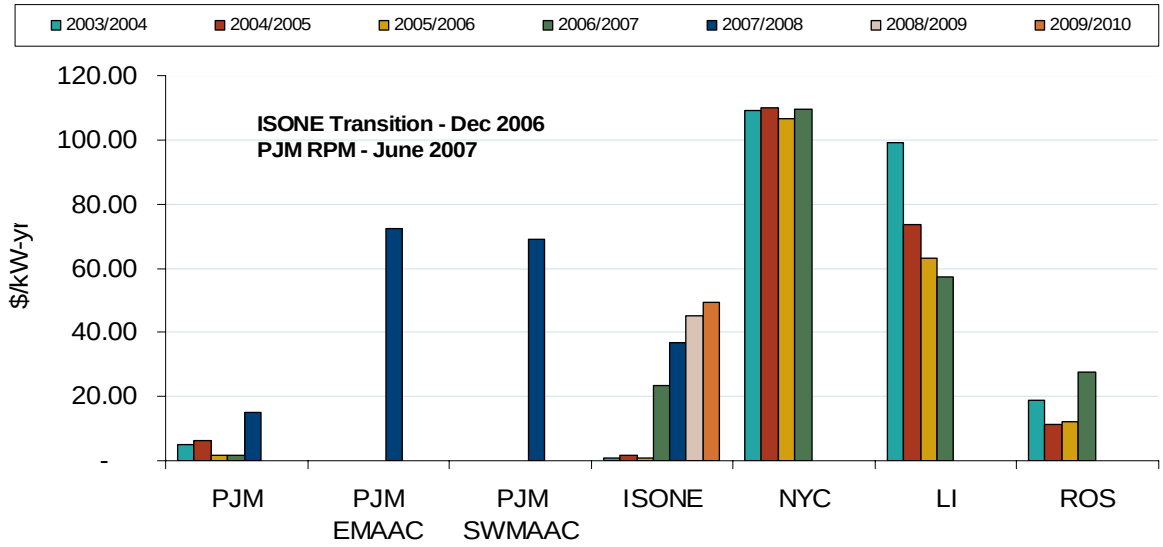
Capacity Markets

NYISO, ISO-NE, and PJM all initiated various capacity market designs. Since initial implementation, there have been innovations to address timelines and deliverability including the use of unforced capacity adjustment. NYISO uses demand curves in its spot markets, and more recently, ISO-NE and PJM have addressed forward looking procurement of capacity and the inclusion of locational price signals along with other modifications. Figure 1 below compares auction clearing prices for the three regions.

Figure 1: Annual RTO/ISO Capacity Auction Prices: Jun 1 – May 31 ($/KW-yr)



Market	Region	2006/2007	2007/2008
PJM – Auction Average Est.		1.69	
PJM - RPM Auction	RTO		14.89
PJM - RPM Auction	EMAAC		72.15
PJM - RPM Auction	SWMAAC		68.82
ISONE – Auction Average Est.		5.16	
ISONE - Transition Payment		18.30	36.60
NYISO – Auction Average Est.	LI	57.41	
NYISO – Auction Average Est.	NYC	109.45	
NYISO – Auction Average Est.	ROS	27.61	

PJM values are converted from $/MW-day to $/KW-yr for comparison.
Source: OE Analysis of RTO and ISO data.

The Midwest ISO does not have a capacity market. California introduced a resource adequacy requirement on load serving entities in June 2006 albeit without a formal capacity market and with deliverability issues to be figured out later.

NEW YORK INSTALLED CAPACITY MARKET

The Installed Capacity (ICAP) Market in New York is based on the obligation placed on LSEs to procure ICAP to meet their minimum requirements. These minimum requirements are determined by each LSE's forecasted contribution to seasonal peak load, plus an additional amount to cover an Installed Reserve Margin. The amount of capacity that each supplying

resource is qualified to provide to the New York Control Area is determined by an Unforced Capacity (UCAP) methodology.

NYISO has three different capacity markets to meet the statewide reserve margin requirements (18%) as well as additional locational reliability requirements in New York City (NYC) and Long Island (LI).[1] The locational requirements are set to ensure reliability but reflect extra incentive for capacity in the capacity constrained areas. For each summer and winter period, NYISO offers:

- one 6-month strip auction (with forward capacity for the full 6-month period);
- six monthly auctions (with forward capacity for each remaining month in a period); and
- six spot auctions (with prompt month capacity).

LSEs may meet their requirement through self-supply, bilateral contracts, and auction participation.

ICAP vs. UCAP

In New York, ICAP represents generating capacity that is physically on the ground and has a defined value that is determined by a valid Dependable Maximum Net Capability (DMNC), test or other approved evaluation method. Example - a generating unit with a face value of 100 MWs undergoes a DMNC test. According to the test results the unit can only produce 95 MWs. The NYISO will rate this unit at 95 MWs for ICAP purposes.

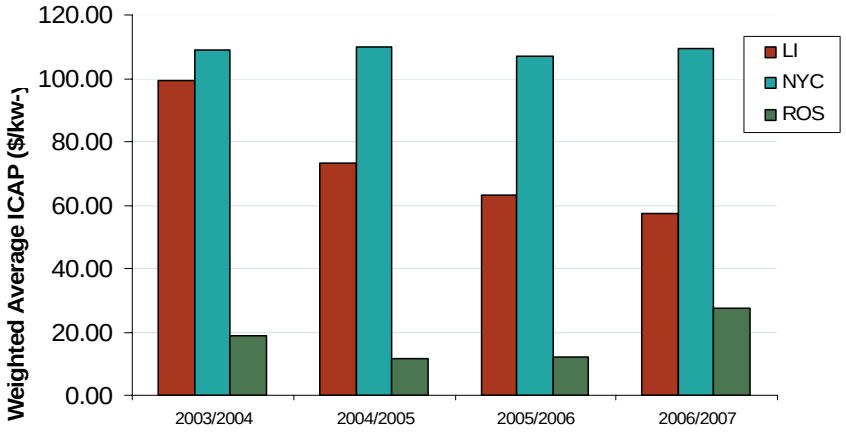
However, the ICAP market actually trades UCAP, which represents the amount of ICAP that is likely to be available for dispatch at any given time. UCAP is the percentage of ICAP available after a unit's forced outage rate is accounted for. A rolling 12 month average of the monthly forced outage rate is used to determine the amount of ICAP that can be sold in units of UCAP. Example: If the 12 month forced outage rate is 10%, the above "100 MW" unit would only be allowed to sell 85.5 (i.e. (95*(1-10%)) MWs of UCAP in the next monthly ICAP auction. This value may vary on a monthly basis.

NYISO Capacity Market Prices

Figure 2 estimates the annual value of capacity based on weighted average results of the 6-Month Strip Auction, the Monthly Auctions, and the Spot Auctions run by the NYISO. As may be expected, capacity values are higher in the tighter supply areas of NYC and Long Island.

[1] According to current requirements, 80% of capacity for New York's in-city LSEs must be provided by in-city generators. For Long Island, 99% of capacity for Long Island LSEs must be provided by Long Island generators.

Figure 2: Estimated NYISO Capacity Auction Results (June-May UCAP)

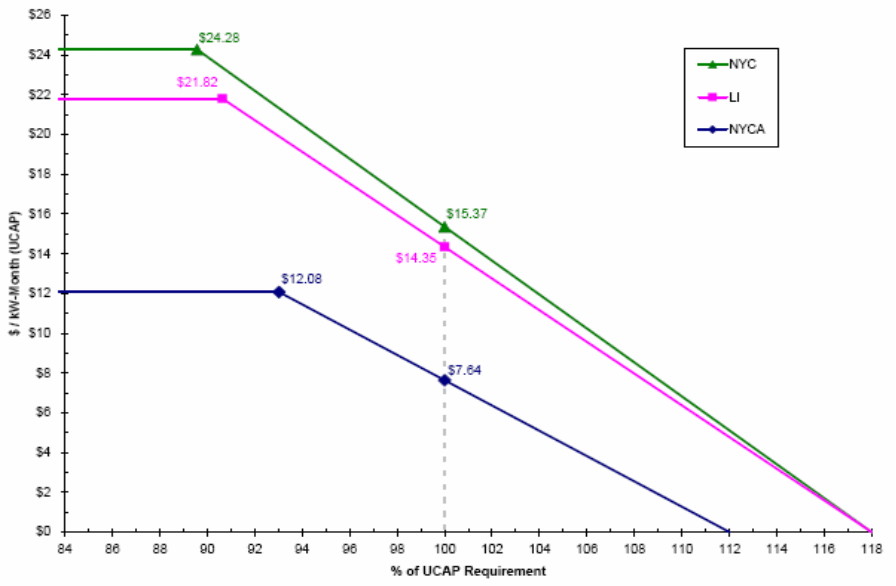


Source: OE Analysis of NYISO data.

Demand Curve

In May 2003, NYISO implemented a demand curve mechanism starting with the June 2003 auctions. The demand curve requires administration of reference levels and zero points. Figure 3 depicts the translation for summer 2007 Demand Curves.

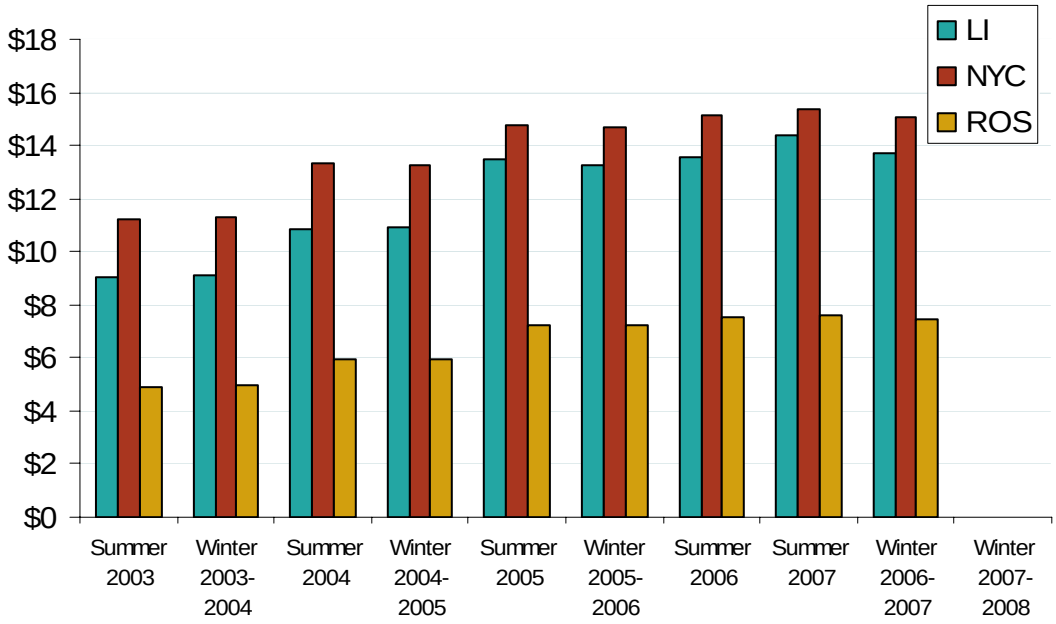
Figure 3: NYISO Demand Curves – Summer 2007



Source:http://www.nyiso.com/public/webdocs/products/icap/auctions/Summer-2007/documents/demand_curve_summer07_final.pdf

Reference points show the price level when capacity meets 100% of the locational UCAP requirement. For example, summer 2007 reference point for NYC is $15.37/kW-month. Forced outage rates and seasonal capacity fluctuations translate into variations in reference points as shown in Figure 4 below.

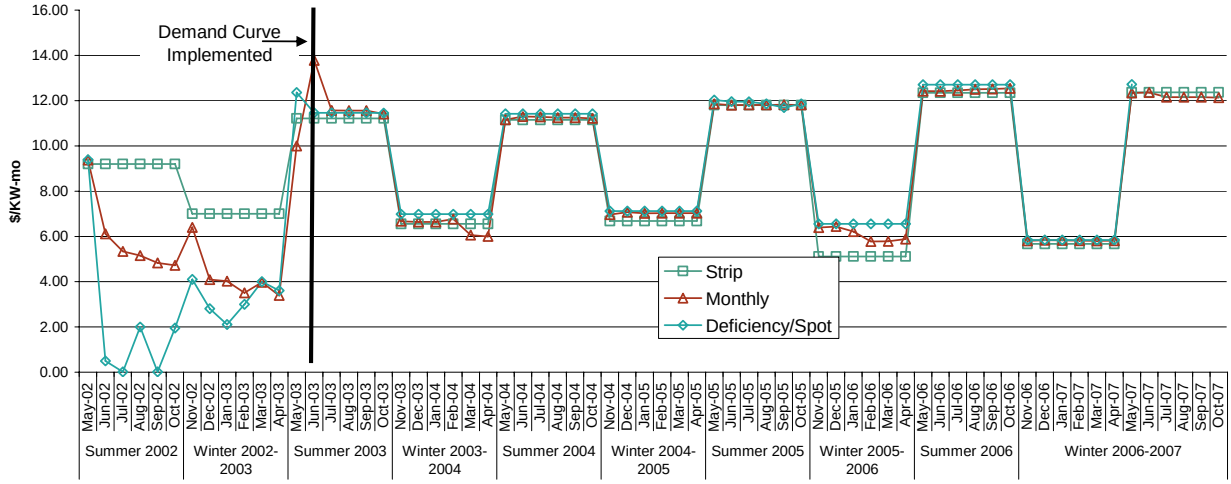
Figure 4: NYISO UCAP Based Reference Points ($/kW-month)



Source: OE Analysis of NYISO data.

As shown in Figure 5 below, implementation of the demand curve mechanism stabilized prices between auctions in NYC.

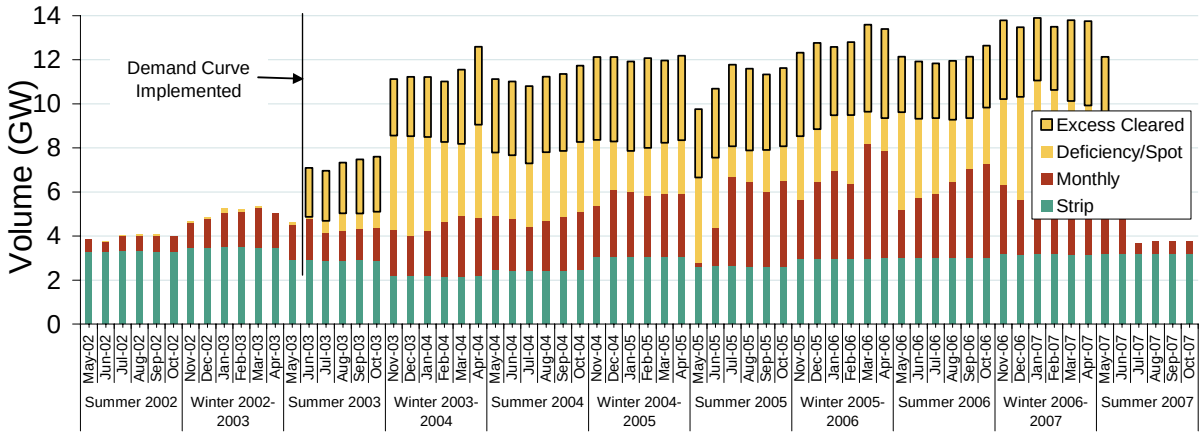
Figure 5: NYC Capacity Values – Before and After Demand Curve



Source: OE Analysis of NYISO data.

In addition as shown in Figure 6, the demand curve prompted increased participation in the statewide market.

Figure 6: Statewide Capacity Volumes – Before and After Demand Curve



Source: OE Analysis of NYISO data.

Mitigation

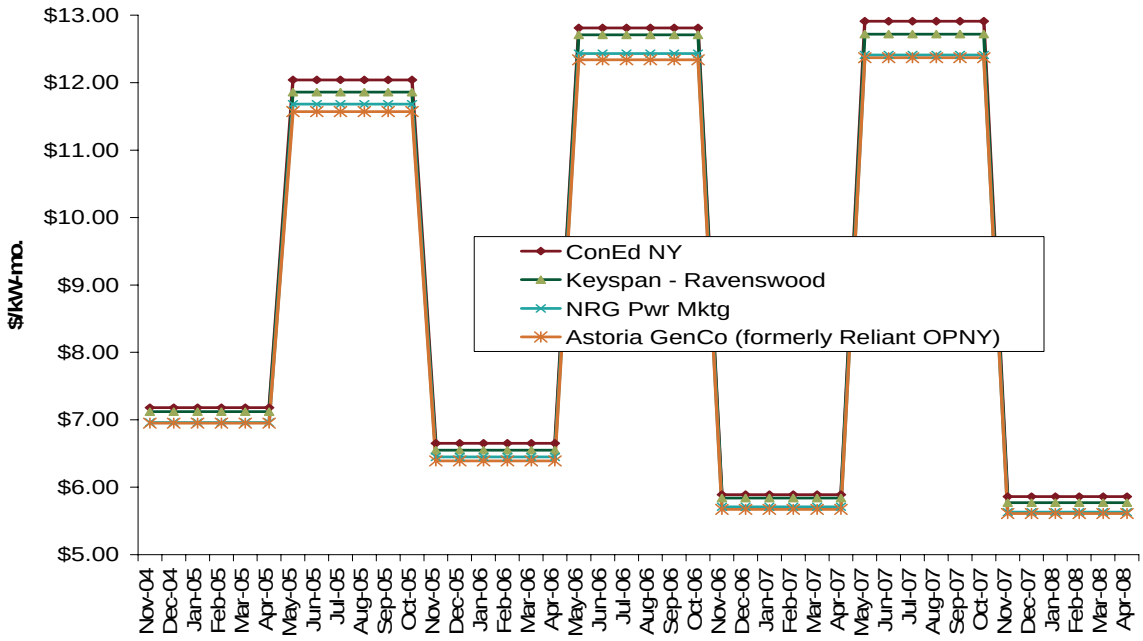
Some Installed Capacity Suppliers located within New York City are subject to a FERC-approved Unforced Capacity price cap of $112.95/kW-year, the translated equivalent value of the FERC and PSC-approved $105/kW-year price cap for Installed Capacity.[2] Subject Generators may only sell their available Unforced Capacity in one or more NYISO administered Installed Capacity Auctions (i.e. they are not permitted to enter into bilateral transactions). This rule applies to the many generators – all of which are currently or were previously owned by ConEd.[3]

Because the majority of generators in NYC are subject to this cap, the majority of NYC capacity is traded in the auctions as opposed to bilateral or self-supply arrangements. Similar to Reference Points, mitigation levels are subject to annual and seasonal variation. As shown in Figure 7, summer price caps are rising while winter price caps have declined.

[2] This rule was originally instituted to address market concerns in the NYC market during the ConEd auction process. FERC modified it slightly to conform to the change from ICAP to UCAP.

[3] Units include Arthur Kill Units 2, 3, and GT, Astoria Units 3, 4 and 5 and GTs, East River Units 6 and 7, Gowanus GTs, Narrows GTs, Ravenswood Units 1, 2 and 3 and GTs, and Waterside Units 6, 8 and 9.

Figure 7: NYC Mitigation by Owner[4]



Source: OE Analysis of NYISO data.

Installed Capacity Mitigation Measures are currently under review in Docket EL07-39. Docket No. ER07-360 is the original docket for submission of revisions.

NEW ENGLAND INSTALLED CAPACITY MARKET

ISO New England's (ISO-NE) capacity market is based on the LSEs obligation to procure capacity to cover seasonal peak load, plus an additional Installed Reserve Margin. Also, similar to NYISO, ISO-NE generators are paid for siting units in New England based on UCAP - the net capacity the unit provides after adjustments to account for forced outages at the unit.

ISO-NE's original capacity market traded UCAP for the entire pool for monthly and deficiency auctions. Since the initiation of the auctions in April 2003, the ISO-NE capacity auctions cleared at less than $3/kW-mo, and many at $0/kw-mo. For 2005, weighted average prices totaled $2.32/kW-yr., significantly less than those for NYISO.

Without location-specific capacity markets, price signals do not distinguish between areas that need capacity and those that do not. To incorporate a locational component, ISO-NE filed the Locational ICAP (LICAP) proposal. ISO-NE filed a settlement on March 6, 2006 that introduced a Forward Capacity Market (FCM), as a replacement for the LICAP proposal. ISO-NE suspended the original auctions, holding its last capacity auction Oct. 25, 2006.

Starting Dec. 1, 2006, ISO-NE has begun the transition to its FCM in which ISO-NE will forecast power system needs three years in advance and then hold an annual auction to purchase sufficient resources. The first auction is expected in 2008 for resources needed in 2010/2011 and is expected to result in prices between $4.50 - $10.50/kW month.

[4] Note – Reliant will sell their NYC portfolio to an investor group led by Madison Dearborn Partners and US Power Generating Company; however, the price caps follow the units not the owner.

Beginning in December 2006 and through the end of May 2010, all eligible installed capacity resources receive predetermined, fixed monthly transitional ICAP payments for each month the unit is available. Existing Reliability Must Run (RMR) agreements will not expire during the transition period; however, capacity prices paid under the FCM will be netted against them. Transition payments are:

- $3.05/kw month from December 2006-May 2008.
- $3.75/kw month from June 2008-May 2009.
- $4.10/kw month from June 2009-May 2010.

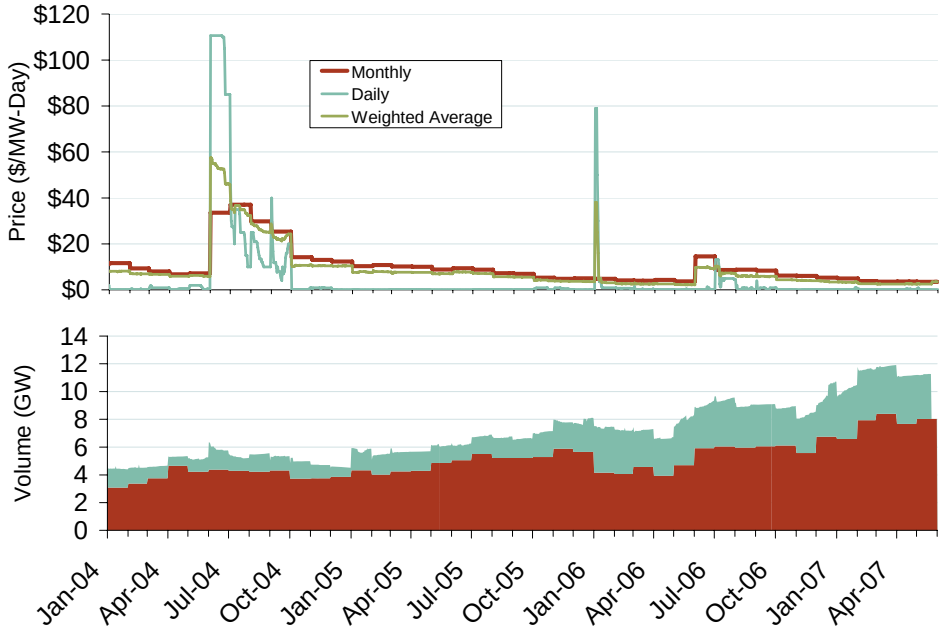
PJM INSTALLED CAPACITY MARKET

The current PJM capacity market consists of the daily, interval, monthly and multi-month Capacity Credit Markets, each auctioning UCAP on a non-locational basis.

Current and historic PJM capacity market prices are shown in Figure 8 below. Over the last 12 months, weighted average capacity values totaled $1.69/kW-yr., significantly less than those in NYISO auctions. These markets provided only 6.4 percent of the capacity requirements for the year. The remaining capacity was provided through either self supply or under bilateral contracts.

Effective June 1, PJM is replacing its former capacity market with the Reliability Pricing Model (RPM), a long-term capacity market design intended to send supplemental signals to the market based on the locational and forward-looking need for resources to maintain system reliability.

Figure 8: PJM Capacity Market



Source: OE Analysis of NYISO data.

The current market approaches a zero price whenever system-wide capacity in the current year exceeds forecast plus reserves in the current year. RPM includes the following components to improve capacity market signals intended to encourage capacity adequacy:

- Three -year forward procurement
- Locational prices
- Sloped Demand Curve

On April 13, 2007, PJM announced the results of its first RPM auction for capacity delivery June 1, 2007 through May 31, 2008. The capacity price for New Jersey, the Philadelphia Electric (PECO) zone and the Delmarva peninsula (EMAAC) is $197.67 per MW-day; for the BGE and Pepco zones (SWMAAC), the price is $188.54 per MW-day; and for the remainder of PJM (RTO), $40.80. These results reflect the fact that capacity is tight in the eastern reaches of the region and in excess to the west.

The auctions for 2008/2009 will be held on July 2, 2007 and the one for 2009/2010 will be held on October 1, 2007.