New York ISO
Independent System Operator

Winter Reliability Capacity Enhancements: Concept Proposal

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Capacity & New Resource Integration Market Design

ICAPWG

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Agenda

- **Project Overview**
- **Market Design Concept Proposal**
  1. Seasonal Elections for Unforced Capacity Deliverability Rights and External-to-Rest of State Deliverability Rights
  2. Seasonal NYCA Minimum ICAP Requirements
  3. Seasonal Transmission Security Limit Floor Values and Locational Minimum Installed Capacity Requirements
  4. Annual Capacity Accreditation Factors
  5. ICAP Demand Curves: Winter-to-Summer Ratio and Updates
- **Next Steps**

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Project Overview

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Background

- **The NYISO's Installed Capacity (ICAP) market is seasonal, but many processes and requirements in the ICAP market are annual and currently based on the summer peak.**
  - The current ICAP market construct may no longer provide the appropriate incentives in the winter as resource adequacy risk during winter increases.
- **The New York Control Area (NYCA) peak demand is forecasted to shift from summer to winter due to, among other things, the electrification of space heating and transportation to meet state and local clean energy goals.**
  - 2025 Gold Book forecasts NYCA will become a winter peaking system by 2038-39[1]
  - Winter risk, as measured by Loss of Load Expectation (LOLE), may arise sooner due to factors such as fuel availability constraints.

[1] 2025 Load and Capability Data (Gold Book)

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Objective

- **The objective of this project is to develop potential changes to the ICAP market that will support efficient market outcomes as the NYCA trends towards increasing winter resource adequacy risk.**
  - NYISO efforts this year are focused on developing winter capacity requirements, seasonal demand curves, and seasonal elections
- **The 2025 project goal is Market Design Complete, with the following milestones:**
  - Consumer Impact Analysis (CIA)
  - Seek Business Issues Committee (BIC) approval of proposed Tariff revisions

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Market Design Concept Proposal

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Seasonal Elections for Unforced Capacity Deliverability Rights and External-to-Rest of State Deliverability Rights

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Seasonal Elections for Unforced Capacity Deliverability Rights and External-to-Rest of State Deliverability Rights

- **Continuation of Existing Election Requirements:**
  - To support the timeline of the annual New York State Reliability Council (NYSRC) Installed Reserve Margin (IRM) study, ICAP Suppliers will continue to be required to submit elections by August 1 prior to the subject Capability Year.
  - Annual participation model, duration, and firm fuel elections will continue to apply to the entire Capability Year.

- **New Market Design Element:**
  - On August 1 prior to the applicable Capability Year, Unforced Capacity Deliverability Rights (UDRs) and External-to-Rest of State Deliverability Rights (EDRs) holders will be required to submit distinct seasonal elections: one for the Summer Capability Period and one for the Winter Capability Period.

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Seasonal Elections for UDR and EDR: Must-Offer Requirement (Under Consideration)

- **When setting UDR and EDR seasonal requirements, the NYISO currently assumes the UDR and EDR elections are available capacity that impacts the Locational Minimum Installed Capacity Requirement (LCR) for the Locality into which the UDR or EDR sinks.**
  - For example, if a UDR elects to contract for 400 MW of Unforced Capacity (UCAP) into New York City (NYC), the NYISO will assume the 400 MW is available capacity when determining the NYC LCR.
- **If UDRs and EDRs elect to return MW to the NYCA as part of the annual election process, this transfer capability is considered emergency assistance (EA) for reliability studies for the applicable Capability Year.**
  - For example, if the a UDR holder elects to return 400 MW of UDRs into NYC, this would reduce the NYC LCR because the 400 MW would not be treated as available capacity in NYC.

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Seasonal Elections for UDR and EDR: Must-Offer Requirement (Under Consideration) (cont.)

- **Currently, unless existing ICAP market mitigation rules require otherwise, UDRs and EDRs may not offer capacity consistent with their annual elections. UDRs and EDRs that elect to participate in the ICAP market, but do not offer capacity, can create a misalignment between the proposed seasonal requirements and available supply in a delivery month.**
  - This misalignment can result in prices that are not reflective of reliability needs.
  - The NYISO is evaluating potential market mechanisms to address this possible misalignment.
    - **One option under consideration is a "must-offer" requirement (with no exemptions provided) for all months in a season in which an UDR(s)/EDR(s) elect to participate.**

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Seasonal NYCA Minimum ICAP Requirements

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Seasonal NYCA Minimum ICAP Requirements

- **The NYISO proposes to expand the existing annual NYCA Minimum ICAP Requirement to develop seasonal requirements to account for the anticipated shift in reliability risk from the Summer to Winter Capability Period.**
  - Historically, NYCA reliability risk has been summer-focused consistent with a summer peaking system.
- **The separate Summer and Winter NYCA Minimum ICAP Requirements would be based on the IRM study.**

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Seasonal NYCA Minimum ICAP Requirements: Calculation

- **There will be no change to the current calculation of the Summer NYCA Minimum ICAP Requirement.**
  - The Summer NYCA ICAP Requirement will continue to be calculated as follows:
    - **Summer NYCA Minimum Installed Capacity Requirement = NYCA Summer Forecasted Peak Load x (1 + IRM)**
- **The Winter NYCA ICAP Requirement will be derived from the available capacity in the winter peak month of the final IRM study case reflecting the NYSRC-approved IRM.**
  - The Winter NYCA Minimum ICAP requirement will be calculated against the Winter NYCA forecasted peak load value.

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Winter NYCA Minimum ICAP Requirement: Example

Calculating Summer Requirements:	
Summer ICAP in the Model	41,500
subtract annual ICAP removed	1,500
Summer Requirement	40,000
Summer Peak Load	34,500
Summer Reserve Margin %	116%

Illustrative numbers only

Summer NYCA Minimum Installed Capacity Requirement = NYCA Summer Forecasted Peak Load x (1 + IRM)

Calculating Winter Requirements:	
Winter ICAP in the Model	43,000
subtract annual ICAP removed	1,500
Winter Requirement	41,500
Winter Peak Load	26,000
Winter Reserve Margin %	160%

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Winter NYCA Minimum Installed Capacity Requirement = NYCA Winter Forecasted Peak Load x (1 + Winter Reserve Margin)

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Seasonal Transmission Security Limit Floor Values and Locational Minimum Installed Capacity Requirements

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Seasonal Transmission Security Limit Floor Values and Locational Minimum Installed Capacity Requirements

- To implement NYCA seasonal requirements, seasonal transmission security limit (TSL) floor values and LCRs must be calculated.
- Seasonal TSL floor values will be based upon calculation parameters that are expanded to account for seasonal differences such as, but not limited to, load forecast and bulk power transmission limits.
- The Winter LCRs will be derived from the available capacity in each Locality in the winter peak month of the final IRM case. The Winter LCRs will be calculated against the applicable Locality non-coincident peak load forecast.
  - The results of the LCR optimizer would be used to derive the Winter LCRs

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Locational Winter Requirements: NYC Example

Calculating NYC Summer Requirements:	
Summer ICAP in the Model	9,500
subtract annual ICAP removed	1,000
Summer Requirement	8,500
Summer Locality Non-Coincident Peak Load	11,000
Summer LCR %	77%

Illustrative numbers only

Summer Locational Minimum Installed Capacity Requirement = Locational Summer Forecasted Peak Load x LCR%

Calculating NYC Winter Requirements:	
Winter ICAP in the Model	10,250
subtract annual ICAP removed	1,000
Winter Requirement	9,250
Winter Locality Non-Coincident Peak Load	7,500
Winter LCR %	123%

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Winter Locational Minimum Installed Capacity Requirement = Locational Winter Forecasted Peak Load x Winter LCR%

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Annual Capacity Accreditation Factors

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Annual Capacity Accreditation Factors

- Capacity Accreditation Factors (CAFs) reflect the marginal reliability contributions of Resources participating in the ICAP market towards meeting the NYSRC resource adequacy requirements for the upcoming Capability Year.
- The NYISO utilizes the final LCR case as the starting point for calculating the annual CAFs for each Capacity Accreditation Resource Class (CARC).

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Annual CAFs: Example – Recommended Approach

- Annual CAFs calculate a LOLE risk-weighted CAF based on the summer/ winter annual risk split.
- This existing approach accurately represents marginal reliability, as modeled; therefore, no changes are required.

	Seasonal LOLE		Annual CAF
CARC	LOLE in Summer	LOLE in Winter	Final CAF
Firm Generator	0.09	0.01	100%
Hydro	0.09	0.01	100%
Non-Firm	0.09	0.01	90%
Solar	0.09	0.01	13%
On-shore Wind	0.09	0.01	14%

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Annual CAFs: Retention

- CAFs will continue to be calculated using the final LCR case and applied annually to Resources using the marginal reliability improvement (MRI) technique.
- The applicable CAF will continue to be assigned to a Resource based on its CARC assignment and location.

ICAP Demand Curves: Winter-to-Summer Ratio and Updates

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ICAP Demand Curves: Winter-to-Summer Ratio and Updates

- With the proposed development of distinct seasonal minimum ICAP Requirements, the current seasonal capacity availability adjustments (i.e., the winter-to-summer and summer-to-winter ratios) used in the determinations of the maximum clearing and reference point prices of the demand curves would no longer be required.
  - Seasonal requirements directly represent the amount of capacity needed to maintain the system at criteria, eliminating the need for seasonal capacity availability adjustments.
- The NYISO will review the ICAP demand curve parameters to ensure revenue sufficiency across both the Summer and Winter Capability Periods with the introduction of seasonal requirements and identify any additional enhancements that may be warranted.

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Next Steps

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Next Steps

- Return to a future ICAPWG meeting(s) to discuss the Consumer Impact Analysis and any necessary demand curve enhancements for revenue sufficiency
- Return to a future ICAPWG meeting(s) to review draft tariff revisions associated with the proposal

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Appendix

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Previous ICAPWG Presentations

Date	Working Group	Discussion Points and Links to Materials
January 30, 2025	ICAPWG	2025 Winter Reliability Capacity Enhancements: Project Kick-off https://www.nyiso.com/documents/20142/49408264/04%202025%20Winter%20Reliability%20Kick-off%20Presentation.pdf/
April 1, 2025	ICAPWG	Winter Reliability Capacity Enhancements: Winter Requirements https://www.nyiso.com/documents/20142/50614388/2025%20Winter%20Reliability%20Capacity%20Enhancements%20April%201%20ICAPWG%20(1).pdf/
April 9, 2025	ICAPWG	Winter Reliability Capacity Enhancements: Seasonal Elections https://www.nyiso.com/documents/20142/50769536/2025%20Winter%20Reliability%20-%20Seasonal%20Elections%204.9.25%20Final.pdf/
May 5, 2025	ICAPWG	Winter Reliability Capacity Enhancements: Existing Annual Capacity Accreditation Factor Methodology https://www.nyiso.com/documents/20142/51249988/Winter%20Reliability%20-%20Annual%20CAF%20Methodology%205.5.25%20-%20Final.pdf/
May 20, 2025	ICAPWG	2025 Winter Reliability Capacity Enhancements: Demand Curves Review https://www.nyiso.com/documents/20142/51501157/Winter%20Reliability%20-%20Demand%20Curves%2052025%20icap.pdf/

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Seasonal CAFs: Concerns

- The NYISO explored the use of seasonal CAFs that was presented at the 5/5/25 ICAPWG.
- Implementing separate summer and winter CAFs for all CARCs raised potential volatility concerns because the annual IRM study does not specify any targeted allocation of seasonal risk or other factor that seeks to achieve a specified level of risk for each season.
- Seasonal CAFs could disincentivize annual participation in certain CARCs
  - For example, receiving a zero CAF value for a particular season would imply that affected ICAP Suppliers will have no available Unforced Capacity (UCAP) for sale in the ICAP market for such season.
  - If a resource's UCAP rating for a season were reduced to zero, the resource would effectively not have any bid/schedule/notify obligations for such season.

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Seasonal CAF: Example – Not Recommended

- The seasonal CAF approach would calculate summer and winter CAFs for each CARC independently.
- There must be sufficient resource adequacy risk present in both seasons as a prerequisite for calculating seasonal CAFs.
- Would present challenges for integration with the seasonal allocation of annual revenue requirements for the peaking plant underlying each demand curve to derive seasonal demand curves which includes "guardrails" (i.e., maximum and minimum revenue allocation percentages) to avoid excessive allocation of revenue to one season

	Seasonal LOLE		Seasonal CAF	
CARC	LOLE in Summer	LOLE in Winter	Final Summer CAF	Final Winter CAF
Firm Generator	0.09	0.01	100%	100%
Hydro	0.09	0.01	100%	100%
Non-Firm	0.09	0.01	100%	0%
Solar	0.09	0.01	15%	1%
On-shore Wind	0.09	0.01	13%	21%

Illustrative numbers only

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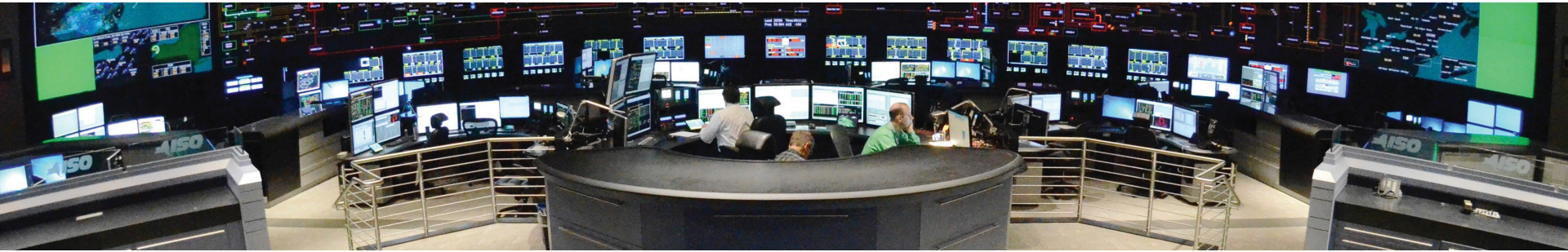
Our Mission and Vision

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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