Winter 2019-20 Capacity Assessment Winter Preparedness

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2019-20 Winter Capacity Assessment

For projected baseline forecast peak conditions and expected performance of the transmission system, generation, and pipeline infrastructure the NYISO expects to meet reliability criteria throughout Winter 2019-20

NYISO Base-Case Analysis

- 10,900 MW Projected capacity margin for 50-50 peak winter conditions
- 9,299 MW Projected capacity margin for 90-10 peak winter conditions

NYISO Natural Gas Supply Limitations Scenarios

- 2,156 MW Projected capacity margin for 90-10 peak winter conditions and loss of all gas supplies
- 4,067 MW Projected capacity margin for 90-10 peak winter conditions and retain only units with firm gas supplies

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2018-19 & 2019-20 Winter Capacity Assessment & Comparison

Line	Item	2018-19 Baseline Forecast	2018-19 90th Percentile Forecast	2019-20 Baseline Forecast	2019-20 90th Percentile Forecast
1a	Winter Generation Capacity[1]	41,539	41,539	41,815	41,815
1b	SCR - ICAP Values	884	884	853	853
1c	Net Purchases & Sales	1,519	1,519	678	678
1	**Total Capacity Resources**	**43,943**	**43,943**	**43,346**	**43,346**
2	Assumed Unavailable Capacity (Gen + SCR)	-5,618	-5,618	-5,703	-5,703
3 = 1 + 2	**Net Capacity Resources**	**38,325**	**38,325**	**37,643**	**37,643**
4	Peak Load Forecast	24,269	25,884	24,123	25,724
5	Operating Reserve Requirement	2,620	2,620	2,620	2,620
6 = 4+5	**Total Capacity Requirement**	**26,889**	**28,504**	**26,743**	**28,344**
7 = 3 - 6	**Capacity Margin**	**11,436**	**9,821**	**10,900**	**9,299**

1. Reflects the 2019 Gold Book existing capacity with projected and actual deactivations, additions and DMNC updates during 2019
2. Derates: 1,267 MW for wind, 364 MW for Hydro, 2,679 MW for thermal units, 64 MW for other renewables and 271 MW for SCRs

During last year's January 21, 2019 Winter Peak Load:

- Actual peak load was 24,728 MW. Weather-adjusted peak was 24,114 MW
- The all-time winter peak was 25,738 MW, set on January 7, 2014

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2019-20 Winter Capacity Assessment - Loss of Gas

Line	Item	Baseline Forecast	90th Percentile Forecast
1a	Installed Capacity Resources	41,815	41,815
1b	SCR - ICAP Values	853	853
1c	Net ICAP External Imports	678	678
1	NYCA Resource Capability	**43,346**	**43,346**
2	Total Projected Capacity Outages	-5,703	-5,703
3 = (1-2)	Net Installed Capacity Resources	**37,643**	**37,643**
4	Load Forecast	24,123	25,724
5	Operating Reserve Requirement	2,620	2,620
6 = (3-4-5)	Capacity Margin	**10,900**	**9,299**
7a	Subtract All Gas Only Units	7,143	7,143
7 = (6-7a)	Capacity Margin, Loss of Gas	3,757	2,156
8a	Add Back Units with Firm Gas Contracts	1,911	1,911
8 = (7-8a)	Expected Capacity, Loss of Gas Case	5,668	4,067

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Capacity & Infrastructure Updates

- **Generation (Nameplate Changes Relative to Last Year)**
  - +446 MW Rescinded Retirement Notices: Selkirk
  - +158 MW Expected Generation Additions: Arkwright Wind, Copenhagen Wind
  - - 155 MW Expected Retirement: Cayuga 1
  - - 35 MW Retirements: various small gens <17 MW each
  - - 138 MW DMNC adjustments
- **Transmission (Continuing Forced Outages)**
  - B and C Lines from NJ to NYC, Hudson Farragut 345 kV B3402 and Marion Farragut 345 kV C3403, out-of-service
  - One Phase Angle Regulator (PAR) at the Ontario border, L33P St. Lawrence – Moses, out-of-service

Winter 2019-20 Preparedness

- Seasonal generator fuel surveys indicate oil-burning units have sufficient start-of-winter oil inventories along with arrangements for replacement fuel
- The NYISO has performed on-site visits of generating stations to discuss past winter operations and preparations for upcoming winter, including:
  - Generation testing
  - Cold-weather preventative maintenance
  - Fuel capabilities, and
  - Fuel switching capabilities
- Existing Minimum Oil Burn procedures defined by the New York State Reliability Council (NYSRC) establish fuel switching requirements at certain cold weather thresholds to secure electric reliability for NYC LDC gas pipeline contingencies
- NYISO coordination of all requests for transmission and generator outages to alleviate potential impact on power system reliability

Continued Winter Challenges

- **Gas Availability** | Gas LDC retail load has gas transportation priority over electric power generation
- **Extended Cold Weather Conditions** | Burn rates of alternative fuels can exceed replacement rates of alternative fuels during extended cold weather
- **Emissions challenges to dual fuel capability** | Burning oil may be further restricted by reduced emission limits
- **New gas pipeline siting remains challenging**

Appendix
Winter 2018-19

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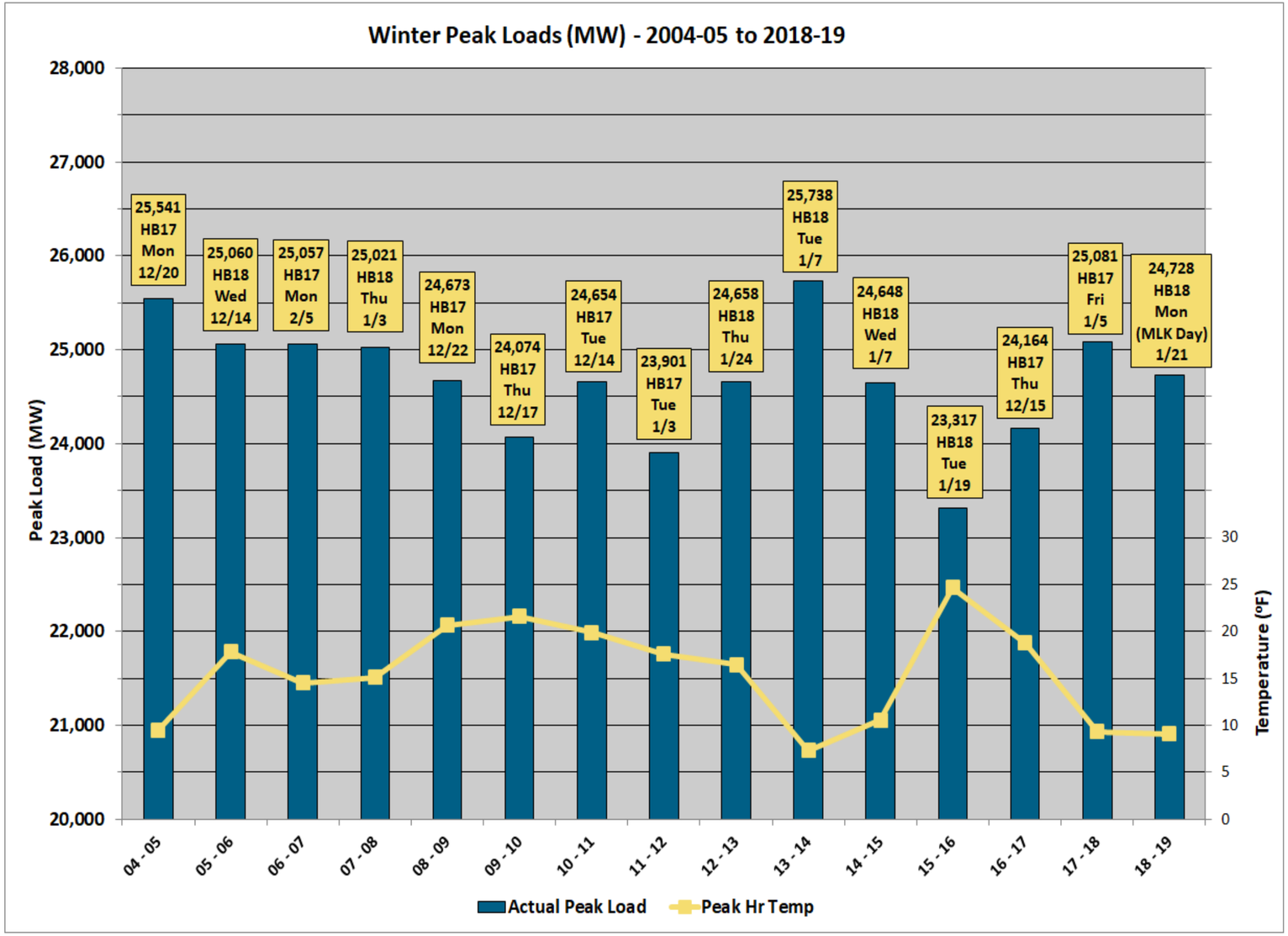
Last Winter: 2018-19 Cold Weather Conditions

- **Two noteworthy periods of Cold Weather Conditions occurred**
  - 1/19/19 – 1/22/19
  - 1/30/19 – 2/2/19
- **Forecasted cold weather and winter storms led to coordination with TOs, neighboring ISOs, and NPCC resulting in transmission recalls**
- **NYISO fuel surveys indicated sufficient alternate fuel inventory**
- **Restrictive OFO's were in place by Con Ed and National Grid LDC's**
- **Record natural gas consumption in the United States as well as many NY LDCs and pipelines**

Historic Winter Peaks 2004-2019



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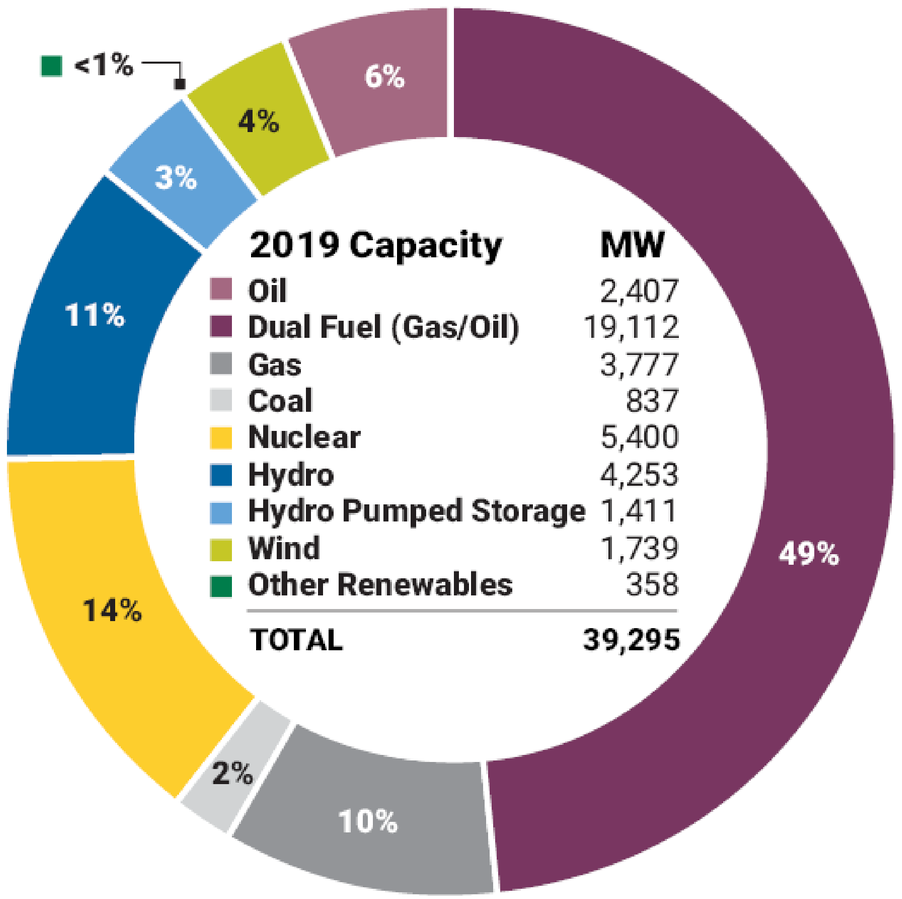
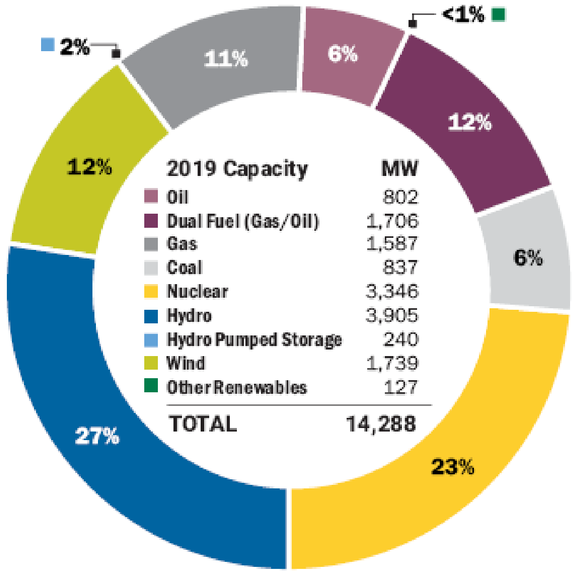
Fuel Mix – Generating Capacity

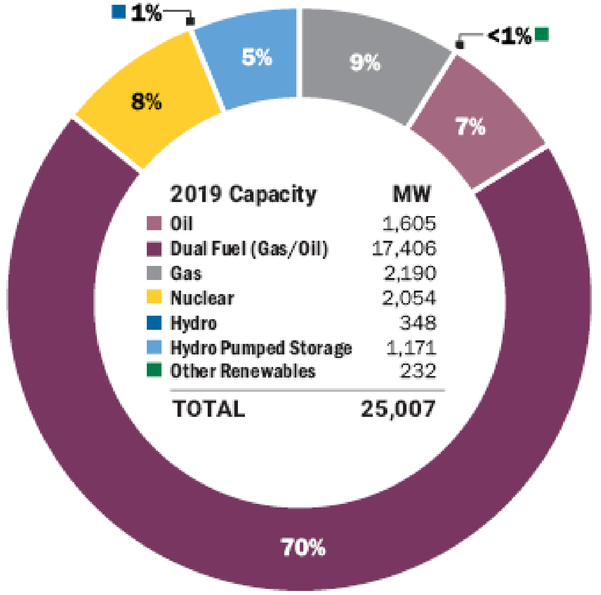
New York Statewide Generating Capacity by Fuel Source: 2019



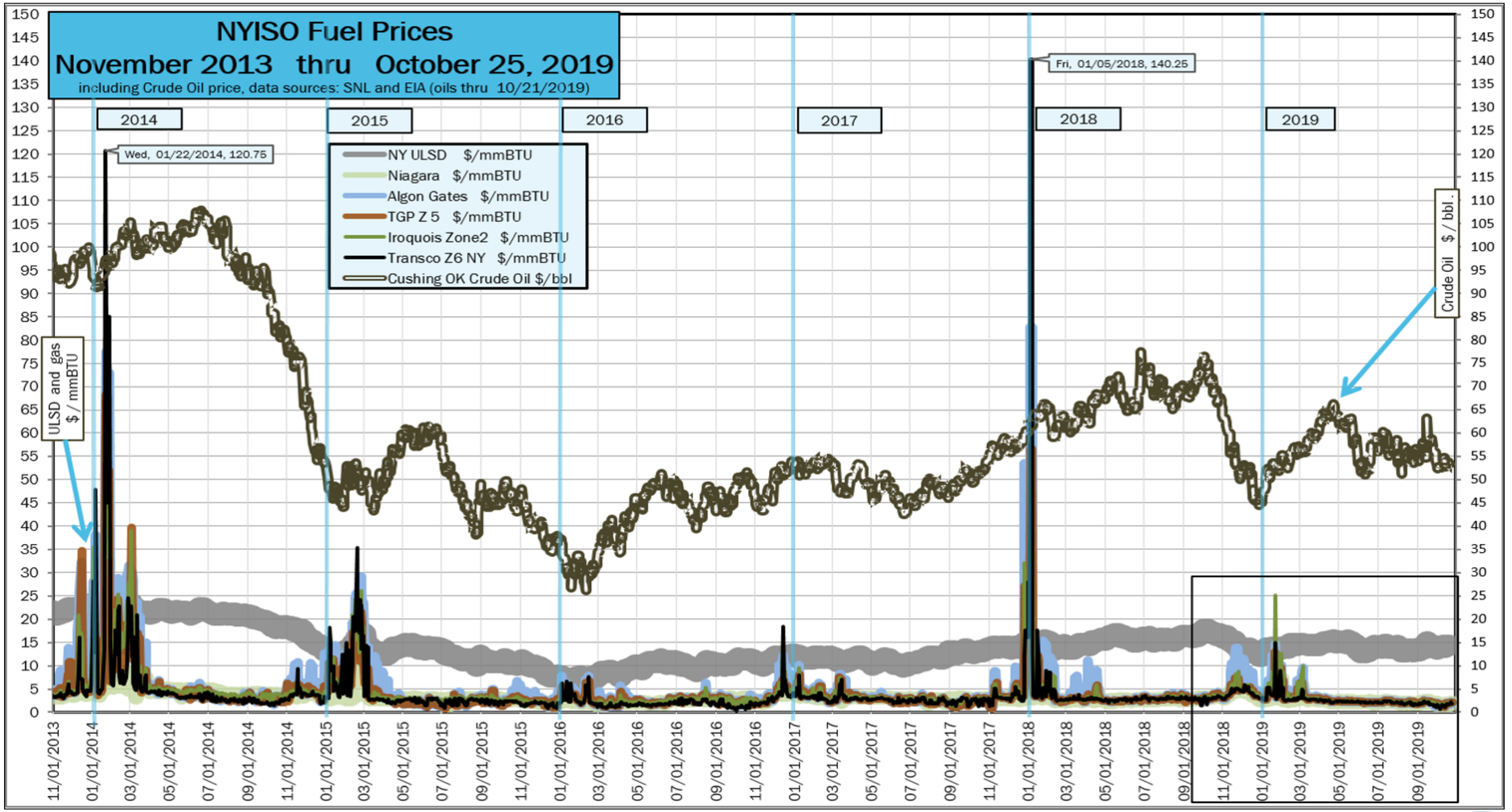
Upstate (zones A-E) Generating Capacity by Fuel Source: 2019



Downstate (zones F-K) Generating Capacity by Fuel Source: 2019



Overview: Fuel Prices



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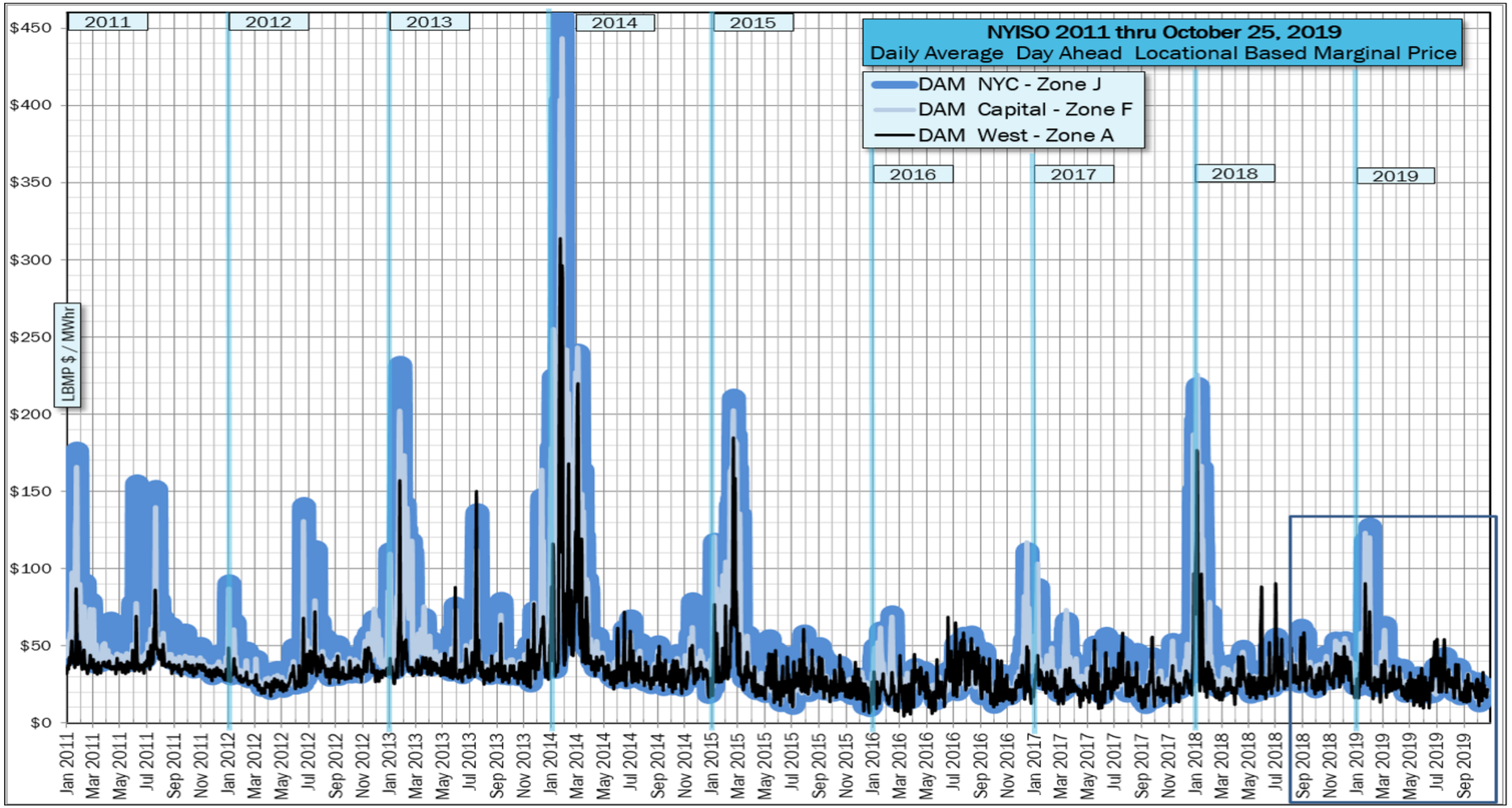
Overview: Energy Prices



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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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