

Winter 2024-2025 Cold Weather Operations

Aaron Markham

VICE PRESIDENT OPERATIONS, New York ISO

NYISO Operating Committee

March 20, 2025, Rensselaer, NY

Key Observations from Winter 2024/25

- Winter 2024/2025 average temperatures for the New York Control Area were below normal, with exception of the Syracuse area, with seasonal minimum temperatures generally occurring during the third week of January
- Moderate fuel prices (natural gas, LNG, distillate fuel, etc.) were in place for much of the season
- Stored fuel burned in short duration periods of cold weather primarily over the Martin Luther King and President's Day holiday weekends
- Continued examples of limited flexibility on the gas system to start and operate generators on gas without a Day Ahead Schedule for energy or reserves
- Estimated supply mix for the peak hour (1/22/25 HB 18): 18% natural gas, 27% oil, 17% hydro, 19% imports, 14% nuclear, 3% wind, 1% other renewables

Peak Loads

- **NYCA all-time Winter Electric Peak Load was 25,738 MW on January 7, 2014**
- **NYCA Baseline Peak Forecast was 23,800 MW for Winter 2024-2025**
- **This Winter's Actual Peak (to date) is 23,521 MW on Wednesday, January 22, 2025**

Below Normal Winter Temperatures Prevailed

Average Temperatures and Departures from 1991 – 2020 Normals					
Station	December	January	February	Season	Coldest
Islip	37.3 °F (+0.2 °F)	30.7 °F (-1.2 °F)	31.3 °F (-2.0 °F)	33.6 °F (-0.5 °F)	7 °F (1/22)
Central Park	38.4 °F (-0.7 °F)	31.4 °F (-2.3 °F)	31.7 °F (-4.2 °F)	34.2 °F (-2.0 °F)	11 °F (1/21, 1/22)
Albany	29.8 °F (-0.6 °F)	24.5 °F (+0.1 °F)	24.0 °F (-2.8 °F)	26.1 °F (-0.2 °F)	-9 °F (1/22)
Syracuse	32.9 °F (+2.5 °F)	25.5 °F (+1.4 °F)	24.6 °F (-0.9 °F)	27.7 °F (+1.0 °F)	0 °F (12/23)
Buffalo	32.9 °F (+1.5 °F)	24.0 °F (-1.5 °F)	23.4 °F (-3.0 °F)	27.0 °F (-0.8 °F)	-3 °F (1/22)
Plattsburgh	26.1 °F (-0.3 °F)	19.7 °F (+0.5 °F)	18.5 °F (-2.5 °F)	21.3 °F (-0.9 °F)	-7 °F (2/2)

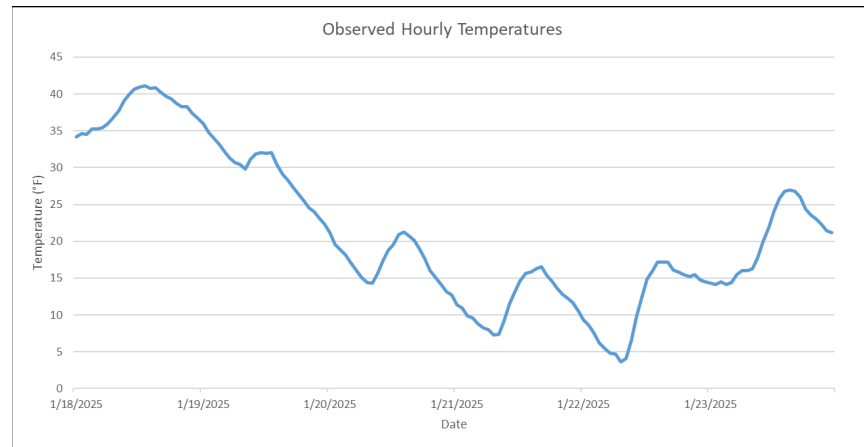
Data Source: NWS Local Offices (www.weather.gov)

Legend: Below Normal Above Normal



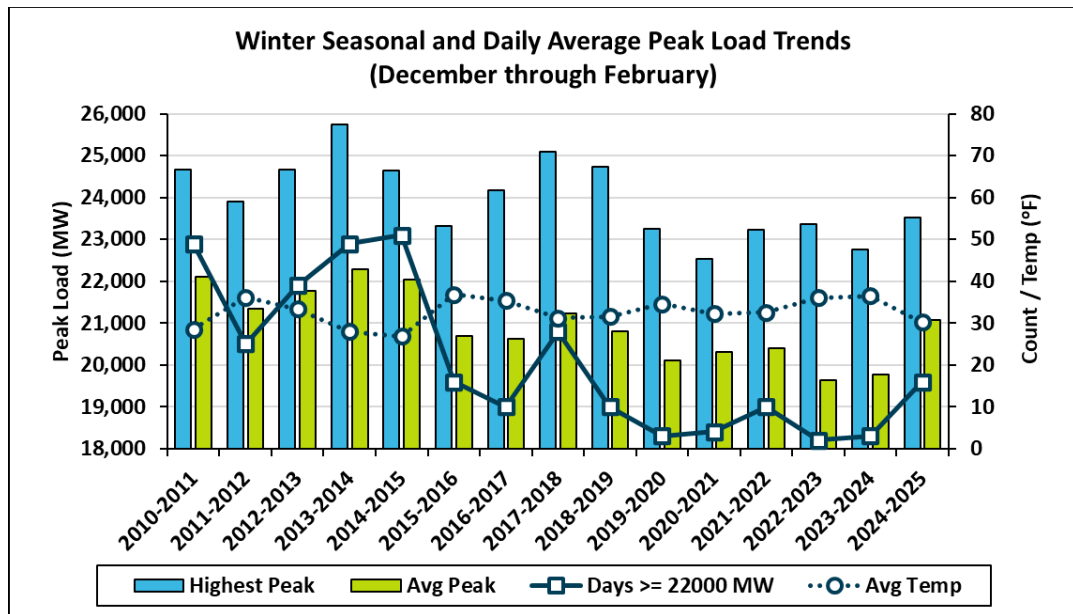
NYCA Temperature and Peak Load Statistics for January 18 – 23, 2025

- Coldest stretch of the 2024 – 2025 winter season, consistent with typical coldest winter days/periods
- Minimum temperature (3.6 °F) occurred on Wednesday January 22nd and was the lowest of the season
 - Consistent with average winter-season minimum temperatures
 - Average season minimum: 3.8 °F (2001 – 2002 to 2023 – 2024)



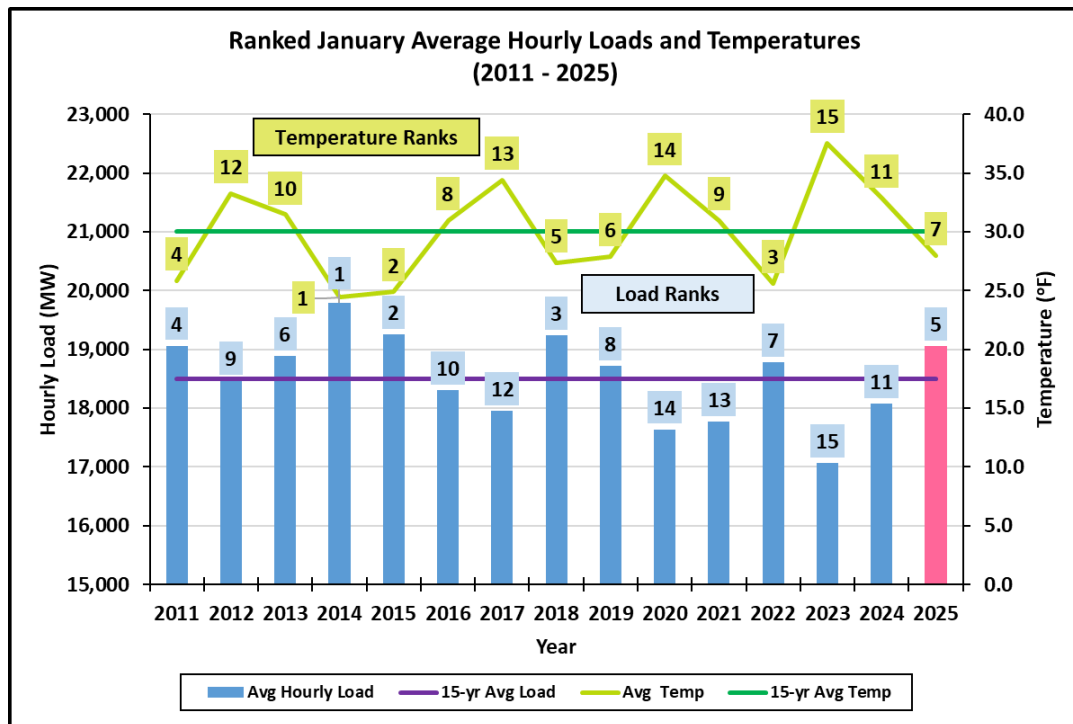
Date	DOW	AM Low Temp	Aft High Temp	HB18 Temp	Avg Temp	Peak Load (MW)
1/18/2025	Sat	34.1	41.1	39.3	38.0	19,416
1/19/2025	Sun	29.8	32.0	26.4	29.7	20,435
1/20/2025	Mon	14.3	21.2	17.6	17.4	22,787
1/21/2025	Tue	7.3	16.5	14.6	11.9	23,503
1/22/2025	Wed	3.6	17.2	15.8	11.4	23,521
1/23/2025	Thu	14.1	27.0	24.4	20.3	22,771

Winter 2024 – 2025 Daily Peak Loads In Perspective



- Fourth Lowest Winter average hourly temperature (30.2°F) since 2010 – 2011
 - 2014 – 2015: 26.9°F
- Winter 2024 – 2025 peak load (23,521 MW) occurred on January 22nd
 - Highest winter peak since 2018-2019
- Sixteen Daily Peak Loads in Excess of 22,000 MW
 - Most since 2017-2018
- Average Peak Load of 21,068
 - Highest Average Peak Load since 2017-2018

January 2025 Daily Peak Loads In Perspective

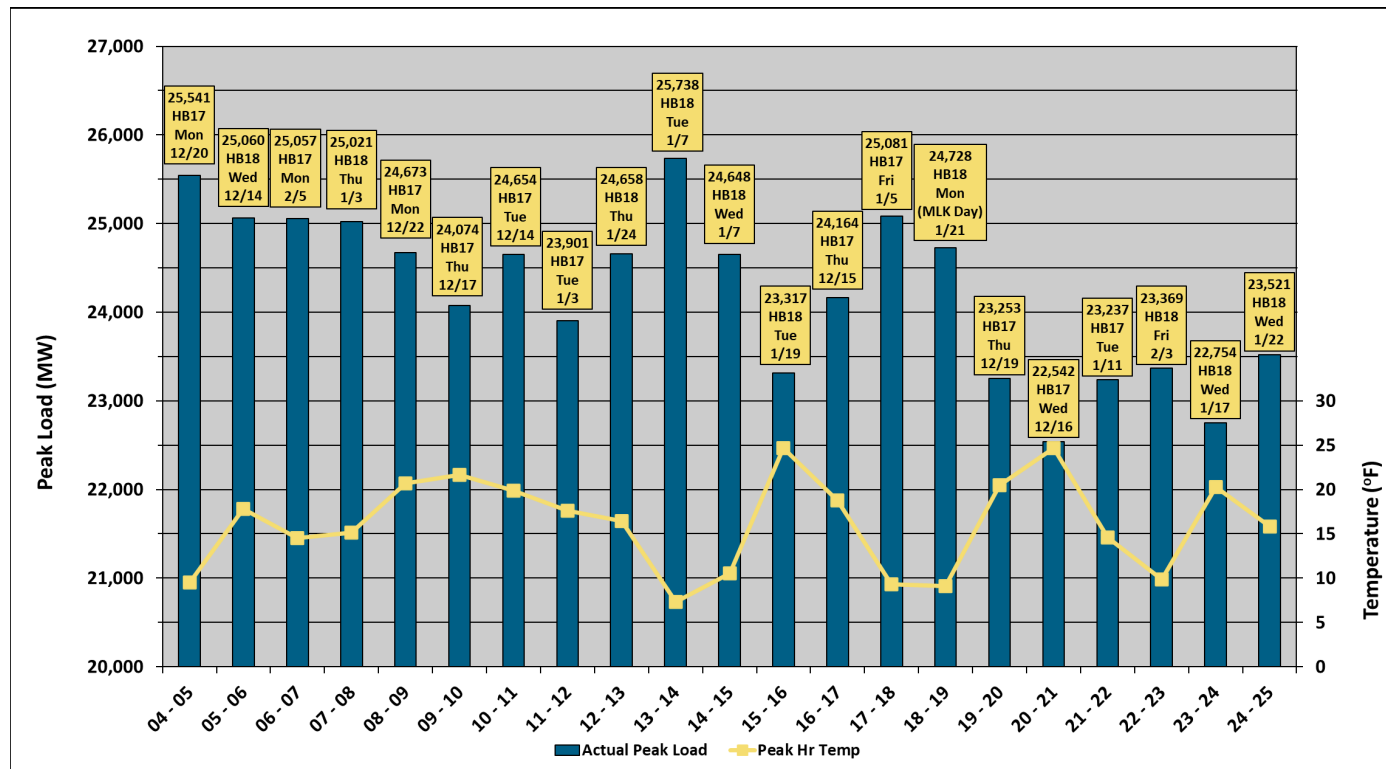


- **Average temperature: 28.0 °F**
 - Seventh lowest average hourly temperature since 2011
 - Slightly-below 15-year average
- **Average Hourly Load: 19,057 MW**
 - Fifth highest average hourly load since 2011
 - ≈ 500 MW higher than 15-year average
- **Peak Hourly Load: 23,521 MW (1/22)**
 - Winter 2024 – 2025 peak to date
- **Eleven days above 22,000 MW in January 2025**
 - 2011 – 2024 Average: 10.5 January days above 22,000 MW

Cold Weather Conditions (1/18 – 1/23) Electric Peak

- The most severe statewide temperatures experienced this winter occurred during the week of January 20th.
- 1/22/25 - The forecast peak temperature index was 16.0 °F. Partly sunny, very cold, and breezy. The National Weather Service posted Lake Effect Snow Warnings for the areas to the east of Lakes Erie and Ontario on account of expected heavy snow.
- Forecast highs were mainly in the lower-to mid-10s upstate and upper-10s to near 20 downstate.
- The Actual peak during the cold snap occurred on 1/22/25, HB18
 - 23,521 MW
 - Seasonal peak to date
 - ~99% of the winter 2024/2025 baseline forecast
- Most severe Operational Flow Orders (OFOs) during the period:
 - Con Ed Hourly OFOs, 1/20/25 through 1/25/25
 - ConEd Interruption of service, 1/21/25 through 1/23/25 from 04:00 – 10:00 daily
 - NG Downstate 2% Over-Burn Daily OFO, 1/19/25 10:00 – 1/26/25 10:00
 - NG Downstate Tier 1 and 2 Interruptions 1/20/25 - 1/23/25
 - NG Upstate East Gate Interruption 1/21/25 10:00 – 1/23/25 10:00
- SREs – 1/22/25, Oswego 6 and Cricket Valley 2 for statewide capacity

Winter Peak Loads in MW: Winters 2004/05 to 2024/25



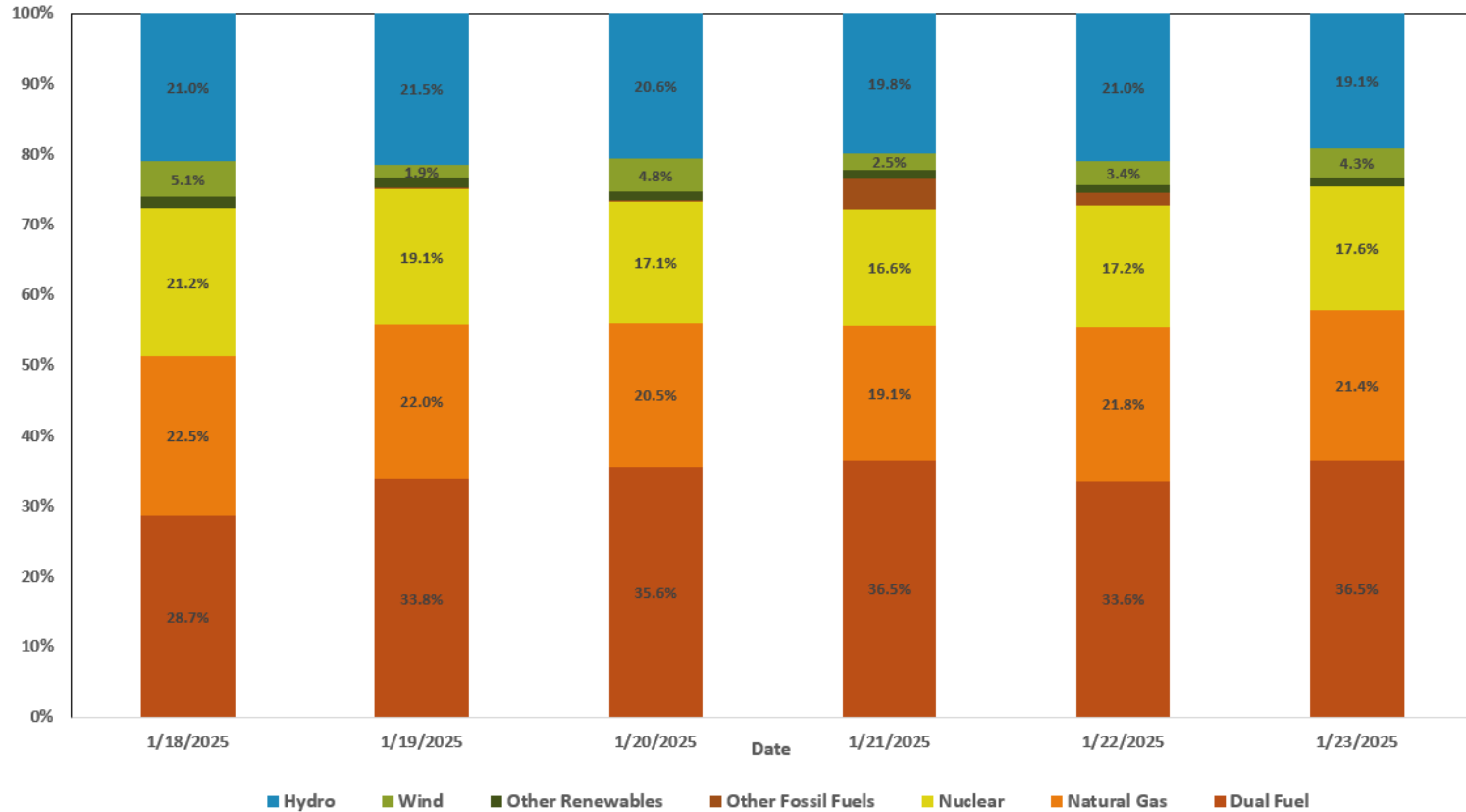
SCR/EDRP/TDRP events during December 1, 2024, through February 21, 2025

Program	Start Date & Time	End Date & Time	Zone(s)
SCR/EDRP	1/21/2025 16:00	1/21/2025 22:00	A,B,C,D,E,F,G,H,I,J,K
SCR/EDRP	1/22/2025 16:00	1/22/2025 22:00	A,B,C,D,E,F,G,H,I,J,K
TDRP	2/20/2025 12:00	2/20/2025 23:59	J3, J4
TDRP	2/21/2025 0:00	2/21/2025 23:59	J3, J4

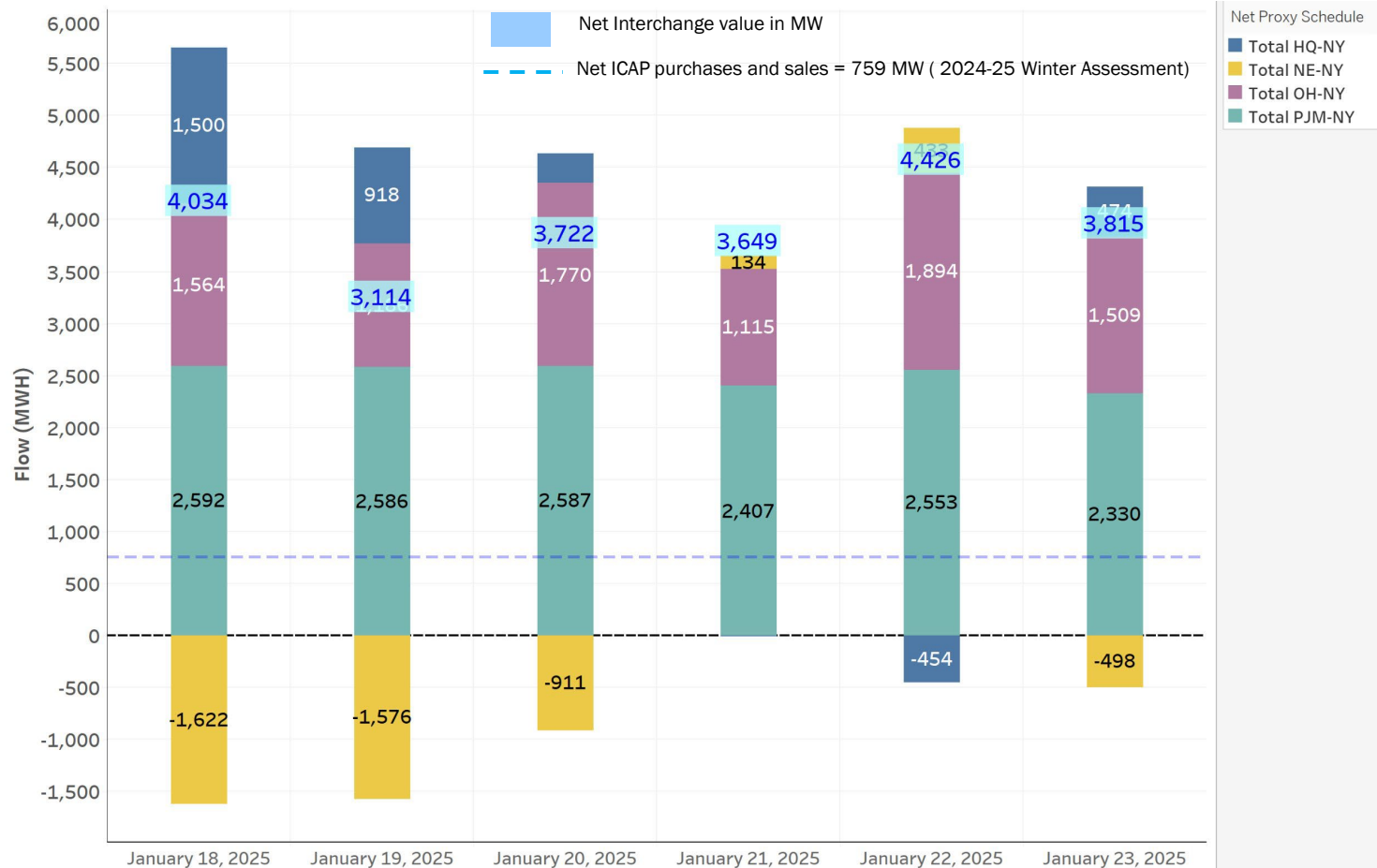
- Scarcity pricing triggered in 3 RTD intervals on 1/21

Supply Data

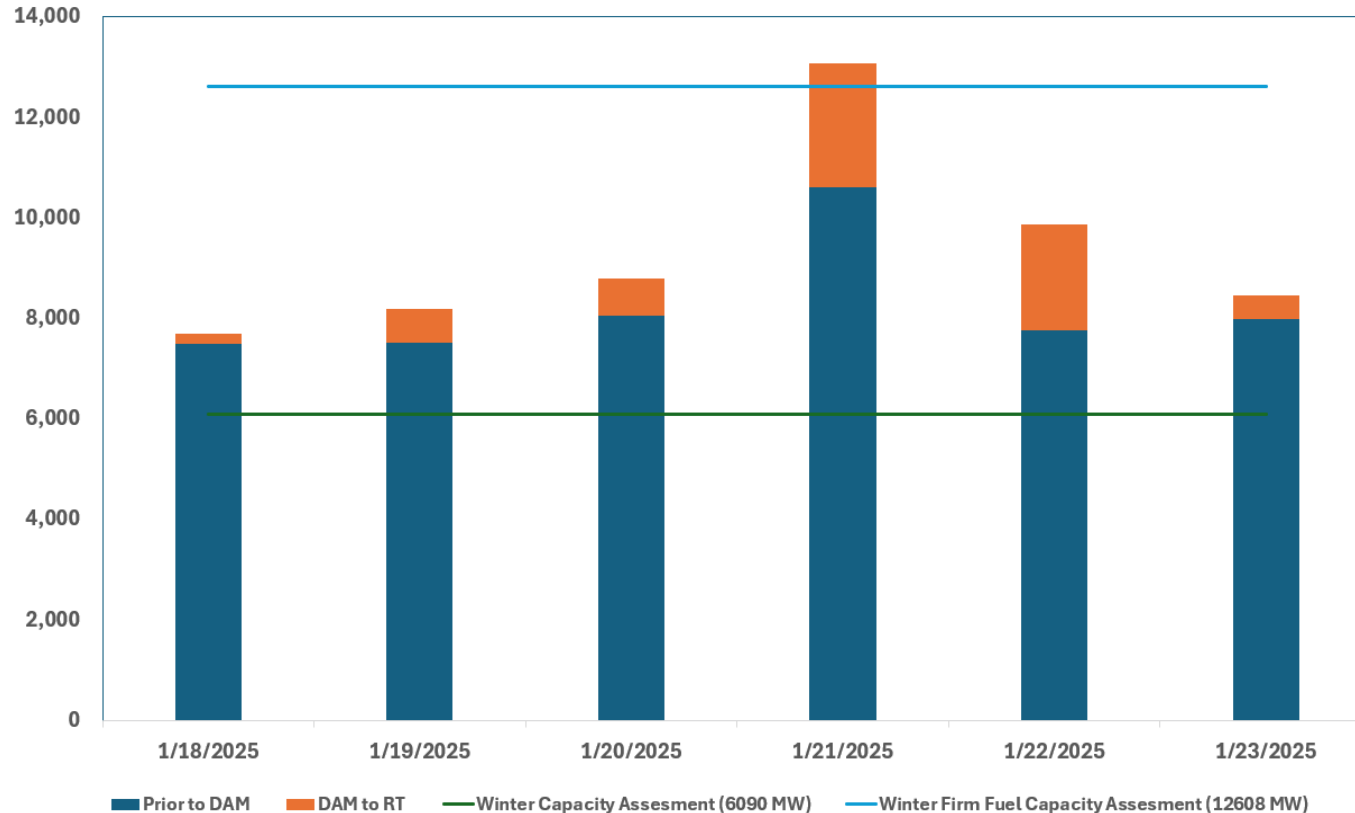
Total Actual Generator by Fuel Mix During Peak Hours



External Proxy Schedules During Peak Hour

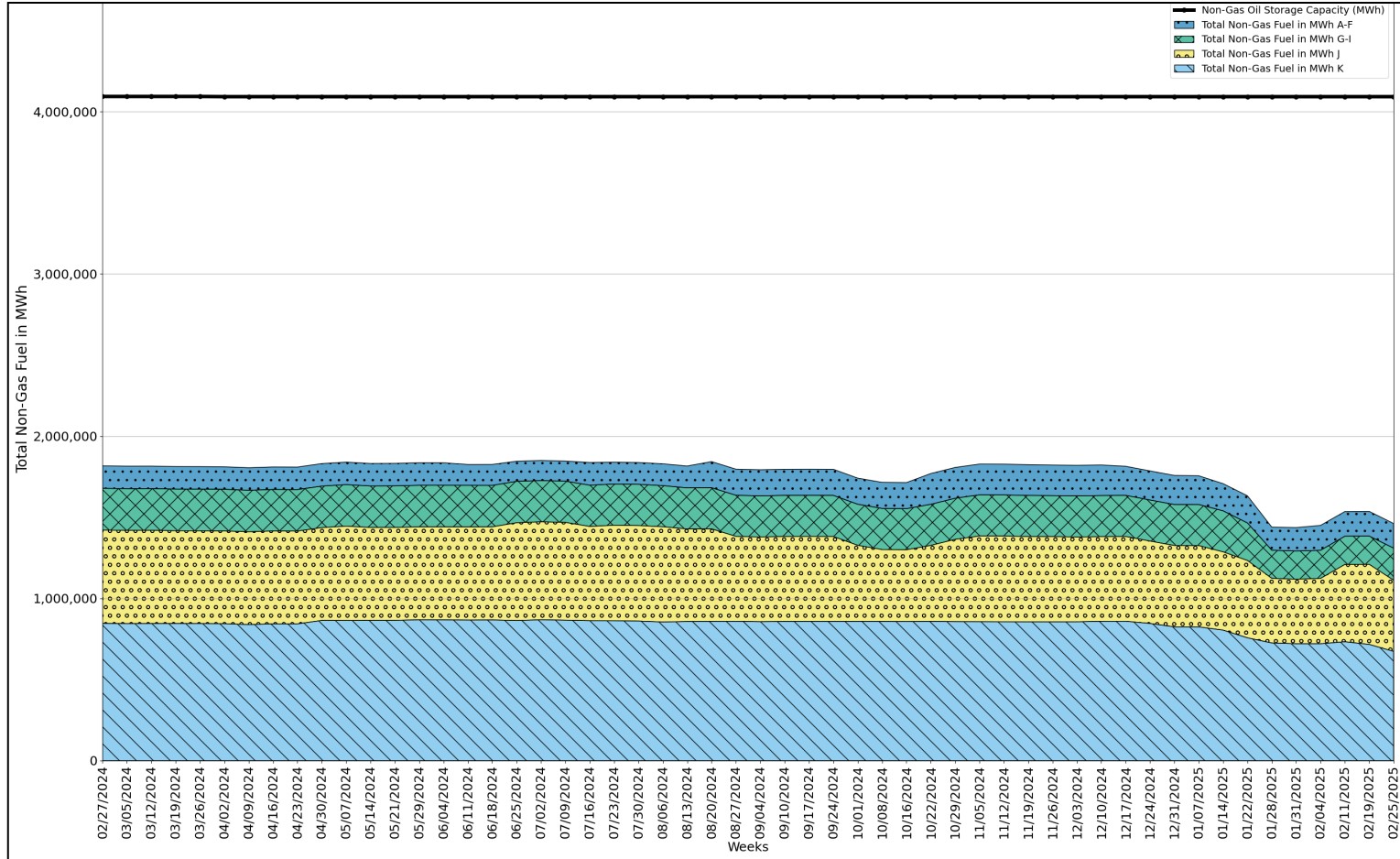


Unavailable Capacity (MW) for Peak Load Hour

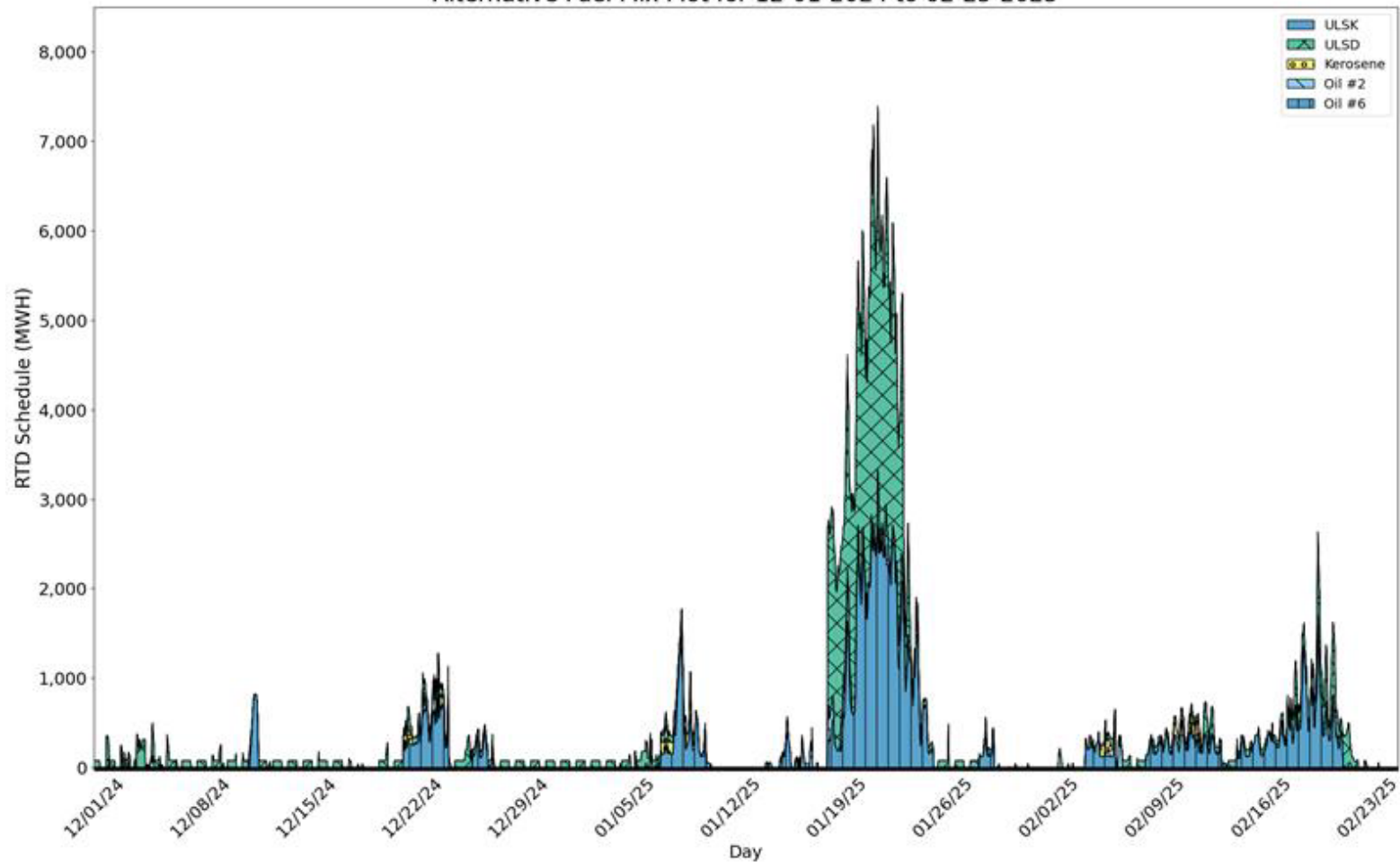


Fuel Inventory/Burn

Total Weekly Oil Inventory in MWh from 2/27/2024 to 2/25/2025



Alternative Fuel Mix Plot for 12-01-2024 to 02-25-2025



Major Takeaways

Operations

- The NYISO worked with the TOs to recall certain transmission line outages, and participated in NPCC coordination calls with neighboring external market systems
- NYISO weekly fuel surveys indicated sufficient alternate fuel inventory
- NYISO met operating criteria throughout the winter
- NYISO activated SCR/EDRP in all zones on 1/21/25 and 1/22/25
- No need for emergency actions (voltage reduction, public appeals, etc.)

Transmission Infrastructure Performance

- **Continuing Forced Outages**

- Hudson-Farragut 345 kV B3402
- Marion-Farragut 345 kV C3403

- **Other impactful outages throughout the season (not all occurring concurrently)**

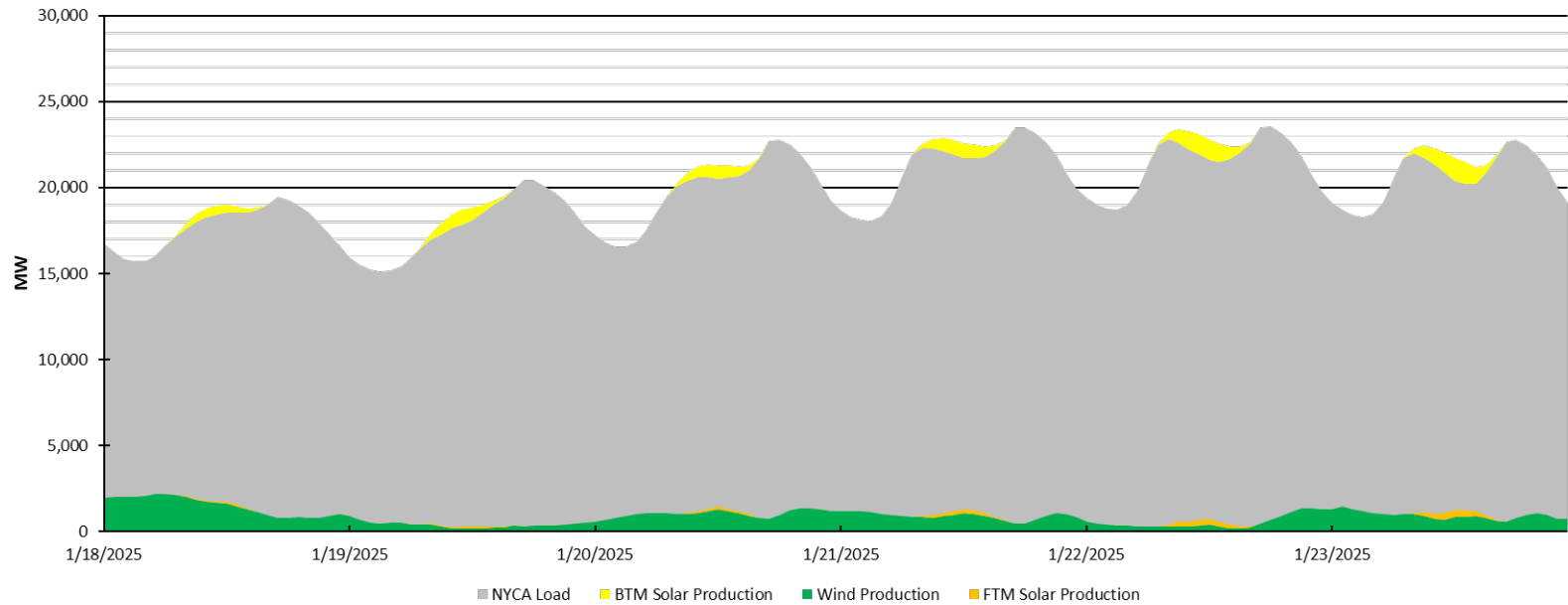
- Dunwoodie-Shore Rd 345kV Y50
- Gowanus- Greenwood 138 kV 42231
- Dunwoodie-Motthaven 345kV 71
- Sprainbrook-W 49th St 345kV M51
- Adirondack- Lake-Porter 230kV 12
- W49TH ST-E13TH 345kV M55
- Leeds-Hurley-Ave 345 kV 301
- Hurley Ave-Roseton 345 kV 303
- Knickerbocker – Pleasant Valley 345 kV Y57
- Astoria Annex – E13TH ST3 345 kV Q35L
- Gowanus-Greenwood 138 kV 42232

Gas System NY

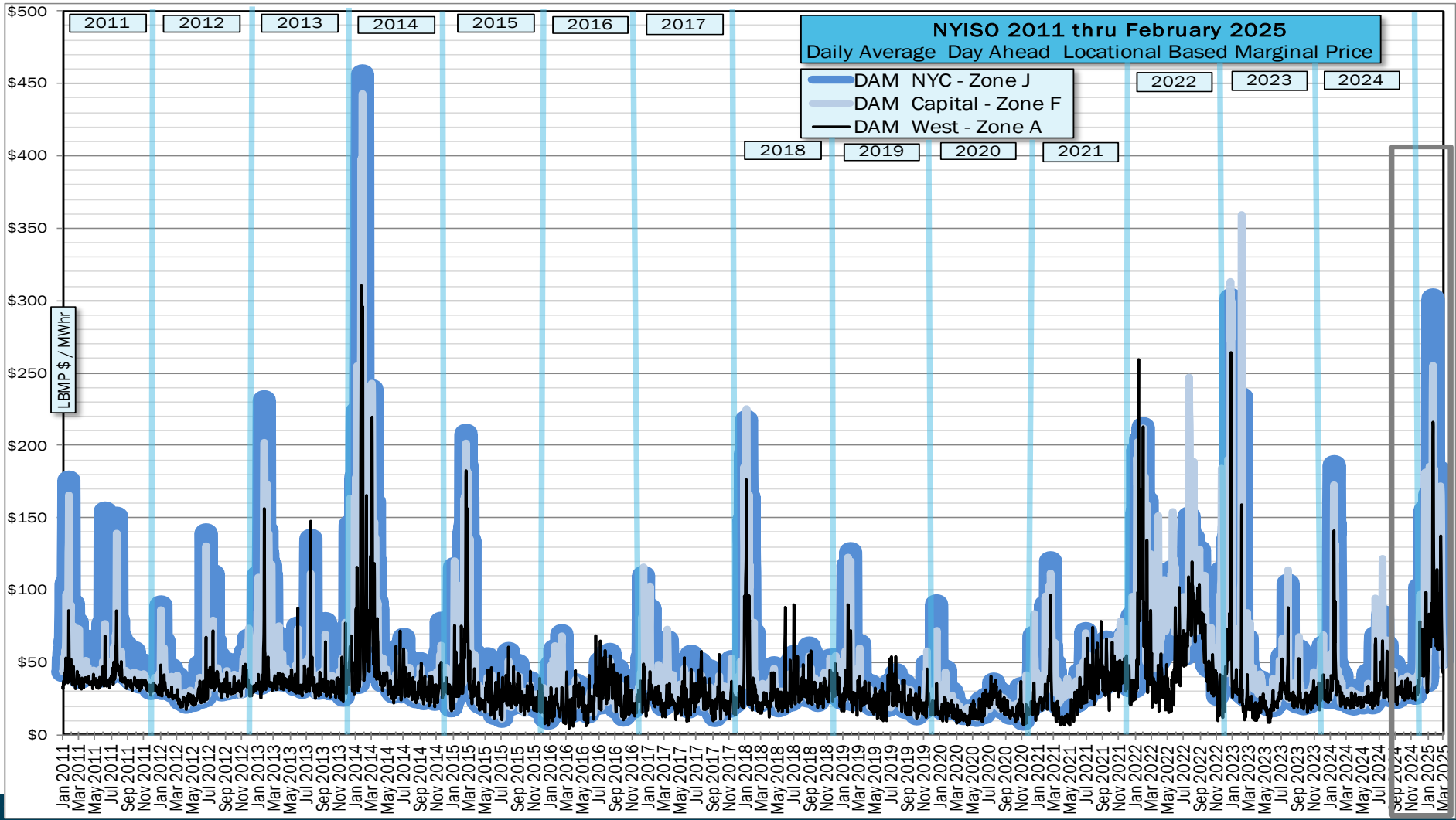
- **Gas pipelines and Gas LDCs issued many of the following:**
 - Gas Alerts
 - Daily OFOs (Operational Flow Orders)
 - Hourly OFOs
 - Interruption of Transportation Services (Interruptible Gas Customers will not be able to get Gas)
- **In many cases these notices were issued with enough lead time (before the Day Ahead market closes at 5 am the prior day) to properly account for the impacts in Day Ahead Market solution**
- **NY experienced a high number of OFO conditions, including many days not identified as cold weather timeframes in this presentation**
- **Gas Scheduling challenges existed during the Martin Luther King and President's Day long weekend.**

Intermittent Production

Hourly Wind & Solar Production 1/18 - 1/23



Fuel and Energy Prices



NYISO September 2024 thru February 2025
Daily Average Day Ahead Locational Based Marginal Price

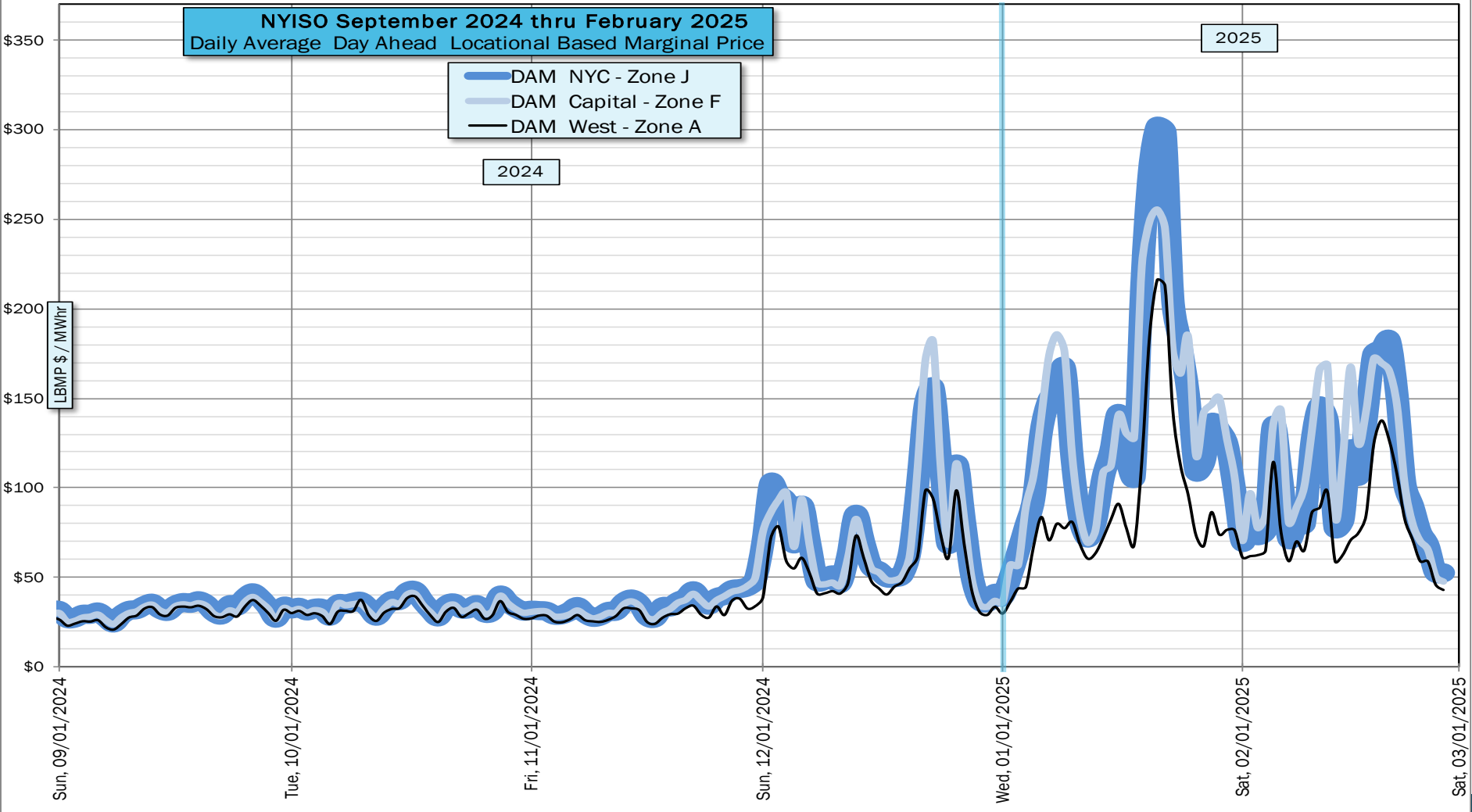
- DAM NYC - Zone J
- DAM Capital - Zone F
- DAM West - Zone A

2024

2025

LBMP \$ / MWhr

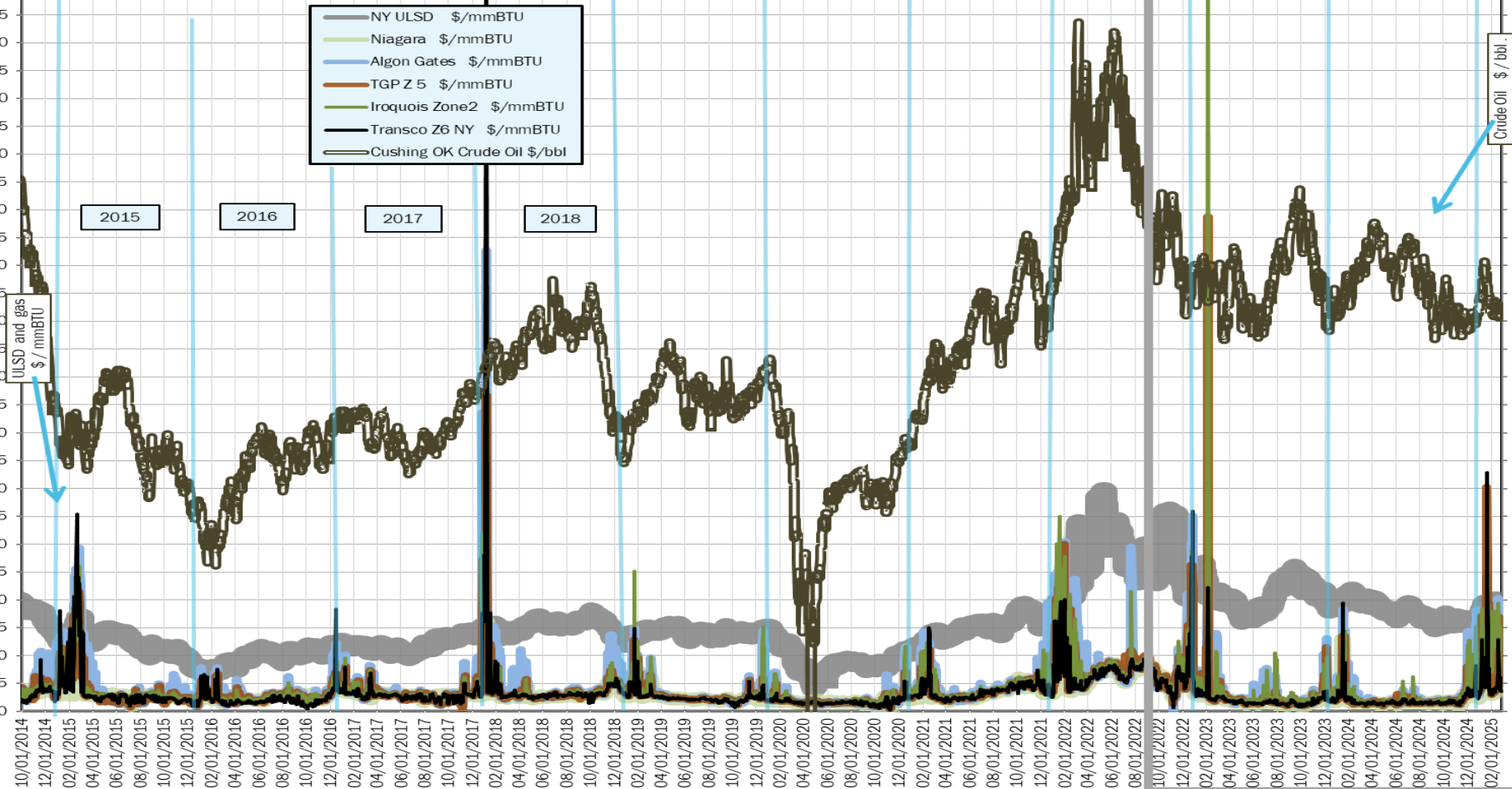
Sun, 09/01/2024 Tue, 10/01/2024 Fri, 11/01/2024 Sun, 12/01/2024 Wed, 01/01/2025 Sat, 02/01/2025 Sat, 03/01/2025



NYISO Fuel Prices October 2014 thru February 2025

including Crude Oil price, data sources: SNL and EIA (oils thru 02/27/2025)

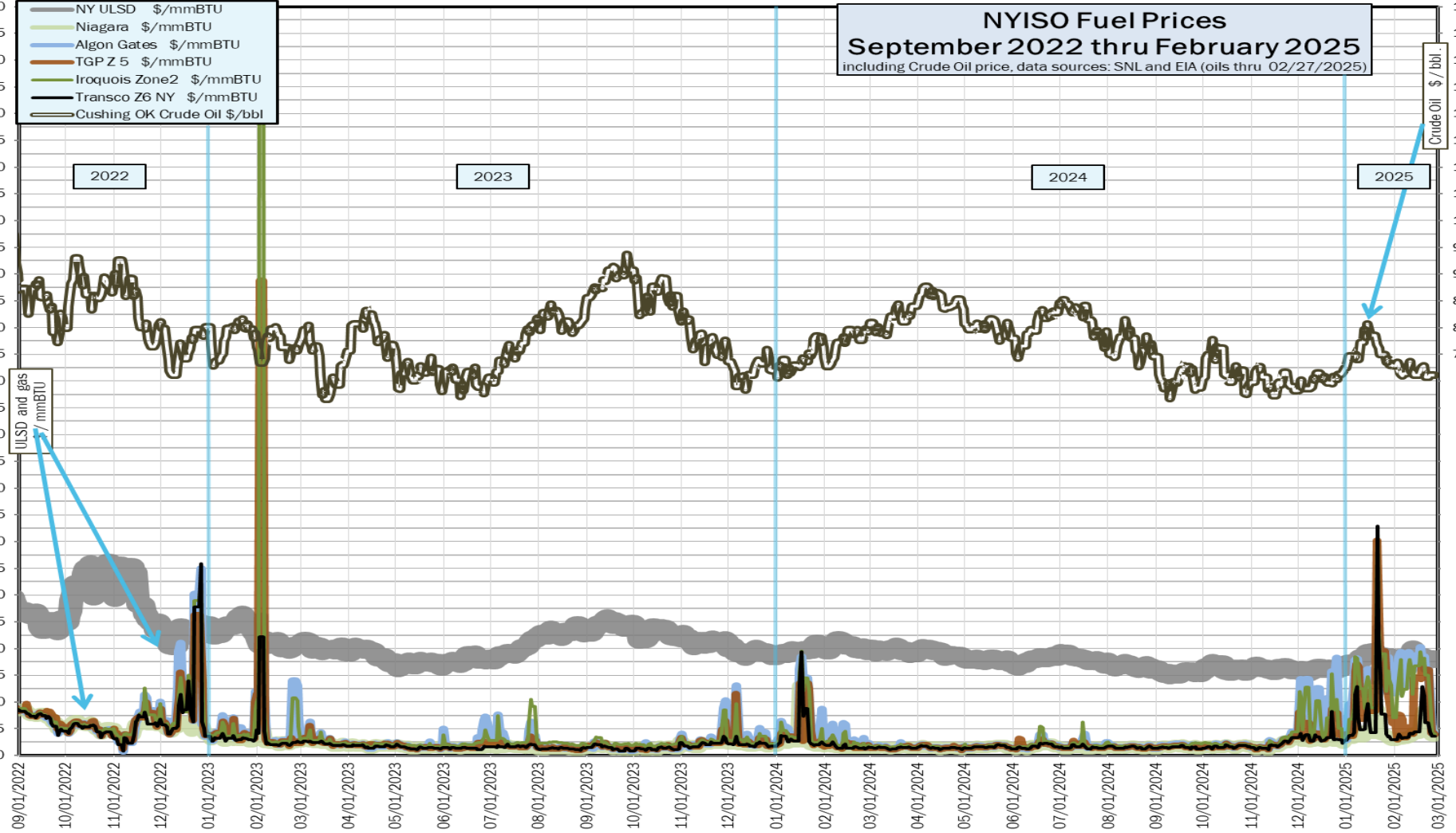
- NY ULSD \$/mmBTU
- Niagara \$/mmBTU
- Algon Gates \$/mmBTU
- TGP Z 5 \$/mmBTU
- Iroquois Zone2 \$/mmBTU
- Transco Z6 NY \$/mmBTU
- Cushing OK Crude Oil \$/bbl



NYISO Fuel Prices September 2022 thru February 2025

including Crude Oil price, data sources: SNL and EIA (oils thru 02/27/2025)

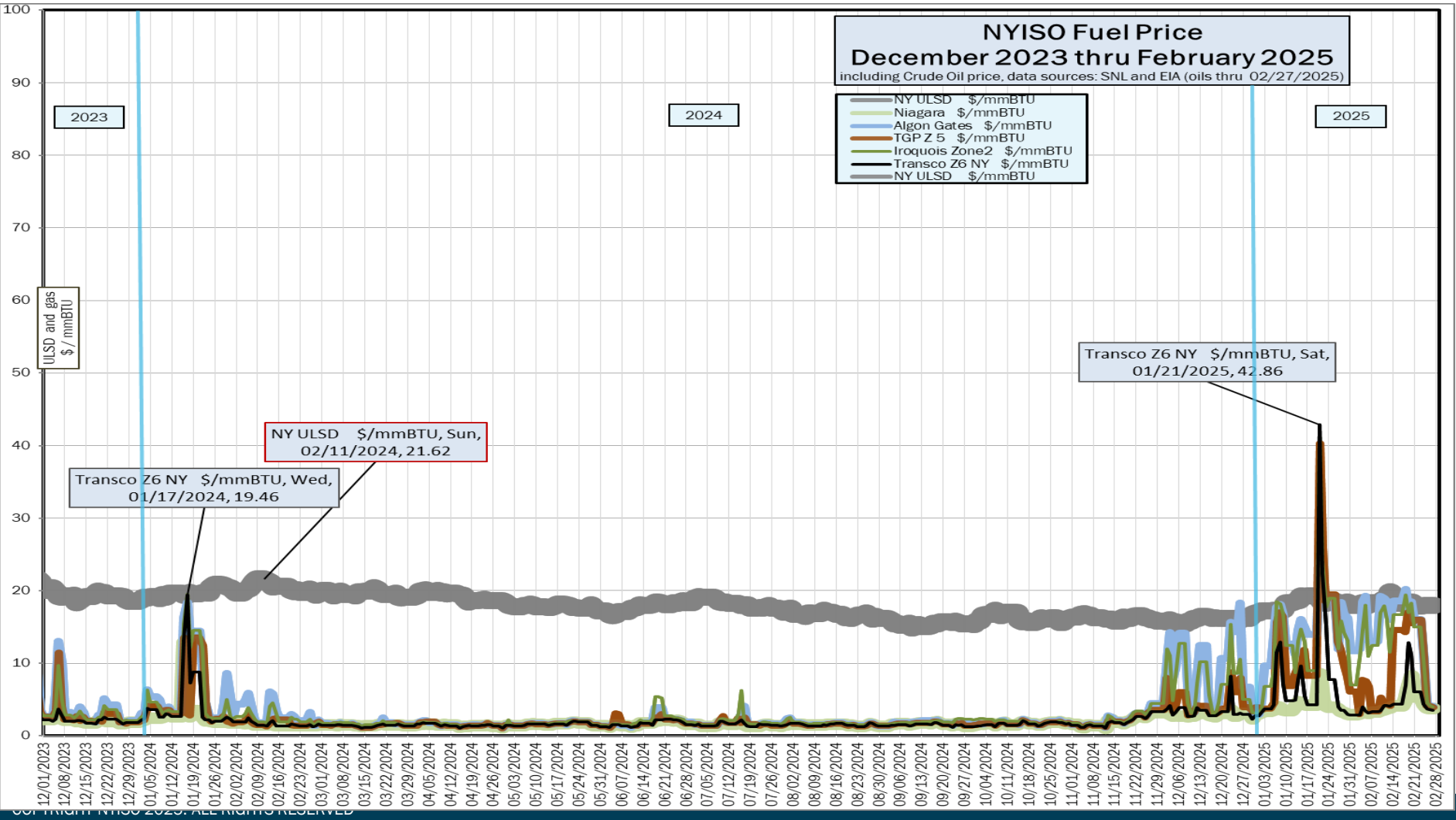
- NY ULSD \$/mmBTU
- Niagara \$/mmBTU
- Algon Gates \$/mmBTU
- TGP Z 5 \$/mmBTU
- Iroquois Zone2 \$/mmBTU
- Transco Z6 NY \$/mmBTU
- Cushing OK Crude Oil \$/bbl



NYISO Fuel Price December 2023 thru February 2025

including Crude Oil price, data sources: SNL and EIA (oils thru 02/27/2025)

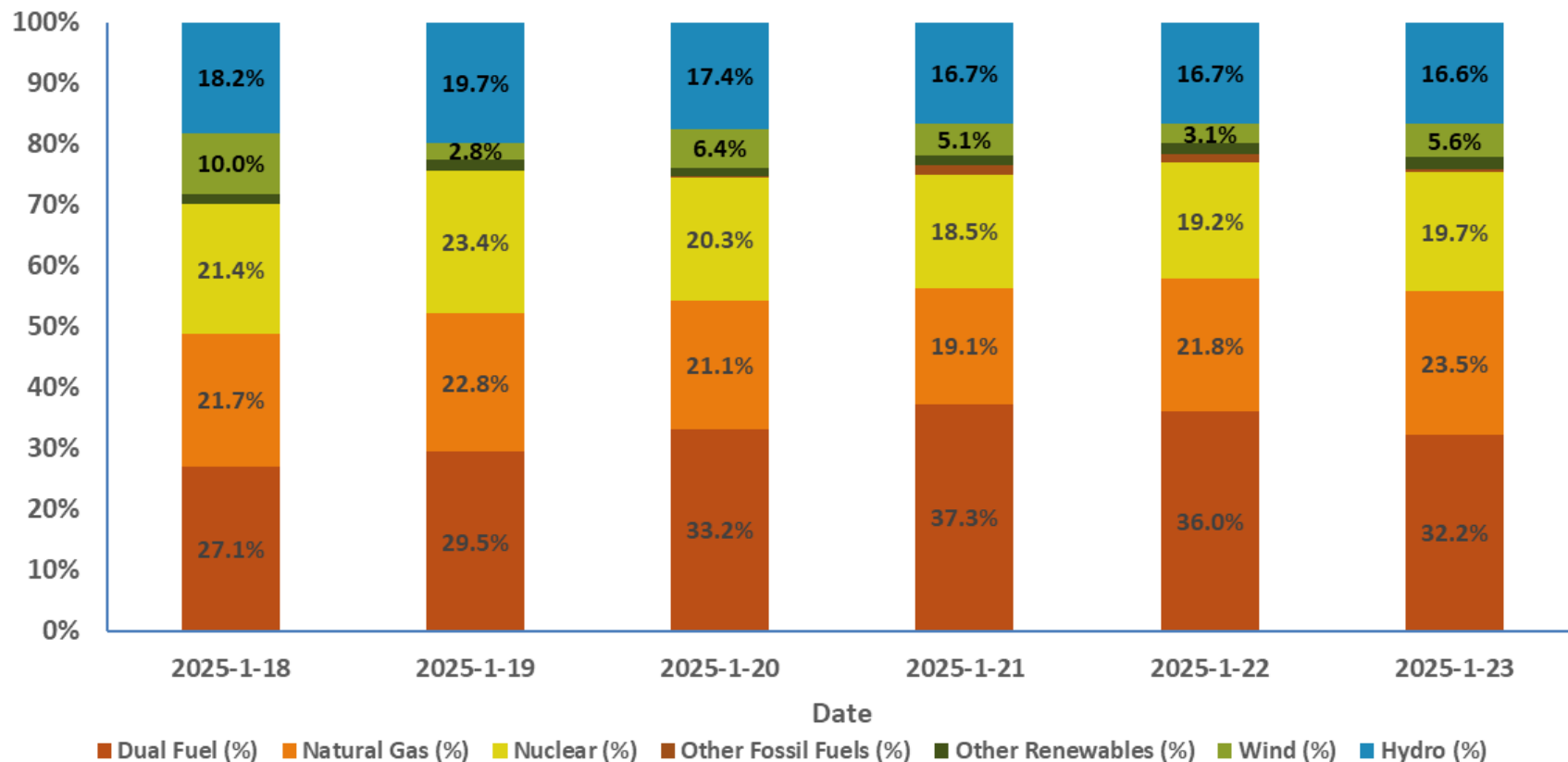
- NY ULSD \$/mmBTU
- Niagara \$/mmBTU
- Algon Gates \$/mmBTU
- TGP Z 5 \$/mmBTU
- Iroquois Zone2 \$/mmBTU
- Transco Z6 NY \$/mmBTU
- NY ULSD \$/mmBTU



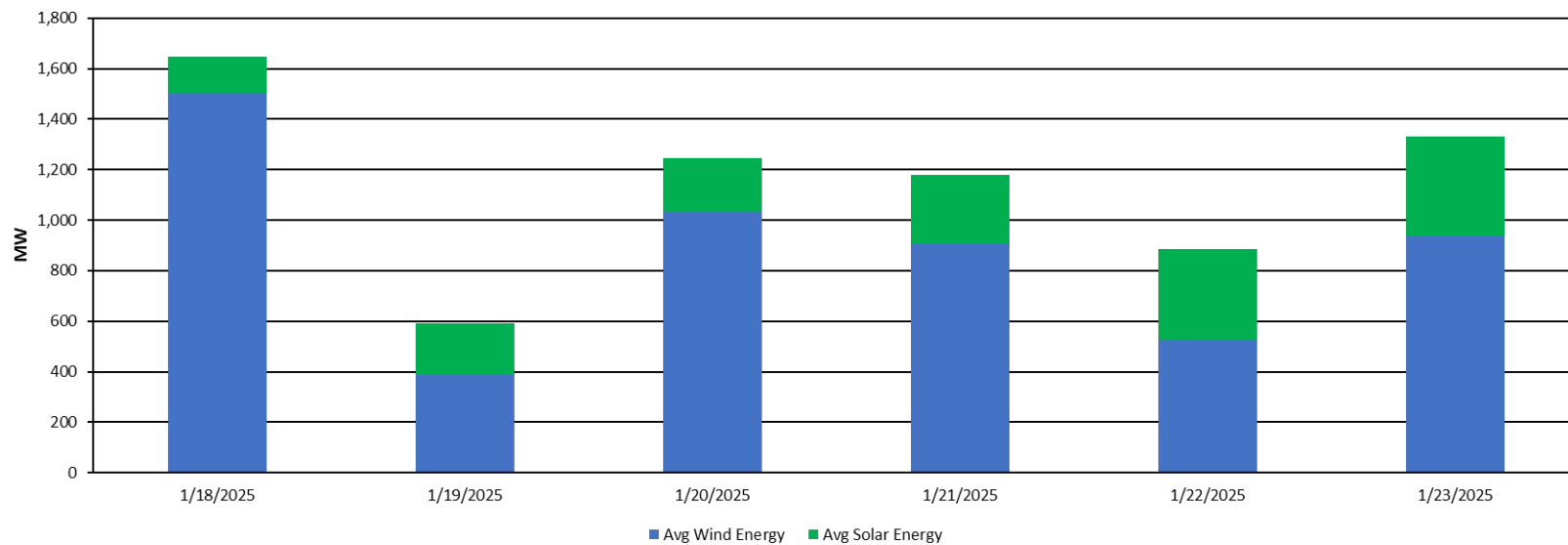
Questions?

Appendix

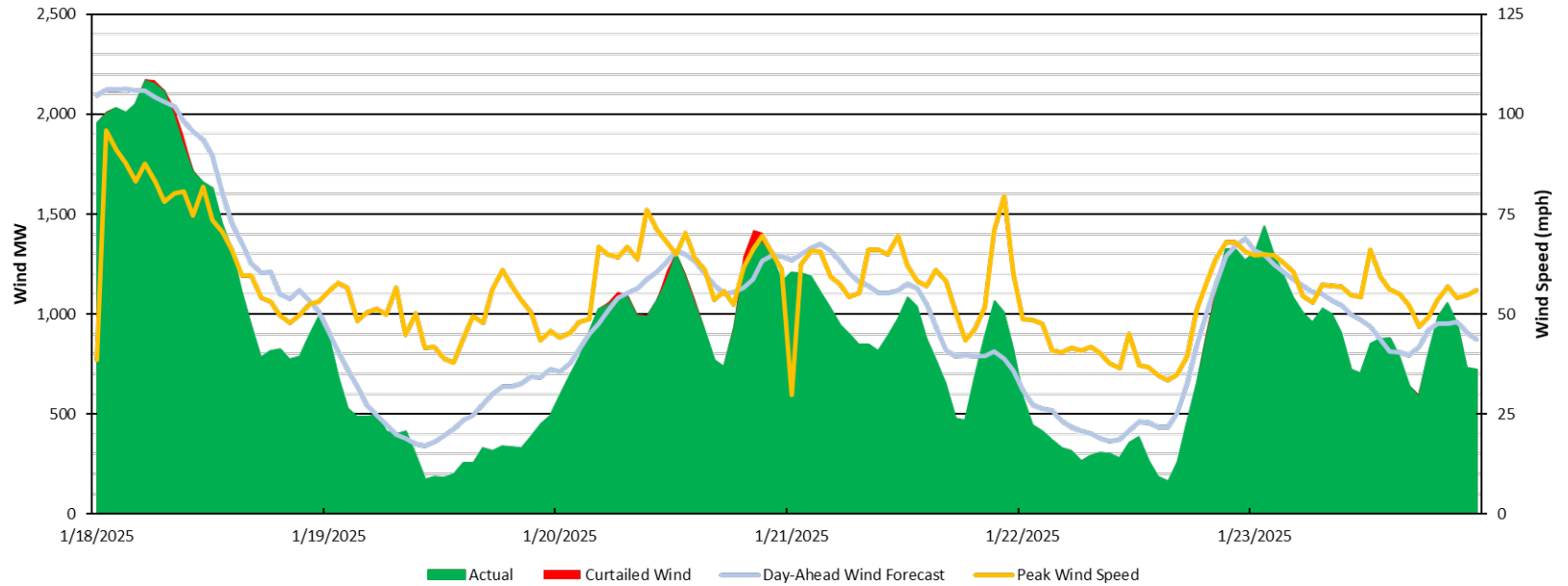
Total Actual Generator by Fuel Mix Across Day



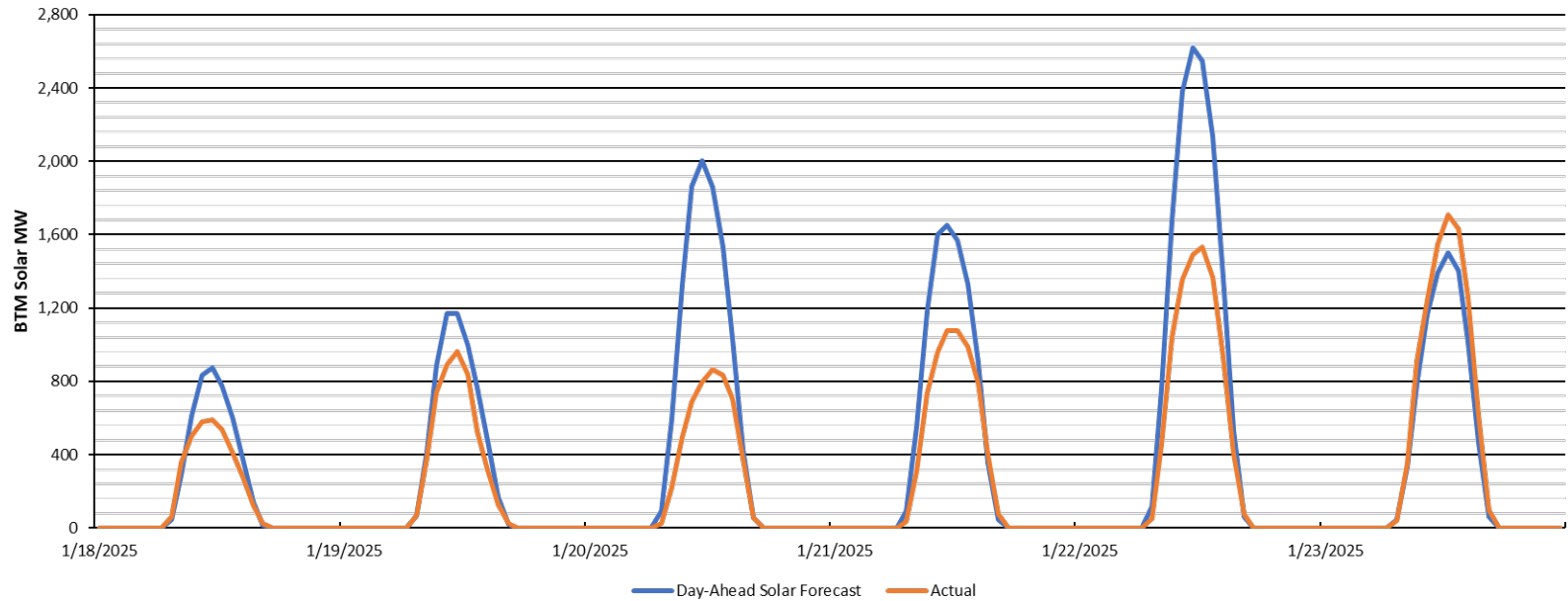
Daily Wind & Solar Production 1/18 - 1/23



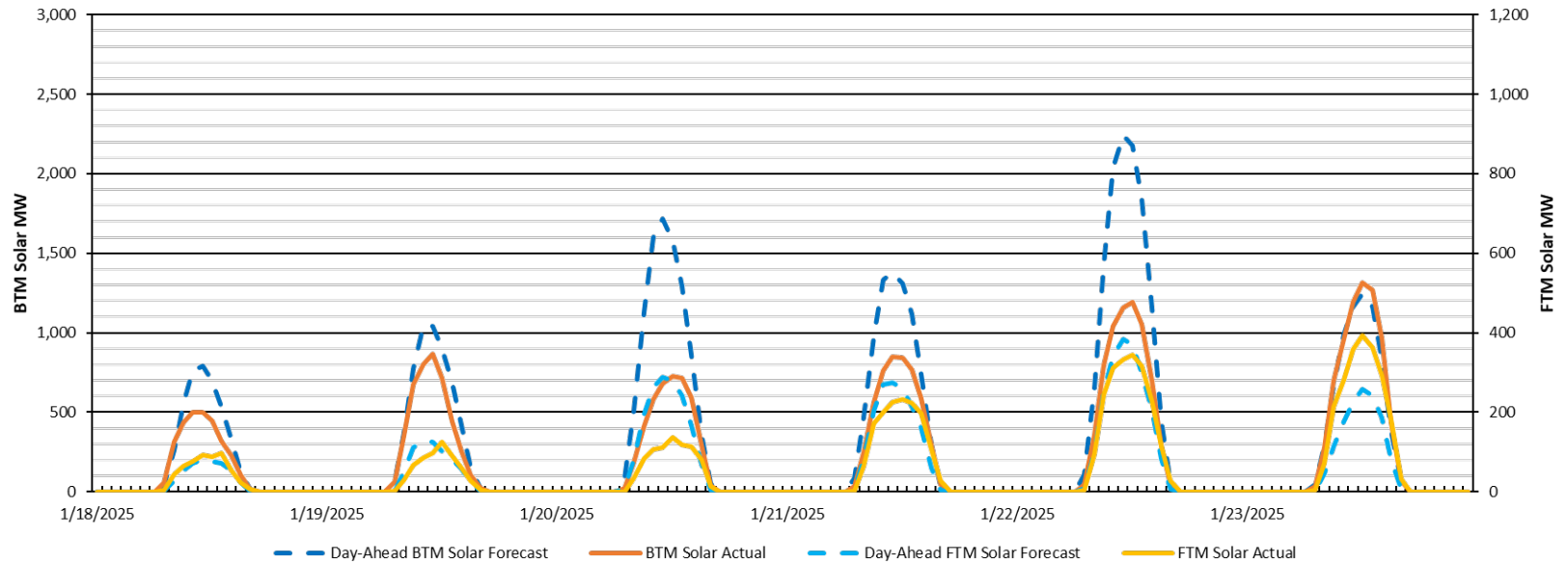
NYCA Wind Profile 1/18 - 1/23



NYCA Solar Profile (~6,106 MW BTM & 571 MW FTM) 1/18 - 1/23



NYCA Solar Profile 1/18 - 1/23
Installed Capacities - Est BTM: ~6,106 MW FTM: 571 MW



Hourly Wind & Solar Production 1/18 - 1/23

