

Winter Fuel Availability Constraints Modeling: Final Recommendations

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Background

- **The objective of the 2026 winter fuel availability constraints modeling whitepaper effort is to introduce additional information from the 2025 Fuel Constraints Study by ICF and generator Firm Fuel Characteristic Elections for consideration of potential modeling enhancements.**
 - The NYISO presented a review of the 2026-2027 Capability Year firm fuel characteristic elections at the 2/4/2026 ICS meeting.^[1]
 - The NYISO presented an overview of the 2025 Fuel Constraint Study conducted by ICF (“ICF Study”) at the 3/4/2026 ICS meeting.^[2]
 - At the 4/28/2026 ICS meeting, the NYISO reviewed considerations of the ICF Study and Winter 2025-2026 cold weather operating experience.^[3]
- **At the 6/3/2026 ICS meeting, the NYISO presented initial recommendations for potential enhancements to the winter fuel availability constraints model and annual model update process.**
 - The proposed enhancements included updates to trigger conditions based on normalized load assumptions, refinement of available fuel datasets using a rolling ten-year historical window, improved allocation of fuel to resources by Load Zone consistent with firm fuel elections.
 - The NYISO recommended annual updates to the model in both the Preliminary Base Case (PBC) and Final Base Case (FBC), including updates to fuel data, load forecasts, and zonal allocation assumptions, with initial assumptions developed in the PBC and refined in the FBC using final load forecasts and the most recent firm fuel elections.
 - During the discussion, the ICS provided feedback indicating that the available gas regression should be modified to utilize the midpoint of each load range, rather than the upper bound, in order to better represent expected winter conditions.
- **This presentation reflects the NYISO’s final recommendations based on consideration of the feedback received.**

[1] [2/4/2026 ICS Presentation](#)

[2] [3/4/2026 ICS Presentation](#)

[3] [4/28/2026 ICS Presentation](#)

2026-2027 IRM Study Winter Fuel Availability Constraints Model

- The table below represents the winter fuel availability constraints modeled in the 2026-2027 IRM FBC Special Sensitivity Case.

Tier	NYCA Load Conditions (MW)	Available Gas (MW)	Available Oil (MW)	Total Available Fuel (MW)	Modeled UCAP (MW)	Derate (%) ¹
				(Gas + Oil)		
1	>26,000	300	11,700	12,000	19,720	39%
2	25,000 - 26,000	600		12,300		38%
3	24,000 - 25,000	2,550		14,250		28%
4	23,000 - 24,000	4,200		15,900		19%
5	22,000 - 23,000	5,575		17,275		12%
6	<22,000	No Constraint				No Constraint

Note 1: Values represent aggregate level derate. Actual derate % applied on each unit may vary.

Recommended Enhancements Summary

■ Winter Fuel Availability Constraint Trigger Conditions:

- Transitioning to a normalized load definition for triggering conditions (as a proxy for weather conditions), using the regression data between 96.25% to greater than 106.25% of the baseline forecast for the IRM study year
 - Based on feedback from ICS, the regression used to estimate available gas supply is evaluated at the midpoint of each load range. The available gas levels are unchanged from the initial recommendations, but the load range boundaries are revised. This formulation maintains consistency with the initial recommendations and the regression methodology, and results in the intended representation of gas availability as modeled within the IRM study base case.

■ Refinements to Available Fuel Assumptions:

- Continue applying winter fuel availability constraints in Load Zones F-K and monitor fuel availability in Load Zone A-E for potential modeling expansion in future study years
- Updating the available gas and available oil dataset on a rolling ten-year while also monitoring winter weather trends to ensure the rolling ten-year historical data continues to support the modeling objective
 - Maintaining the use of weekly generator fuel survey data dating back to Winter 2019-2020 to inform the “available oil” assumptions to continue expanding the dataset annually until a rolling ten-year dataset is achieved
- Not including any specific adjustments to account for potential pipeline expansion projects for the 2027–2028 IRM study
 - Monitoring the progress and reassessing the impacts of pipeline expansions in future years is also recommended

■ Improving the Allocation of Available Fuel:

- Refining the allocation of assumed available fuel by leveraging Firm Fuel Characteristic Elections and conducting the application of derates zonally across all affected zones
 - Allocating available fuel first to elected firm fuel MW in each zone and then allocating any remaining assumed available fuel to the remaining capacity in each zone

■ A standing sensitivity case on the PBC starting with the 2027-2028 IRM study is recommended, using Firm Fuel Characteristic Election data directly to derate the available capacity during winter by the amount of the non-firm MW

Updated Fuel Constraint Modeling Recommendation

- The table below represents the recommended winter fuel availability constraints model for the 2027-2028 IRM PBC.

Tier	Percentage of NYCA Baseline Forecasted Winter Peak Load	Fuel Availability Data ¹			MARS Model Parameters				
		Available Gas (MW) ²	Available Oil (MW)	Total Available Fuel (MW) (Gas + Oil)	Modeled ICAP (MW)	Unavailable ICAP (MW) ³			
						F	G	J	K
1	>106.25%	675	11,550	12,225	20,726	2,602	1,351	2,388	729
2	105% +/- 1.25%	1,350		12,900		1,908	1,351	2,388	729
3	102.5% +/- 1.25%	2,775		14,325		736	1,278	2,214	655
4	100% +/- 1.25%	4,000		15,550		718	886	1,504	404
5	97.5% +/- 1.25%	5,050		16,600		711	442	919	265
6	<96.25%	No Constraint				No Constraint			

1. Note: Available fuel data is in terms of UCAP. Derates are applied to the generator ICAP.

2. Note: Available gas at Tier 1 is assumed to be 50% of the available gas at Tier 2; consistent with 2026-2027 IRM study methodology for Tier 1.

3. Note: Values represent aggregate level derate applied to generator ICAP. Actual derate % applied varies depending on the fuel type (i.e., gas-only vs dual fuel) of each unit.

Recommendations for 2027-2028 IRM Study

- **The NYISO proposes to implement the recommended winter fuel availability constraints model from the previous slide in the 2027-2028 IRM study PBC, which reflects:**
 - Updated “Available Gas” and “Available Oil” assumptions
 - Updated total assumed available fuel based on the PBC inclusion/deactivation assumptions for gas-only and dual fuel units
 - Updated the zonal allocation of the total assumed available fuel using the updated DMNC values from the latest Gold Book and the Firm Fuel Characteristic Elections for the 2026-2027 Capability Year
- **The Winter fuel availability constraints model for the 2027-2028 IRM study FBC will be updated with the following information:**
 - Updated “Available Gas” assumptions with the regression analysis using the final IRM winter load forecast
 - Updated total assumed available fuel based on the FBC inclusion/deactivation assumptions for gas-only and dual fuel units
 - Updated zonal allocation of the total assumed available fuel using the most recent Firm Fuel Characteristic Election for the 2027-2028 Capability Year (due by August 1, 2026).
- **The NYISO recommends conducting a sensitivity case using Firm Fuel Characteristic Election data starting from the 2027-2028 IRM PBC**
 - The Firm Fuel Characteristic Election data will be aggregated at the Load Zone level and applied as a single zonal derate based on the ratio of firm fuel ICAP to total modeled ICAP, with derates applied during December through February and results monitored for potential future enhancements to the model

Recommendations for Future Years

- **Beyond the 2027-2028 IRM study, the following areas should be considered for potential future enhancements:**
 - Monitor the annual update of the underlying data for “available gas” and “available oil” to ensure the rolling ten-year historical data continues to support the modeling objective
 - Monitor the progress of pipeline expansion projects and consider the potential need for incremental changes in gas availability in addition to historical production data
 - Monitor winter operating experience and system conditions for potential modeling expansion to other areas of the NYCA
 - Monitor the changes in winter maintenance practices and evaluate the interaction between winter fuel availability constraints and seasonal maintenance assumptions
 - Monitor resource performance with Firm Fuel Characteristic Elections for additional consideration for election data integration

- **The annual update to the winter fuel availability model will be conducted in the following manner:**
 - During the development of PBC:
 - Update the “Available Gas” assumptions:
 - Update the regression analysis to include gas production data from the most recent winter (using a rolling 10-year dataset)
 - Update the regression analysis with the winter load forecast from the latest NYISO Load & Capacity Data report (Gold Book)
 - Update the “Available Oil” assumptions using the weekly generator fuel survey data from the most recent winter period
 - Update total assumed available fuel based on the PBC inclusion/deactivation assumptions for gas-only and dual fuel units
 - Update the zonal allocation of the total assumed available fuel using the updated DMNC values from the latest Gold Book and prior year’s Firm Fuel Characteristic Elections
 - During the development of the FBC:
 - Update the “Available Gas” assumptions with the regression analysis using the final IRM winter load forecast
 - Update total assumed available fuel based on the FBC inclusion/deactivation assumptions for gas-only and dual fuel units
 - Update the zonal allocation of the total assumed available fuel using the most recent Firm Fuel Characteristic Election for the upcoming Capability Year (due by August 1).

Next Steps

- **Seek ICS approval of the final recommendations.**
- **Subject to ICS approval, seek NYSRC Executive Committee approval and implement the recommended approach beginning with the 2027–2028 IRM PBC.**

Questions?

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

