels in monthly markets at times when total capacity is in surplus. Such behavior harms consumer welfare and distorts competition. No economic justification for it exists.

The appropriate regulatory response to the clear and sustained exercise of supplier market power is to adopt measures that limit this market abuse. For this reason, the Mitigation Measures should be adopted immediately.

**AFFIDAVIT**

Peter Cramton, being duly sworn, deposes and says: that he is the witness in the foregoing Affidavit and is familiar with its contents. He states further that the facts contained in said Affidavit are true to the best of his knowledge and belief.



*Peter Cramton*

Peter Cramton

Subscribed and sworn to before me,  
This 8th day of February 2007

Notary Public 

My Commission Expires 12-1-08