New York ISO
Independent System Operator

Capacity Market Structure Review

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Capacity & New Resource Integration Market Design

ICAPWG/MIWG

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Agenda

- Background
- Today's Objective
- Potential Methods for Evolving the ICAP Market Structure
- Next Steps

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Background

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Background

- **The NYISO's objectives for the Capacity Market Structure Review project are to**
  - Identify market structures that will help facilitate New York's evolving grid consistent with policy goals and achieve the following objectives:
    - accurately value resources according to their contribution to maintaining bulk system reliability;
    - deliver transparent and predictable market outcomes;
    - operate cohesively with the Energy and Ancillary Services markets to meet the reliability requirements of the evolving grid;
    - provide appropriate, nondiscriminatory, price signals to existing and new resources;
    - function without unnecessary administrative complexity; and
    - provide an economically efficient, durable and stable market structure to facilitate investment.
  - Explore potential alternatives to the existing structure.
  - Determine if the existing structure or alternatives explored better meet the defined objectives.

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Today’s Objective

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Today's Objective

- **Today's objective is to present a high-level overview of the potential methods for evolving the ICAP market that the NYISO may consider as part of this project.**
  - Potential evolutions of the ICAP market structure span from foundational restructuring to targeted enhancements of the existing framework.
- **At this time, the NYISO is not advocating for any specific method or making a recommendation.**
  - This overview is intended solely for informational purposes, illustrating the range of potential options for consideration in this project.
  - Restructuring opportunities and enhancements discussed in this presentation are not an exhaustive list of all potential options.

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Potential Methods for Evolving the ICAP Market Structure

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Potential Methods for Evolving the ICAP Market Structure

- **Today's discussion will provide a high-level overview of the following methods for evolving the ICAP market:**
  - Attribute-based Capacity Market
  - Locational Marginal Capacity Pricing (C-LMP)
  - Value of Lost Load (VOLL)
  - Bifurcated Capacity Markets: New vs Existing Resources
  - Forward Capacity Markets
  - Winter Reliability Capacity Enhancements
  - Improving Transparency and Predictability in Capacity Accreditation and Resource Adequacy Modeling
  - Demand Curve Reset Process and Methodology Enhancements
  - Capacity Zone Enhancements
  - Valuing Transmission Security

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Attribute-based Capacity Market**
  - Key Market Functions
    - Attribute-based capacity markets incorporate specific resource characteristics into capacity procurement requirements and capacity accreditation.
    - Attributes may include reliability-related factors like resource adequacy and transmission security, as well as environmental policy-driven considerations.
  - Current Implementations
    - The NYISO's ICAP market design incorporates elements of an attribute-based capacity market through the use of Capacity Accreditation Factors (CAFs).

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Locational Marginal Capacity Pricing (C-LMP)**
  - Key Market Functions
    - C-LMP sets capacity prices based on the Marginal Reliability Impact (MRI) of resources at specific locations, aligning prices with the marginal contribution of each resource to system reliability.
    - The approach aims to enhance market efficiency by eliminating the need for individual locality-specific demand curves and instead determining prices based on the MRI and a system-wide reliability parameter.
  - Current Implementations
    - The concept of C-LMP has been recommended by the NYISO Market Monitoring Unit as a potential method for restructuring the current ICAP market design

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Value of Lost Load (VOLL)**
  - Key Market Functions
    - Value of Lost Load (VOLL) represents the economic cost of an electrical outage, reflecting the value customers place on uninterrupted power supply.
    - VOLL could be considered as a foundational metric for price-setting mechanisms in the ICAP market, including the demand curve, which currently relies on the Cost of New Entry.
  - Current Implementations
    - VOLL is used in CAISO, ERCOT, MISO, and PJM for reserve market pricing and related mechanisms.

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Bifurcated Capacity Markets: New vs Existing Resources**
  - Key Market Functions
    - Distinguishes capacity payments between new and existing resources.
    - New resources, which typically involve higher initial capital costs and longer payback periods, may require higher capacity payments to support investment.
    - Existing resources, with lower capital costs but higher operating costs due to aging infrastructure, typically participate under standard market conditions and may receive lower compensation.

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Forward Capacity Markets (FCMs)**
  - Key Market Functions
    - FCMs generally procure capacity three years in advance through an auction process to secure sufficient supply to meet forecasted reliability needs.
    - Resources that clear the auction commit to being available during the designated delivery period, with penalties and incentives designed to encourage performance.
    - The forward structure provides revenue certainty for new resources and allows system operators to plan for future capacity needs based on long-term demand forecasts.
  - Current Implementations
    - FCMs are used in ISONE and PJM.

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Winter Reliability Capacity Enhancements**
  - This effort is an ongoing NYISO project with a 2025 Market Design Complete deliverable.
  - The objective of this project is to propose changes to the ICAP market that support efficient market outcomes as the NYCA trends towards increasing winter resource adequacy risk.
  - The processes and procedures that could be enhanced as part of this project include:
    - Winter ICAP Requirements and Demand Curves
    - Capacity Accreditation Factors
    - Seasonal Elections (Unforced Capacity Deliverability Rights (UDRs), firm fuel, etc.)

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Improving Transparency and Predictability in Capacity Accreditation and Resource Adequacy Modeling**
  - The resource adequacy models used for determining Locational Minimum Installed Capacity Requirements (LCRs) and CAFs incorporate confidential market participation data and complex methodologies.
    - Market participants have limited visibility into what drives the outcomes of these models, which may impact their ability to fully assess market dynamics.
  - Adjustments to these processes that enhance transparency and predictability may improve market stability and support more informed decision-making.

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Demand Curve Reset Process and Methodology Enhancements**
  - The current demand curve reset process for determining capacity payments in the ICAP spot market involves extensive collaboration and analysis, which some stakeholders consider overly complex and time-intensive.
  - Improvements to both the methodology underlying the demand curves and the process for establishing them may reduce administrative burdens while supporting efficient market signals for resource entry and exit.

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Capacity Zone Enhancements**
  - In 2024, as part of the Granular Capacity Zonal Pricing project, the NYISO identified key challenges of the existing capacity zonal structure, including the limitations of the deterministic deliverability test in defining capacity zone boundaries and the omission of bi-directional interface constraints.
  - Enhancing the capacity zonal structure and zone-setting processes may improve locational price signals and ensure more efficient compensation for both new and existing resources.

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Potential Methods for Evolving the ICAP Market Structure (Cont'd)

- **Valuing Transmission Security**
  - The current ICAP market structure indirectly compensates resources for transmission security by establishing transmission security limit (TSL) floor values as a lower limit on the allowable LCR values.
  - In 2024, as part of the Valuing Transmission Security project, the NYISO highlighted the potential issues with the current representation of transmission security needs in the ICAP market.
  - Future market design enhancements that better align market signals with both resource adequacy and transmission security needs may strengthen grid reliability while efficiently compensating resources for their contributions to system stability.

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Next Steps

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Next Steps

- **The NYISO plans to**
  - Return to the 03/03/2025 ICAPWG to present a summary of the stakeholder feedback that the NYISO received during the January–February CMSR sector meetings.
  - Return to the 03/17/2025 ICAPWG to present the NYISO's initial recommendations of methods for evolving the ICAP market structure to remove from further consideration.
  - Return to the 03/25/2025 ICAPWG to present the NYISO's initial prioritized list of recommended methods to evolve the ICAP market structure.

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Appendix

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Previous Presentations on CMSR

Date	Working Group	Topic/Link to Materials
1/22/25	ICAPWG/MIWG	Capacity Market Structure Review – Project Kickoff
2/4/25	ICAPWG/MIWG	Capacity Market Structure Review – CMSR Sector Meetings

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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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