5.5 Demand Curve and Adjustments

Three (3) ICAP Demand Curves have been established: one to determine the locational component of LSE Unforced Capacity Obligations for the New York City Locality, one to determine the locational component of LSE Unforced Capacity Obligations for the Long Island Locality and one to determine the total LSE Unforced Capacity Obligations for all LSEs serving load in the NYCA. Installed Capacity Demand Curves have been determined for the 2005/2006, 2006/2007 and 2007/2008 Capability Years and will be adjusted for subsequent three-year periods pursuant to the process set forth in the ISO Services Tariff and in accordance with Section 5.6, below.

Each ICAP Demand Curve is composed of 3 straight-line[1] portions:

1. A horizontal line segment, consisting of all points for which the price of ICAP is equal to 1.5 times the estimated localized levelized cost per kW-month to develop a new peaking unit[2] in each Locality (for the ICAP Demand Curves for the New York City and Long Island Localities) or in the Rest-of-State region (for the NYCA ICAP Demand Curve), and for which the quantity of ICAP supplied is greater than or equal to zero but less than the quantity of ICAP supplied at the point where this segment intersects segment (2), which is described below.

2. A line segment with a negative slope, which is a portion of a line that passes through the following points:

   (a) a point at which the amount of ICAP supplied is equal to the NYCA Minimum Installed Capacity Requirement (for the NYCA ICAP Demand Curve) or the Locational Minimum Installed Capacity Requirement (for the ICAP Demand Curves for the New York City and Long Island Localities), and the price of ICAP is equal to the monthly ICAP Reference Point price (as described below) for the NYCA or one of the Localities, as applicable; and

   (b) a point at which the amount of ICAP supplied is set at the Zero Crossing Point, defined as the smallest quantity of Installed Capacity counting towards the NYCA Minimum Installed Capacity Requirement or a Locational Minimum Installed Capacity Requirement, as applicable, for which the price of ICAP is zero.

[1] In the Automated ICAP Market System, each ICAP Demand Curve is represented by a piece-wise linear function (step function). Each linear segment has a length of 0.1 MW and a price as calculated based on the slope of the Demand Curve.

[2] A peaking unit is defined as the unit with technology that results in the lowest fixed costs and highest variable costs among all other units' technology that are economically viable.

The Demand Curves can be found on the NYISO web site at:

http://www.nyiso.com/services/documents/filings/jan_2005/attchmnt_IV_prpsd_icap_dmnd_crvs_cpblty_yrs.pdf

The line segment which comprises this portion of the ICAP Demand Curve consists of all points on this line for which the quantity of ICAP supplied is greater than or equal to the quantity of ICAP supplied at the point where this segment intersects segment (1), but less than or equal to the Zero Crossing Point defined for the NYCA Minimum Installed Capacity Requirement or the Locational Minimum Installed Capacity Requirement, as applicable.

3. A horizontal line, consisting of all points for which the price of ICAP is zero, and for which the quantity of ICAP Supplied is greater than the Zero Crossing Point defined for the NYCA Installed Capacity or the Locational Installed Capacity, as applicable.

The horizontal portions of the ICAP Demand Curves therefore define maximum and minimum prices for ICAP in the Localities (in the case of the Locational ICAP Demand Curves) and for Installed Capacity in the Rest-of-State Region (in the case of the NYCA ICAP Demand Curve). The sloped portion of each Demand Curve permits the price of capacity to change as a function of the amount of Installed Capacity supplied, relative to each Minimum Installed Capacity Requirement.

The NYCA Minimum Installed Capacity Requirement is determined by the NYISO after the New York State Reliability Council sets the NYCA Installed Reserve Margin and the NYISO determines the Locational Minimum Installed Capacity Requirement (see Section 2 of this Manual for further explanation). The monthly ICAP Reference Point price for the NYCA and each Locality is based on the Annual Reference Value for that location, which is the estimated cost for a peaking unit for the Rest-of-State region (in the case of the Annual Reference Value for the NYCA) or a Locality (in the case of the Annual Reference Value for a Locality) less an estimate of annual net revenue offsets from the sale of energy and ancillary services for the Rest-of-State region or a Locality, as appropriate. Since the Annual Reference Value is based on generator ratings using an average annual temperature (59 degrees Fahrenheit, per International Standards Organization (ISO) standards), each monthly ICAP Reference Point price calculation shall include adjustments to take seasonal effects on the amount of UCAP that can be supplied, as well as the price of UCAP, into account.

Each monthly ICAP Reference Point price is set to the level that would permit a peaking unit to be paid an amount over the course of the year that is equal to the Annual Reference Value, given the following assumptions:

- Each summer month's revenue is equal to the product of the Summer DMNC of the ~~marginal~~ peaking unit and the monthly ICAP Reference Point price for the NYCA or a Locality, as appropriate.

- Each winter month's revenue is equal to the product of the Winter DMNC of the ~~marginal~~ peaking unit and an assumed Winter ICAP price for the NYCA or a Locality, as appropriate, calculated as:

$$WP_i = RP_i \cdot \left(1 - \frac{WSR_i - 1}{ZCPR_i - 1}\right)$$

where:

WP_i = the assumed winter ICAP price for location *i*;

RP_i = the monthly ICAP Reference Point price for location *i*;

$ZCPR_i$ = the ratio of the Zero Crossing Point defined for the NYCA Minimum Installed Capacity Requirement to the NYCA Minimum Installed Capacity Requirement, if *i* is the NYCA, or the ratio of the Zero Crossing Point defined for a Locational Minimum Installed Capacity Requirement to that Locational Minimum Installed Capacity Requirement, if *i* is a Locality; and

WSR_i = the ratio of the sum of winter DMNCs of ICAP providers in location *i* to the sum of summer DMNCs of ICAP providers in location *i*, using the most recent ratio of winter-to-summer DMNCs that is available from the NYCA market as reported in the annual Load and Capacity Data and posted at the time of the periodic review in the Planning section of the NYISO website (http://www.nyiso.com/services/planning.html).

Consequently:

$$RP_i = \frac{ARV_i \cdot \frac{AssmdCap}{SDMNC}}{6 \cdot \left[1 + \frac{WDMNC}{SDMNC} \cdot \left(1 - \frac{WSR_i - 1}{ZCPR_i - 1}\right)\right]},$$

where:

ARV_i = the Annual Reference Value for location *i*;

AssmdCap = the capacity assumed for the ~~marginal~~ peaking unit when calculating Annual Reference Values;

SDMNC = the summer DMNC assumed for the ~~marginal~~ peaking unit at 90 degrees F;

WDMNC = the winter DMNC assumed for the ~~marginal~~ peaking unit at 20 degrees F;

and all other variables are as defined above.

The estimate of annual net revenue offsets for the Rest-of-State region used when deriving the 2005-06 through 2007-08 NYCA ICAP Demand Curves included a winter revenue benefit. The winter revenue benefit was intended to reflect the difference between (1) the ratio of the amount of ICAP the ISO anticipated would be supplied to New York capacity markets during the winter to the amount of ICAP supplied to those markets during the summer, and (2) the ratio of winter to summer DMNCs reported in the NYISO's annual Load and Capacity Data, and the impact of that difference on anticipated ICAP prices during the winter Capability Period.

Monthly ICAP Reference prices and Zero Crossing Points for the Installed Capacity Demand Curves for the 2005/2006, 2006/2007 and 2007/2008 Capability Years for the NYCA and each Locality are given in the following table:

	Capability Year 5/1/2005 to 4/30/2006	Capability Year 5/1/2006 to 4/30/2007	Capability Year 5/1/2007 to 4/30/2008
NYCA	$6.88 @ 100% $0.00 @ 112%	$7.09 @ 100% $0.00 @ 112%	$7.30 @ 100% $0.00 @ 112%
NYC	$13.92 @ 100% $0.00 @ 118%	$14.34 @ 100% $0.00 @ 118%	$14.77 @ 100% $0.00 @ 118%
LI	$12.74 @ 100% $0.00 @ 118%	$13.12 @ 100% $0.00 @ 118%	$13.52 @ 100% $0.00 @ 118%

Quantities on each of these ICAP Demand Curves are stated in terms of amounts of ICAP supplied and prices are stated in terms of dollars per kW-month of ICAP supplied, but the metric actually used in the ICAP market is UCAP. Therefore, each of these ICAP Demand Curves must be translated into UCAP Demand Curves, so that quantities are stated in terms of UCAP supplied and prices are stated in terms of dollars per kW-month of UCAP supplied. This translation will be performed as follows: Before the beginning of each Capability Period, the ISO will calculate an ICAP-to-UCAP translation factor for each ICAP Demand Curve, equal to one minus the average value of the six (6) most recent 12-month rolling average EFORds calculated for all resources in the NYCA (in the case of the ICAP Demand Curve for the NYCA) or in a Locality (in the case of the ICAP Demand Curve for that Locality). Each price on each ICAP Demand Curve shall then be converted into a price on the corresponding UCAP Demand Curve by dividing it by one minus the ICAP-to-UCAP translation factor calculated for that ICAP Demand Curve. Each quantity on each ICAP Demand Curve shall be converted into a quantity on the corresponding UCAP Demand Curve by multiplying it by one minus the ICAP-to-UCAP translation factor calculated for that ICAP Demand Curve.