New York ISO
Independent System Operator

2025 - 2029 ICAP Demand Curve Reset

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Agenda

- Background
- Overview of ICAP Demand Curve reset (DCR) Schedule
- RFP Schedule
- Overview of RFP Documents for Stakeholder Review
- ICAP Demand Curve Reference Point Price Proposal
- Next Steps Summary

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Background

Background

- **The Market Services Tariff requires, every four years, the NYISO and its stakeholders undertake a comprehensive review, referred to as the DCR, to determine the necessary inputs and assumptions for developing the ICAP Demand Curves for the four-year period covered by the reset**
  - Each ICAP Demand Curve is based on the estimated cost to construct and operate a hypothetical new capacity supply resource in various locations throughout New York
- **The 2023 project deliverable is a Q3 Study Defined**

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Overview of DCR Schedule

Overview of DCR Schedule

- **Key 2023 dates in the draft schedule include:**
  - March 27th - Final RFP for DCR independent consultant(s) posted to NYISO website and submitted to potential bidders
  - May 8th - Due date for responses to RFP
  - June 30th - Contract between NYISO and independent consultant(s) is finalized
  - August 9th - Independent consultant(s) initiate discussions with stakeholders

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Overview of DCR Schedule

- **Key 2024 dates in the draft schedule include:[1]**
  - March 5th and 19th - BIC and MC approval of any DCR-related tariff changes, if needed
  - June 11th - Independent consultant(s) draft report posted
  - August 2nd - NYISO staff draft recommendations and independent consultant(s) final report posted
    - The independent consultant(s) final report is subject to an updated posting with final model inputs reflecting data through August 31, 2024
  - September 5th - NYISO staff final recommendations posted
    - Subject to an updated posting with final model inputs reflecting data through August 31, 2024
  - September 19th - NYISO staff final recommendations and independent consultant(s) updated final report posted reflecting final model inputs
  - October 9th – Due date for submission of stakeholder written comments/briefs to NYISO Board of Directors (Board)
  - October 14th - Presentations to Board of stakeholder views on the proposed curves

[1] Notational 2024 dates used as the working group/committee and Board meetings are not yet scheduled

RFP Schedule

RFP Schedule

Event	Date
Release of Final RFP	March 27, 2023
Notice of Intent to Participate	April 3, 2023*
Deadline for Receipt of Written Questions	April 12, 2023*
Deadline for NYISO to Provide Written Responses to Questions	April 24, 2023
RFP Response Due Date	May 8, 2023*

*to be submitted by 2pm EDT

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Overview of RFP Documents for Stakeholder Review

RFP Objective, Services, and Deliverables

- **The RFP will include a draft Statement of Work (SOW) to be completed by bidders**
  - The RFP Objective, Services, and Deliverables sections will refer bidders to the Objective, Scope and Deliverables sections of the draft SOW
- **Objective:**
  - To select an independent consultant(s) to conduct a study of the parameters, assumptions and methodology to set the ICAP Demand Curves, beginning with the Summer 2025 Capability Period
- **Services to be Performed:**
  - Determine the levelized cost of the new entrant peaking plant
  - Project net energy and ancillary services revenues
  - Conduct an analysis for level of excess – adjustment factors
  - Recommend ICAP Demand Curve assumptions, methodologies and parameters for the 2025/2026 Capability Year and annual update process
  - Prepare reports, presentations, and support NYISO's FERC filing of the Board-approved DCR results
  - Support annual updates of the ICAP Demand Curves for the 2026/2027-2028/2029 Capability Years

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RFP Objective, Services, and Deliverables

- **Key Changes from the RFP for last DCR:**
  - Specified that the peaking plant technologies to be evaluated by the independent consultant(s) must include combustion turbines and energy storage with four (4) or more hours of duration
  - Removed the informational evaluation of combined cycle plants
  - Added clarification that the financial parameters should consider how to account for applicable market and regulatory risks
  - Added requirement to consider the estimated Capacity Accreditation Factor of each potential peaking plant in recommending the basis for each ICAP Demand Curve
  - Added a requirement for the selected independent consultant to support the NYISO's administration of the annual update process for the 2026/2027-2028/2029 Capability Years

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RFP Objective, Services, and Deliverables

- **Key deliverables from the independent consultant(s):**
  - A written report documenting the independent consultant's assumptions, methodologies, calculations, results, and recommendations covering the four Capability Years beginning May 1, 2025, that includes:
    - The localized, levelized embedded cost of peaking plant options as of May 2025 at the prescribed level of excess for each Locality and the NYCA
    - Net energy and ancillary services revenue projections and any recommended enhancements to such projections
    - Recommended slope, shape and zero crossing point for each ICAP Demand Curve
    - Financial parameters and amortization period for each peaking plant

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RFP Objective, Services, and Deliverables

- **Items additional to the written report that the independent consultant(s) will be required to deliver:**
  - The models utilized in performing the computations, which will be posted on the NYISO's website for stakeholders to access
  - All sources of data and assumptions used in the report and calculations
- **The draft SOW Objectives, Services, and Deliverables document is posted with today's meeting materials and provides further details regarding the tasks and deliverables required of the independent consultant(s)**

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Exhibits to RFP

- **Exhibit A: provides high-level background regarding the NYISO's capacity market and the ICAP Demand Curves**
  - Reflects the same information provided in the RFP for the last DCR
- **Exhibit B: provides the currently anticipated schedule/timeline for the 2025-2029 DCR**
  - Committee/working group and Board meeting dates for 2024 are subject to change once the schedule of meetings for 2024 has been established

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RFP Next Steps

RFP Next Steps

- As previously noted, the following materials are posted with today's presentation for stakeholder review
  - Draft SOW Objectives, Scope, and Deliverables
  - Exhibit A – Background
  - Exhibit B – Demand Curve Reset Schedule
- In addition to feedback provided during today's meeting, please submit any supplemental feedback/questions to mmohrman@nyiso.com
  - Please provide any additional feedback/questions on the draft SOW Objectives, Scope, and Deliverables and Exhibit A by February 27th
  - Please provide any additional feedback/questions on the DCR Schedule by March 15th
- March 7th ICAPWG meeting (if needed): review any proposed revisions to the draft SOW Objectives, Scope, and Deliverables and Exhibit A in response to stakeholder feedback
- March 31st ICAPWG meeting (if needed): review any proposed revisions to the DCR Schedule in response to stakeholder feedback
- RFP is expected to be issued to potential bidders on or before on March 27, 2023

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ICAP Demand Curve Reference Point Price Proposal

Reference Point Price Proposal

- **The NYISO is proposing two sets of changes to the ICAP Demand Curve reference point price calculations**
  1. Calculating separate summer and winter reference point prices to capture seasonal reliability risks
  2. Adjusting how seasonal differences in available ICAP is incorporated
- **Slides 28-29 provide hypothetical examples to further illustrate the proposed enhancements**

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Reference Point Price Proposal: Capturing Seasonal Reliability Risk

- **As discussed in the DCR kickoff presentation,[1] the NYISO committed to investigate ICAP Demand Curves that more explicitly reflect seasonal reliability risk as part of this DCR**
  - Moving to ICAP Demand Curves that reflect seasonal reliability risks will 1) send a clearer signal of the value of capacity in each season and 2) is a necessary step to accommodate moving from annual Capacity Accreditation Factors to seasonal Capacity Accreditation Factors in the future

[1]See slide 14 of the DCR kickoff presentation to the 02/07/2023 ICAPWG meeting

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Reference Point Price Proposal: Capturing Seasonal Reliability Risk

- **Currently, the same ICAP Demand Curves are used in both the Summer and Winter Capability Periods, with seasonal differences in the ICAP Market clearing prices largely driven by the seasonal differences in the ICAP availability from capacity supply resources**
  - This seasonal ICAP difference is captured by the winter-to-summer ratio (WSR) component of the ICAP reference point price formula
  - As more thermal resources retire and the supply mix continues to transition in response to policy and other factors, the seasonal differences in ICAP availability are likely to materially change

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Reference Point Price Proposal: Capturing Seasonal Reliability Risk

- **In order to enhance the accounting for seasonal reliability risks in the ICAP Demand Curves, the NYISO is proposing to calculate separate reference point prices for the Summer and Winter Capability Period**
- **The NYISO also proposes to include "guard rails" on the percentage of the peaking plant's annual revenue requirement that can be recovered in each season**
  - These guard rails are needed to ensure that the ICAP Demand Curves incentivize capacity market participation during all months of the year
    - Capacity market participation during all months of the year provides value to system operations by incentivizing resources to participate in the NYISO's day-ahead market and outage scheduling process, which together increase the efficiency and reliability of the system

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Reference Point Price Proposal: Seasonal Differences in Available ICAP

- **The second set of changes involves adjusting how seasonal differences in available ICAP is incorporated into the reference point price calculation. There are two pieces to this set of changes:**
  1. Capturing the potential for the available ICAP in the winter to be less than the available ICAP in the summer
  2. Capturing the potential seasonal ICAP difference of the relevant peaking plant in the prescribed level of excess calculation

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Reference Point Price Proposal: Seasonal Differences in Available ICAP

- **The current ICAP Demand Curve reference point price formula assumes that:**
  1. The relevant capacity zone will be at the prescribed level of excess in the summer and at a greater surplus in the winter
     - Historically, the seasonal differences in the ICAP of thermal resources has led to more capacity being available in the winter than the summer
     - As more thermal resources retire and the supply mix continues to change in response to policy and other factors, it may be possible for less capacity to be available in the winter than the summer
       - Without associated changes to the reference point price formula, the ICAP Demand Curves would not provide revenue sufficiency to the peaking plant at the prescribed level of excess if the following system conditions exist: (1) less capacity is available in the winter than the summer in a particular capacity region, and (2) the seasonal difference is larger than the size of the relevant peaking plant in the winter
       - The proposed changes ensure that the peaking plant will remain revenue sufficient regardless of which season has more available capacity

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Reference Point Price Proposal: Seasonal Differences in Available ICAP

- **The current ICAP Demand Curve reference point price formula assumes that (continued):**
  2. The prescribed level of excess does not vary with any seasonal differences in the ICAP of the peaking plant
     - The proposed changes reflect that the prescribed level of excess will vary with the seasonal ICAP of the peaking plant (if applicable)

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Reference Point Price Proposal

- Current Monthly Reference Point Price Formula[1]:

$$RP_z = \frac{ARV_z * AssmdCap_z}{6 * [SDMNC_z * \left(1 - \frac{LOE_z - 1}{ZCPR_z - 1}\right) + WDMNC_z * \left(1 - \frac{LOE_z - 1 + WSR_z - 1}{ZCPR_z - 1}\right)]}$$

- Proposed Summer Monthly Reference Point Price Formula[2]:

$$SRP_z = \frac{ARV_z * AssmdCap_z * max[min(CPMax, SLOLE), CPMin]}{6 * SDMNC_z * \left(1 - \frac{SLOE_z - 1 + max(0, SWR_z - 1)}{ZCPR_z - 1}\right)}$$

- Proposed Winter Monthly Reference Point Price Formula[2]:

$$WRP_z = \frac{ARV_z * AssmdCap_z * max[min(CPMax, WLOLE), CPMin]}{6 * WDMNC_z * \left(1 - \frac{WLOE_z - 1 + max(0, WSR_z - 1)}{ZCPR_z - 1}\right)}$$

New Terms
- $CPMax$
- $CPMin$
- $SLOLE$
- $WLOLE$
- SWR_z
- $SLOE_z$
- $WLOE_z$

[1]Detailed in Section 5.5 of the ICAP Manual
[2]Additions to existing reference point price formula noted in red

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Reference Point Price Proposal

- **New Terms in proposed reference point price formulas**
  - $\boldsymbol{CPMax}$: the maximum percentage of the Annual Reference Value ($\boldsymbol{ARV_z}$) to be recovered by the peaking plant in one Capability Period
  - $\boldsymbol{CPMin}$: the minimum percentage of the Annual Reference Value ($\boldsymbol{ARV_z}$) to be recovered by the peaking plant in one Capability Period (equal to 1 minus $\boldsymbol{CPMax}$)
  - $\boldsymbol{SLOLE}$: the percentage of the annual loss of load expectation expected to occur in the Summer Capability Period based on the preliminary base case, as approved by the NYSRC, for the NYCA Installed Reserve Margin study covering the Capability Year for which the monthly ICAP reference point price is calculated
  - $\boldsymbol{WLOLE}$: the percentage of the annual loss of load expectation expected to occur in the Winter Capability Period based on the preliminary base case, as approved by the NYSRC, for the NYCA Installed Reserve Margin study covering the Capability Year for which the monthly ICAP reference point price is calculated (equal to 1 minus $\boldsymbol{SLOLE}$)
  - $\boldsymbol{SWR_z}$: the ratio of the amount of ICAP available in the ICAP Spot Market Auctions in the Summer Capability Period to the amount of ICAP available in the ICAP Spot Market Auctions for the Winter Capability Period for location z (equal to 1 divided by $\boldsymbol{WSR_z}$)
  - $\boldsymbol{SLOE_z}$: the ratio of level of excess that would occur in the Summer Capability Period (i.e., the applicable minimum ICAP requirement, plus $\boldsymbol{SDMNC_z}$) to the applicable minimum ICAP requirement for location z
  - $\boldsymbol{WLOE_z}$: the ratio of level of excess that would occur in the Winter Capability Period (i.e., the applicable minimum ICAP requirement, plus $\boldsymbol{WDMNC_z}$) to the applicable minimum ICAP requirement for location z

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Example 1: Summer and Winter Available ICAP is Equal

- Example 1 utilizes the ICAP Demand Curve parameters for the NYC Locality for the 2022/2023 Capability Year except:
  - Assumed WSR = 100% (or 1.0)
- The following values are used for the new terms proposed for the enhancements to the reference point price formulas:
  - SLOE[1] = 103.5%
  - WLOE[1] = 103.8%
  - SWR[2] = 100% (or 1.0)
- Assumed values for remaining new terms of the proposed reference point price formulas are:
  - SLOLE = 100%
  - WLOLE = 0%
  - CPMax = 80%
  - CPMin = 20%

NYC Locality	Current RP Formula	Proposed RP Formula
Summer RP ($/kW-mo.)	$16.42	$27.24
Winter RP ($/kW-mo.)	$16.42	$6.46
Summer Price at LOE ($/kW-mo.)	$13.22	$21.93[3]
Winter Price at LOE ($/kW-mo.)	$13.22	$5.11[3]
Summer Revenue ($000)	$27,646	$45,858
Winter Revenue ($000)	$29,677	$11,464
Annual Revenue ($000)	$57,322	$57,322
Revenue Requirement ($000)	$57,322	$57,322
Revenue Shortfall ($000)	$0	$0

[1]Calculated according to the definitions on the prior slide and the ICAP Demand Curve parameters for the NYC Locality for the 2022/2023 Capability Year
[2]Calculated according to the definition on the prior slide, assuming WSR = 100%
[3]Calculated using SLOE and WLOE respectively

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Example 2: Less Available ICAP in Winter than Summer

- **Example 2 utilizes the same assumptions as Example 1 except:**
  - Assumed WSR = 96% (or 0.96)
  - Assumed SWR = 104.2% (or 1.042)
- **Because less ICAP is available in the winter than the summer and the seasonal difference is larger than the size of the relevant peaking plant in the winter (i.e, SWR > WLOE), the proposed formula changes result in assuming that the market is at level of excess in the winter for this example**
  - If the market was assumed to be at the level of excess in the summer, the ICAP market would be deficient in the winter

NYC Locality	Current RP Formula	Proposed RP Formula
Summer RP ($/kW-mo.)	$14.37	$38.23
Winter RP ($/kW-mo.)	$14.37	$6.46
Summer Price at LOE ($/kW-mo.)	$8.24	$21.93[1]
Winter Price at LOE ($/kW-mo.)	$11.57	$5.11[1]
Summer Revenue ($000)	$17,234	$45,858
Winter Revenue ($000)	$25,966	$11,464
Annual Revenue ($000)	$43,199	$57,322
Revenue Requirement ($000)	$57,322	$57,322
Revenue Shortfall ($000)	-$14,123	$0

[1]Calculated using SLOE and WLOE respectively

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Reference Point Price Proposal: Next Steps

Reference Point Price Proposal: Next Steps

- In addition to feedback provided at today's meeting, please provide any supplemental feedback/questions on the proposal to mmohrman@nyiso.com
- The NYISO currently plans to return in April to continue discussing the proposal, including the appropriate CPMax and CPMin values for the proposed reference point price formulas as well as identifying any potential tariff revisions associated with the proposal

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Next Steps Summary

Next Steps Summary

- **RFP**
  - March 7th ICAPWG meeting (if needed): review any proposed revisions to the draft SOW Objectives, Scope, and Deliverables and Exhibit A
  - March 31st ICAPWG meeting (if needed): review any proposed revisions to the DCR Schedule
  - RFP is expected to be issued to potential bidders on or before on March 27, 2023
- **ICAP Demand Curve Reference Point Price Proposal**
  - April 2023: return to ICAPWG to continue discussing the proposed enhancements, including the appropriate CPMax and CPMin values for the proposed reference point price formulas and identification of any potential need for tariff revisions

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Questions?

Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

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