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Independent System Operator

Modeling Improvements for Capacity Accreditation: Natural Gas Constraints

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Agenda

- Response to Stakeholder Feedback
  - Partial Firm Adjustment
  - EFORd Double Counting
- Market Design Summary
- Proposed Tariff Revisions
- Next Steps

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Response to Stakeholder Feedback

Partial Firm Adjustment

- In response to stakeholder feedback, the ISO is looking to recognize the contributions of units with partial firm supply not meeting the full firm requirements
- In calculating UCAP, units with partial firm supply will have the firm CAF applied to the portion of the unit's capacity that is covered by firm supply and the non-firm CAF applied to the remaining portion
- 200 MW Unit Example:
  - Firm CAF = 100.00%
  - Non-firm CAF = 96.00%
  - Portion of ICAP that satisfied requirement = 100 MW (50% of ICAP)
  - Weighted CAF Value = 98.00%
  - Adjusted ICAP = ICAP × CAF = 200 MW × 98.00% = 196
  - Final Step - Application of Unit EFORd
- When partial-firm units make their election, they will be required to inform the ISO what portion of their Capacity is covered by firm supply based on the firm CARC requirements
  - These units will be subject to the same data submittal requirements as the firm CARC for their elected firm portion
- In the event an ICAP Supplier no longer meets the requirements of their elected firm capacity, an ICAP Shortfall penalty will apply for any and all oversold MWs

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EFORd Double Counting

- Based on stakeholder feedback related to potential EFORd double counting, the ISO is exploring options for excluding certain EFORd cause codes from individual unit EFORd calculations
- The NYISO does not anticipate tariff changes required for potential EFORd calculation modifications to address this concern and will update ISO procedures to reflect updated methodology, as applicable

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Market Design Summary

Final CARC Classification

Fuel Arrangements	Class (CARCs)
Dual Fuel/Oil Only: Demonstrated Inventory + Tested Dual Fuel: Not Demonstrated and/or Tested + Firm Transportation	Firm
Gas Only: Firm Transportation (Includes LDC Connected units with Firm Transportation on Pipeline and LDC)	
Additive Contracts/Arrangements: Multiple Firm Transportation/Alternate Fuel Contracts satisfying applicable requirement/contracts on primary and secondary that do not meet individual requirements but additively carry the capacity value across Dec., Jan., Feb.	
Any of the above firm arrangements to the MW level satisfied	Partial Firm Election
Gas Only: Fuel Constrained LDC Connected/Fully Interruptible, Interstate Direct Connect w/o Firm Transportation	Non-Firm
Dual Fuel/Oil Only: No Demonstrated Inventory/not tested	

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Single Fuel Requirements

- Firm Transportation contract(s) covering full capacity value for Dec., Jan., and Feb. with a contract path from supply source to unit burner tip
- Supply source must be a liquid receipt point
  - Must have available gas supply contracts
  - Price of natural gas must be lower than oil

  * Units may select an illiquid receipt point so long as they have acquired a gas supply contract meeting the aforementioned requirements

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Dual Fuel/Oil-only Requirements

- To elect to the firm class via a fuel other than natural gas, dual fuel and oil-only units will be required to have the on-site storage and if applicable, fuel arrangements/contracts to achieve 96 hours of run time during the months of Dec., Jan., and Feb.,
  - Units will only need to be capable of running at max capacity for 16 consecutive hours a day but still 96 hours in total storage (e.g., 24hrs/day for 4 days, 16hrs/day for 6 days)
  - For the remaining 8 hours of the day (24 hrs), after the 16 consecutive hours, the unit can be at min. gen. or off, if it is able to cycle in time
- Dual fuel units will also be required to demonstrate operability via two separate tests including a DMNC test on their primary and a separate test on their alternate fuel lasting one hour and demonstrating max output by the Dec 1st deadline
  - These tests must occur during the previous Winter DMNC test period or with an out of period test that is confirmed during the month of Nov. prior to Dec. 1st of the applicable Winter Capability Period
  - Operational data may be utilized for either test, subject to the above requirement
  - ICAP values will be set using maximum value of the two tests, with any MW difference between the two test values treated as non-firm

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Additive Arrangements/Contracts

- If a unit is unable to meet the firm requirements for a single fuel arrangement, the unit can have multiple arrangements/contracts assessed additively
  - Includes firm transportation contracts on multiple pipelines
- If together, any combination of fuel arrangements, or multiple contracts on any single fuel arrangement allow the unit to carry its capacity value across Dec., Jan., and Feb., that unit will be eligible for the firm CARC
- When units submit their firm supply contracts, they must explain how these fuel arrangements allow the unit to meet the requirements, in part or in full, based on operational characteristics such as the ability to burn more than one fuel, max daily fuel deliveries for dual fuel units, ability to cycle, etc.

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Data Verification Timeline

- **ICAP Suppliers will need to notify the ISO of their intent to demonstrate any amount of firm fuel capability based on their anticipated fuel supply for the Winter Capability Period over a year later and then substantiate their elections closer to that point**
- **Initial election made on Aug. 1 of the calendar year preceding the applicable Capability Year**
  - Unit will be required to indicate what fuel supply it will have in place for the Winter Capability Period in the upcoming Capability Year
- **During the month of August that precedes a given Winter Capability Period (*e.g.*, August 2023 for the 2023-2024 Winter Capability Period), units will be able to begin submitting to the NYISO, contracts showing that the unit has procured the required firm fuel based on its election**
  - The exact date on which units can being submitting data will coincide with the Generator Fuel and Emissions Reporting annual survey
- **Units will have until Dec. 1 of the applicable Winter Capability Period to fully substantiate their fuel supplies which includes:**
  - Submitting all relevant contracts with a written explanation of how these contracts allow the unit to meet the applicable requirement
  - Dual fuel and oil only units have completed their testing requirement and provided documentation of inventory/fuel arrangements

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Shortfall Penalty

- Units that made an election to demonstrate any amount of firm fuel capability based on having firm supply but were unable to procure the required supply by Dec. 1 or were unable to maintain their firm status may be subject to an ICAP Shortfall penalty
  - The shortfall will be based on the amount of capacity the unit oversold times the spot auction market clearing price and subject to the 1.5x multiplier
  - The penalty will be retroactive from the date the unit was no longer able to maintain their elected firm status extending to the beginning of the Capability Year but only in cases where the loss or reduction in firm status was due to a reason that was within the control of the unit including:
    - Being unable to substantiate their firm supply by Dec. 1
    - Being unable to get fuel due to an illiquid receipt point
    - Selling firm rights to another MP
    - Broken supplier contracts
    - Other
- Units will be required to inform the NYISO of the loss or reduction in firm supply and will have 14 days to restore full capacity if possible
- Units that experience a reduction in firm supply will have their UCAP adjusted based on the new proportion of the applicable requirement that is satisfied
- Units will not be subject to penalties when the loss of firm status is due to the acts of other parties and not within the unit's control

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Proposed Tariff Revisions

Proposed Tariff Revision

- **Tariff revisions for the Natural Gas Constraints Portion of Modeling Improvements for Capacity Accreditation are proposed in MST 5.12 and MST 5.14**
- **MST 5.12 changes include:**
  - 5.12.1.15 – Establishment of Dual Fuel Testing Requirement
  - 5.12.6.2.2 - UCAP Adjustment for Partial Firm Units
  - 5.12.8 – Detailed Dual Fuel Testing Requirement
  - 5.12.15 – CARC Characteristic Elections
- **MST 5.14 changes include:**
  - 5.14.2.3.5 – Shortfall Penalty

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Next Steps

Next Steps

- Q4 Market Design Complete
- Bring ‘Modeling Improvements for Capacity Accreditation’ package for vote at December BIC and MC
- Q1 2024: Board Review and FERC filing
- For any questions or feedback please email ntubbs@nyiso.com

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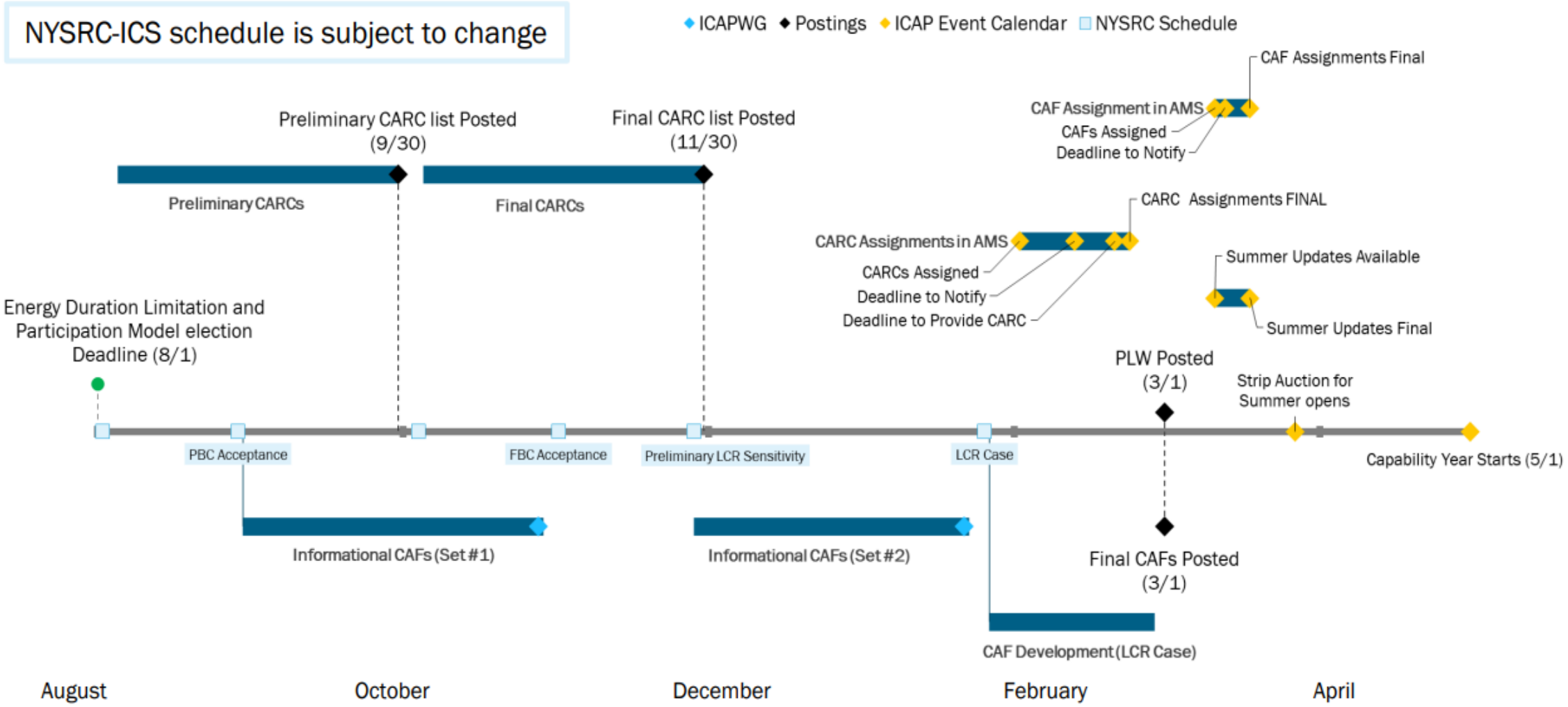
Appendix

Capacity Accreditation Timeline

NYSRC-ICS schedule is subject to change



*Approximate timeline for illustrative purposes, actual dates may change

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
June 27, 2023	ICAPWG	Natural Gas Constraints – Addressing Stakeholder feedback and discussion on simpler framework for classifying units: https://www.nyiso.com/documents/20142/38423065/2%20Natural%20Gas%20Constraints_06_23_2023_ICAPWG_Final.pdf/177ad95e-1fa3-5c57-a626-d06182b55c9b
July 11, 2023	ICAPWG	SCR Modeling – Exploratory Testing Methodology Results: https://www.nyiso.com/documents/20142/38699263/2023-07-11%20ICAPWG%20Modeling%20Improvements%20-%20SCR%20Modeling%20v2%20-%20clean.pdf/2f27473b-2292-31d4-ecb7-5d30d6b860f0
July 27, 2023	ICAPWG	Correlated Derates - Ambient Adjustments and Emergency Capacity: https://www.nyiso.com/documents/20142/39044934/Correlated_Derates_ICAPWG_072723_final.pdf/0f80f8f2-8100-b8f7-0c65-0098242634e1 Start-up Time – Long Start-up Time and Considerations: https://www.nyiso.com/documents/20142/39044934/Startup%20time%20-%20ICAPWG%207.27.2023_v2.pdf/bbf6fa0d-b45e-6b7f-1697-2c002442b1de
August 8, 2023	ICAPWG	Gas Constraints – Classification Proposal, Requirements for Firm Units, and Data Submittal Timeline: https://www.nyiso.com/documents/20142/39257338/Natural%20Gas%20Constraints_08_09_2023%20ICAPWGv4%20(002).pdf/de6053e0-030d-5520-ed59-18f2225f0f92

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Previous Discussions on Modeling Improvements for Capacity Accreditation

Date	Working Group	Discussion Points and Links to Materials
September 5, 2023	ICAPWG	Correlated Derates – Ambient Adjustments: https://www.nyiso.com/documents/20142/39768278/5%20Correlated_Derates_ICAPWG_090523_final.pdf/5aa71990-e873-166b-a520-e8e6c44b42e1
September 18, 2023	ICAPWG	Startup Notification - Recommendation and Draft Tariff Revisions: https://www.nyiso.com/documents/20142/40044890/7%20Start-up%20Time%20Proposed%20Capacity%20Tariff%20Revision%20-%20ICAPWG%2009-18.pdf/9d6e8c5e-b7cd-384c-b713-be93507912ed
September 20, 2023	ICAPWG	Gas Constraints – Updated Requirement, Data Verification Timeline and Shortfall Penalty: https://www.nyiso.com/documents/20142/40085480/Natural%20Gas%20Constraints_9_20_2023_v4.pdf/8c76a250-d1e0-d30a-2c24-115f10268c65
October 10, 2023	ICAPWG	Gas Constraints – Response to Stakeholder Feedback, Liquid Receipt Point Guidance, Additive Arrangements: https://www.nyiso.com/documents/20142/40481418/2%20Natural%20Gas%20Constraints_10_10_v3.pdf/7f39851d-f477-6a12-d7d2-52f52af87fcb
		Correlated Derates – Ambient Adjustment Procedures and CLR Tariff: https://www.nyiso.com/documents/20142/40481418/3%20Correlated_Derates_ICAPWG_101023_final.pdf/76326e11-e97f-cb93-2ca4-902d11365bda

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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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