

# Winter 2017-2018

# Cold Weather Operations

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Wes Yeomans  
Vice President, Operations

**NYISO Management Committee**

January 31, 2018, Rensselaer, NY

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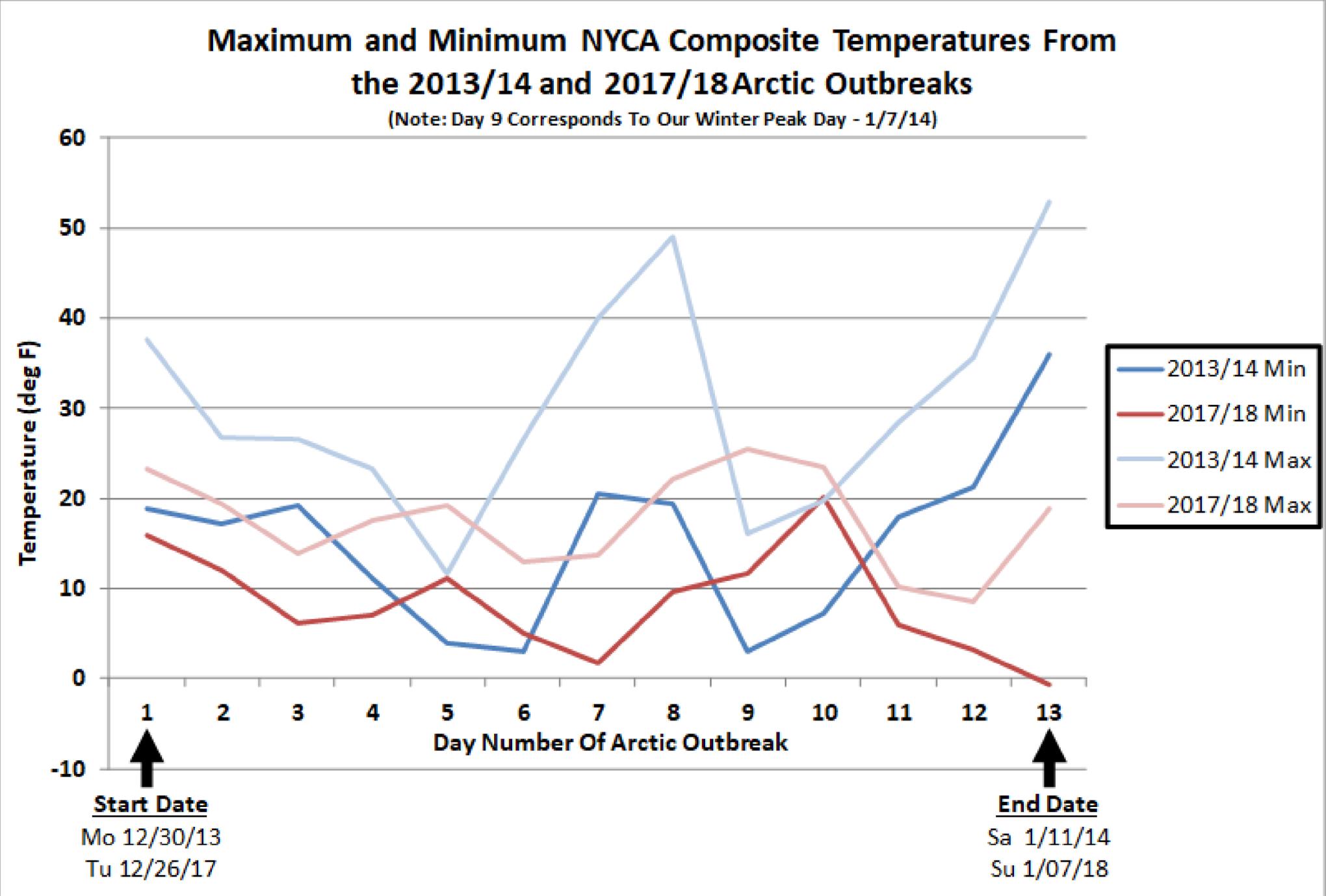
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# Cold Weather Conditions

- **Northeast Cold Snap:** December 26 through until January 7 (13 days)
- **Albany, NY:** Average temperature was 4.5 F between December 27 through January 2 with 7 consecutive days with minimums below 0 F
- **Syracuse, NY:** Coldest start of January in over 100 years with January 1-7 average of 7.3 F
- **New York City:** Temperatures below 32 F for 14 days
- **New England:** Temperatures below 20 degrees for 8 consecutive days
- **Coastal Blizzard:** Entire east coast experienced a Coastal Blizzard which impacted NYC, Long Island, and New England on January 4-6
  - NY: Mostly a snow, wind, and cold event

# Comparative to last Polar Vortex (January 2014)

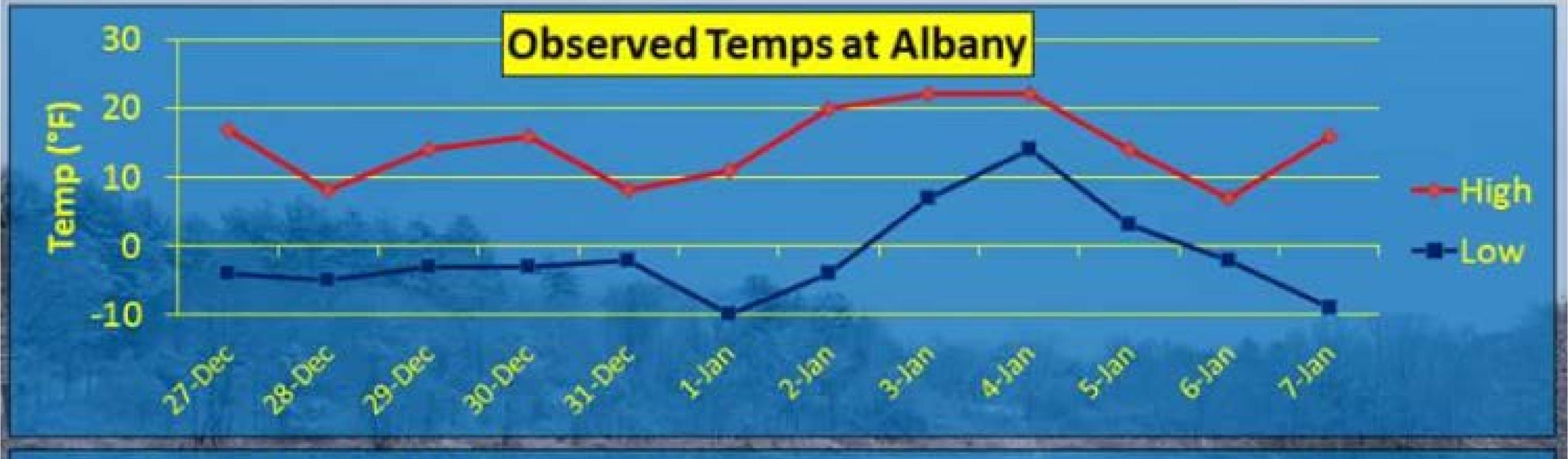


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# Dec. '17–Jan. '18 Cold Stretch at Albany



Source: US National Weather Service Albany NY

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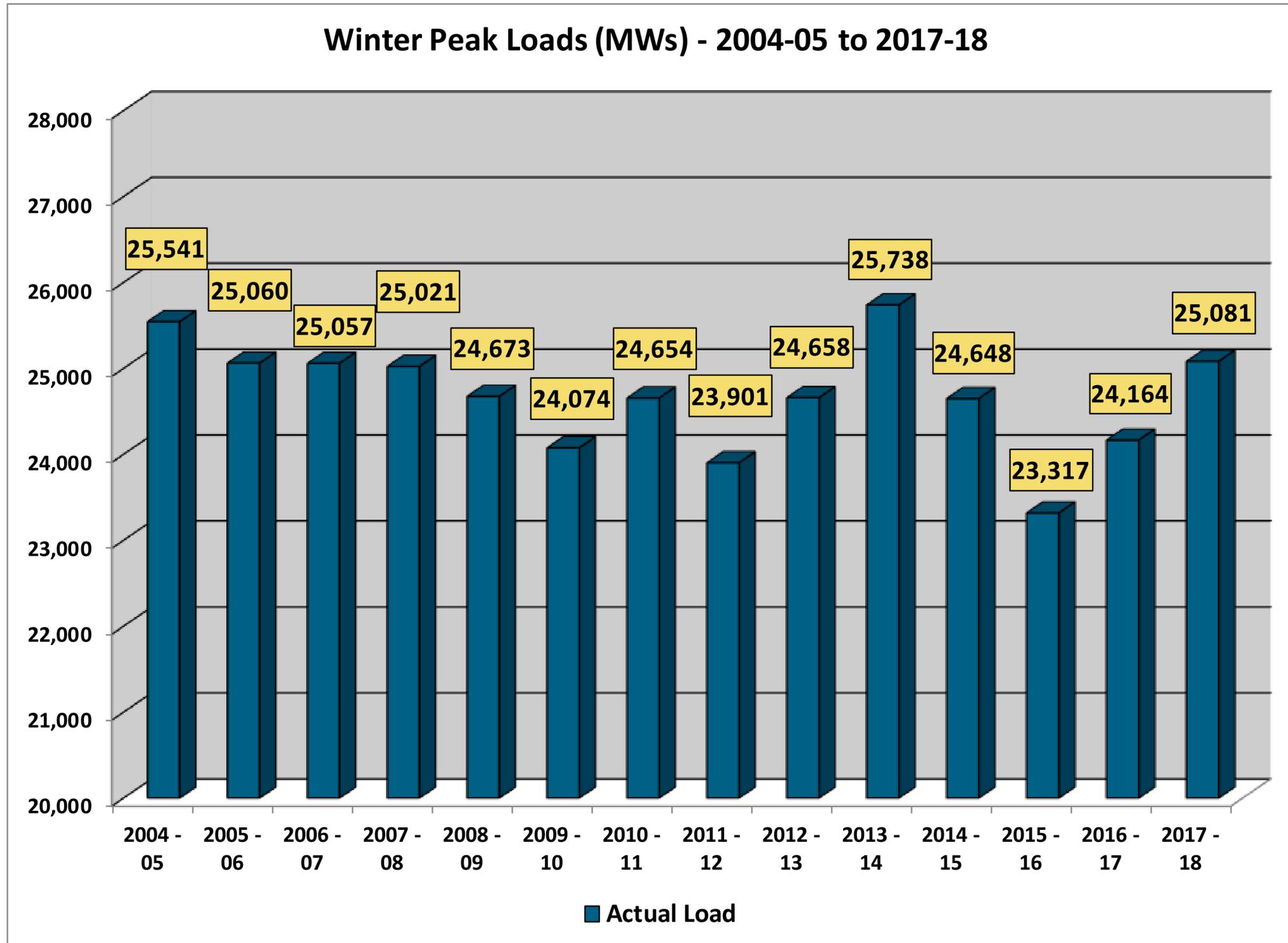


# Peak Loads

- NY all-time Winter Electric Peak Load was 25,738 MW on January 7, 2014
- NYISO Seasonal 50-50 Forecast was 24,365 MW
- This Winter's Actual Peak (so far) is 25,081 MW on Friday, January 5
  - It was colder on January 1 than January 5 but January 1 was a holiday

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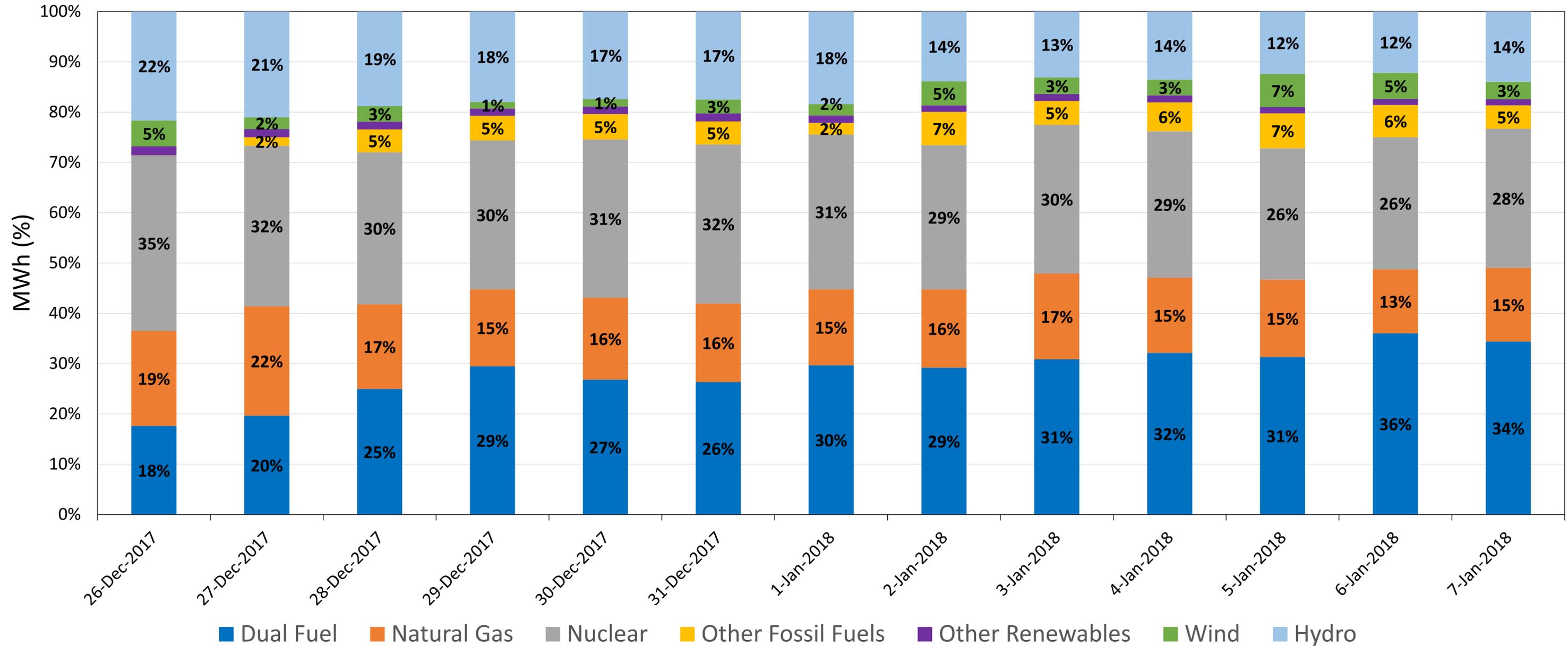
# Winter Peak Loads in MWs 2004 - 2018



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# Total Actual Generation by Fuel Mix Across Day

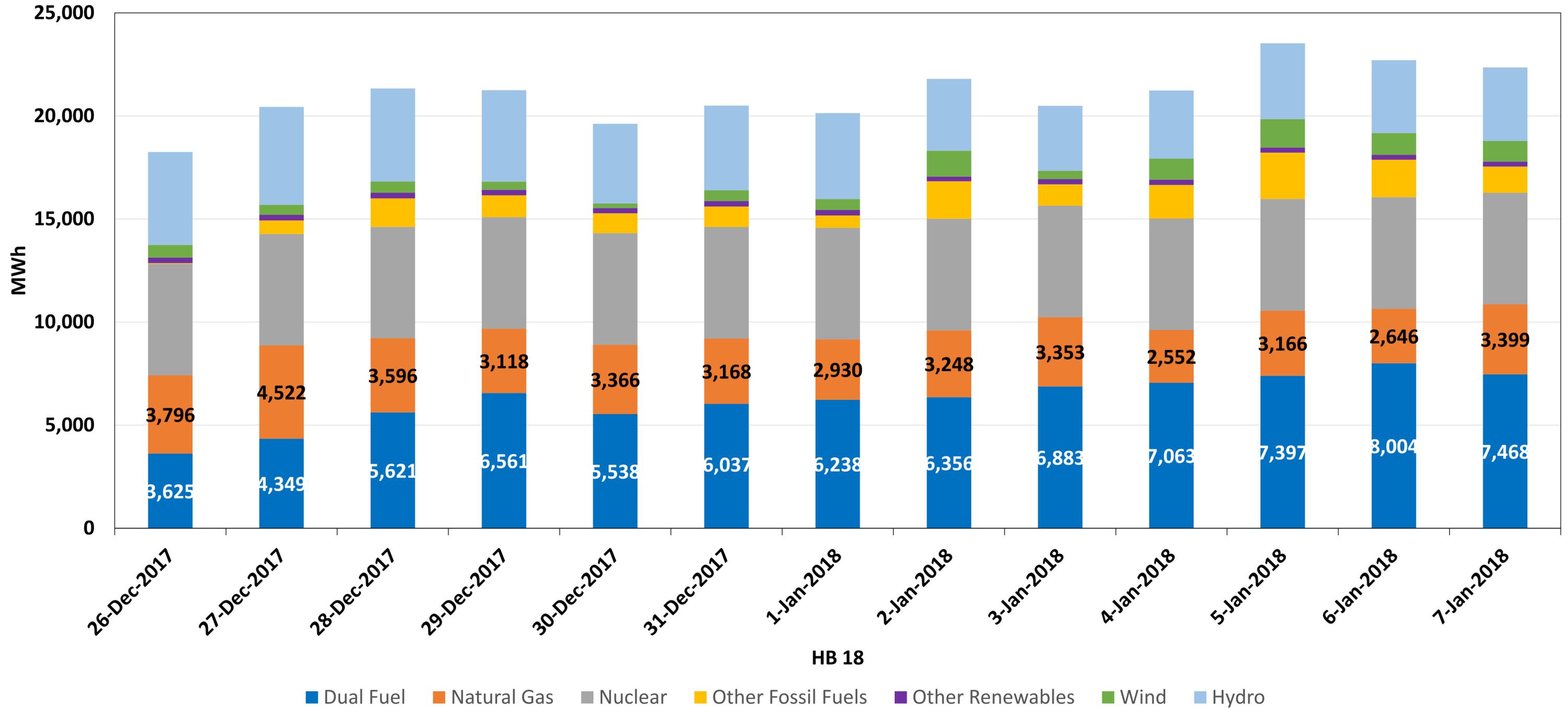


■ Dual Fuel 
 ■ Natural Gas 
 ■ Nuclear 
 ■ Other Fossil Fuels 
 ■ Other Renewables 
 ■ Wind 
 ■ Hydro



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## Total Actual Generation by Fuel Mix- During Peak Hours



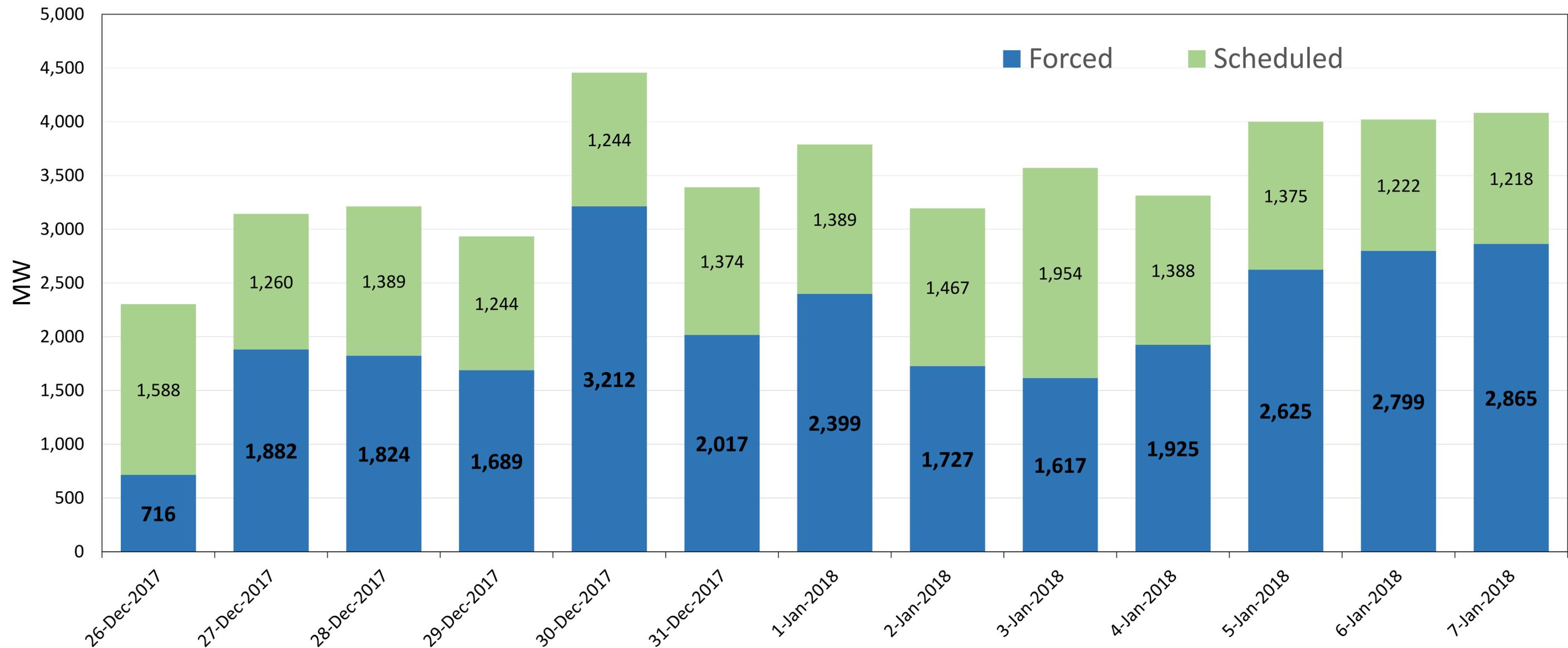
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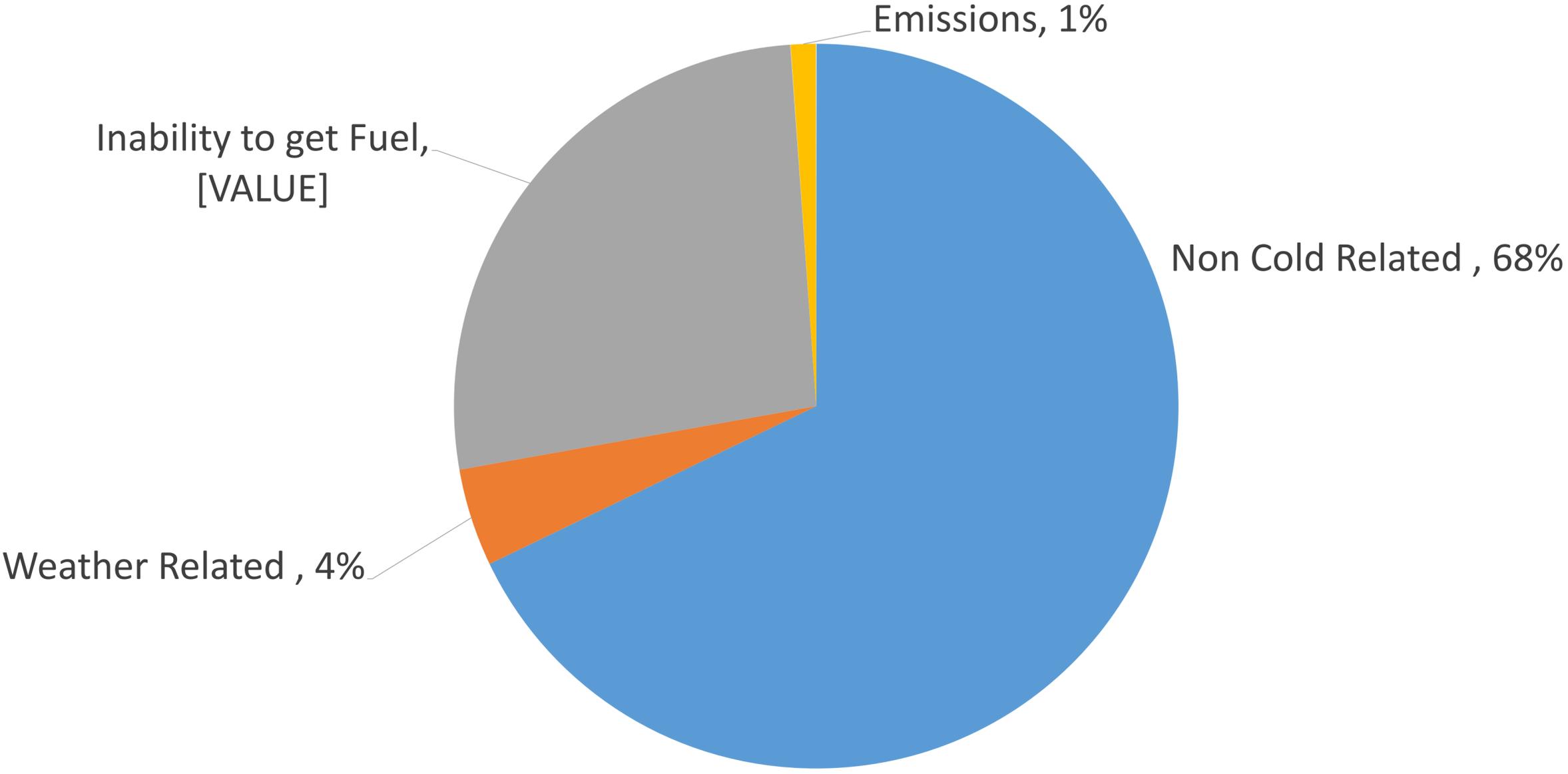
# Outages by Type - Over Peak Hours



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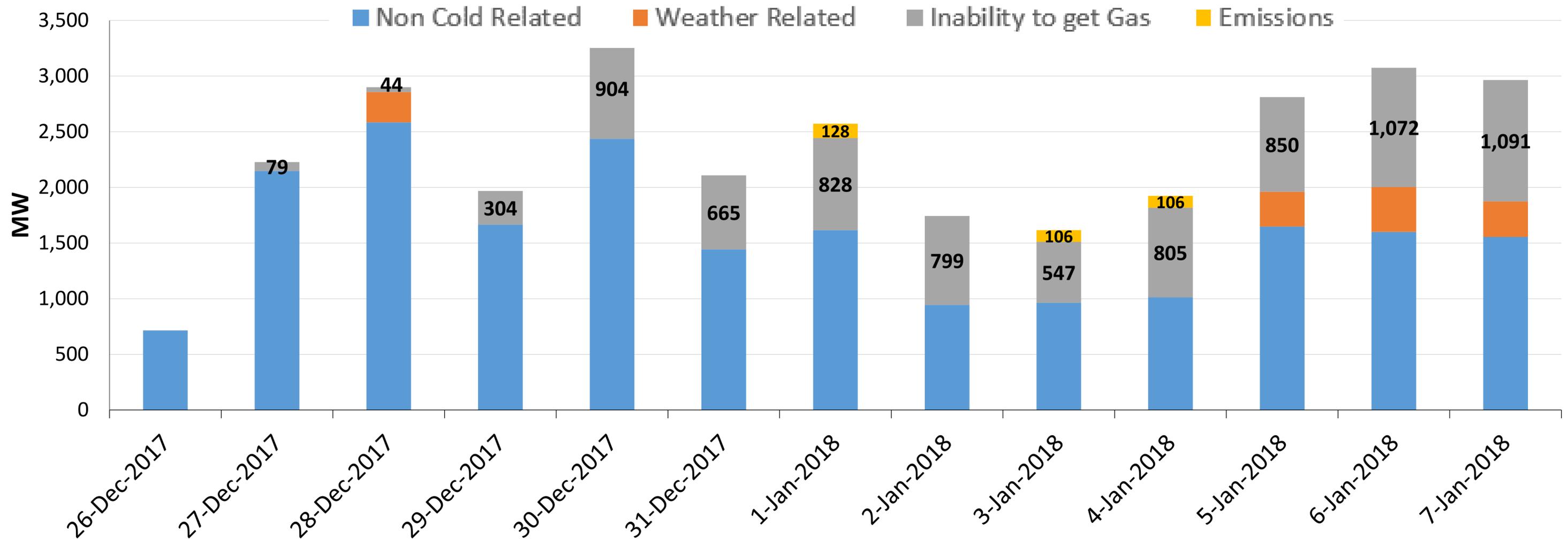
# Overall Distribution of Thermal and Hydro Forced Outages and Derates for 13 Days over Peak Hours



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# Thermal and Hydro Forced Outages and Forced Derates by Categories



In the December 21, 2017 Management Committee presentation, "Winter 2018 Capacity Assessment Winter Preparedness" based on 60 months of history the projection was 3,373 MW of Hydro and Thermal Forced outages



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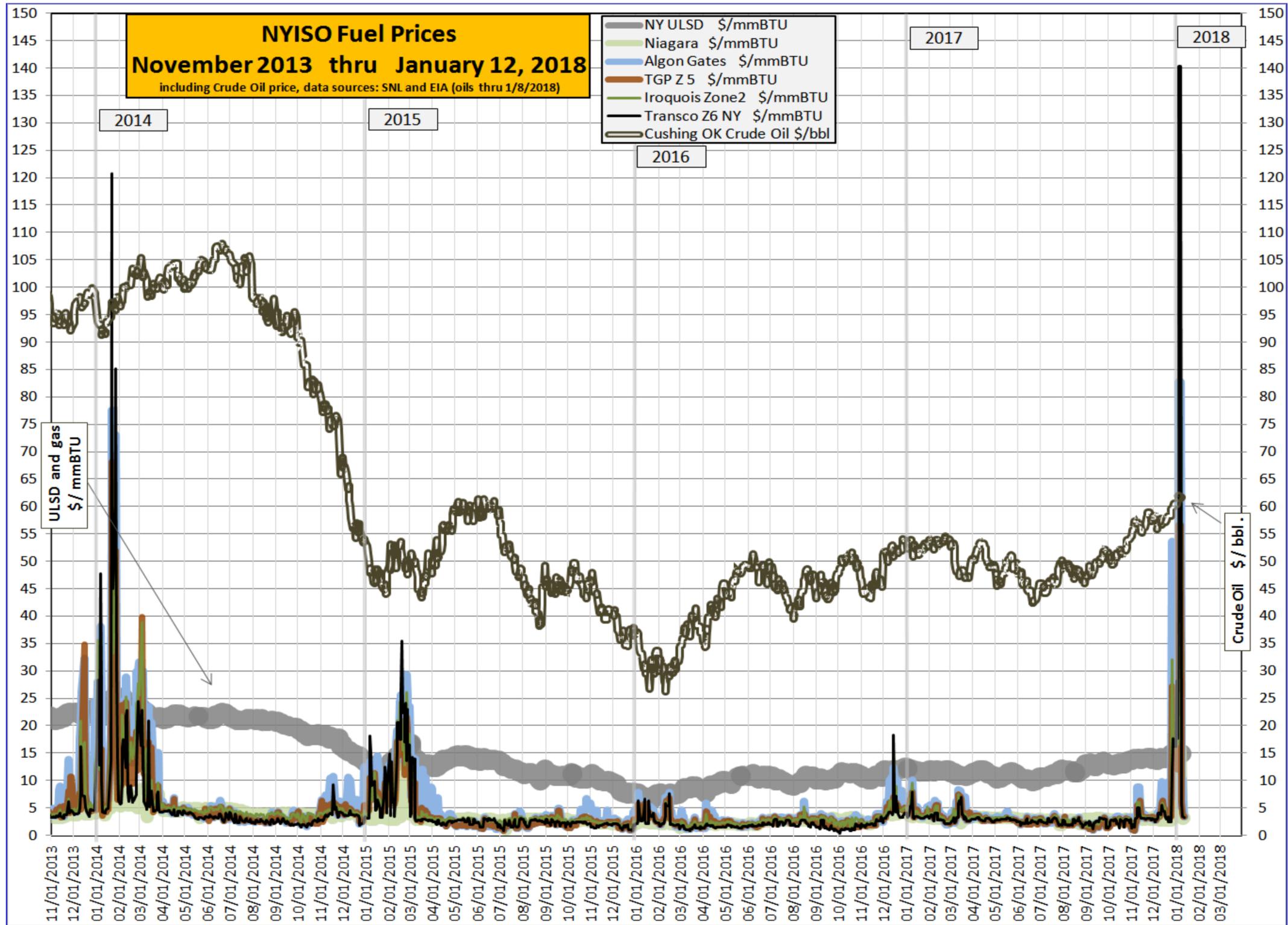
# Other Regions Reliability & Markets

- **NYISO: Operations participated in conference calls with NPCC and gas pipelines**
- **Hydro-Quebec : Recorded a new all-time peak of 39,710 MW on January 6**

# Transmission

- **Transmission Infrastructure Performance - Excellent**
- **Transmission Owners rescheduled transmission maintenance outages to time periods after the cold snap**
- **The two Ramapo PARs had positive impacts – full utilization of 500 kV #5018**
- **Central East was the primary binding constraints**
- **NYISO initiated a few NERC TLR-3 alerts**

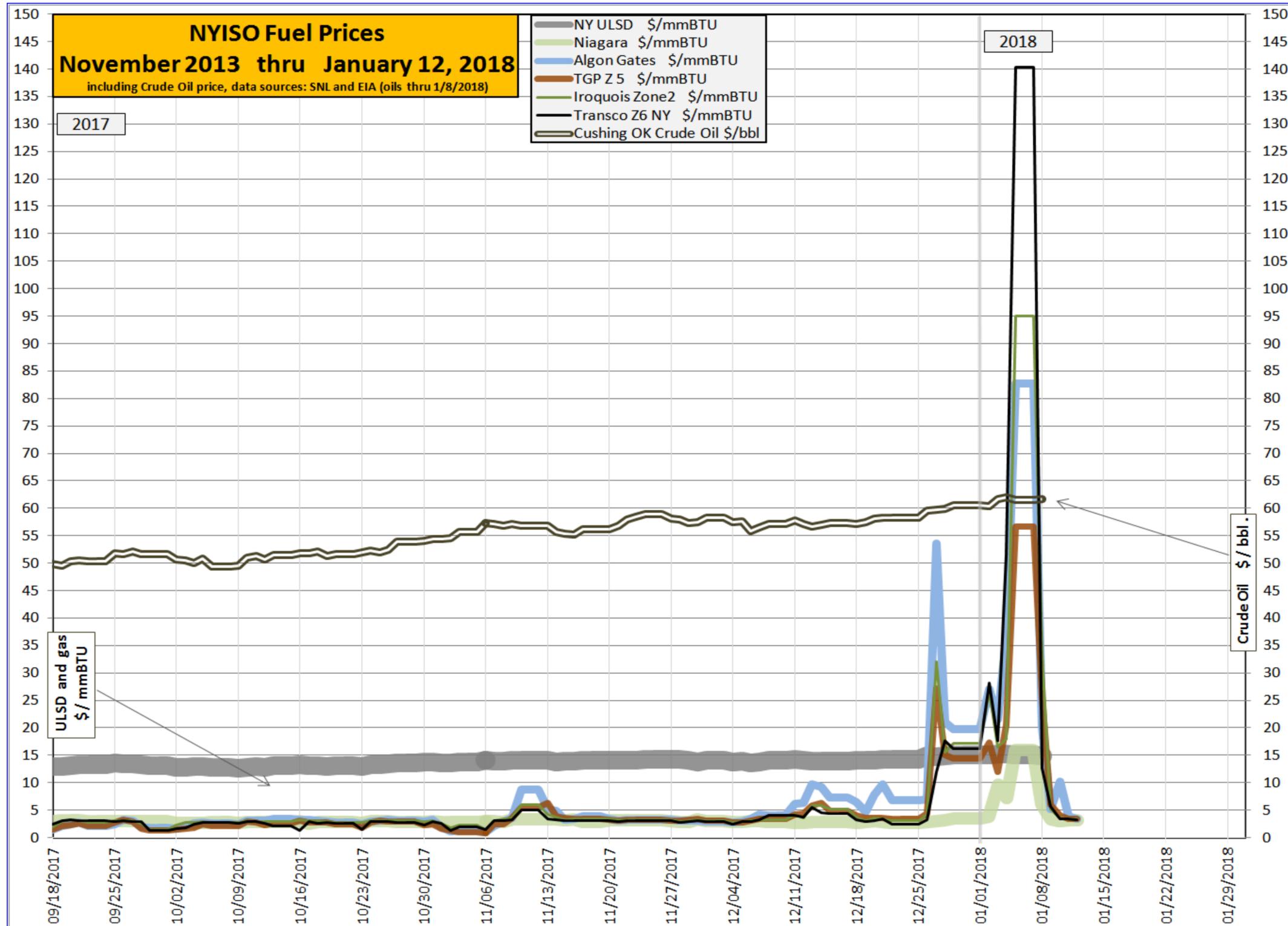
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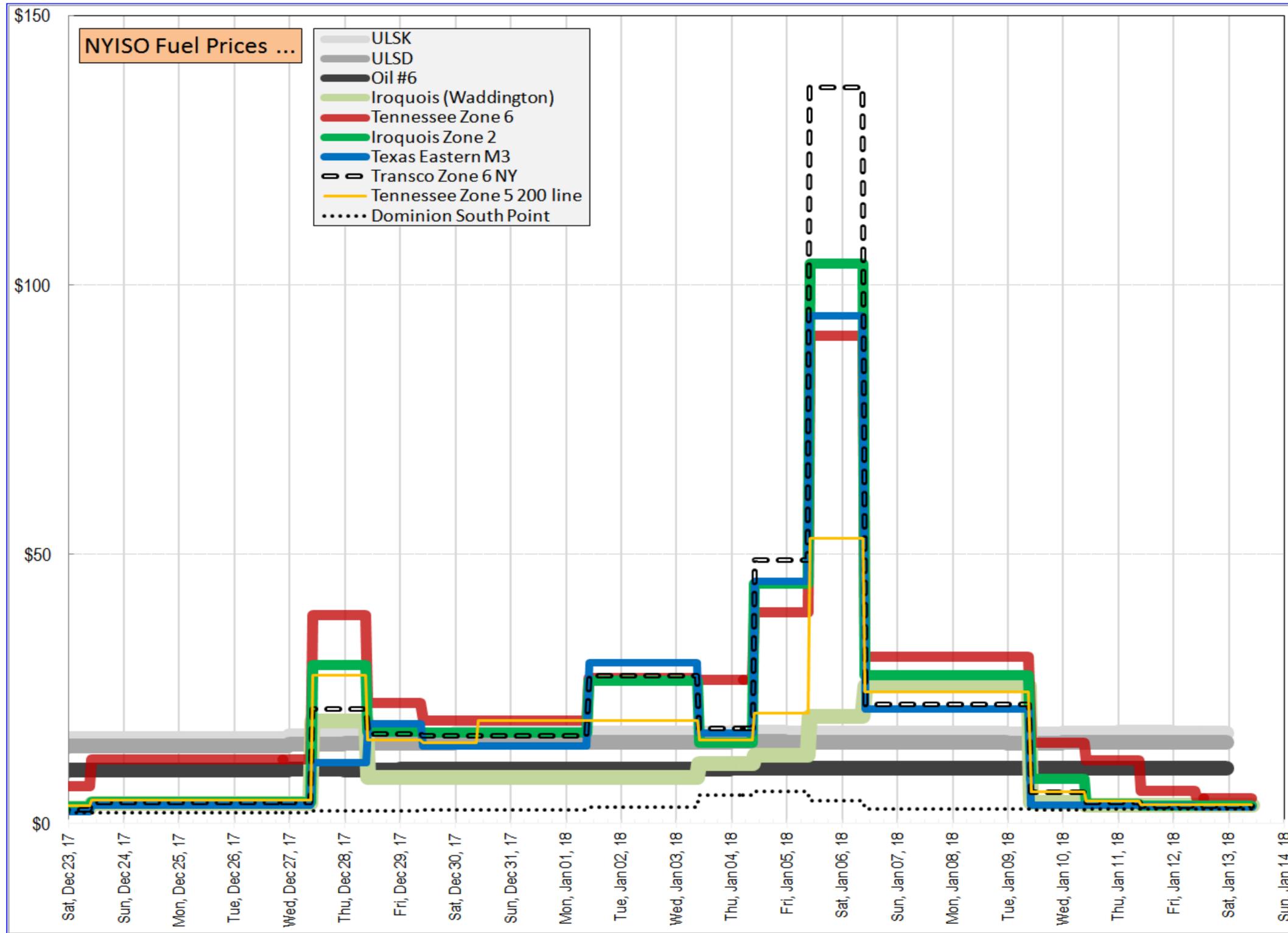




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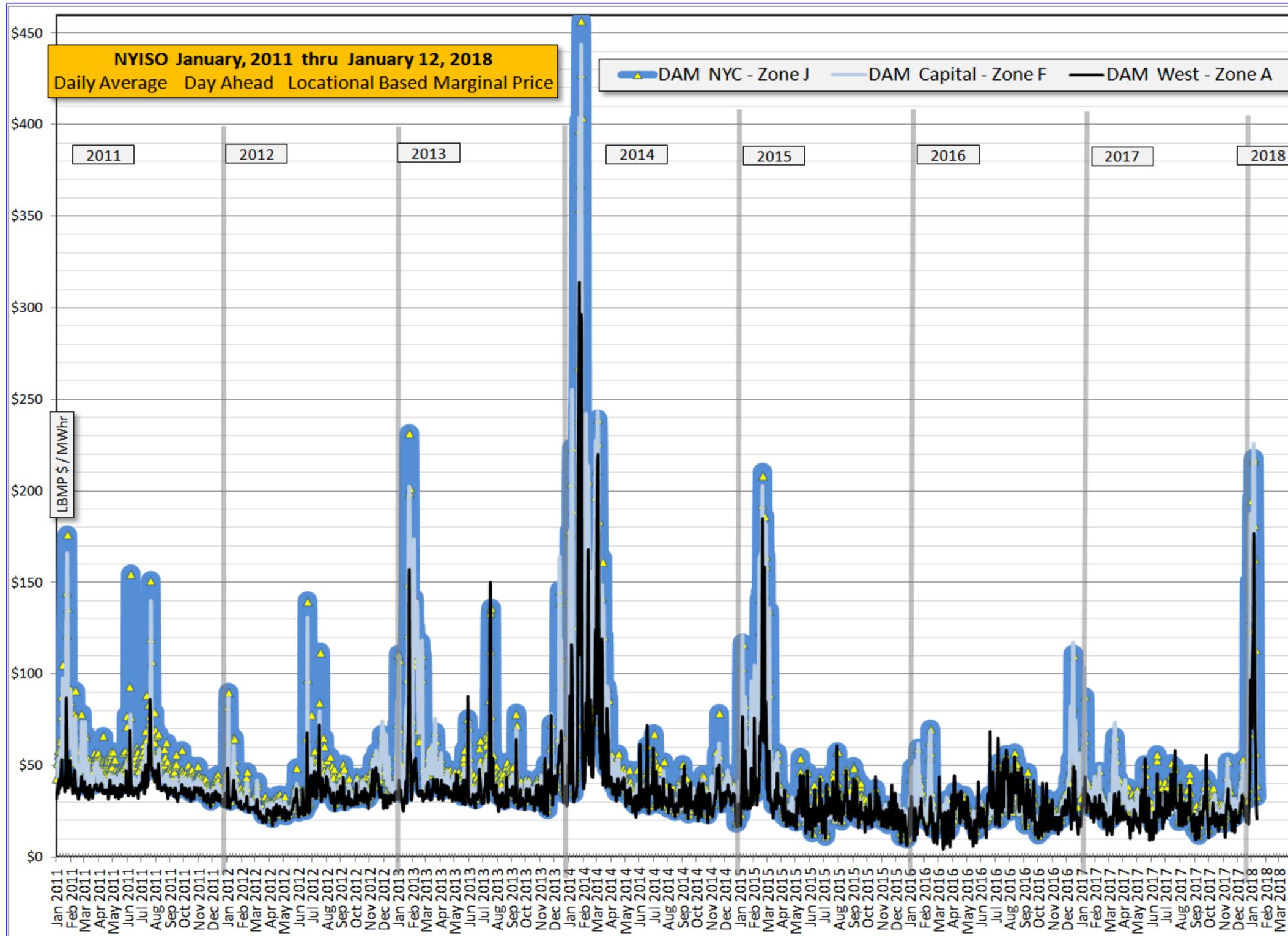




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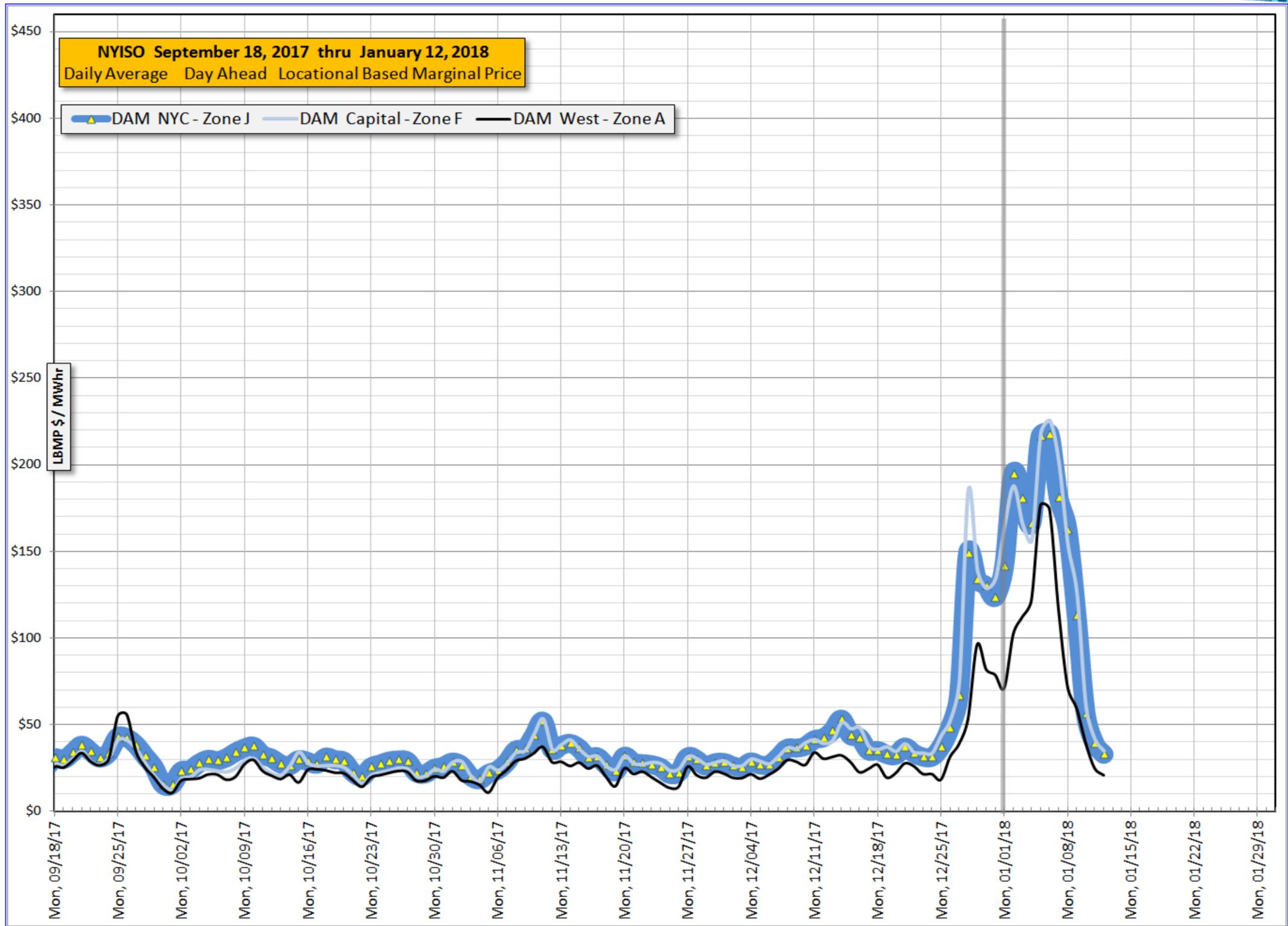




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# Winter 2017-18 Observations

(for the period 12/26/2017 through 01/07/2018)

- **Cold Snap 2017-2018**
  - Characterized by many days of gas prices exceeding oil prices
  
- **Natural gas prices (as indexed at Transco Zone 6 for NYC area) averaged \$47.34/MMBTU during 13-day cold snap**
  - 1,374% increase over December 2017 (for the period 12/01/2017 thru 12/25/2017) average of \$3.45/MMBTU
  
- **Load weighted electric LBMP \$135.96/MWh during 13-day cold snap**
  - 297% increase over December 2017 (for the period 12/01/2017 thru 12/25/2017) average of \$34.27/MWh
  
- **Electrical marginal energy prices did not increase as much as the gas prices primarily because the NYISO market systems selected lower-cost resources – primarily dual-fuel units capable of operating on lower cost oil**

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# Waiver Request to FERC for Cost Recovery

- On January 4, 2018, the NYISO filed for a waiver with FERC to allow compensation for generator incremental energy costs and minimum generation costs in excess of \$1000/MWh
  - The requested waiver period was January 6 to February 28
- FERC granted the waiver request on January 12, 2018
- As of January 24, 2018 the NYISO has not received any such cost recovery requests

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# Gas System

- **The interstate and gas LDC pipelines all remained in-service**
- **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)

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# Operations

- **Ad Hoc Fuel Surveys**
- **No Need for Demand Response**
- **State Agencies Communications**
  - NY Governor press release on January 4, 2018 regarding coastal Blizzard
  - NYISO participation in a few NY State Agency conference calls per our State Agency Winter Communication Protocol
- **NYISO Press WebEx**
  - NYISO hosted a “Winter Operations Media Briefing” on January 4, 2018

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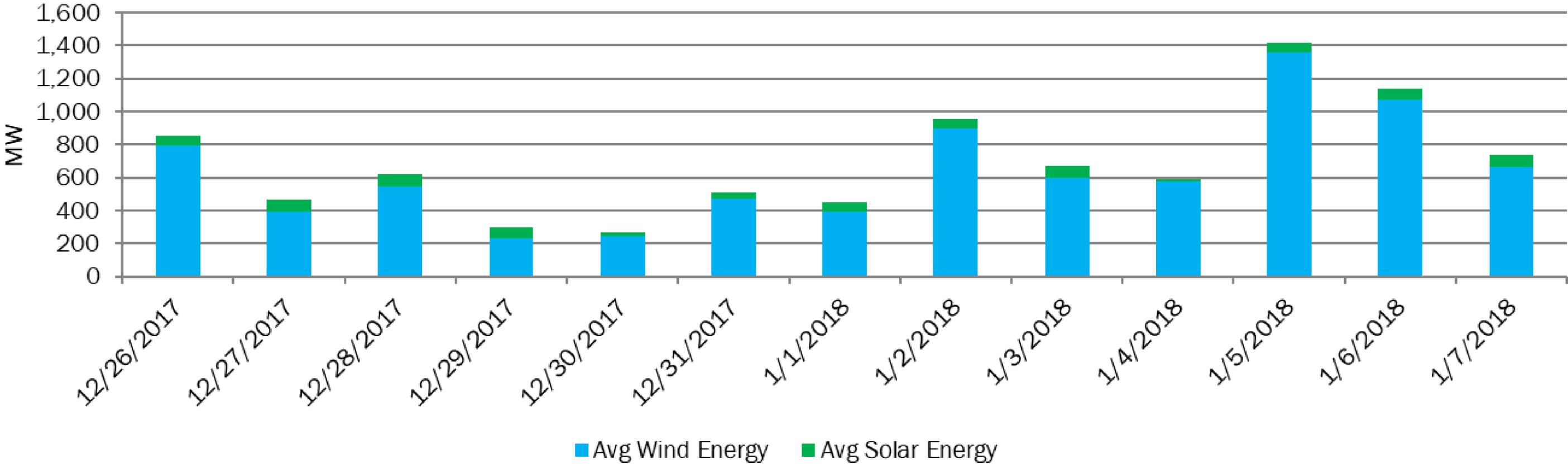
# Fuel Monitoring

- **Weekly Surveys**
- **Ad Hoc Surveys**
- **Reach-out to a few for more specific information**
- **Cooperation and Accuracy of the Web Based Fuel Survey Application was excellent**

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# Renewable Generator Performance

## Daily Wind & Solar Production during the Cold Snap

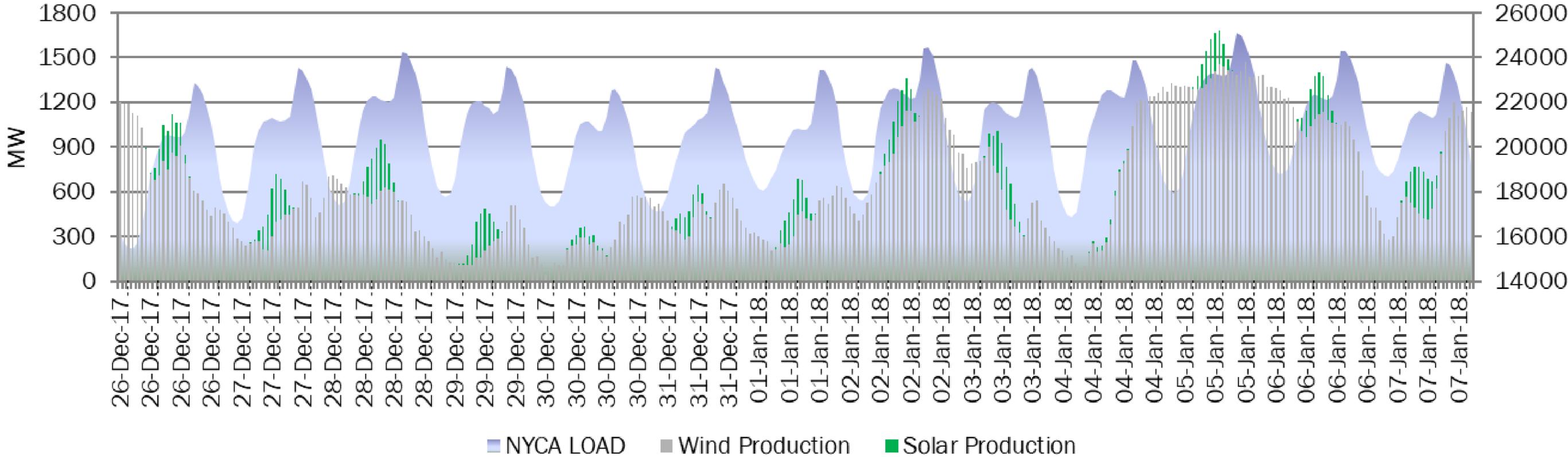


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# Renewable Generator Performance

## Hourly Wind & Solar Production during the Cold Snap



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# The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system

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