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Independent System Operator

Modeling Improvements for Capacity Accreditation: Natural Gas Constraints

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ICAPWG

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Agenda

- Response to Stakeholder Feedback
- Consumer Costs
- PJM Classification Framework
- Alternate NYISO Framework
- Next Steps
- Appendix
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  - Previous Discussions
  - Background

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Response to Stakeholder Feedback

Response to Feedback

- **At the June 1st ICAPWG discussion on natural gas constraints, stakeholders raised concerns primarily related to:**
  - Consumer Costs
  - Methodology for quantifying firm capacities and classifying into CARCs
    - How to develop requirements?
    - How is the fuel secure threshold(s) determined?
    - Potential use of a simpler method?
  - Stakeholders also advised the NYISO to consider PJM's work in dealing with natural gas constraints
- **Today's objective is to address the consumer costs issue and to gather stakeholder feedback on a potential simplified alternative to the frameworks for quantifying and classifying units presented on June 1st**

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Consumer Costs

Consumer Costs

- Capacity Accreditation seeks to align capacity payments to reliability contribution
- Creating additional Capacity Accreditation Resource Classes (CARCs) to reflect the more detailed characteristics, such as those related to winter weather events, is not expected to increase cost to consumers
- Two important areas of focus
  - IRM/LCR Impacts
  - Procurement Costs

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Impacts on IRM/LCRs

- NYSRC-ICS is looking at how RA enhancements capture gas availability, which may result in changes to IRM/LCR values
- However, further discussion of the IRM/LCRs is outside the scope of this effort

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Impact on Procurements Costs

- **Applying Capacity Accreditation to ICAP Suppliers will reflect their marginal reliability contribution based on their resource class characteristics**
  - An ICAP Supplier's available UCAP is calculated based on the Capacity Accreditation Factor (CAF), determined by their applicable CARC
  - ICAP Suppliers that have increased fuel security should have increased representative marginal reliability improvement and therefore be able to offer more UCAP into the Capacity Market relative to similarly situated units with less fuel security
    - As previously mentioned, due to the current lack of winter LOLE risk in the RA model, similarly situated units with different levels of firm capacity will have similar accreditation values
- **Whether a unit decides to firm up their capacities to improve their UCAP value is at their discretion, but by doing so provides additional reliability benefits to consumers**
- **The overall result of Capacity Accreditation is less UCAP procurement, meaning lower overall consumer costs**

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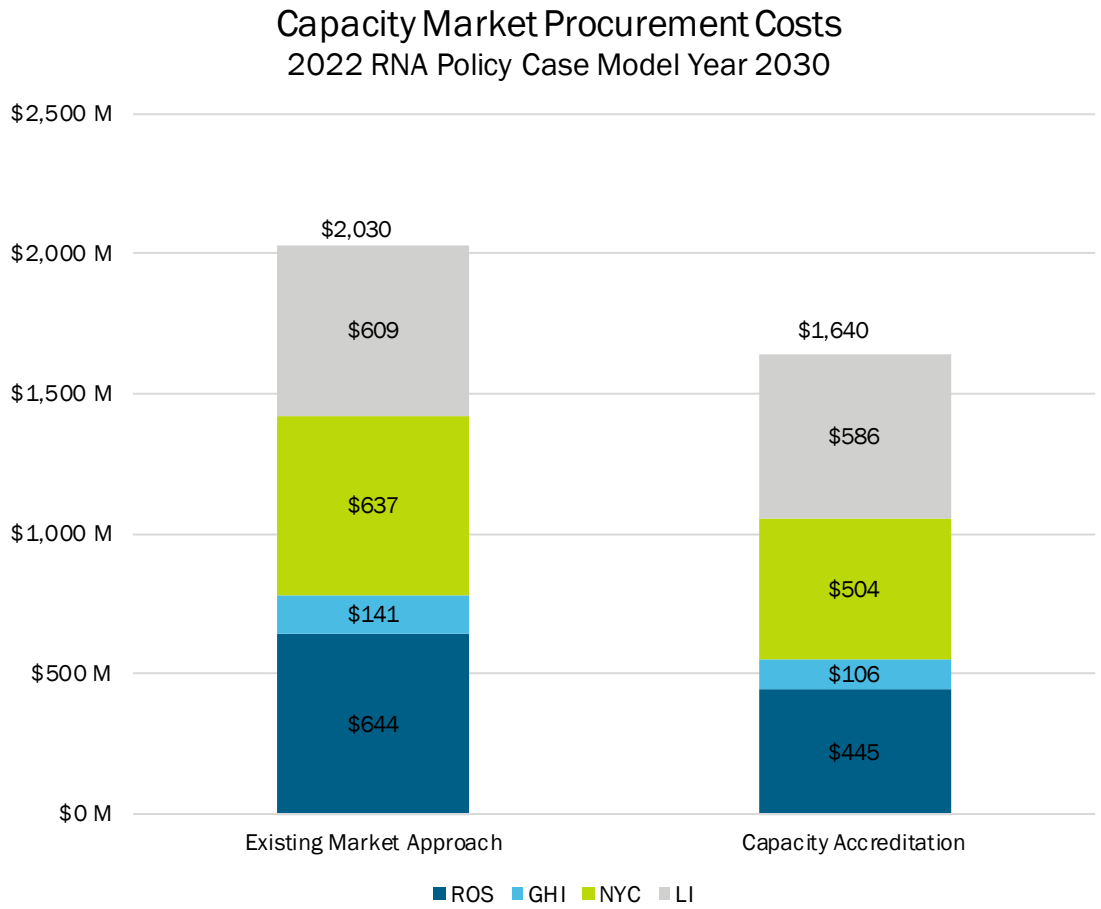
Impact on Procurements Costs: 2022 Consumer Impact Analysis

- **Compared to the existing market approach:**
  - Capacity accreditation cost savings[1]: $390 million



[1] The estimated cost savings reflect lower ICAP Market procurement costs. Changes in costs outside the ICAP Market were not evaluated

[2] For more information on the impact of Capacity Accreditation enhancements please see the 2022 Capacity Accreditation: Consumer Impact Analysis

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Alternate Frameworks

Alternate Frameworks

- At this time, quantifying firm capacities and setting thresholds in a manner discussed at the 6/1 ICAPWG could be unnecessarily complicated due to the current lack of winter risk in the RA model and little expected difference in accredited values between similarly situated units with different levels of fuel security
- However, the NYISO remains committed to differentiating between units and is exploring a more basic classification scheme that can be adapted to a more complex quantification and classification process as needed and as required by the Tariff

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PJM Classification Framework

PJM Classification Framework

- **PJM's work in dealing with gas constraints provides a simpler solution to making the necessary distinctions between units while maintaining a rank order**
  - Includes different tiers of "fuel assurance"
  - Requires signed attestation

PJM Framework	Requirements
Tier 1 – Dual Fuel	Unit must validate dual capability through PJM's proposed attestation, additional documentation and testing and must be able to run a minimum of 72 hours when required and dispatched
Tier 2 – Single Fuel – Firm Transportation	Unit must submit attestation and supporting documents of pipeline transport contracts. Firm contract daily volumes must be sufficient to cover the accredited capacity level
Tier 3 – Single Fuel – Non-Firm	N/A

Link to PJM Proposal: 20230517-item-05b---pjm-fuel-security-proposal-concept–cifp.ashx

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Alternate NYISO Framework

Alternate NYISO Framework

- **PJM's or a similar method can allow for simpler classification, maintain some degree of separation between different levels of fuel security, and minimize requirement/threshold setting**
  - The NYISO will still need to define what is, and what is not a firm resource in addition to timeline and penalty considerations

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Alternate NYISO Framework:

Fuel Arrangements	Class (CARCs)	Potential Requirements
Dual Fuel: Demonstrated Inventory/tested	Firm	• Would need to demonstrate capability (i.e., permitting, staffing, etc.) + inventory • Would need to test on dual fuel • May need an hourly run time requirement
Single Fuel: Pipeline FT and/or Gas Sales Contracts		• Would need to show proof of, or that a unit anticipates firm contracts for the Winter Capability period • May need requirement that contracts cover the unit's full capacity value over the Winter Capability period
Single Fuel: Fuel Constrained LDC Connected/Fully Interruptible/Interstate Direct Connect w/o Pipeline FT or Gas Sales Contracts	Non-Firm	• N/A
Dual Fuel: No Demonstrated Inventory/not tested		

- **Units in the Firm class are those which have shown or anticipate firm contracts and/or have demonstrated the ability to operate on an alternate fuel in the Winter Capability period**
  - At this time, classifying units based on the firm contracts they anticipate adds the flexibility required to reconcile the Capacity Accreditation timeline with the timelines for procurement of firm supply in the market
- **Units in the Non-Firm class are unable to improve their firm capacities without larger investments in dual fuel or other infrastructure that would improve their access to firm supply and/or are unable to/do not anticipate the ability to procure firm contracts**

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Alternate NYISO Framework

- For this effort, methods like the PJM, or the Alternate NYISO Framework limit any involved analyses for setting fuel security requirements/threshold levels
  - Other efforts at the NYISO, such as the 2023 Fuel and Energy Security Study are looking at the considerations which would help inform a more intricate process for quantifying firm capacities and classifying units in the future
- As the need arises, future Capacity Accreditation refinements related to gas constraints will be added as an additional layer or used to modify the basic framework allowing for more nuanced differentiation based on contributions to winter reliability (e.g., June 1st presentation)
  - By using a simpler method now, the NYISO will have more time to learn from operational experiences and those of other ISOs in dealing with this issue
    - Will also potentially be closer to or in a seasonal accreditation structure which could further reduce timeline difficulty
- However, the NYISO still needs to accredit units for a Winter Capability period that is over a year away and deal with instances when units fail to deliver on promised capacity
  - Preliminary timeline and penalty considerations were presented at the June 1st ICAPWG and will be a discussed further at subsequent working groups

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Next Steps

Next Steps

- Return to a late July/early August ICAPWG to continue the discussion with stakeholders.
- For any questions or feedback please email ntubbs@nyiso.com

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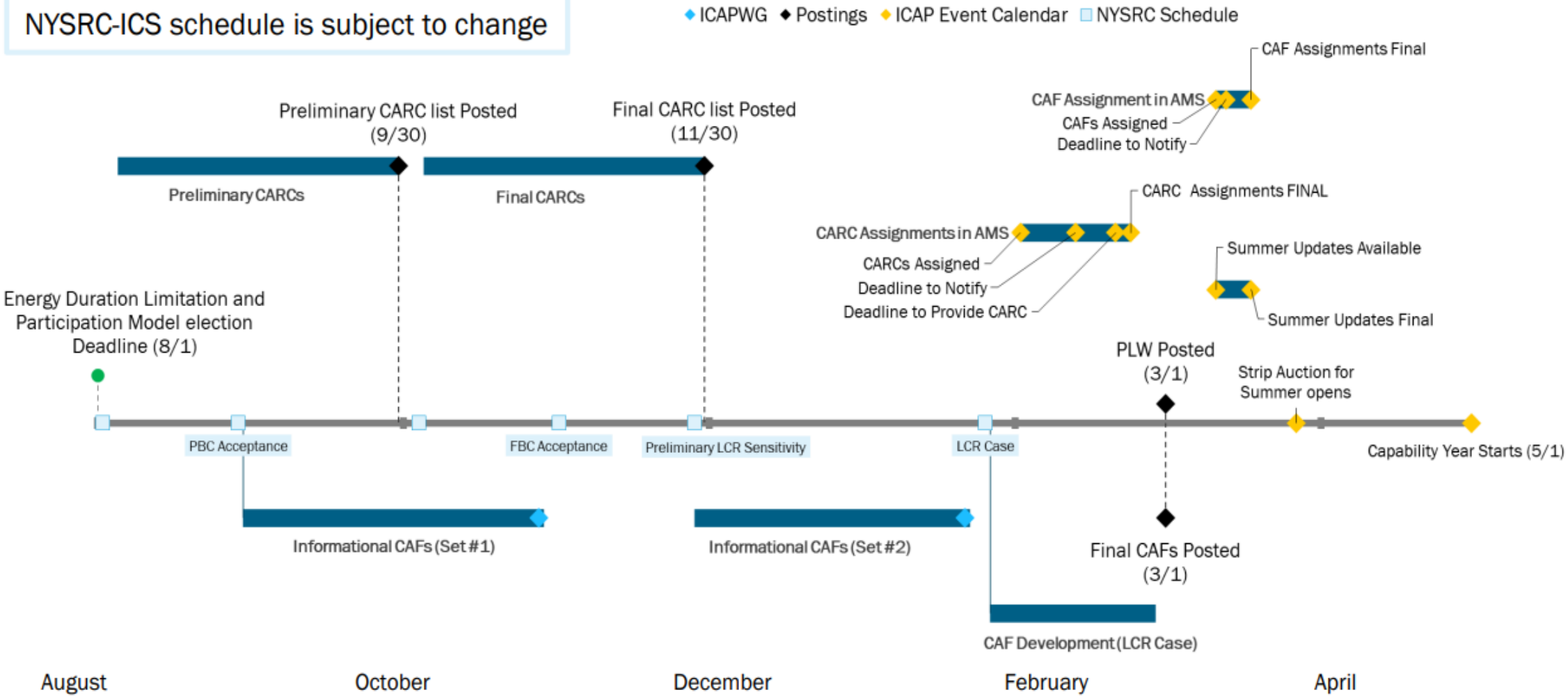
Appendix

Capacity Accreditation Timeline

NYSRC-ICS schedule is subject to change



*Approximate timeline for illustrative purposes, actual dates may change

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DRAFT – FOR DISCUSSION PURPOSES ONLY

Previous Discussions

Previous Discussions on Modeling Improvements for Capacity Accreditation

Date	Working Group	Discussion Points and Links to Materials
January 23, 2023	ICAPWG	Modeling Improvements for Capacity Accreditation: Project Kick Off: https://www.nyiso.com/documents/20142/35880057/2023-01-26%20ICAPWG%20Modeling%20Improvements%20-%20Kick%20Off.pdf/c7ac6b6e-c90b-54b4-832d-ec6ecfc8f7ff
February 28, 2023	ICAPWG	Correlated Derates Overview: https://www.nyiso.com/documents/20142/36499713/Correlated_Derates_MIWG_022823_FINAL.pdf/35eaab46-740e-aed0-9e2d-2207c06a0659 Natural Gas Constraints Overview: https://www.nyiso.com/documents/20142/36499713/Gas%20Constraints%2002_28_2023%20ICAPWG_Final.pdf/e258d867-12f9-8453-c93b-49bc94b8e803 SCR Modeling Overview: https://www.nyiso.com/documents/20142/36499713/2023-02-28%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/c1a52495-bc30-3e7c-f5c1-61c38f30fbe4
April 27, 2023	ICAPWG	Natural Gas Constraints - Gas Availability Estimates and Classification: https://www.nyiso.com/documents/20142/37254128/Natural%20Gas%20Constraints%202023_04_27_Final.pdf/0821aba8-bdcd-b1ce-96f3-2d8a740e1356 SCR Modeling - Current IRM Modeling and Historic SCR Performance, Exploratory Testing https://www.nyiso.com/documents/20142/37254128/2023-04%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/30382824-7468-24d2-e567-56c770d6a185 Start up Notifications - Project Overview: https://www.nyiso.com/documents/20142/37254128/Start-up%20notification%20time%20-%20ICAPWG%204.27.2023%20v0.2%20clean.pdf/b44eb773-6f7d-e895-e202-a12f2fb6e24e
May 8, 2023	ICAPWG	Correlated Derates - Ambient Adjustments and Emergency Capacity: https://www.nyiso.com/documents/20142/37431277/5%20Correlated_Derates_ICAPWG_050823.pdf/a1e9a0f4-d922-503d-06d0-682b49c46c4c

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Previous Discussions on Modeling Improvements for Capacity Accreditation

Date	Working Group	Discussion Points and Links to Materials
June 1, 2023	ICAPWG	Natural Gas Constraints – Potential methods for quantifying firm capacity, CARC designation, and fuel election timelines: https://www.nyiso.com/documents/20142/37883690/Natural%20Gas%20Constraints%2006_01_2023_ICAPWG_Final.pdf/d479ea64-a0d0-86d1-388a-f93d01ff1e10
June 7, 2023	ICAPWG	SCR Modeling – Exploratory Testing Methodology: https://www.nyiso.com/documents/20142/38023757/2023-06-07%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling.pdf/250f8f1d-9dfe-5756-640b-c1e31f3a6328

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Background

Background

- Capacity accreditation reflects resources' contribution to resource adequacy with the goal of producing more efficient ICAP Market outcomes
- Recent winter reliability concerns have raised questions of the availability of generation utilizing natural gas as a primary fuel source on a non-firm basis due to pipeline and/or other constraints
- For this portion of the Modeling Improvements for Capacity Accreditation project, the NYISO is looking to develop methodologies to identify and quantify natural gas constraints and resources impacted by such constraints in addition to corresponding methodologies for implementation in GE MARS.
  - The Special Case Resource modeling, Correlated Derates, and Start-up Notification portions of Modeling Improvements for Capacity Accreditation will be covered in separate discussions.
- The 2023 Project deliverable is Q4 – Functional Requirements

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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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