New York ISO
Independent System Operator

Fuel Availability Constraints Modeling Phase 2

NYISO

NYSRC Installed Capacity Subcommittee Meeting #300

February 5, 2025

Agenda

- Background
- Fuel Availability Assumptions
- Further Testing
- Timeline

Background

Background

- The NYISO and stakeholders are engaged in ongoing discussions regarding the market design for firm fuel election requirements and process as part of the Modeling Improvements for Capacity Accreditation project
- Fuel availability constraint modeling assumptions will need to be incorporated into the installed reserve margin (IRM) study to facilitate the determination of capacity accreditation factor (CAF) values for "firm" and "non-firm" resources/capacity
- The "Gas Constraints Modeling Whitepaper" addressing a fuel availability modeling construct for the IRM study was completed in June 2024
  - Gas Constraints Modeling Whitepaper: https://www.nysrc.org/wp-content/uploads/2024/06/Gas-Constraints-Modeling-Whitepaper-Final.pdf
- Sensitivity cases were conducted as part of the 2025-2026 IRM study to further assess the fuel availability constraint modeling construct described in the whitepaper
  - Fuel Availability Constraints Modeling: https://www.nysrc.org/wp-content/uploads/2024/09/Gas-Constraints-Sensitivity-Results-ICS-Updated-rev.pdf
- The whitepaper also outlined the need to further review/assess fuel availability constraint modeling assumptions to support the adoption of the modeling in the base case of the IRM study
  - Phase 2 of the fuel availability constraints modeling project will focus on both the near-term implementation and longer-term updating of the modeling/assumptions in the IRM study

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Fuel Availability Assumptions

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Whitepaper Fuel Availability Assumptions

- The whitepaper outlines the following 6-tiered fuel availability assumptions triggered by daily peak load level

Tier	NYCA Load Conditions (MW)	Available Gas (MW)	Available Oil (MW)	Total Available Fuel (MW) (Gas + Oil)**	Illustrative Modeled Derate (Rounded MW)***
1	>26,000	375	11,000	11,375	8,600
2	25,000 - 26,000	750		11,750	8,225
3*	24,000 - 25,000	2,750		13,750	6,225
4*	23,000 - 24,000	4,500		15,500	4,475
5	22,000 - 23,000	5,500		16,500	3,475
6	<22,000	No Constraint		No Constraint	0

* Tier 3 and 4 load levels comprise the actual peak loads observed in recent winter operating conditions. The illustrative MW derates are generally consistent with the typical reduction in generator capability experienced during such operating conditions.
**Includes gas-only and dual fuel units located in Load Zones F-K.
*** “Illustrative Modeled Derate” values are calculated using the gas-only and dual fuel fleet modeled in Load Zones F-K in the 2024-2025 IRM Final Base Case (ICAP: ~21,770 MW; UCAP: ~19,975 MW)

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“Available Oil” Assumptions

- The initial assumption of 11,000 MW of “available oil” was developed, in part, based on an expected firm fuel duration requirement of 96 hours of on-site fuel availability during December – February as part of the NYISO’s Modeling Improvements for Capacity Accreditation project
- In November 2024, the NYISO recommended revising the duration requirement to 56 hours. As a result, the prior 11,000 MW assumption should be updated to reflect this proposed change
  - Modeling Improvements for Capacity Accreditation: Firm Fuel: https://www.nyiso.com/documents/20142/48151567/MICA%2011_21%20ICAPWG_v6.pdf
- NYISO is developing an updated recommendation for “available oil” assumptions incorporating this change, as well as data from more recent weekly fuel surveys
  - Currently anticipate reviewing updated information at the March 5, 2025 ICS meeting

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“Available Gas” Assumptions

- The initial 6-tiered “available gas” assumptions were developed based on production data from dual fuel and gas-only resources in Load Zones F-K during recent winters
- The NYISO is working to update these values to incorporate more recent data
  - Currently anticipate reviewing updated data at the March 5, 2025 ICS meeting
- The NYISO is also seeking to complete a winter fuel constraint study in Q3 2025
  - One objective of the study is to quantify the amount of natural gas available to New York generators during various winter conditions
  - Information from the study may also help inform initial assumptions for the fuel availability constraints modeling construct

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Annual Firm Fuel Elections

- Modeling the firm fuel elections by resources is not recommended for the 2026-2027 IRM study
  - The market rules remain under development within the NYISO stakeholder process
  - Elections would be received no later than August 1, 2025, and there is uncertainty regarding the elections that may materialize under initial implementation of the market rules
- The proposed fuel availability constraint modeling assumptions for the IRM study are intended to represent reasonable assumptions of fuel availability under various load levels for the initial year of implementation
- The proposed assumptions regarding “available gas” do not equate to the quantity of fuel available on a firm or non-firm basis
  - The initial proposed assumptions are based on observed historical production under various load levels
- Transparency regarding the potential IRM impacts and CAF values are beneficial to inform market participant decision making and future planning studies
- NYISO currently intends to provide an overview of its updated fuel availability constraints modeling recommendations at the March 5, 2025 ICS meeting

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Implementation for the 2026-2027 IRM Study

- As described in the prior slides, the NYISO is developing updated recommendations for assumptions regarding “available gas” and “available oil” for use in the 2026-2027 IRM study
- The NYISO currently intends to review updated assumption recommendations at the March 5, 2025 ICS meeting
- Final recommendations for the 2026-2027 IRM study adoption/assumptions will be developed based upon discussions at upcoming ICS meetings
  - Currently targeting to finalize recommendations for the 2026-2027 IRM study in Q2 2025

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Implementation for Future IRM Study Years

- As more experience with the fuel availability elections in the NYISO's capacity market is gained over the coming years, the NYISO will further evaluate and discuss with ICS how such elections can be incorporated into (or accounted for in) the fuel availability assumptions for the IRM study
- The NYISO recommends that the assumptions regarding "available gas" and "available oil" be reviewed/refined annually

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Further Testing

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Further Fuel Availability Constraints Testing

- **The following fuel availability constraints testing is recommended for completion over the coming months:**
  - Test updated fuel availability assumption recommendations using the 2025-2026 IRM final base case (FBC)
  - Test updated fuel availability assumption recommendations in combination with the recommended enhancements resulting from the ongoing alternative load shape adjustment method and behind-the-meter solar modeling projects using the 2025-2026 IRM FBC
    - Enhancements to load modeling seek to better align the annual energy forecast and seasonal peak load values, which could impact the triggering conditions of the fuel availability constraints modeling construct

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Timeline

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Timeline

Milestone	Date
Update Fuel Availability Assumption Recommendations	Q1 2025
Conduct Test Cases and Present Findings to ICS	Q1 2025/Early Q2 2025
Finalize Assumptions and Modeling Recommendation for 2026-2027 IRM study	Q2 2025
Implement NYSRC Approved Recommendations for 2026-2027 IRM study	Following NYSRC Executive Committee Review (Target End of Q2 2025)

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Questions?

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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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