# BUYER SIDE MITIGATION
## NARRATIVE AND NUMERICAL EXAMPLE

NEW YORK INDEPENDENT SYSTEM OPERATOR

**MARKET MITIGATION**
**AND ANALYSIS**
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# 1 Introduction

This document presents numerical examples with narrative explanations to clarify, in general, how the buyer-side market power mitigation (BSM) tests and Offer Floor[1] calculations are implemented. The examples and explanations are in accordance with the NYISO's buyer-side market power mitigation rules (BSM Rules) set forth in the Market Administration and Control Area Services Tariff (Services Tariff).[2] The NYISO will periodically supplement and update these examples, prior to making further exemption and Offer Floor determinations, for each type of potential capacity market participant.

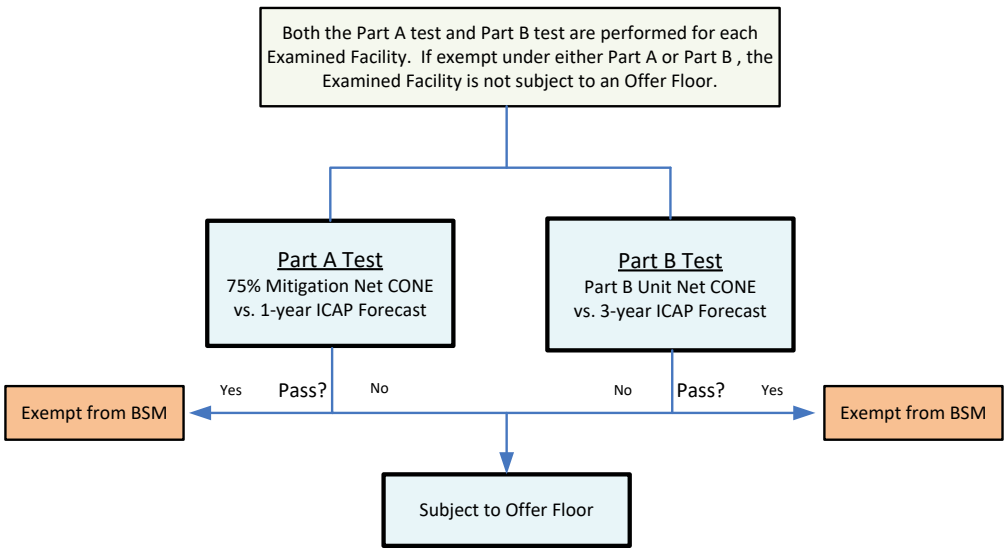


**Figure 1: Buyer-side Mitigation Exemption Tests[3]**

# 2 Part A Test

For each proposed new generator or UDR project or project that requests Additional CRIS MW ("Examined Facility"), the Part A Test compares the forecasted annual ICAP Spot Market Auction revenues to the "Default net CONE" (**DNC**), which for the purposes of the Part A Test is defined as 75% of Mitigation Net CONE (**MNC**) and expressed here in units of $/kW-year UCAP. ICAP Spot Market Auction revenues are forecasted for one Capability Year (two Capability Periods) occurring three years from the Summer Capability Period of the year of the

[1] Capitalized terms not defined herein have the meaning set forth in the Services Tariff and if not defined therein, then the meaning set forth in the Open Access Transmission Tariff (OATT).
[2] The BSM Rules are set forth in Section 23.4.5.7, *et. seq.* of the Services Tariff.
[3] "Pass" is used to describe exempt pursuant to the indicated test.

Class Year. These values are compared with the **DNC** projected for that same time period. For instance, when examining a project in Class Year 2011, the NYISO would utilize the ICAP Demand Curves for the 2014 Capability Year to forecast ICAP prices. Under the Part A Test, the Examined Facility is exempt from BSM if the forecasted annual ICAP revenues exceed the **DNC.** The Part A Test is performed sequentially for each Examined Facility, in ascending order by the lower of each Examined Facility's (i) Unit Net CONE or (ii) Default Net CONE. In the event of a "tie," it is performed simultaneously for all "tied" Examined Facilities.

The forecasted annual ICAP Spot Market Auction revenues for each facility are based on the ICAP Demand Curves accepted by the Commission with the Annual Update at the time of the analysis[4] (occasionally referred to herein as the currently accepted ICAP Demand Curves) with the inclusion of the Examined Facility's UCAP MW,[5] projected for the corresponding Capability Year. The UCAP MW of Examined Facilities in the same Class Year, for which the Part A Test has already been performed (*i.e.*, performed earlier in the sequence) are also included as price takers if they were determined to be exempt under the Part A Test. Monthly price forecasts are calculated for each Summer and Winter Capability Period. The forecasts of the ICAP Spot Market Auction clearing prices used to calculate these revenues are described in Section **5**.

### 2.1 Calculation of Mitigation Net CONE and the Default Net CONE

All prices used in this calculation are expressed in the dollars of the first year of the Mitigation Study Period (MSP). The MSP is defined as the three Capability Years, beginning with the Summer Capability Period, three years after the year of the Class Year.

$$\mathbf{MNC} = \mathbf{ARR} \cdot \left(\mathbf{1} - \frac{\mathbf{EC}}{(\mathbf{DCL}-\mathbf{1})}\right) \qquad \textbf{(1)}$$

***Where:***

**MNC** is the Mitigation Net CONE, in $/kW-year UCAP.
**ARR** is the Annual Revenue Requirement for the Demand Curve peaking unit, as determined in the Demand Curve in the currently accepted ICAP Demand Curves, inflated from the last year of the currently accepted Demand Curves using the Inflation Index").[6] It is expressed here in $/kW-year UCAP.

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[4] The ICAP Demand Curves and their Annual Updates utilized in the BSM examinations are described below in Section 5.1 and provided for in Section 5.14.2.1 of the Services Tariff.
[5] The Examined Facility being tested is treated as a price-taker (*i.e.*, at a price of $0.00/kW-month) for the purposes of forecasting its ICAP revenues.
[6] Services Tariff §23.4.5.7.4 provides that Inflation Index "shall mean the average of the most recently published median Headline Consumer Price Index (CPI) and Headline Personal Consumption Expenditures (PCE) long-term annual averages for inflation over the ten years that includes the last year of the Mitigation Study Period, as reported by the Survey of Professional Forecasters, unless this index is eliminated, replaced or otherwise terminated by the publisher thereof. In such circumstance, the ISO shall utilize the replacement or successor index established by the

**EC** is the proportion of excess capacity, with respect to the aggregate Locational Minimum Installed Capacity Requirement, as defined in the Demand Curve reset for the currently accepted ICAP Demand Curves.

**DCL** is the Demand Curve Length, expressed as a percentage. Note that **DCL** = $\frac{Zero\ Crossing\ Point}{UCAP\ Requirement}$.

$$\mathbf{DNC} = (.\mathbf{75}) \cdot \mathbf{MNC} \quad \textbf{(2)}$$

**DNC** is the Default Net CONE, in $/kW-year UCAP.

## 3 Part B Test

Examined Facilities are also evaluated under the Part B Test, which examines the economics of the project itself. The Part B Test is performed sequentially for each Examined Facility, in ascending order by the lower of each Examined Facility's (i) Unit Net CONE or (ii) Default Net CONE. In the event of a "tie," it is performed simultaneously for all "tied" Examined Facilities. The Part B Test is performed in relation to all three Capability Years in the MSP.

### 3.1 Calculation of the Unit Net CONE

The Unit Net CONE is defined as the "localized levelized embedded costs of a specified Installed Capacity Supplier, including interconnection cost … net of likely projected annual Energy and Ancillary Services revenues, and revenues associated with other energy products (such as energy services and renewable energy credits) as determined by the ISO, translated into a seasonally adjusted monthly UCAP value using an appropriate class outage rate."[7] In the Part B Test, the Unit Net CONE ($\mathbf{UNC_b}$) is compared to the forecasted ICAP prices during the MSP. An Examined Facility is exempt from an Offer Floor if the average forecasted price exceeds the Unit Net CONE.

The Part B Test begins with the calculation of an annual levelized value, in $/kW-year UCAP, representative of the Examined Facility's unit-specific cost of new entry (CONE). This value is defined here as the Annual Unit Net CONE (**ANC**).

$$\mathbf{ANC} = [(\mathbf{IC_{kw}} \cdot \mathbf{LCC}) + \mathbf{FOM} - (\mathbf{NER} + \mathbf{ASR})] \cdot \frac{\mathbf{1}}{(\mathbf{1-EFORd})} \quad \textbf{(3)}$$

publisher, if any, or, in the absence of a replacement or successor index, shall select as a replacement a substantially similar index."

[7] *See* Services Tariff §23.2.1 at definition of Unit Net CONE.

*Where:*

**$IC_{kw}$** is the present value of the investment cost for the examined facility, in $/kW-year ICAP.[8]
**LCC** is the Levelized Carrying Charge rate.
**FOM** is the sum of predicted annual fixed operational and maintenance costs, in $/kW-year ICAP.
**NER** is the projected annual net Energy revenues, in $/kW-year ICAP.
**ASR** is the projected Ancillary Services revenues, in $/kW-year ICAP.

To compare the **ANC** determined in equation **(3)** to ICAP Spot Market Auction prices forecasted for the **MSP**, **ANC** is first adjusted for inflation. The NYISO iteratively adjusts for inflation, using the Inflation Index.

**$ANC_j$** is the projected Annual Unit Net CONE for the examined facility, in $/kW-year UCAP, inflated to year j dollars according to equation **(4)**.

$$\mathbf{ANC_{j+1}} = (\mathbf{1} + \mathbf{r_{inf}}) \cdot \mathbf{ANC_j} \quad \textbf{(4)}$$

*Where:*

***j*** represents a year following the year for which the **ANC** was calculated.
**$r_{inf}$** is the Inflation Index.
**$UNC_b$** is the Unit Net CONE, calculated as the average of Annual Unit Net CONE (**$ANC_j$**) values projected for the 3 years of the **MSP**.

$$\mathbf{UNC_b} = \frac{\mathbf{ANC_{(MSP1)}} + \mathbf{ANC_{(MSP2)}} + \mathbf{ANC_{(MSP3)}}}{\mathbf{3}} \quad \textbf{(5)}$$

### 3.2 Calculation of Net Energy and Ancillary Services Revenues

Anticipated annual Energy and Ancillary Services revenues are calculated using energy prices projected for the MSP. The projected LBMPs are determined using an econometric regression model of Energy prices which, among other things, uses forecast Load and natural gas futures to determine LBMPs in the MSP. The regression itself is based on the historic data available at the time of the analysis.

The prices from the econometric model are further adjusted to reflect prices at the node where the Examined Facility has proposed to interconnect. In addition, GE Multi Area Production Simulation (MAPS) software is used to determine a series of adjustment factors for changes in prices due to resource mix shifts, including the addition of the Examined Facility (and other Examined Facilities being studied currently), from the resource mix underlying the historical data used for the econometric regression model.

[8] The units $/kW-year ICAP uses the Examined Facility's capacity at ICAP conditions, 90 $^0$F.

A hypothetical dispatch is then run over the forecast LBMPs for the MSP, using operating parameters and characteristics specific to the Examined Facility. In general, the dispatch is designed to resemble the manner in which the Examined Facility will be operated. Net Energy and Ancillary Services revenues, as determined from the hypothetical dispatch over these three years, are then averaged in order to come up with a single, annual estimate.

### 3.3 Part B Test Exemption Determination

The **UNC**$_b$ is compared with the average of the annual ICAP Spot Market Auction clearing price forecasts for the three years of the MSP (**PF**$_b$). The details regarding the calculation and the adjustment for inflation of this average value can be found in Section **5**.

If **UNC**$_b$ < **PF**$_b$ then the Examined Facility is exempt from BSM and does not receive an Offer Floor,

else if **UNC**$_b$ > **PF**$_b$ then the Examined Facility is not exempt from BSM under the Part B Test.

## 4 Determination and Application of Offer Floors

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If the project is not exempt under either the Part A Test or the Part B Test, it is subject to an Offer Floor. Seasonal offer floors are shaped from the Annual Unit Net CONE (**ANC**) or the Default net CONE (**DNC**), whichever is lower. This is defined as the Final Net CONE (**NC**$_{final}$) for the purposes of this calculation. The **DNC** is calculated using the dollar value of the first year of the MSP, as shown in Section **2**, and it is compared with the Annual Unit Net CONE of that same year:

$$NC_{final} = min\begin{cases} DNC \\ ANC_{(MSP1)} \end{cases}$$

The **NC**$_{final}$ is in $/kW-yr UCAP, calculated at ICAP conditions; however, in order to apply an Offer Floor to the mitigated unit, this **NC** value must be converted to $/kW-month UCAP.

### 4.1 Shaping Formulas

Two Offer Floors are determined, one for the Winter Capability Period, and one for the Summer Capability Period, called the Summer Offer Floor (**SOF**) and Winter Offer Floor (**WOF**), respectively. The shaping formulas **(6)** and **(7)** are used to determine these Offer Floors from the **NC**$_{final}$.

$$\mathbf{SOF} = \left( \left( \mathbf{NC}_{final} \cdot \mathbf{Q_{ICAP}} \right) \Big/ \left( \mathbf{6} \cdot \left[ \mathbf{Q_s} + \mathbf{Q_w} \cdot \frac{\mathbf{DCL-R}}{\mathbf{DCL-1}} \right] \right) \right) \quad \textbf{(6)}$$

$$\mathbf{WOF} = \mathbf{SOF} \cdot \left( \frac{\mathbf{DCL-R}}{\mathbf{DCL-1}} \right) \quad \textbf{(7)}$$

*Where:*

**SOF** is the determined Summer Offer Floor, to be applied during each month of the Summer Capability Period.
**WOF** is the determined Winter Offer Floor, to be applied during each month of the Winter Capability Period.
**Q**s is the Summer DMNC, temperature adjusted to the applicable temperature from the currently accepted Demand Curves.
**Q**w is the Winter DMNC, temperature adjusted to the applicable temperature from the currently accepted Demand Curves.
$Q_{ICAP}$ is the DMNC, temperature adjusted to $90^0$F (ICAP conditions).
**R** is the ratio of:
(1) the sum of the Winter capacity, and
(2) the sum of the Summer capacity,
calculated as a function of the Examined Facilities and existing capacity resource included in the BSM ICAP Forecast.

**A Note on $Q_s$, $Q_w$, $Q_{ICAP}$ and Equivalent Demand Forced Outage Rate (EFORd):**

When shaping a **DNC**, EFORd, **Q**s, **Q**w and $\mathbf{Q}_{ICAP}$ refer to the EFORd DMNC values of the Demand Curve peaking unit for the applicable Locality. When shaping an **ANC**, the Examined Facility's predicted long-term EFORd and expected unit-specific DMNC values are used.

### 4.2 Post-Determination Inflation Adjustments

If an Examined Facility subject to an Offer Floor first offers capacity during a Capability Year other than the first year of the MSP, the NYISO adjusts the Offer Floors determined at the time of the completion of the Class Year for inflation to state the Offer Floors in nominal terms.[9] Accordingly, if the Examined Facility first offers capacity after the first year of the MSP, the Offer Floor is adjusted using the Inflation Rate, which is defined in the Services Tariff for these purposes as the inflation rate from the most recently accepted ICAP Demand Curve or its Annual Update).[10] If the Examined Facility first offers capacity prior to the first Capability Year of the MSP, the Offer Floor will be discounted to the year's value for entry by using the Inflation Index.

[9] *See* Section 23.4.5.7.3.7.
[10] *See* Section 23.4.5.7 of the Services Tariff.

In the years following the initial application of the Offer Floors, the NYISO adjusts the Offer Floors annually for inflation. This adjustment is performed using the Inflation Rate.

## 5 Calculation of Forecasted ICAP Prices and Revenues

### 5.1 Forecasting ICAP Prices

The market clearing prices for the ICAP Spot Market Auction are forecasted for the three years of the MSP. These forecasts are developed for both the Part A Test and Part B Test, where they are compared to the **DNC** and the **UNC**$_b$, respectively.

$$\mathbf{MCP_i} = \max\begin{cases}\mathbf{RP}_i + \mathrm{m}_i \cdot (\mathbf{UCAP}_i - \mathbf{REQ}_i) \\ \$1/\mathrm{kW} - \mathrm{month}\end{cases} \quad \textbf{(8)}$$

***Where:***

***i*** represents a Capability Period, with *i* = 1 defined as the first Capability Period of the currently accepted Demand Curve at the time of the test. If that year coincides with the Class Year, for example, the MSP would consist of the Capability Periods *i* = 7 through *i* = 12.

**MCP**$_i$ is the forecasted ICAP Spot Market Auction clearing price for Capability Period i in terms of $/kW-month.
**DCL** is the Demand Curve Length, as defined in Section **2**.
**REQ**$_i$ is the aggregate UCAP requirement for all Load Serving Entities (LSEs) in, for year i, calculated as the product of the Load Forecast (**LF**$_i$), Locational Minimum Installed Capacity Requirement (**LCR**$_i$) and (1 – **EFORd**):

$$\mathbf{REQ}_i = (\mathbf{LF}_i) \cdot (\mathbf{LCR}_i) \cdot (\mathbf{1} - \mathbf{EFORd})$$

**RP**$_1$ is reference point from the currently accepted Demand Curve.
**RP**$_i$ is the converted reference point **RP**$_1$, forecasted to Capability Period *i* by:

- escalating the effective ICAP Demand Curve peaking plant gross CONE by applying the Inflation Index (in the BSM Rules)
- estimating the peaking plant net EAS revenues using the same econometric model used for Examined Facilities and applicable dispatch model used for the currently accepted Demand Curves
- estimating the winter-to-summer ratio as a function of Examined Facility and existing capacity resource inclusion and exclusion.

**m**$_i$ is the slope of projected Demand Curve:

$$\mathrm{m_i} = \frac{-\mathbf{RP}_i}{\mathbf{REQ}_i \cdot (\mathbf{DCL} - 1)}$$

**UCAP**$_i$ is the sum of forecasted supply.

$$\mathbf{UCAP}_i = \sum(\text{Existing Units , Additional Units, SCRs, Examined Facilities}) - \sum(\text{Unoffered MW, Excluded Units})$$

When establishing a forecasted supply, the ISO shall include Existing Units and Additional Units, as defined in Services Tariff Sections 23.4.5.7.15.4 and .5, less Excluded Units, as defined in Section 23.4.5.7.15.6.

**SCRs** is the value of Special Case Resources in the applicable Load Zone(s). This value is based on the NYCA values taken from Table V-2a (Summer) and Table V-2b (Winter) of the Gold Book most recently published at the time of the analysis. The NYCA values reported in the Gold Book are the sum of the SCRs across all zones, stated in ICAP terms, and the Locality value used herein is the ICAP component of that total, converted to UCAP using the zonal performance factor for the corresponding Capability Period.

**Examined Facilities** are proposed new Generators and proposed UDR projects in the current Class Year, proposed Additional CRIS MW, and other resources as defined in Services Tariff § 23.4.5.7.3. For each Examined Facility, and for the Part A Test and the Part B Test, this value is equal to the UCAP MW of (1) the Examined Facility for which the forecast is being developed, (2) all other Examined Facilities in and being examined with the same Class Year that have already been determined (*i.e.*, in the sequence)[11] to be exempt under that same test, and (3) all other Examined Facilities in and being examined with the Class Year that are being tested simultaneously with the Examined Facility for which the forecast is being developed.

**Unoffered MW** is the UCAP MW value of unoffered capacity calculated as the historic six-month average of the corresponding Capability Period most recently completed at the time of the analysis.

[11] The sequence of Examined Facilities, based on the lower of their (i) Unit Net CONE or (ii) Default Net CONE, results in their sequential placement (and testing) ahead of the Examined Facility for which the forecast is being developed.

## 6 Numerical Example

The following numerical example uses four hypothetical units in NYC and places them in a hypothetical scenario identified as Class Year 2011 in order to illustrate how the NYISO performs the mitigation exemption tests and how it determines and applies Offer Floors to the non-exempt projects. The Mitigation Study Period (MSP) for Class Year 2011 covers May 2014 through April 2017.

- Unit A is a simple cycle gas turbine unit with a 70.0 MW summer DMNC, 80.5 MW winter DMNC, 68.0 MW DMNC at ICAP conditions,[12] and a 5.04 percent EFORd. Its Annual Unit Net CONE is $5.27/kW-year on a UCAP basis, which translates into a $0.54/kW-month Summer Offer Floor and a $0.27kW-month Winter Offer Floor, per equations **(6)** and **(7).**

- Unit B is a combined cycle with a 90.4 MW summer DMNC, 96.0 MW winter DMNC, 80.5 MW DMNC at ICAP conditions, and a 2.14 percent EFORd. Its Annual Unit Net CONE is $68.47 kW-year on a UCAP basis, which translates into a $6.61/kW-month Summer Offer Floor and a $3.34/kW-month Winter Offer Floor.

- Unit C is a Controllable Line transmission facility that will offer capacity with UDRs. It has a 108.8 MW of Summer DMNC, 112.0 MW winter DMNC, 103.1 MW DMNC at ICAP conditions, and a 3.85 percent derating factor. Its Annual Unit Net CONE is $156.01/kW-year on a UCAP basis, which translates into a $16.21/kW-month Summer Offer Floor and $8.20/kW-month Winter Offer Floor.

- Unit D is a combined cycle with 102.1 MW summer DMNC, 109.5 MW winter DMNC, 86.3 MW DMNC at ICAP conditions, and a 4.29% derating factor. Its Annual Unit Net CONE is $167.17/kW-year on a UCAP basis, which translates into a $15.27/kW-month Summer Offer Floor and $7.72/kW-month Winter Offer Floor.

[12] ICAP conditions is defined as DMNC at 90 degrees Fahrenheit.

**Table 1: Examined Facility Characteristics**

| *Input* | *Units* | *Unit A* | *Unit B* | *Unit C* | *Unit D* |
|---|---|---|---|---|---|
| Technology | none | SC-GT | CC | UDR | CC |
| Annual Unit Net CONE, ICAP | $/kW-yr | $5.00 | $ 67.00 | $150.00 | $160.00 |
| Annual Unit Net CONE, UCAP | $/kW-yr | $5.27 | $ 68.47 | $156.01 | $167.17 |
| Unit EFORd | % | 5.04% | 2.14% | 3.85% | 4.29% |
| DMNC at ICAP conditions | ICAP, MW | 68.0 | 80.5 | 103.1 | 86.3 |
| Summer DMNC | ICAP, MW | 70.0 | 90.4 | 108.8 | 102.1 |
| Winter DMNC | ICAP, MW | 80.5 | 96.0 | 112.0 | 109.5 |
| Ratio of winter generating capacity of Examined Facility to the summer generating capacity of Examined Facility **($Q_w/Q_s$)** | none | 1.1510 | 1.0622 | 1.0295 | 1.0725 |
| Ratio of winter to summer capacity for Locality **(R)** | none | 1.0890 | 1.0890 | 1.0890 | 1.0890 |
| Demand Curve Length **(DCL)** | none | 1.18 | 1.18 | 1.18 | 1.18 |
| Summer Offer Floor, UCAP | $/kW-mo | $0.54 | $6.61 | $16.21 | $15.27 |
| Winter Offer Floor, UCAP | $/kW-mo | $0.27 | $3.34 | $8.20 | $7.72 |

### 6.1 Part A Test

The Part A Test compares forecasted annual ICAP prices to the Default Net CONE, three years from the year of the Class Year. As the Examined Facilities in this example are in Class Year 2011, the Part A Test requires an ICAP price forecast for Capability Year 2014.

**Table 2** shows the ICAP Spot Market Auction price forecasts for the MSP. The Part A Test studies the 2014 Summer and Winter Capability Periods. All of the Examined Facilities are assumed to offer into the ICAP Spot Market Auction as price takers (*i.e.*, offer at a price of $0.00/kW-month). The Part A Test is performed sequentially for each Examined Facility, in ascending order by the lower of each Examined Facility's (i) Unit Net CONE or (ii) Default Net CONE. In the event of a "tie," the test is performed for all "tied" Examined Facilities simultaneously. If a unit is determined to be exempt under the Part A Test, its MW are included as if they were Existing Generation in the ICAP forecast for Examined Facilities later in the sequence.

**Figure 2** illustrates the calculations of Mitigation Net CONE and the Default Net CONE of the Demand Curves projected for the 2014 Capability Year. The annual ICAP price forecasts for each Examined Facility tested are less than the Default Net CONE of $136.34/kW-year; thereby, none of the four Examined Facilities are exempt from BSM under the Part A Test.

**Figure 2: Part A Tests**

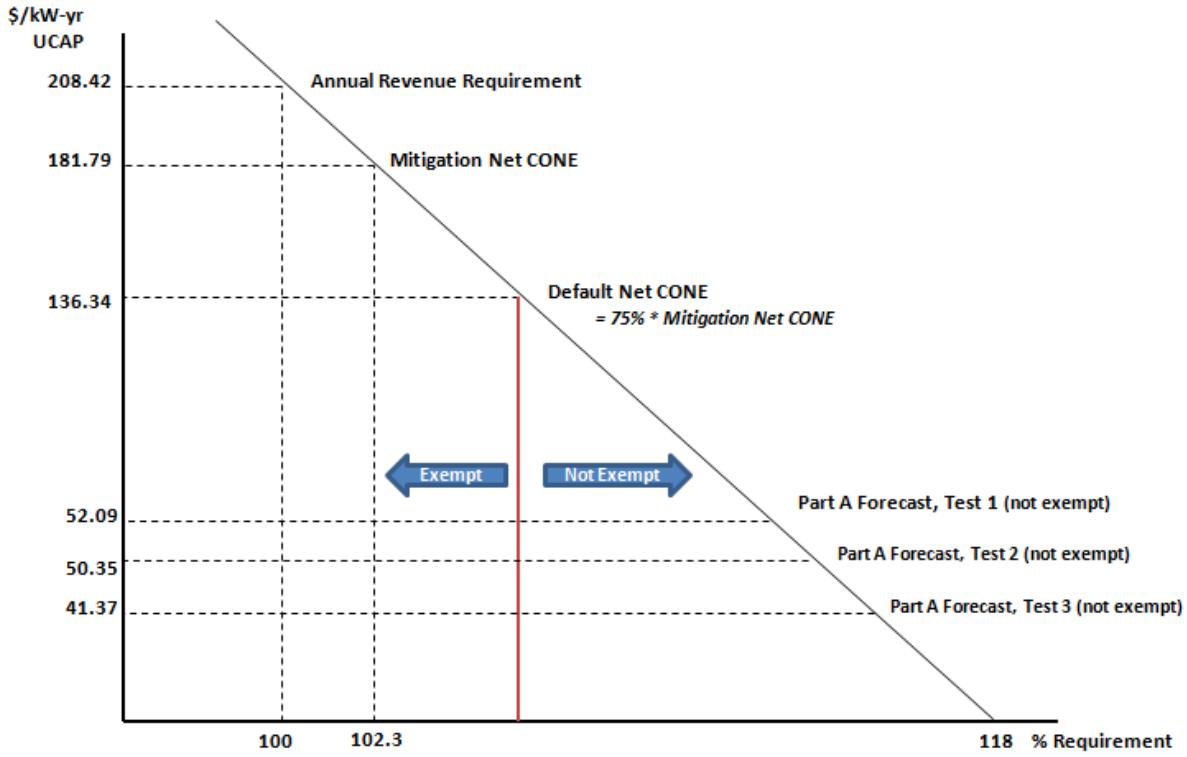

**Table 2: ICAP Price Forecasts for the Mitigation Study Period for the Part A Test**
(Bold terms have the definitions set forth above.)

| | | Summer | | | Winter | | |
|---|---|---|---|---|---|---|---|
| | ***Units*** | 2014 | | | 2014/2015 | | |
| | | Part A Test 1 | Part A Test 2 | Part A Test 3 | Part A Test 1 | Part A Test 2 | Part A Test 3 |
| Capability Period (i) | Index | 7 | 7 | 7 | 8 | 8 | 8 |
| ***Demand Curve*** | | | | | | | |
| NYC Demand Curve ICAP reference point | $/kW-mo | $ 20.19 | $ 20.19 | $ 20.19 | $ 20.19 | $ 20.19 | $ 20.19 |
| ICAP/UCAP derating factor | % | 6.79% | 6.79% | 6.79% | 6.79% | 6.79% | 6.79% |
| NYC UCAP reference point | $/kW-mo | $ 21.66 | $ 21.66 | $ 21.66 | $ 21.66 | $ 21.66 | $ 21.66 |
| NYC Load Forecast | ICAP MW | 11,830.0 | 11,830.0 | 11,830.0 | 11,830.0 | 11,830.0 | 11,830.0 |
| NYC LCR | % | 83.0% | 83.0% | 83.0% | 83.0% | 83.0% | 83.0% |
| NYC UCAP Requirement | UCAP MW | 9,152.2 | 9,152.2 | 9,152.2 | 9,152.2 | 9,152.2 | 9,152.2 |
| Demand Curve zero crossing point | % | 118% | 118% | 118% | 118% | 118% | 118% |
| UCAP at $0 | UCAP MW | 10,799.6 | 10,799.6 | 10,799.6 | 10,799.6 | 10,799.6 | 10,799.6 |
| Demand Curve slope. Per 100 MW | $/kW-mo per 100 MW | $ (1.3148) | $ (1.3148) | $ (1.3148) | $ (1.3148) | $ (1.3148) | $ (1.3148) |
| ***Supply*** | | | | | | | |
| Existing Capacity | UCAP MW | 9,018.2 | 9,018.2 | 9,018.2 | 9,906.9 | 9,906.9 | 9,906.9 |
| Special Case Resources ("SCR") | UCAP MW | 424.5 | 424.5 | 424.5 | 258.8 | 258.8 | 258.8 |
| UDR MW | UCAP MW | 292.0 | 292.0 | 292.0 | 292.0 | 292.0 | 292.0 |
| **Additions** | UCAP MW | 451.0 | 451.0 | 451.0 | 469.3 | 469.3 | 469.3 |
| ***Examined Facilities*** | | | | | | | |
| Unit A | UCAP MW | 66.4 | | | 76.5 | | |
| Unit B | UCAP MW | | 88.5 | | | 94.0 | |
| Unit C | UCAP MW | | | 104.6 | | | 107.7 |
| Unit D | UCAP MW | | | 97.7 | | | 104.8 |
| Unoffered MW | UCAP MW | (36.7) | (36.7) | (36.7) | (37.4) | (37.4) | (37.4) |
| Total Capacity Available, Forecast | UCAP MW | 10,215.4 | 10,237.4 | 10,351.3 | 10,966.1 | 10,983.6 | 11,102.1 |
| ***Forecast*** | | | | | | | |
| Clearing Price, Forecast, Round 1 | $/kW-mo | $7.68 | $7.39 | $5.89 | $1.00 | $1.00 | $1.00 |
| Clearing Price, Forecast, Round 2, w/o Unit C & D | $/kW-mo | $7.68 | $7.39 | $8.55 | $1.00 | $1.00 | $1.00 |

### 6.2 Part B Test

The Part B test compares a three-year average of annual forecasted ICAP prices to the Part B Unit Net CONE, over the Mitigation Study Period. The Examined Facilities are in Class Year 2011, so the Part B Test requires ICAP Spot Market Prices to be forecast for Capability Years 2014, 2015, and 2016.

In the forecasts for Part B Test, each Examined Facility is assumed to offer into the ICAP Spot Market Auction as a price taker (*i.e.*, at a price of $0.00/kW-month). The Part B Test is performed sequentially for each Examined Facility, in ascending order by the lower of each Examined Facility's (i) Unit Net CONE or (ii) Default Net CONE. In the event of a "tie," the test is performed for all "tied" Examined Facilities simultaneously. If a unit is determined to be exempt under the Part B Test, its MW are included as if they were Existing Generation in the ICAP forecasts for subsequent Examined Facilities.

**Figure 3** illustrates the calculations for the three-year average annual ICAP price forecast for Units A and B. Unit A is tested first and passes the Part B with Unit Net CONE of $5.27/kW-year which is less than the three-year average ICAP forecast of $62.50/kW-year. Unit A's MW will be included in each subsequent Part B test. Unit B has a Unit Net CONE of $68.47 which is greater than the three-year average ICAP price forecast of $55.47/kW-year; thereby, Unit B fails the Part B test.

**Figure 3: Part B Test Price Forecasts for Units A and B**

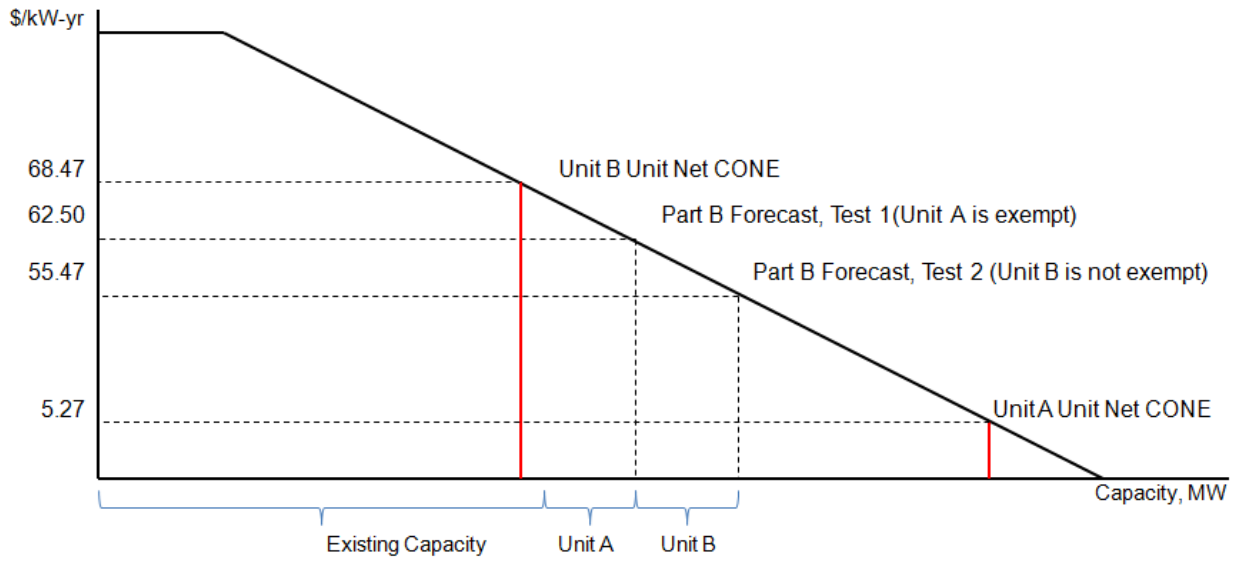

**Figure 4** illustrates the calculations for the three-year average annual ICAP price forecast for Units C and D during the Mitigation Study Period. In the sequential order, Units C and D are tied, having the same "presumptive offer floor" equal to 75% of the Mitigation Net CONE. They are therefore tested simultaneously. The three-year average ICAP price forecast of $46.45/kW-year is less than the Unit Net CONEs for units C and D; thereby neither Unit C or D are exempt from the BSM under the Part B test.

**Figure 4: Part B Test Price Forecast for Units C and D**

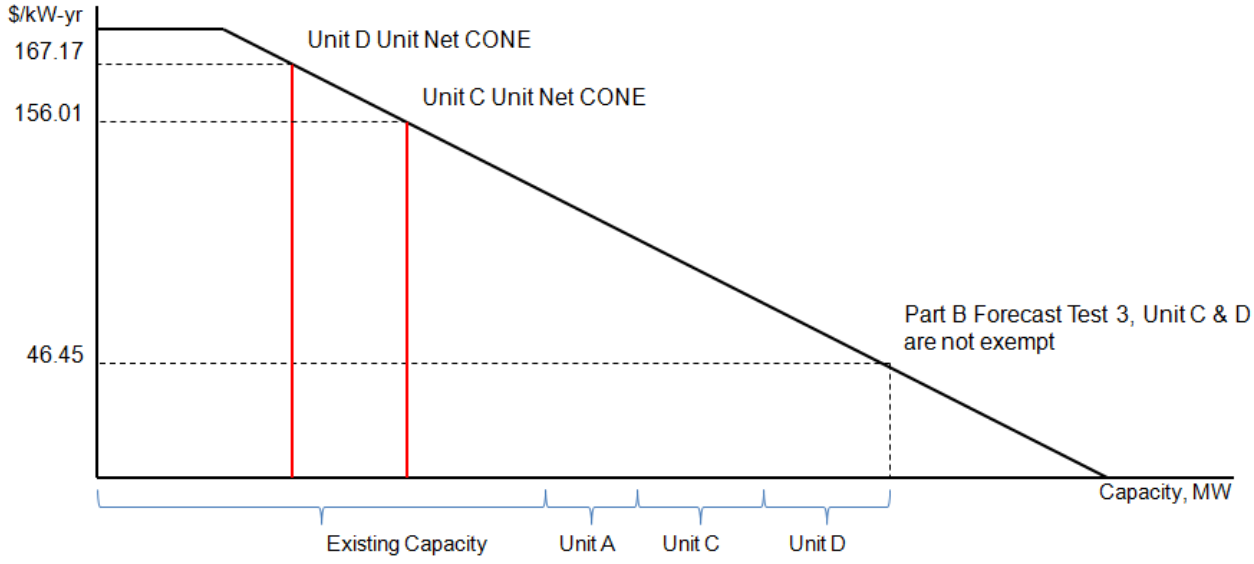


**Table 3: Part B Price Forecasts**

| Capability Year | Season | Test 1 ($/kW-month) | Test 1 Annual ($/kW-year) | Test 2 ($/kW-month) | Test 2 Annual ($/kW-year) | Test 3 ($/kW-month) | Test 3 Annual ($/kW-year) |
|---|---|---|---|---|---|---|---|
| 2014 | Summer | $7.68 | $52.09 | $6.52 | $45.11 | $5.02 | $36.13 |
| | Winter | $1.00 | | $1.00 | | $1.00 | |
| 2015 | Summer | $9.58 | $63.45 | $8.41 | $56.45 | $6.91 | $47.43 |
| | Winter | $1.00 | | $1.00 | | $1.00 | |
| 2016 | Summer | $10.99 | $71.94 | $9.81 | $64.86 | $8.30 | $55.78 |
| | Winter | $1.00 | | $1.00 | | $1.00 | |
| **Three-year annual average** | | | **$62.50** | | **$55.47** | | **$46.45** |

**Table 4: Offer Floors in Part B Test**

| *Input* | *Units* | *Unit A* | *Unit B* | *Unit C* | *Unit D* |
|---|---|---|---|---|---|
| Annual Unit Net CONE | $/kW-year | 5.27 | 68.47 | 156.01 | 167.17 |
| Default Net CONE | $/kW-year | 136.34 | 136.34 | 136.34 | 136.34 |
| | | | | | |
| Final Net CONE | $/kW-year | 5.27 | 68.47 | 136.34 | 136.34 |
| Summer Offer Floor | $/kW-mo | 0.54 | 6.61 | 14.17 | 14.17 |
| Winter Offer Floor | $/kW-mo | 0.27 | 3.34 | 7.16 | 7.16 |

The average annual price forecast is compared to the Unit Net CONE of each Examined Facility. The initial exemption and Offer Floors determination for each of the units[13] are as follows:

- Unit A has an Annual Unit Net CONE is $5.27/kW-year, which is lower than the Part B Test ICAP forecast of $62.50/kW-year, so Unit A is exempt from the Offer Floor.

- Unit B has an Annual Unit Net CONE of $68.47/kW-year, which is higher than the Part B Test ICAP forecast of $55.47/kW-year, so Unit B is determined to be subject to the Offer Floor. Its Annual Unit Net CONE is lower than the Default Net CONE of $136.34/kW-year, so its Final Net CONE is $68.47/kW-year. This value translates into Summer and Winter Offer Floors of $6.61/kW-month and $3.34/kW-month, respectively.

- Unit C has an Annual Unit Net CONE of $156.01/kW-year, which is higher than the Part B Test ICAP forecast of $46.45/kW-year, so Unit C is determined to be subject to the Offer Floor. Its Annual Unit Net CONE is higher than the Default Net CONE of $136.34/kW-year, so its Final Net CONE is $136.34/kW-year, with Summer and Winter Offer Floors of $14.17/kW-month and $7.16/kW-month, respectively.

- Unit D has an Annual Unit Net CONE of $167.17/kW-year, which is higher than the Part B Test ICAP forecast of $45.45/kW-year, so Unit D is determined to be subject to the Offer Floor. Its Annual Unit Net CONE is higher than the Default Net CONE of $136.34/kW-year, so its Final Net CONE is $136.34/kW-year, with Summer and Winter Offer Floors of $14.17/kW-month and $7.16/kW-month, respectively.

## 6.3 BSM Determinations

### 6.3.1 Preliminary SDU Decision Period

[13] The initial determination for each Examined Facility is issued prior to the commencement of the Class Year Initial Decision Period. *See* Services Tariff Section 23.4.5.7.3.3.

For a Class Year that the NYISO issues a Notice of SDUs Requiring Additional Studies, the NYISO provides to Examined Facilities for which the ISO has identified SDUs requiring additional studies, for informational purposes only, preliminary exemption and Offer Floor determinations.[14] Each Developer receiving such notice must respond to the NYISO within 10 Business Days to indicate if it wishes to proceed with additional studies. Regardless of whether the developer elects to proceed with the additional studies or not, the preliminary information provided to it regarding the project's BSM Rule determination is not final or binding, and will be revised if the project remains in the Class Year.

If no Developer receiving such notice elects to proceed with additional studies, or if the NYISO did not identify SDUs requiring addition studies (and therefore did not issue such a notice), the Class Year does not bifurcate, and instead proceeds to the decision and settlement phase, with the BSM Rule process as described in Section 6.3.1. If, on the other hand, at least one Class Year developer elects to proceed with additional studies, the Class Year bifurcates into Class Year X-1 and Class Year X-2 (with "X" being the year of the Class Year Start Date), with the BSM Rule process as described in Section 6.3.2.

**6.3.1 Class Years that do not bifurcate and Class Year X-2**

For a Class Year that is not Bifurcated and for a Class Year X-2, the NYISO provides a series of exemption or Offer Floor determinations to each Examined Facility remaining in the Class Year, in a process that is coordinated with the Class Year Project Cost Allocation process, set forth in Attachment S to the OATT. The NYISO provides the initial exemption or Offer Floor determination (Round 1) prior to the NYISO's Initial Project Cost Allocation (PCA). The OATT Attachment S PCA process gives the developer 30 days to accept or reject its PCA. If the project rejects its PCA, it is no longer in the Class Year for CRIS. For subsequent rounds of the Class Year, the NYISO recalculates its BSM determinations, removing all Examined Facilities that are removed from the Class Year.

Assume, for the purposes of this example, that Unit C and D rejects their PCAs. The NYISO then recalculates the Annual Unit Net CONE, Final Net CONE, Part A Test, and Part B Test for each Examined Facility remaining in the Class Year for CRIS and any other Examined Facilities being examined concurrently. In this example, it is assumed that the Annual Unit Net CONE values are not affected by the removal of Unit C and D, such that the Final Net CONE for each of the remaining units stays the same.[15]

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[14] *See* OATT Section 25.5.10.1 and .2.

[15] As projects reject their PCAs or do not accept their deliverable CRIS MW, they are removed from the Class Year pursuant to Attachment S. Therefore, it is possible that the remaining projects' PCAs may change. A project's PCA is an input in the project's investment cost. The NYISO would revise a project's costs to reflect any such change. Also, projected Net E&AS Revenues may change to reflect different levels of excess and market conditions, so the Annual Unit Net CONE values are revised.

Due to the sequential performance of the Part A and Part B tests, the removal of Unit C and D does not result in an increase of the forecasted ICAP prices in the Part A Test for units A and B. In the Part A Test, the annual forecasts for the 2014 Capability Year remains $52.09 and $50.35/kW-year for Test 1 and Test 2, calculated from the values in the last row of **Table 2**. Neither of the two remaining Examined Facilities, Unit A and Unit B, are exempt under the Part A Test because the price forecasts of 52.09 and $50.35/kW-year is lower than the Default Net CONE of $136.34/kW-year.

In the Part B Test, the average annual price forecast remains at $62.50 and $55.47/kW-year. For Round 2, the preliminary exemption and Offer Floors determinations for each of the units are as follows:

- Unit A is exempt from the Offer Floor since its Final Net CONE of $5.27/kW-year is lower than the Part B forecast of $62.50/kW-year.

- Unit B is not exempt from the Offer Floor because its Final Net CONE of $68.47/kW-year is higher than the Part B forecast of $55.47/kW-year. Unit B is subject to a Summer Offer Floor of $6.61/kW-month and a Winter Offer Floor of $3.34/kW-month, based on the Final Net CONE of $68.47/kW-year.

Assume that Unit A and Unit B accept their PCAs after the Round 2 determination, that they have satisfied any security posting requirements, and that the 2011 Class Year is determined to be completed in accordance with OATT Attachment S. The NYISO then issues the final BSM determinations to each of the Examined Facilities that remained in the Class Year at the time of its completion, and if subject to an Offer Floor, the Offer Floor is specified. At that time, the NYISO also posts a document to the NYISO website identifying for each Examined Facility that remained in the Class Year at the time of its completion, its final exempt or non-exempt determination. The price of the Offer Floor is not posted and is only provided to the Examined Facility that remains in the completed Class Year. In this numerical example, the web posting would state that Unit A is exempt, and Unit B is not exempt.

### 6.3.2 Bifurcated Class Year

Prior to the commencement of the Bifurcated Decision Period, the NYISO provides initial Offer Floor determinations to each Examined Facility eligible to enter into Class Year X-1. These initial determinations reflect the NYISO-determined reasonably anticipated Unit Net CONE with highest potential PCA. If a project remains a member of a completed Class Year X-1, its final Offer Floor determination will be the same as this initial determination.

## 6.4 Application of the Offer Floor

When Unit A offers capacity, it is exempt so its capacity does not have an Offer Floor. When Unit B offers capacity, it can only offer into the ICAP Spot Market Auction, and the offers must

be at or above its Summer Offer Floor or Winter Offer Floor. Unit B cannot allocate its UCAP to sales in the Capability Period or Monthly Auctions, and cannot be used to certify bilateral sales.

Unit B's final BSM determination is a Summer Offer Floor of $6.61/kW-month and a Winter Offer Floors of $3.34/kW-month, calculated from the Final Net CONE of $68.47/kW-year. These values are stated in 2014 dollars, so if Unit B first offers capacity in a prior or subsequent Capability Year, the values are adjusted to those year's dollars. For example, if Unit B first offers capacity any time in the 2013/2014 Capability Year, the Offer Floor will be deflated using the Inflation Index at the time the unit first offers, *i.e.* $67.33/kW-year, and the Summer and Winter Offer Floors would be calculated as before, using equations **(6)** and **(7)**. If Unit B enters any time in the 2015 Capability Year, the Offer Floor will be inflated by the Inflation Rate, *i.e.* $69.63/kW-year.[16]

Subsequently, Unit B's Offer Floor will be inflated annually using the Inflation Rate of the most recent currently accepted Demand Curve or its Annual Update applicable to the Capability Year. The Summer and Winter Offer Floors will apply to all of the UCAP of Unit B except for the MW amount that has cleared for any twelve, not necessarily consecutive months (*i.e.*, the MW of "Cleared UCAP"). This MW amount will cease to be subject to the Offer Floor and the limit on only being eligible to be offered into the ICAP Spot Market Auction.

[16] Under the example, both the Inflation Index and the Inflation Rate are equal to 1.7 percent.