

## **5.14 Installed Capacity Spot Market Auction and Installed Capacity Supplier Deficiencies**

### **5.14.1 LSE Participation in the ICAP Spot Market Auction**

#### **5.14.1.1 ICAP Spot Market Auction**

When the ISO conducts each ICAP Spot Market Auction it will account for all Unforced Capacity that each NYCA LSE has certified for use in the NYCA to meet its NYCA Minimum Unforced Capacity Requirement or Locational Minimum Unforced Capacity Requirement, as applicable, whether purchased through Bilateral Transactions or in prior auctions. The ISO shall receive offers of Unforced Capacity that has not previously been purchased through Bilateral Transactions or in prior auctions from qualified Installed Capacity Suppliers for the ICAP Spot Market Auction. Interim Service Providers that are required to keep their generating unit(s) in service must offer at \$0.00/kW-month all of their Unforced Capacity into each ICAP Spot Market Auction conducted for each Obligation Procurement Period associate with a month in which it is to receive compensation under Rate Schedule 8 of the Services Tariff. If an Interim Service Provider that is required to keep its generating unit(s) in service is expressly precluded from offering all or a portion of its UCAP into an ICAP Spot Market Auction because it is obligated to provide capacity pursuant to a bilateral contract that is effective at the time of the ICAP Spot Market Auction, and was executed and effective before the NYISO received a Generator Deactivation Notice the Interim Service Provider (such contract a “Preexisting Capacity Bilateral”), then the Interim Service Provider shall only be required to offer the amount of its Unforced Capacity into that ICAP Spot Market Auction that it is not expressly required to provide pursuant to the terms of the such Preexisting Capacity Bilateral. The quantity of Unforced Capacity an Interim Service Provider that is required to keep its generating unit(s) in service is required to offer in accordance with this paragraph is the “ISP UCAP MW”. The ISO shall also receive offers of

Unforced Capacity from any LSE for any amount of Unforced Capacity that the LSE has in excess of its NYCA Minimum Unforced Capacity Requirement or Locational Minimum Unforced Capacity Requirement, as applicable. Unforced Capacity that will be exported from the New York Control Area during the month for which Unforced Capacity is sold in an ICAP Spot Market Auction shall be certified to the NYISO by the certification deadline for that auction.

The ISO shall conduct an ICAP Spot Market Auction to purchase Unforced Capacity which shall be used by an LSE toward all components of its LSE Unforced Capacity Obligation for each Obligation Procurement Period immediately preceding the start of each Obligation Procurement Period. The exact date of the ICAP Spot Market Auction shall be established in the ISO Procedures. All LSEs shall participate in the ICAP Spot Market Auction. In the ICAP Spot Market Auction, the ISO shall submit monthly bids on behalf of all LSEs at a level per MW determined by the ICAP Demand Curves established in accordance with this Tariff and the ISO Procedures. The ICAP Spot Market Auction will set the LSE Unforced Capacity Obligation for each NYCA LSE in accordance with the ISO Procedures.

The ICAP Spot Market Auction will be conducted and solved simultaneously for Unforced Capacity that may be used by an LSE towards all components of its LSE Unforced Capacity Obligation for that Obligation Procurement Period using the applicable ICAP Demand Curves, as established in accordance with the ISO Procedures. LSEs that are awarded Unforced Capacity in the ICAP Spot Market Auction shall pay to the ISO the Market-Clearing Price of Unforced Capacity determined in the ICAP Spot Market Auction using the applicable ICAP Demand Curve. The ISO shall pay each Installed Capacity Supplier that is selected to provide

Unforced Capacity the Market-Clearing Price determined in the ICAP Spot Market Auction using the ICAP Demand Curve applicable to its offer.

### 5.14.1.2 Demand Curve and Adjustments

ICAP Demand Curves will be established to determine (a) the locational component of LSE Unforced Capacity Obligations for each Locality (b) the locational component of LSE Unforced Capacity Obligations for any New Capacity Zone, and (c) the total LSE Unforced Capacity Obligations for all LSEs. The ICAP Demand Curves for the 2021/2022 Capability Year shall be established at the following points (in accordance with Section 5.14.1.2.2: (1) the ICAP Demand Curve values for the 2020/2021 Capability Year were determined pursuant to the annual update for such Capability Year; provided, however, that the ICAP Demand Curves for all months covered by the 2020/2021 Winter Capability Period shall be as set forth in Section 5.14.1.2.2.5 of this Tariff; and (2) the ICAP Demand Curve values for the 2022/2023 through 2024/2025 Capability Years will be determined pursuant to the respective annual update for each such Capability Year):

Capability Year	5/1/2020 to 4/30/2021	5/1/2021 to 4/30/2022	5/1/2022 to 4/30/2023	5/1/2023 to 4/30/2024	5/1/2024 to 4/30/2025
NYCA	To be posted on the ISO website on or before November 30, 2019*	Max @ \$14.01 \$7.81 @ 100% \$0.00 @ 112%	To be posted on the ISO website on or before November 30, 2021	To be posted on the ISO website on or before November 30, 2022	To be posted on the ISO website on or before November 30, 2023
NYC	To be posted on the ISO website on or before November 30, 2019*	Max @ \$26.25 \$21.28 @ 100% \$0.00 @ 118%	To be posted on the ISO website on or before November 30, 2021	To be posted on the ISO website on or before November 30, 2022	To be posted on the ISO website on or before November 30, 2023
LI	To be posted on the ISO website on or before November 30, 2019*	Max @ \$21.27 \$17.60 @ 100% \$0.00 @ 118%	To be posted on the ISO website on or before November 30, 2021	To be posted on the ISO website on or before November 30, 2022	To be posted on the ISO website on or before November 30, 2023
G-J	To be posted on the ISO website on or before	Max @ \$18.94 \$13.28 @ 100%	To be posted on the ISO website on or before	To be posted on the ISO website on or before	To be posted on the ISO website on or before

	November 30, 2019*	\$0.00 @ 115%	November 30, 2021	November 30, 2022	November 30, 2023
<p>NOTE: All dollar figures are in terms of \$/kW-month of ICAP and all percentages are in terms of the applicable NYCA Minimum Installed Capacity Requirement and Locational Minimum Installed Capacity Requirement. The defined points describe a line segment with a negative slope that will result in higher values for percentages less than 100% of the NYCA Minimum Installed Capacity Requirement or the Locational Installed Capacity Requirement (“reference point”) with the maximum value for each ICAP Demand Curve established at 1.5 times the estimated localized levelized cost per kW-month to develop a new peaking unit in each Locality or in Rest of State, as applicable.</p> <p>*Notwithstanding anything to the contrary in the ISO Tariffs and ISO Procedures, the ICAP Demand Curves for all months covered by the 2020/2021 Winter Capability Period shall be as set forth in Section 5.14.1.2.2.5 of this Tariff. The ICAP Demand Curves previously posted on the ISO website for the 2020/2021 Capability Year applied for the previously conducted ICAP Spot Market Auctions for all months covered by the 2020 Summer Capability Period.</p>					

In subsequent years, the costs assigned by the ICAP Demand Curves to the NYCA Minimum Installed Capacity Requirement, the Locational Minimum Installed Capacity Requirement, and any Indicative NCZ Minimum Installed Capacity Requirement, will be defined by the results of the independent review conducted pursuant to this section. The ICAP Demand Curves will be translated into Unforced Capacity terms in accordance with the ISO Procedures. Beginning with the 2024/2025 Capability Year, the aforementioned translation shall utilize the applicable derating factor of the peaking plant used to establish each ICAP Demand Curve, as determined during the periodic review conducted pursuant to Section 5.14.1.2.2.

**5.14.1.2.1 Periodic Reviews of ICAP Demand Curves Applicable Prior to the 2017/2018 Capability Year**

For ICAP Demand Curves applicable prior to the 2017/2018 Capability Year, a periodic review of the ICAP Demand Curves shall be performed every three (3) years in accordance with the ISO Procedures to determine the parameters of the ICAP Demand Curves for the next three Capability Years. The periodic review shall assess: (i) the current localized levelized embedded cost of a peaking plant in each NYCA Locality, the Rest of State, and any New Capacity Zone, to meet minimum capacity requirements, and (ii) the likely projected annual Energy and

Ancillary Services revenues of the peaking plant over the period covered by the adjusted ICAP Demand Curves, net of the costs of producing such Energy and Ancillary Services. The cost and revenues of the peaking plant used to set the reference point and maximum value for each ICAP Demand Curve shall be determined under conditions in which the available capacity is equal to the sum of (a) the minimum Installed Capacity requirement and (b) the peaking plant's capacity equal to the number of MW specified in the periodic review and used to determine all costs and revenues. The minimum Installed Capacity requirement for each Locality shall be equal to the Locational Minimum Installed Capacity Requirement in effect for the year in which the independent consultant's final report (referenced below in Section 5.14.1.2.1.6) is issued; for the NYCA, equal to the NYCA Minimum Installed Capacity Requirement based on the Installed Reserve Margin accepted by the Commission and applicable to the Capability Year which begins in the Capability Year in which the independent consultant's final report is issued; and for any New Capacity Zone, equal to the Indicative NCZ Locational Minimum Installed Capacity Requirement determined by the ISO in accordance with Section 5.16.3. The periodic review shall also assess (i) the appropriate shape and slope of the ICAP Demand Curves, and the associated point at which the dollar value of the ICAP Demand Curves should decline to zero; (ii) the appropriate translation of the annual net revenue requirement of the peaking plant determined from the factors specified above, into monthly values that take into account seasonal differences in the amount of capacity available in the ICAP Spot Market Auctions; and (iii) the escalation factor and inflation component of the escalation factor applied to the ICAP Demand Curves. For purposes of this periodic review, 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, and a peaking plant is defined as the number of units (whether one or more) that constitute the scale identified in the periodic review.

The periodic review shall be conducted in accordance with the schedule and procedures specified in the ISO Procedures. A proposed schedule will be reviewed with the stakeholders not later than May 30 of the year prior to the year of the filing specified in Section 5.14.1.2.1.11.

The schedule and procedures shall provide for:

- 5.14.1.2.1.1 ISO development, with stakeholder review and comment, of a request for proposals to provide independent consulting services to determine recommended values for the factors specified above, and appropriate methodologies for such determination;
- 5.14.1.2.1.2 Selection of an independent consultant in accordance with the request for proposals;
- 5.14.1.2.1.3 Submission to the ISO and the stakeholders of a draft report from the independent consultant on the independent consultant's determination of recommended values for the factors specified above;
- 5.14.1.2.1.4 Stakeholder review of and comment on the data, assumptions and conclusions in the independent consultant's draft report, with participation by the responsible person or persons providing the consulting services;
- 5.14.1.2.1.5 An opportunity for the Market Monitoring Unit to review and comment on the draft request for proposals, the independent consultant's report, and the ISO's proposed ICAP Demand Curves (the responsibilities of the Market Monitoring Unit that are addressed in this section of the Services Tariff are also addressed in Section 30.4.6.3.1 of Attachment O);

- 5.14.1.2.1.6 Issuance by the independent consultant of a final report;
- 5.14.1.2.1.7 Issuance of a draft of the ISO's recommended adjustments to the ICAP Demand Curves for stakeholder review and comment;
- 5.14.1.2.1.8 Issuance of the ISO's proposed ICAP Demand Curves, taking into account the report of the independent consultant, the recommendations of the Market Monitoring Unit, and the views of the stakeholders together with the rationale for accepting or rejecting any such inputs;
- 5.14.1.2.1.9 Submission of stakeholder requests for the ISO Board of Directors to review and adjust the ISO's proposed ICAP Demand Curves;
- 5.14.1.2.1.10 Presentations to the ISO Board of Directors of stakeholder views on the ISO's proposed ICAP Demand Curves; and
- 5.14.1.2.1.11 Filing with the Commission of ICAP Demand Curves as approved by the ISO Board of Directors incorporating the results of the periodic review, such filing to be made not later than November 30 of the year prior to the year that includes the beginning of the first Capability Year to which such ICAP Demand Curves would be applied. The filing shall specify ICAP Demand Curves for a period of three Capability Years and the inflation rate component of the escalation factor applied to the ICAP Demand Curves.

Upon FERC approval, the ICAP Demand Curves will be translated into Unforced Capacity terms in accordance with the ISO Procedures; provided that nothing in this Tariff shall be construed to limit the ability of the ISO or its Market Participants to propose and adopt alternative provisions to this Tariff through established governance procedures.

#### **5.14.1.2.2 Periodic Reviews of ICAP Demand Curves Applicable Beginning with the 2017/2018 Capability Year**

Beginning with the ICAP Demand Curves applicable for the 2017/2018 Capability Year, a periodic review of the ICAP Demand Curves shall be performed every four (4) years in accordance with the ISO Procedures to: (i) identify the methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) establish the ICAP Demand Curves for the first Capability Year covered by the periodic review.

The periodic review shall assess: (i) the current localized levelized embedded cost of a peaking plant in each NYCA Locality, the Rest of State, and any New Capacity Zone, to meet minimum capacity requirements (for purposes of this Section 5.14.1.2.2 hereinafter referred to as the “peaking plant gross cost”); and (ii) the likely projected annual Energy and Ancillary Services revenues of the peaking plant for the first Capability Year covered by the periodic review, net of the costs of producing such Energy and Ancillary Services (for purposes of this Section 5.14.1.2.2 hereinafter referred to as the “net Energy and Ancillary Services revenue offset”), including the methodology and inputs for determining such projections for the four Capability Years covered by the periodic review. The cost and revenues of the peaking plant used to set the reference point and maximum value for each ICAP Demand Curve shall be determined under conditions in which the available capacity is equal to the sum of (a) the minimum Installed Capacity requirement and (b) the peaking plant’s capacity equal to the number of MW specified in the periodic review and used to determine all costs and revenues (for purposes of this Section 5.14.1.2.2 hereinafter referred to as the “prescribed level of excess”). The minimum Installed Capacity requirement for each Locality shall be equal to the Locational Minimum Installed Capacity Requirement in effect for the year in which the independent



consultant's final report (referenced below in Section 5.14.1.2.2.4.6) is issued; for the NYCA, equal to the NYCA Minimum Installed Capacity Requirement based on the Installed Reserve Margin accepted by the Commission and applicable to the Capability Year which begins in the Capability Year in which the independent consultant's final report is issued; and for any New Capacity Zone, equal to the Indicative NCZ Locational Minimum Installed Capacity Requirement determined by the NYISO in accordance with Section 5.16.3. The periodic review shall also assess (i) the appropriate shape and slope of the ICAP Demand Curves, and the associated point at which the dollar value of the ICAP Demand Curves should decline to zero; (ii) the appropriate translation of the annual net revenue requirement of the peaking plant determined from the factors specified above, into monthly values that take into account seasonal differences in the amount of capacity available in the ICAP Spot Market Auctions in accordance with the methodology set forth in Section 5.14.1.2.2.3; and (iii) the escalation factor and inflation component of the escalation factor applied to the peaking plant gross cost, including the methodology and inputs for determining such values. For purposes of this periodic review, 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, and a peaking plant is defined as the number of units (whether one or more) that constitute the scale identified in the periodic review.

In the filing referenced in Section 5.14.1.2.2.4.11 below, the ISO will: (i) identify the methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) propose the ICAP Demand Curves for the first Capability Year covered by the periodic review. Except as it relates to the ICAP Demand Curves set forth in Section 5.14.1.2.2.5 that are applicable for all months covered by the

2020/2021 Winter Capability Period, for the subsequent three Capability Years covered by the periodic review, the ISO will establish the ICAP Demand Curves for each such Capability Year by updating the following factors in advance of each such subsequent Capability Year: (i) the peaking plant gross cost in accordance with Section 5.14.1.2.2.1; (ii) the net Energy and Ancillary Services revenue offset in accordance with Section 5.14.1.2.2.2; and (iii) the winter-to-summer ratio, as such term is defined in Section 5.14.1.2.2.3, in accordance with Section 5.14.1.2.2.3. Except as it relates to the ICAP Demand Curves set forth in Section 5.14.1.2.2.5 that are applicable for all months covered by the 2020/2021 Winter Capability Period, the ISO will post the updated ICAP Demand Curves for each subsequent Capability Year covered by the periodic review on or before November 30<sup>th</sup> of the calendar year immediately preceding the calendar year that includes the start of the Capability Year for which the updated ICAP Demand Curves will apply.

#### **5.14.1.2.2.1 Annual Updates for Peaking Plant Gross Cost**

For purposes of the annual updates to the ICAP Demand Curves, the ISO shall determine updated values for the peaking plant gross cost for each peaking plant. Updated values for the peaking plant gross cost shall be determined by application of an escalation factor to the peaking plant gross cost values underlying the ICAP Demand Curves for the first Capability Year covered by the periodic review. The escalation factor shall consist of the following four components: (i) changes in construction material costs (“materials component”); (ii) changes in turbine generator costs (“turbine component”); (iii) changes in labor costs (“labor component”); and (iv) changes in the general cost of goods and services (“general component”). The escalation factor shall be equal to the sum of the: (i) the percentage change in the applicable index for the materials component, multiplied by the applicable weighting factor for such

component; (ii) the percentage change in the applicable index for the turbine component, multiplied by the applicable weighting factor for such component; (iii) the percentage change in the applicable index for the labor component, multiplied by the applicable weighting factor for such component; and (iv) the percentage change in the applicable index for the general component, multiplied by the applicable weighting factor for such component. For purposes of determining the percentage change for each component, the values utilized from each applicable index shall be as follows: (i) for indices that publish annual values, the most recently available annual value and the corresponding annual value for the calendar year that contained the most recently available finalized values established by the publisher for the applicable index as of October 1<sup>st</sup> in the same calendar year as the filing required by Section 5.14.1.2.2.4.11 (“baseline period”); (ii) for indices that publish monthly values, the average value of the three most recently available monthly values and the average value of values for the same three months from the baseline period; and (iii) for indices that publish quarterly values, the value of the most recently available calendar quarter and the value for the same calendar quarter from the baseline period. The applicable values to be used by the ISO shall be the available finalized values established by the publisher for each index as of October 1<sup>st</sup> of the same calendar year as the applicable November 30<sup>th</sup> deadline for posting the updated ICAP Demand Curves. The ISO shall not use any preliminary values published by an index in determining the applicable percentage change for any component of the escalation factor. The weighting factors applied to each component shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review. The specified index for each component shall likewise be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period

covered by the periodic review, unless an index is eliminated, replaced or otherwise terminated by the publisher thereof during the period covered by the periodic review. In such circumstance, the ISO shall utilize the replacement or successor index established by the publisher, if any, or, in the absence of a replacement or successor index, shall select as a replacement a substantially similar index.

#### **5.14.1.2.2.2 Annual Updates for Net Energy and Ancillary Revenue Offset**

For purposes of the annual updates to the ICAP Demand Curves, the ISO shall also determine updated values for the net Energy and Ancillary Services revenue offset associated with each peaking plant. Updated values for the net Energy and Ancillary Services revenue offset shall, in part, be determined using a net revenue model that will be developed as part of the periodic review and made available to stakeholders. The model will, at a minimum, determine whether each peaking plant could earn positive net revenue by producing Energy in each hour based on historical prices and the variable costs for each peaking plant over the prior 36 month period ending August 31<sup>st</sup> of the same calendar year as the applicable November 30<sup>th</sup> deadline for posting the updated ICAP Demand Curves, as well as the physical operating characteristics of each peaking plant and any operating hours constraints necessary to address any applicable environmental requirements and/or fuel availability. The commitment and dispatch logic and data sources and/or inputs used by the model, as well as the manner in which the model accounts for net Ancillary Services revenues earned by each peaking plant, the physical operating characteristics of each peaking plant and any operating hours constraints applicable to each peaking plant that are necessary to address any applicable environmental requirements and/or fuel availability, will be determined as part of the periodic review, identified in the filing

required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review, subject to annual updating of certain data inputs used by the model as described herein.

The model will determine whether each peaking plant could earn positive net revenue by producing Energy in each hour of the period encompassed by the model in a manner consistent with the following equation:

$$Net\ Energy\ revenue_{z,t} = \max([Output_{z,t} * (LOE_{z,t} * LBMP_{z,t})] - MC_{z,t}, 0)$$

where:

$Output_{z,t}$  = the quantity of Energy produced by the peaking plant for Load Zone  $z$  in hour  $t$ ;

$LOE_{z,t}$  = the applicable adjustment factor for Load Zone  $z$  and hour  $t$  used to adjust for the prescribed level of excess. The adjustment factors shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review;

$LBMP_{z,t}$  = the Day-Ahead zonal LBMP or time-weighted/integrated zonal RTD LBMP, as applicable, for Load Zone  $z$  and hour  $t$ ;

$MC_{z,t}$  = variable (or short-run marginal) cost of the peaking plant for Load Zone  $z$  to produce Energy in hour  $t$ , calculated as follows:

$$MC_{z,t} = [(HR_{z,t} * Fuel_{z,t}) + VOM_{z,t} + ASC_{z,t} + EC_{z,t} + RSI_{z,t}] * Output_{z,t}$$

where:

$HR_{z,t}$  = the heat rate of the peaking plant for Load Zone  $z$  and hour  $t$ . The heat rate for the peaking plant shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review;

$Fuel_{z,t}$  = the applicable fuel cost for the peaking plant for Load Zone  $z$  and hour  $t$ , which shall be the lesser of the primary fuel cost and the backup fuel cost, if any, for the peaking plant for Load

Zone  $z$ . The primary fuel and any backup fuel for the peaking plant for Load Zone  $z$  shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review. The applicable fuel cost will be based on the applicable daily spot price for Load Zone  $z$  published in the specified data source determined as part of the periodic review (unless such data source is revised for the reasons described below), plus an adder to account for any applicable transportation and delivery costs and any applicable fuel taxes, which adder shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review. For real-time evaluations only, the otherwise applicable fuel cost shall be increased by the applicable real-time fuel premium adder for Load Zone  $z$  and hour  $t$ , which adder shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review. The data sources used for determining the applicable daily spot fuel prices shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review, unless the specified data source is eliminated, replaced or otherwise terminated by the publisher thereof during the period covered by the periodic review. In such circumstance, the ISO shall utilize the replacement or successor data source established by the publisher, if any, or, in the absence of a replacement or successor data source, shall select as a replacement a substantially similar data source;

$VOM_{z,t}$  = variable operating and maintenance cost of the peaking plant for Load Zone  $z$  and hour  $t$ , which cost shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review;

$ASC_{z,t}$  = amortized start-up cost for the peaking plant for Load Zone  $z$  and hour  $t$ . The model will ensure that the total value of this cost is recovered over the number of consecutive hours for which the model determines that the peaking plant should be committed or dispatched to produce Energy following each start of the peaking plant in the same market (Day-Ahead or real-time); provided, however, that in real-time, start-up costs must be recovered over a period of no more than two consecutive hours following the time at which the model determines that the peaking plant should be dispatched to produce Energy;

$EC_{z,t}$  = the sum of  $CO_2$ ,  $NO_x$  and  $SO_2$  emissions allowance costs for the peaking plant for Load Zone  $z$  and hour  $t$ , which shall be calculated as follows:

$$EC_{z,t} = (CO_2 \text{ emissions rate}_{z,t} * CO_2 \text{ allowance price}_{z,t}) + (NO_x \text{ emissions rate}_{z,t} * NO_x \text{ allowance price}_{z,t}) + (SO_2 \text{ emissions rate}_{z,t} * SO_2 \text{ allowance price}_{z,t})$$

where:

The applicable emissions rates for the peaking plant for Load Zone  $z$  and hour  $t$  shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review. The applicable allowance price for each emissions type shall be the price reported by the specified data source for each emissions type determined as part of the periodic review (unless such data source is revised for the reasons described below). The data sources for allowance prices shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review, unless a specified data source is eliminated, replaced or otherwise terminated by the publisher thereof during the period covered by the periodic review. In such circumstance, the ISO shall utilize the replacement or successor data source established by the publisher, if any, or, in the absence of a

replacement or successor data source, shall select as a replacement a substantially similar data source; and

$RS1_{z,t}$  = the applicable charges for the ISO annual budget and the annual FERC fee assessed to Injection Billing Units for Load Zone  $z$  and hour  $t$  in accordance with Rate Schedule 1 of the ISO OATT.

The results of the model will be used to determine an average annual net revenue value earned by each peaking plant over the period encompassed by the model. Such value will be increased by an adder to account for the estimated annual value of any applicable net Ancillary Services revenue for each peaking plant that is not determined by the model, which adder shall be determined as part of the periodic review, identified in the filing required by Section 5.14.1.2.2.4.11 and remain fixed for the entire period covered by the periodic review. The resulting value for each peaking plant shall be the updated net Energy and Ancillary Services revenue offset value to be used in establishing the ICAP Demand Curves for the applicable Capability Year.

#### **5.14.1.2.2.3 Annual Updates for ICAP Demand Curve Parameters**

The ISO shall use the updated peaking plant gross cost and the updated net Energy and Ancillary Services revenue offset values in determining the parameters of the ICAP Demand Curves for the applicable Capability Year. The maximum value for each ICAP Demand Curve shall be established at 1.5 times the monthly value of the applicable updated peaking plant gross cost. The reference point for each ICAP Demand Curve shall be determined in accordance with ISO Procedures; provided, however, that the ratio of the amount of capacity available in the ICAP Spot Market Auctions in the Winter Capability Period to the amount of capacity available in the ICAP Spot Market Auctions in the Summer Capability Period used in calculating the



reference point (the “winter-to-summer ratio”) shall be updated annually based on the average amount of capacity available in the ICAP Spot Market Auctions for the Summer Capability Period months and Winter Capability Period months in each 12-month period (measured from September through the following August) encompassed by the same historical period utilized by the net revenue model. The values used in determining the amount of capacity available in the ICAP Spot Market Auctions shall be the available Unforced Capacity values reported by the ISO and posted on its website for the relevant months, translated to Installed Capacity values based on the applicable translation factors reported by the ISO and posted on its website for each such month. For Resources other than Special Case Resources, the values posted by the ISO shall include the following adjustments to account for ICAP market entry and exit under certain circumstances: (i) if within any of the three 12-month periods (*i.e.*, September through the following August) encompassed by the data used in calculating an updated winter-to-summer ratio value, a Resource (other than a Resource returning to participate in the ICAP market from an Inactive Reserves state) begins to qualify as eligible to participate in the ICAP market in any month encompassed by such 12-month period and remains eligible to participate in the ICAP market for the subsequent months encompassed by that period, the ISO shall adjust the values for all months of that 12-month period to include the Resource’s applicable available capacity; and (ii) if within any of the three 12-month periods (*i.e.*, September through the following August) encompassed by the data used in calculating an updated winter-to-summer ratio value, a Resource is Retired or enters a Mothball Outage or ICAP Ineligible Forced Outage state during any month encompassed by such 12-month period and remains ineligible to participate in the ICAP market for the subsequent months encompassed by that period, the ISO shall adjust the values for all months of that 12-month period to exclude the Resource’s applicable available

capacity. The applicable capacity ratings for each peaking plant utilized in calculating the reference point and the point on each ICAP Demand Curve at which the price of ICAP declines to zero shall be determined as part of the periodic review and shall remain fixed for the entire period covered by the periodic review.

Notwithstanding anything to the contrary herein, for purposes of the annual updates for the 2018/2019, 2019/2020 and 2020/2021 Capability Years, the reference point for each ICAP Demand Curve shall not be permitted to increase by an amount greater than twelve percent (12%) or decrease by an amount greater than eight percent (8%) from one Capability Year to the next, compared to the then currently effective reference point for the relevant ICAP Demand Curve. If the reference point value for an ICAP Demand Curve, as calculated by the ISO pursuant to the annual update procedures, for one of the affected Capability Years exceeds the maximum allowable percentage increase or decrease, the reference point established by the ISO for that ICAP Demand Curve for the relevant Capability Year shall be an amount equal to the price that represents the applicable maximum allowable percentage increase or decrease. If an adjusted reference point value is applied to an ICAP Demand Curve for a Capability Year, the maximum allowable percentage increase or decrease for the next Capability Year shall be determined using the adjusted reference point value. As part of the required posting to establish the updated ICAP Demand Curves for each of the affected Capability Years, the ISO will provide the reference point values calculated by the ISO pursuant to the annual update procedures, as well the adjusted reference point values, if any, that result from the application of the limitation described herein. The limitation described above regarding the allowable annual change to the reference point values calculated by the ISO pursuant to the annual update

procedures shall not be applied to the reference point values for any ICAP Demand Curve after the 2020/2021 Capability Year.

The peaking plant gross cost and net Energy and Ancillary Services revenue offset values utilized in determining the parameters of the ICAP Demand Curves for the 2021/2022 Capability Year are as follows:

	Peaking Plant Gross Cost (\$ per kW-year)	Net Energy and Ancillary Services Revenue Offset (\$ per kW-year)
NYCA	\$107.07	\$32.92
G-J	\$139.63	\$35.15
NYC	\$188.53	\$33.42
LI	\$148.97	\$54.15

#### **5.14.1.2.2.4 Periodic Review Procedures**

The periodic review shall be conducted in accordance with the schedule and procedures specified in the ISO Procedures. A proposed schedule will be reviewed with the stakeholders not later than May 30th of the year prior to the year of the filing specified in Section 5.14.1.2(b).11.

The schedule and procedures shall provide for:

5.14.1.2.2.4.1 ISO development, with stakeholder review and comment, of a request for proposals to provide independent consulting services to determine recommended values for the factors specified above, and appropriate methodologies and inputs for such determination;

5.14.1.2.2.4.2 Selection of an independent consultant in accordance with the request for proposals;

5.14.1.2.2.4.3 Submission to the ISO and the stakeholders of a draft report from the independent consultant on the independent consultant's determination of

recommended values for the factors specified above, including, as applicable, the methodologies and inputs for determining such values;

5.14.1.2.2.4.4 Stakeholder review of and comment on the data, assumptions and conclusions in the independent consultant's draft report, with participation by the responsible person or persons providing the consulting services;

5.14.1.2.2.4.5 An opportunity for the Market Monitoring Unit to review and comment on the draft request for proposals, the independent consultant's report, and the ISO's proposed: (i) methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) ICAP Demand Curves for the first Capability Year covered by the periodic review. The responsibilities of the Market Monitoring Unit that are addressed in this section of the Services Tariff are also addressed in Section 30.4.6.3.1 of Attachment O;

5.14.1.2.2.4.6 Issuance by the independent consultant of a final report;

5.14.1.2.2.4.7 Issuance of a draft of the ISO's recommended: (i) methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) ICAP Demand Curves for the first Capability Year covered by the periodic review, for stakeholder review and comment;

5.14.1.2.2.4.8 Issuance of the ISO's proposed: (i) methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) ICAP Demand Curves for the first Capability Year covered by the periodic review, taking into account the report of the independent

consultant, the recommendations of the Market Monitoring Unit, and the views of the stakeholders together with the rationale for accepting or rejecting any such inputs;

5.14.1.2.2.4.9 Submission of stakeholder requests for the ISO Board of Directors to review and adjust the ISO's proposed: (i) methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) ICAP Demand Curves for the first Capability Year covered by the periodic review;

5.14.1.2.2.4.10 Presentations to the ISO Board of Directors of stakeholder views on the ISO's proposed: (i) methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) ICAP Demand Curves for the first Capability Year covered by the periodic review; and

5.14.1.2.2.4.11 Filing with the Commission of: (i) a description of the methodologies and inputs used for determining the ICAP Demand Curves for the four Capability Years covered by the periodic review; and (ii) the ICAP Demand Curves for the first Capability Year covered by the periodic review, as approved by the ISO Board of Directors incorporating the results of the periodic review. Such filing will be made not later than November 30<sup>th</sup> of the year prior to the year that includes the beginning of the first Capability Year covered by the periodic review. The filing will also specify the inflation rate that would have been used to calculate the general component of the escalation factor as if the escalation factor were applicable to the first Capability Year covered by the periodic review. Such

inflation rate shall be equal to the twelve month percentage change in the applicable index for the general component, as determined in accordance with Section 5.14.1.2.2.1 utilizing the applicable values of the index as of October 1<sup>st</sup> in the same calendar year as the November 30<sup>th</sup> filing deadline specified above. For each of the subsequent three Capability Years encompassed by the periodic review, the value of this inflation rate shall be the twelve month percentage change in the applicable index for the general component of the escalation factor, as determined pursuant to Section 5.14.1.2.2.1, utilizing the most recently available finalized values established by the publisher for the index as of October 1<sup>st</sup> in the same calendar year as the applicable November 30<sup>th</sup> deadline for posting the updated ICAP Demand Curves for the Capability Year at issue and the applicable values for the corresponding period from the calendar year immediately preceding thereto.

The ICAP Demand Curves will be translated into Unforced Capacity terms in accordance with the ISO Procedures; Beginning with the 2024/2025 Capability Year, the aforementioned translation shall utilize the applicable derating factor of the peaking plant used to establish each ICAP Demand Curve, as determined during the periodic review conducted pursuant to Section 5.14.1.2.2. Nothing in this Tariff shall be construed to limit the ability of the ISO or its Market Participants to propose and adopt alternative provisions to this Tariff through established governance procedures.

**5.14.1.2.2.5 ICAP Demand Curves for the 2020/2021 Winter Capability Period**

Notwithstanding anything to the contrary in the ISO Tariffs and ISO Procedures, the ICAP Demand Curves applicable for all months covered by the 2020/2021 Winter Capability Period shall be established at the following points:

ICAP Demand Curve	2020/2021 Winter Capability Period
NYCA	Max @ \$16.93 \$10.96 @ 100% \$0.00 @ 112%
NYC	Max @ \$27.92 \$23.63 @ 100% \$0.00 @ 118%
LI	Max @ \$26.03 \$17.93 @ 100% \$0.00 @ 118%
G-J	Max @ \$23.34 \$18.00 @ 100% \$0.00 @ 115%
NOTE: All dollar figures are in terms of \$/kW-month of ICAP and all percentages are in terms of the applicable NYCA Minimum Installed Capacity Requirement and Locational Minimum Installed Capacity Requirement. The defined points describe a line segment with a negative slope that will result in higher values for percentages less than 100% of the NYCA Minimum Installed Capacity Requirement or the Locational Installed Capacity Requirement (“reference point”) with the maximum value for each ICAP Demand Curve established at 1.5 times the estimated localized leveled cost per kW-month to develop a new peaking unit in each Locality or in Rest of State, as applicable.	

**5.14.1.3 Supplemental Supply Fee**

Any LSE that has not met its share of the NYCA Minimum Installed Capacity Requirement or its share of the Locational Minimum Installed Capacity Requirement after the completion of an ICAP Spot Market Auction, shall be assessed a supplemental supply fee equal to the applicable Market-Clearing Price of Unforced Capacity determined in the ICAP Spot Market Auction multiplied by the number of MWs the LSE needs to meet its share of the NYCA

## Minimum Installed Capacity Requirement or its share of the Locational Minimum Installed Capacity Requirement.

The ISO will attempt to use these supplemental supply fees to procure Unforced Capacity at a price less than or equal to the applicable Market-Clearing Price of Unforced Capacity determined in the ICAP Spot Market Auction from Installed Capacity Suppliers that are capable of supplying Unforced Capacity including: (1) Installed Capacity Suppliers that were not qualified to supply Capacity prior to the ICAP Spot Market Auction; (2) Installed Capacity Suppliers that offered Unforced Capacity at levels above the ICAP Spot Market Auction Market-Clearing Price; and (3) Installed Capacity suppliers that did not offer Unforced Capacity in the ICAP Spot Market Auction. In the event that different Installed Capacity Suppliers offer the same price, the ISO will give preference to Installed Capacity Suppliers that were not qualified to supply capacity prior to the ICAP Spot Market Auction.

Offers from Installed Capacity Suppliers are subject to review pursuant to the Market Monitoring Plan that is set forth in Attachment O to the Services Tariff, and the Market Mitigation Measures that are set forth in Attachment H to the Services Tariff. Installed Capacity Suppliers selected by the ISO to provide capacity after the ICAP Spot Market Auction will be paid a negotiated price, subject to the standards, procedures and remedies in the Market Mitigation Measures.

The ISO will not pay an Installed Capacity Supplier more than the applicable Market-Clearing Price of Unforced Capacity determined in the ICAP Spot Market Auction per MW of Unforced Capacity, or, in the case of In-City generation that is subject to Capacity market mitigation measures, the annual mitigated price cap per MW of Unforced Capacity, whichever is less, pro-rated to reflect the portion of the Obligation Procurement Period for which the Installed



Capacity Supplier provides Unforced Capacity. Any remaining monies collected by the ISO pursuant to this section will be applied in accordance with Section 5.14.3 of the Services Tariff.

## **5.14.2 Installed Capacity Supplier Shortfalls and Deficiency Charges**

### **5.14.2.1 General Provisions**

In the event that an Installed Capacity Supplier sells in the Capability Period Auctions, in the Monthly Auctions, or through Bilateral Transactions more Unforced Capacity than it is qualified to sell in any specific month due to a de-rating or other cause, the Installed Capacity Supplier shall be deemed to have a shortfall for that month. To cover this shortfall, the Installed Capacity Supplier shall purchase sufficient Unforced Capacity in the relevant Monthly Auction or through Bilateral Transactions, and certify to the ISO consistent with the ISO Procedures that it has covered such shortfall. If the Installed Capacity Supplier does not cover such shortfall or if it does not certify to the ISO in a timely manner, the ISO shall, to the extent the ISO is aware of the shortfall, prospectively purchase Unforced Capacity on behalf of that Installed Capacity Supplier in the appropriate ICAP Spot Market Auction or through post ICAP Spot Market Auction Unforced Capacity purchases to cover the shortfall.

The ISO shall submit a Bid, calculated pursuant to Section 5.14.1 of this Tariff, in the appropriate ICAP Spot Market Auction on behalf of an Installed Capacity Supplier deemed to have a shortfall as if the Installed Capacity Supplier were an LSE. Such Installed Capacity Supplier shall be required to pay to the ISO the applicable Market-Clearing Price of Unforced Capacity established in that ICAP Spot Market Auction. Immediately following the ICAP Spot Market Auction, the ISO may suspend the Installed Capacity Supplier's privileges to sell or purchase Unforced Capacity in ISO-administered Installed Capacity auctions or to submit Bilateral Transactions to the NYISO. Once the Installed Capacity Supplier pays for or secures