New York ISO
Independent System Operator

Winter Fuel Availability Constraints Modeling Review:

Comparison with 2026-2027 Firm Fuel Elections

Pallavi Jain

Manager, Capacity Accreditation

ICS Meeting #313

February 4, 2026

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Background

- **Based on the recommendations of the Gas Constraints Modeling Whitepaper,[1] the winter fuel availability constraints model was adopted in the 2026-2027 installed reserve margin (IRM) study.**
  - The "available fuel" assumptions used in the winter fuel availability constraint model were based on historically available gas production and historical oil inventory data
- **Since the adoption of the winter fuel availability constraints model, the NYISO implemented new market rules on performance and reporting requirements for ICAP Suppliers making a firm fuel characteristic election for capacity accreditation (Firm Fuel Characteristic Election).[2]**
  - For the 2026-2027 Capability Year, Firm Fuel Characteristic Elections from ICAP Suppliers were required to be submitted by November 1, 2025.
  - Starting with the 2027-2028 Capability Year, Firm Fuel Characteristic Elections are required to be submitted by August 1 for the upcoming Capability Year (e.g., August 1, 2026 for the 2027-2028 Capability Year).
- **The Firm Fuel Characteristic Elections provide new information, supplementing historical data, on potential resource capability under winter conditions and could potentially be considered to help inform the winter fuel availability constraints modeling assumptions for the IRM study**
- **The objective of today's presentation is to review the 2026-2027 Firm Fuel Characteristic Election information with respect to the winter fuel availability constraints modeling assumptions for the 2026-2027 IRM study**

1. 2024 Gas Constraints Modeling Whitepaper
2. Modeling Improvements for Capacity Accreditation: Firm Fuel

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Firm Fuel Characteristic Elections

- **The Firm Fuel Characteristic Elections represent ICAP Suppliers in Load Zones F-K taking on the firm fuel availability, performance and reporting obligations for the months of December, January, and February of the subject Capability Year (Winter Performance Period).**
  - ICAP Suppliers making a Firm Fuel Characteristic Election:
    - must have fuel available to run for 56 hours over any consecutive seven-day period during the Winter Performance Period at the elected MW value.
    - will be required to have an effective operating plan and related supply, transportation, and/or replenishment agreements in place by Dec. 1 of the subject Capability Year through the end of the Winter Performance Period
  - ICAP Suppliers that elect any amount of firm MW but thereafter are not available (outage, derate, etc.) at any time during the months of December, January and February due to lack of fuel and have not run for 56 hours over the past seven consecutive days will be subject to financial sanctions or settlement adjustments
- **For the Firm Fuel Characteristic Elections made by November 1, 2025 for the 2026-2027 Capability Year, the performance obligation period is December 2026 through February 2027**
- **The Firm Fuel Characteristic Elections are provided by Market Participants in ICAP MW terms**

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Firm Fuel Characteristic Elections Summary for the 2026-2027 Capability Year

Capacity Zones	A: Sum of Firm Fuel Elections (GW) (2026-2027 Capability Year)	B: Sum of Natural Gas and/or Fuel Oil Resources (GW) (Winter 2025-2026 DMNC/DMGC)	Percentage of Natural Gas and/or Fuel Oil MWs that are covered by Firm Fuel Elections (A/B)
Rest of State (ROS)* (only Zone F)	2.8 GW	3.5 GW	80%
G-J Locality (excluding Load Zone J)	3.2 GW	4.8 GW	67%
NYC Locality (Load Zone J)	7.6 GW	9.3 GW	82%
Long Island Locality (Load Zone K)	4.6 GW	5.2 GW	89%
Total	18.3 GW	22.8 GW	80%

*Only Firm Fuel Characteristic Elections in Load Zone F are applicable in ROS because the 2026-2027 IRM study only modeled certain ICAP Suppliers in Load Zones F-K as subject to winter fuel availability constraints.

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Winter Fuel Availability Constraint Model

- **The winter fuel availability constraint model consists of 6-tiered resource derate in Load Zones F-K based on fuel availability assumptions triggered by varying daily peak load levels**
  - The table below represents the winter fuel availability constraints modeled in the 2026-2027 IRM study Special Sensitivity Case

Tier	NYCA Load Conditions (MW)	Available Gas (MW)	Available Oil (MW)	Total Available Fuel (MW) (Gas + Oil)	Modeled UCAP (MW)	Derate (%)[1]
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.

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Assumptions in the Winter Fuel Availability Constraints Model

- The winter fuel availability constraints model represents varying levels of generation availability at different load levels reflecting higher gas demand to serve heating loads and potential challenges acquiring fuel (gas and/or oil) for electricity generation
- For the 2026-2027 IRM study, the "Available Gas" assumption was determined by performing a historical hourly production regression analysis to inform the amount of gas anticipated to be available to the impacted units under varying winter load conditions
- For the 2026-2027 IRM study, the "Available Oil" assumption was determined using weekly fuel survey data to estimate the oil storage historically available based on each affected generator's ability to sustain maximum output for 56 hours
- The winter fuel availability constraints model only applies to gas-only and dual fuel units located in Load Zones F-K.
- The winter fuel availability constraints model reports assumed "available fuel" values in UCAP terms

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Assessment of Datasets

- **Due to the differences between assumptions used in the winter fuel availability constraints model and the Firm Fuel Characteristic Elections, the following adjustments were made to facilitate comparison of the datasets:**
  - Only included Firm Fuel Characteristic Elections from the gas-only and dual fuel resources since fuel availability constraints are not applied to oil-only resources
  - Limited the Firm Fuel Characteristic Elections to the lesser of DMNC and CRIS values for each unit to ensure the elected firm MW are comparable to the resource capacity modeled in the IRM study
    - 2024-2025 Winter DMNC values were used
  - Converted the total Firm Fuel Characteristic Elections from ICAP MW to UCAP MW terms using the 5-year EFORd used in the IRM study

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Assessment of Datasets (cont.)

- **Modeled ICAP**
  - Total modeled capacity of gas-only and dual fuel resources in Load Zones F-K in the 2026-2027 IRM study.
- **Modeled UCAP**
  - Equivalent UCAP of all modeled ICAP in the 2026-2027 IRM study.
  - ICAP converted to UCAP using 5-year EFORd from the 2026-2027 IRM study.
  - Represents UCAP prior to fuel availability derates.
- **Elected Firm ICAP**
  - Total Firm Fuel Characteristic Elections for the 2026-2027 Capability Year from dual fuel and gas-only generators in Load Zones F-K
- **Min(CRIS,DMNC, Firm MW)**
  - Adjustment to ensure Firm Fuel Characteristic Elections for the 2026-2027 Capability Year do not exceed resource capability modeled in the 2026-2027 IRM study (uses 2024-2025 Winter DMNC values).
- **Elected Firm UCAP**
  - Min(CRIS, DMNC, Firm MW) ICAP is converted to UCAP using 5-year EFORd from the 2026-2027 IRM study.

(GW)	Modeled ICAP	Modeled UCAP	Elected Firm ICAP	Min(CRIS, DMNC, Firm MW)	Elected Firm UCAP
Dual Fuel	**15.5**	**14.1**	**14.4**	**14.1**	**12.8**
F	1.0	0.9	0.3	0.3	0.2
G	3.2	2.6	3.2	3.1	2.6
J	7.8	7.4	7.6	7.4	7.0
K	3.5	3.2	3.3	3.3	3.0
Gas-Only	**6.0**	**5.6**	**2.6**	**2.5**	**2.4**
F	2.5	2.4	2.6	2.5	2.4
G	1.6	1.5	-	-	-
J	1.4	1.3	-	-	-
K	0.4	0.3	-	-	-
Total	**21.5**	**19.7**	**17.0**	**16.6**	**15.2**

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Assessment of Datasets (cont.)

	2026-2027 Winter Fuel Availability Constraints Model						2026-2027 Firm Fuel Characteristic Elections		
Tier	NYCA Load Conditions (MW)	Available Gas (MW)	Available Oil (MW)	Total Available Fuel (MW) (Gas + Oil)	Modeled UCAP (MW)	Derate (%)	Elected Firm ICAP (MW)	Elected Firm UCAP (MW)	Derate (%)
1	> 26,000	300		12,000		39%			
2	25,000 - 26,000	600		12,300		38%			
3	24,000 - 25,000	2,550	11,700	14,250	19,720	28%	16,904	15,254	23%
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			

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Observations

- **The Firm Fuel Characteristic Elections for the 2026-2027 Capability Year are equivalent to 15.2 GW on a UCAP basis for comparison to the winter fuel availability constraints modeling from the 2026-2027 IRM study, which is within the range of the Tier 3 and Tier 4 levels of assumed available fuel in the 2026-2027 IRM study**
  - As noted in the 2024 Gas Constraints Modeling Whitepaper, Tiers 3 and 4 represented load conditions that aligned with peak loads observed in recent prior winters
- **Tiers 1 and 2 of the winter fuel availability constraints model represent colder/more extreme winter conditions with ~3,000 MW less assumed available fuel than reflected in the Firm Fuel Characteristic Elections for the 2026-2027 Capability Year.**
  - Using the total UCAP from gas-only and dual fuel units in Load Zone F-K modeled in the 2026-2027 IRM study (i.e., 19,720 MW), Tier 1 of the winter fuel availability constraints model assumes ~60% of the total affected UCAP will be available, while the Firm Fuel Characteristic Elections represents ~77% of the total affected UCAP will be available
- **Tier 5 of the winter fuel availability constraints model represents warmer winter conditions with ~2,000 MW more UCAP than reflected in the Firm Fuel Characteristic Elections for the 2026-2027 Capability Year.**

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Next Steps

- **Perform additional analysis, as necessary, based on feedback**
- **Review additional data to help inform updates to the winter fuel availability constraints modeling assumptions for 2027-2028 IRM study**
- **Whitepaper milestones:**
  - Q2 2026: Review findings of the NYISO's 2025 Fuel Constraints Study and potential implications for the winter fuel availability constraints modeling in the IRM study
  - Q3/Q4 2026: Consider modeling updates to winter fuel availability assumptions for the 2027-2028 IRM study
    - Updates may include exploring zonal specific derates, derates to oil-only units, consideration of generator "firm fuel" election information, and assessing the presence of fuel constraints in regions beyond Load Zones F-K

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

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

New York ISO

©COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED

Questions?

© COPYRIGHT NYISO 2026. ALL RIGHTS RESERVED.