



Winter 2016 Cold Weather Operations

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NYSRC Executive Committee

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Rensselaer, NY

Winter 2016 Ambient Conditions

- **Winter 2016**
 - *Milder than past two winters*
 - *Milder than 10-year & 30-year averages*

Month	Time Period	6 PM Min Temperature	Heating Degree Days (55 F)
December	30 Yr	20.1	628.7
	10 Yr	23.9	573.8
	2015	33.7	275.8
January	30 Yr	14.0	793.4
	10 Yr	13.6	800.6
	2016	15.9	732.7
February	30 Yr	17.3	695.0
	10 Yr	17.0	721.1
	2016	6.3	614.9

(Heating Degree Day - The higher the HDD, the colder the average temperatures)

Winter 2016 Ambient Conditions

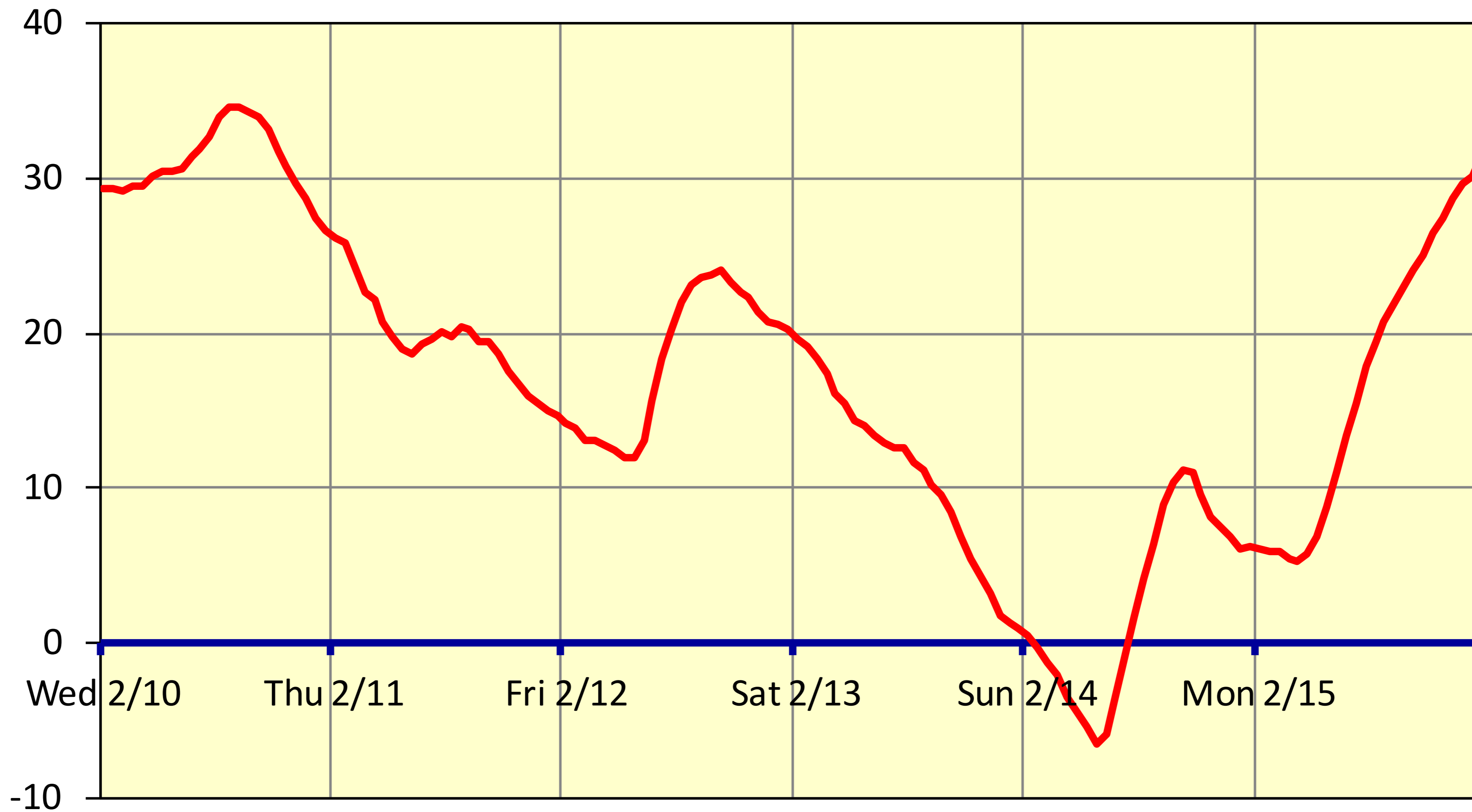
Record Cold Temperatures since 1975 & Winter 2016 Temperatures

Station	Date Record Was Set, Since 1975	Record Cold Temperature	2016 Minimum Daily Temperatures					
			2016 1/1 to 2/29	1/5/16	1/19/16	2/11/16	2/13/16	2/14/16
Albany	1/27/1994	-23	-13	2	13	8	-8	-13
Buffalo	1/1/1986	-28	-12	7	10	7	-4	-12
Laguardia	1/21/1985	-3	1	14	19	21	8	1
NYCA	2/18/1979	-8	-7	10	15	15	1	-7

(NYCA composite temperature is based on 17 stations across the state)

NYCA Composite Hourly Temperatures February 10th to February 15th

Degrees F

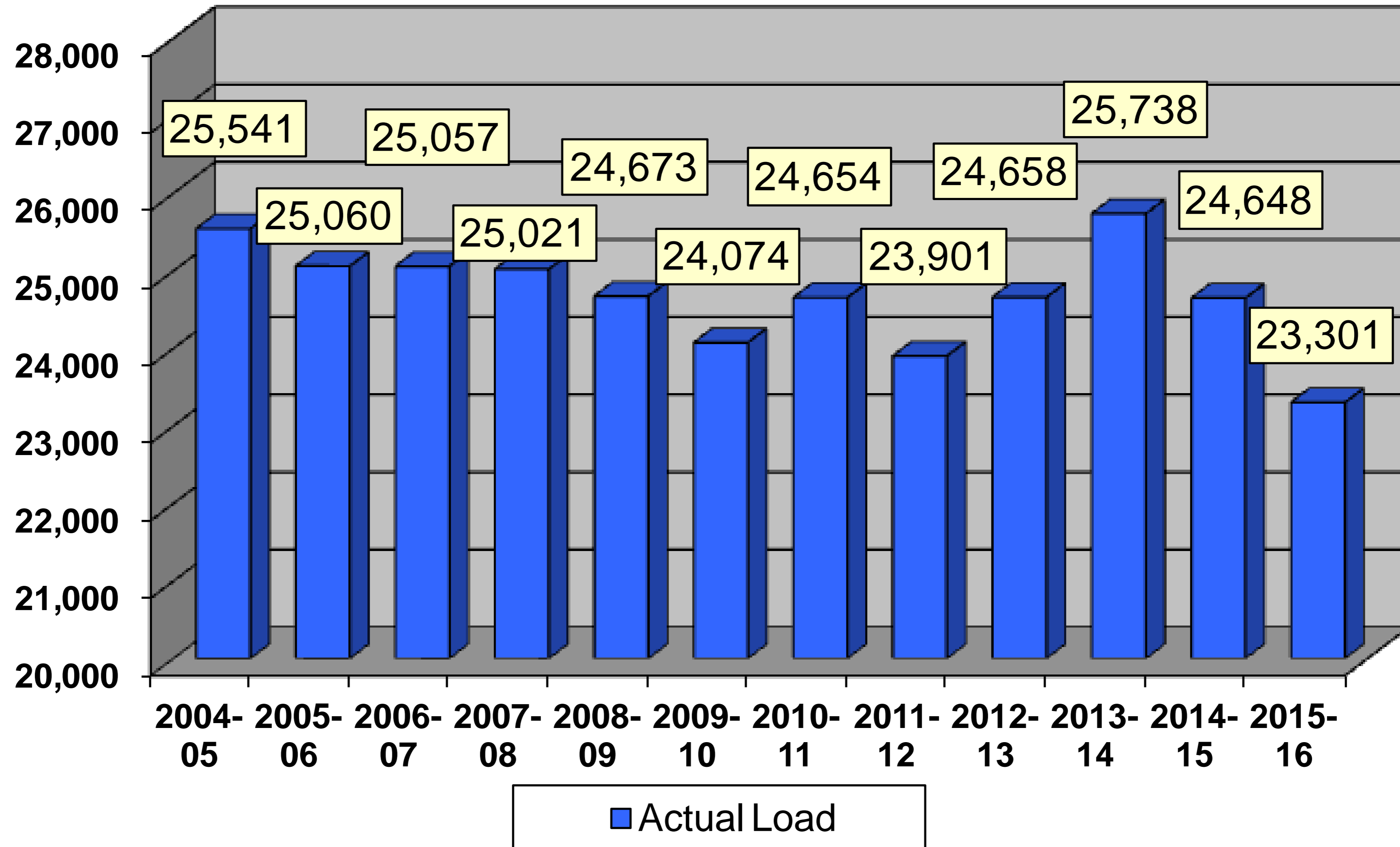


(NYCA composite temperature is based on 17 stations across the state)

Winter 2016 Peak Loads

- **Three cold weather periods in Winter 2016**
 - *January 5th Peak Load -- 23,162 MW*
 - *January 19th Peak Load -- 23,317 MW (Winter 2016 Peak)*
 - *February 12-15 Peak Load -- 22,951 MW (Coldest Weather)*
- **Forecast Winter 2016 Peak Load**
 - *24,515 MW*
- **All-Time NYISO Winter Peak Load**
 - *25,738 MW peak set on January 7, 2014*

Winter Peak Loads - 2004-05 to 2015-16 (MW)



Winter 2016

Cold Weather Operations

- **No Statewide Supplemental Capacity Commitments**
- **Generation Performance (3 highest peak days)**

Date	Derates Prior to DAM	Additional Real Time derates	Total Derates	Fuel Related
1/5/2016	1011	528	1539	540
1/19/2016	902	566	1468	46
2/12/2016	1662	233	1895	866
2/13/2016	1765	1152	2917	1682
2/14/2016	1606	422	2028	1010
2/15/2016	1522	338	1860	1010

- **Demand Response**
 - *No Demand Response Activation was needed this winter*
- **Transmission Performance**
 - *On February 15 the 345 kV Marcy-New Scotland 18 tripped resulting in a Major Emergency (the trip was unrelated to cold weather)*

Winter 2016

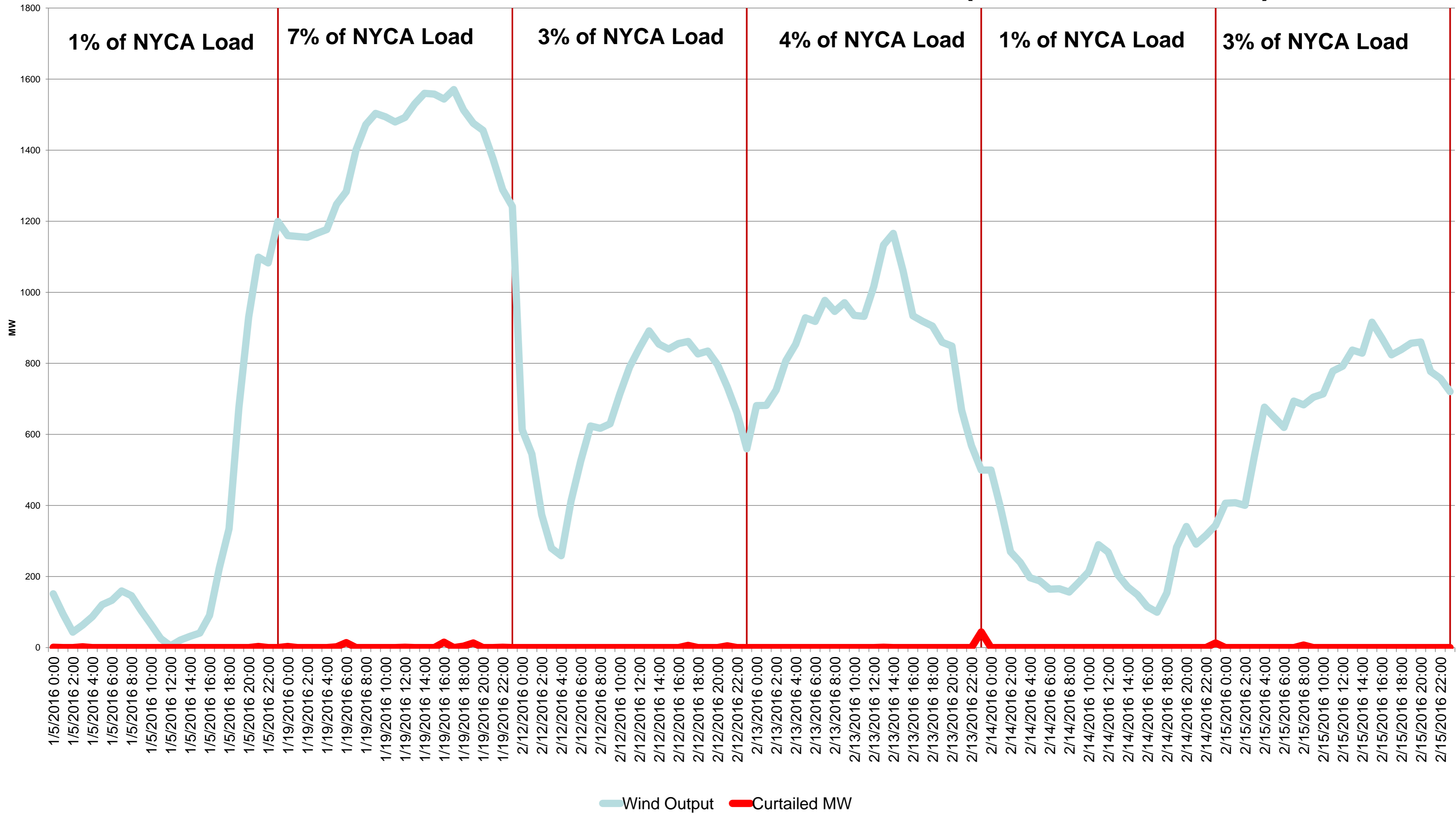
Cold Weather Operations

- **Fuel Inventories**
 - *Sufficient alternative oil fuel inventories were maintained throughout Winter 2016*
 - *The NYISO did not need to initiate the state-agency communication protocol*
- **Regional Electric Conditions**
 - *Fewer generator derates and import schedule curtailments than previous two winters*
- **Regional Pipeline Conditions**
 - *Northeast interstate pipelines and LDCs issued only a limited number of Gas Alerts and OFOs this winter*
 - **The most restrictive were during the February 12-15 time period as there were multiple pipeline OFOs and some gas LDCs either instituted restrictive OFOs or curtailed gas supply to generators**
 - *New York State set an all-time gas peak on 2/13/2016 (6.6 BCF)*
 - *Previous peak set on 2/27/15 (6.4 BCF)*

Winter 2016 Natural Gas Sendout

- **Central Hudson set a new gas peak day on February 13 with 137,000 MCF delivered**
- **Con Ed set a new peak day on February 13 with 1.23 BCF delivered**
- **National Grid set an Enterprise-Wide record (*New York and New England franchises*)**
- **NYSEG came within 2 degrees of their design day on 2/13**

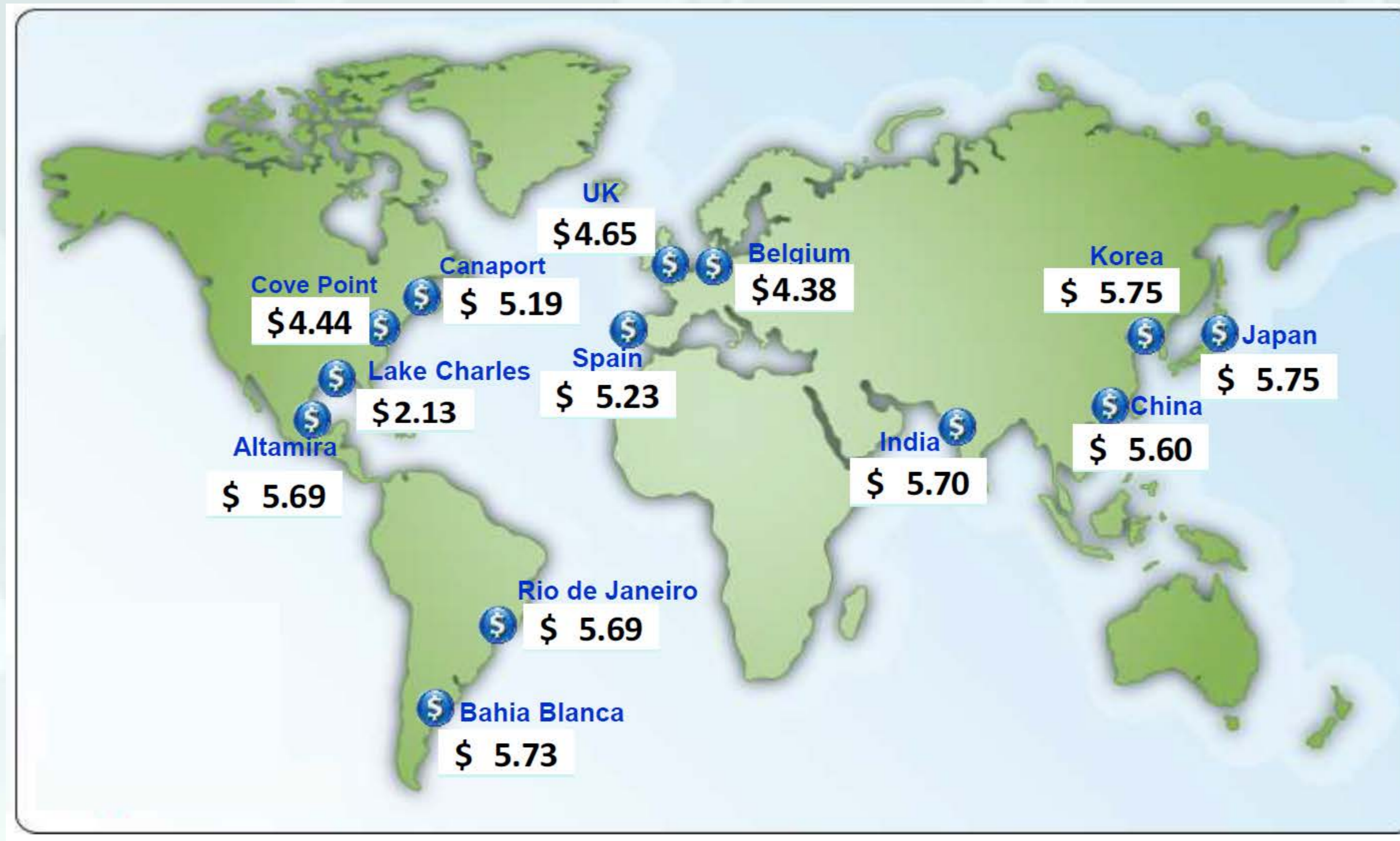
Winter 2016 Cold Weather Wind Performance (1/5, 1/19, 2/12-15)



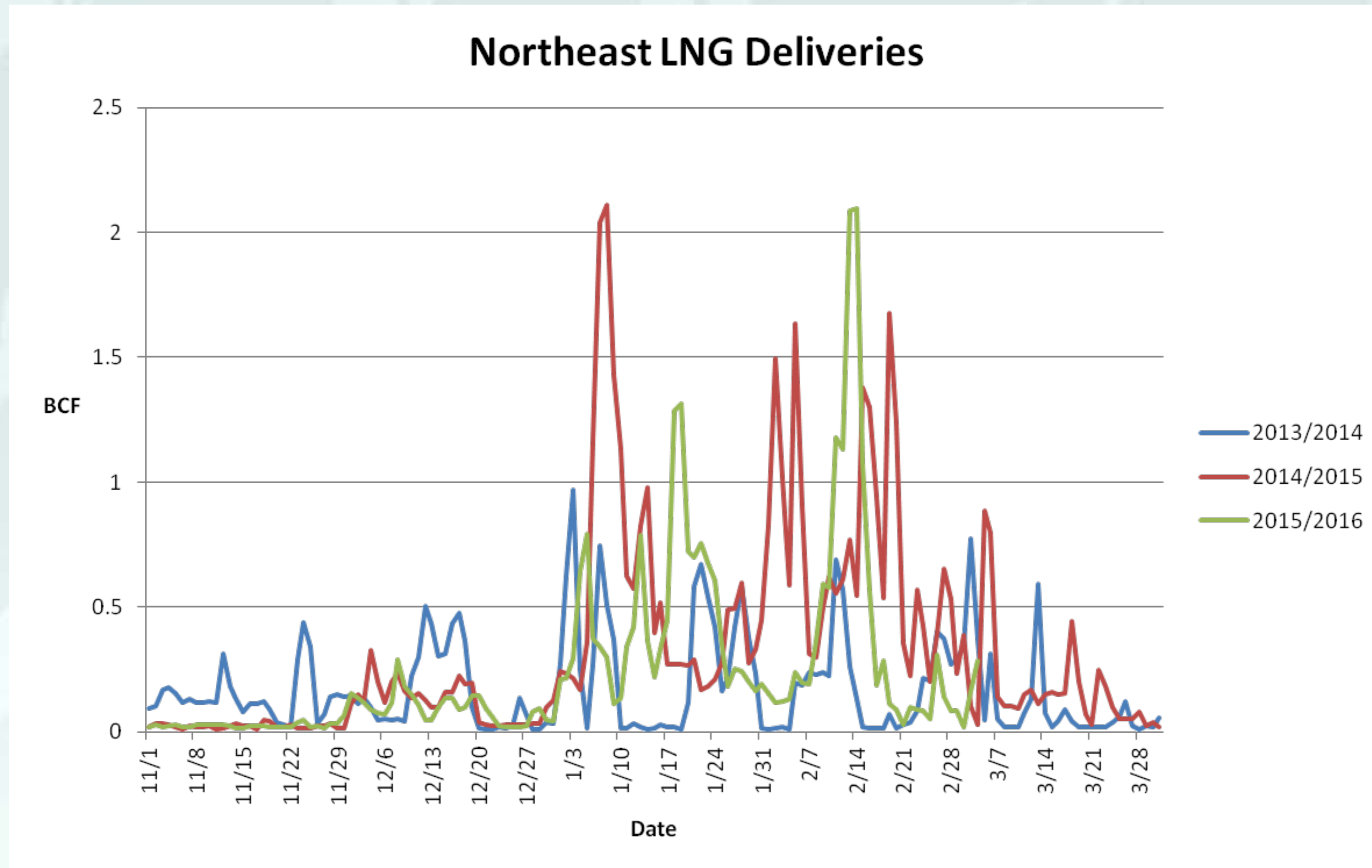
World LNG Estimated Jan. 2015 Landed Prices



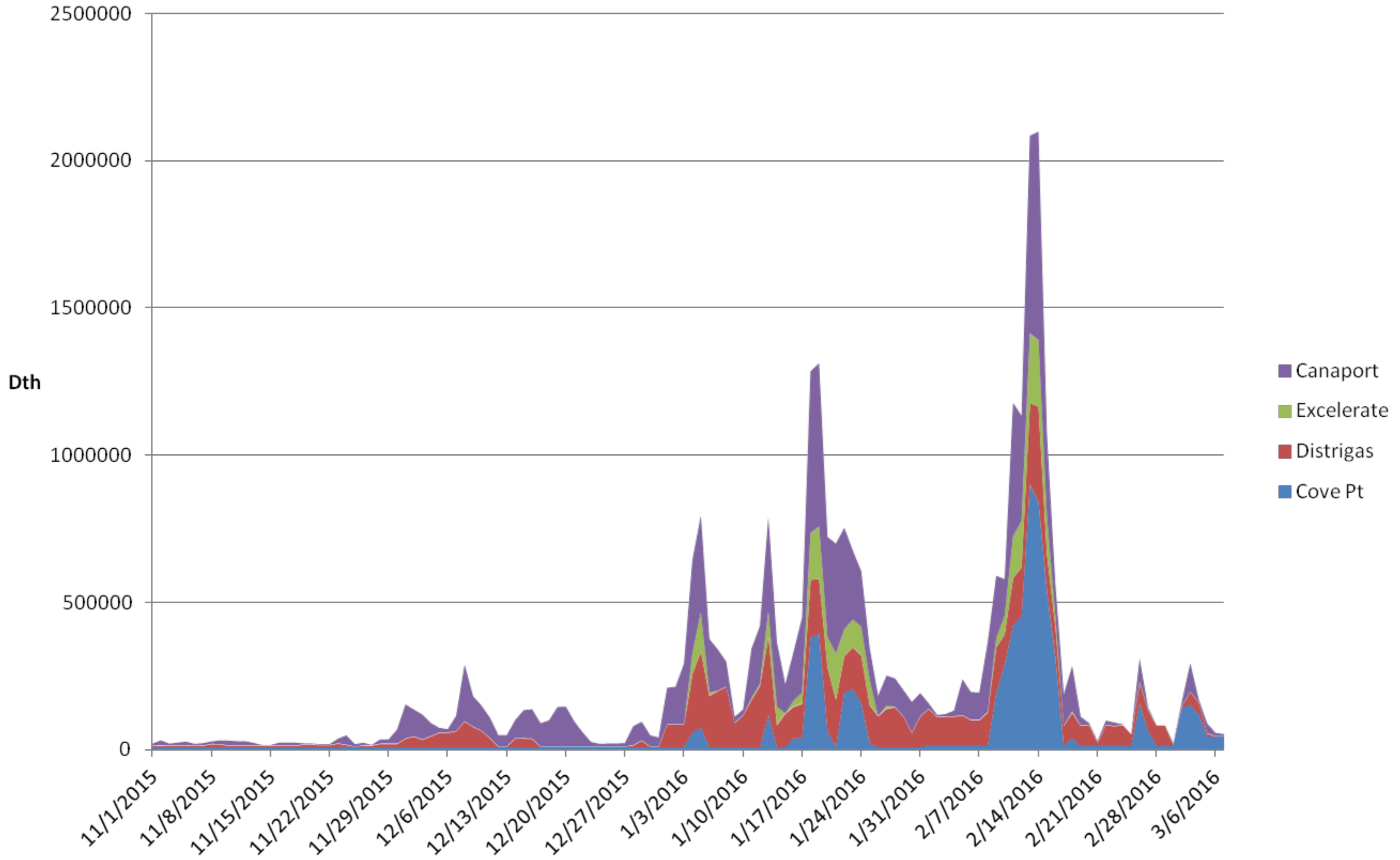
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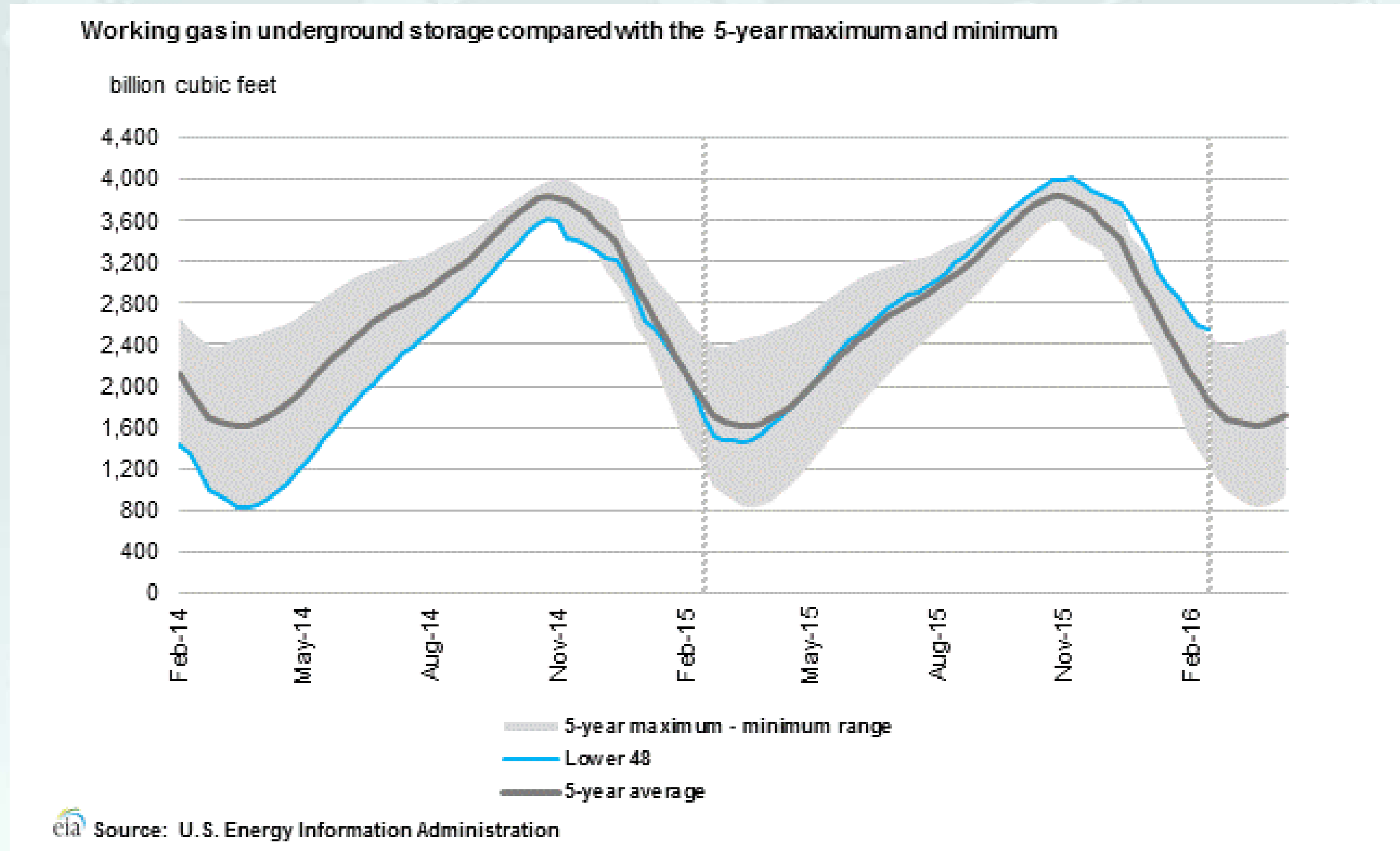
Year-on-Year LNG Deliveries

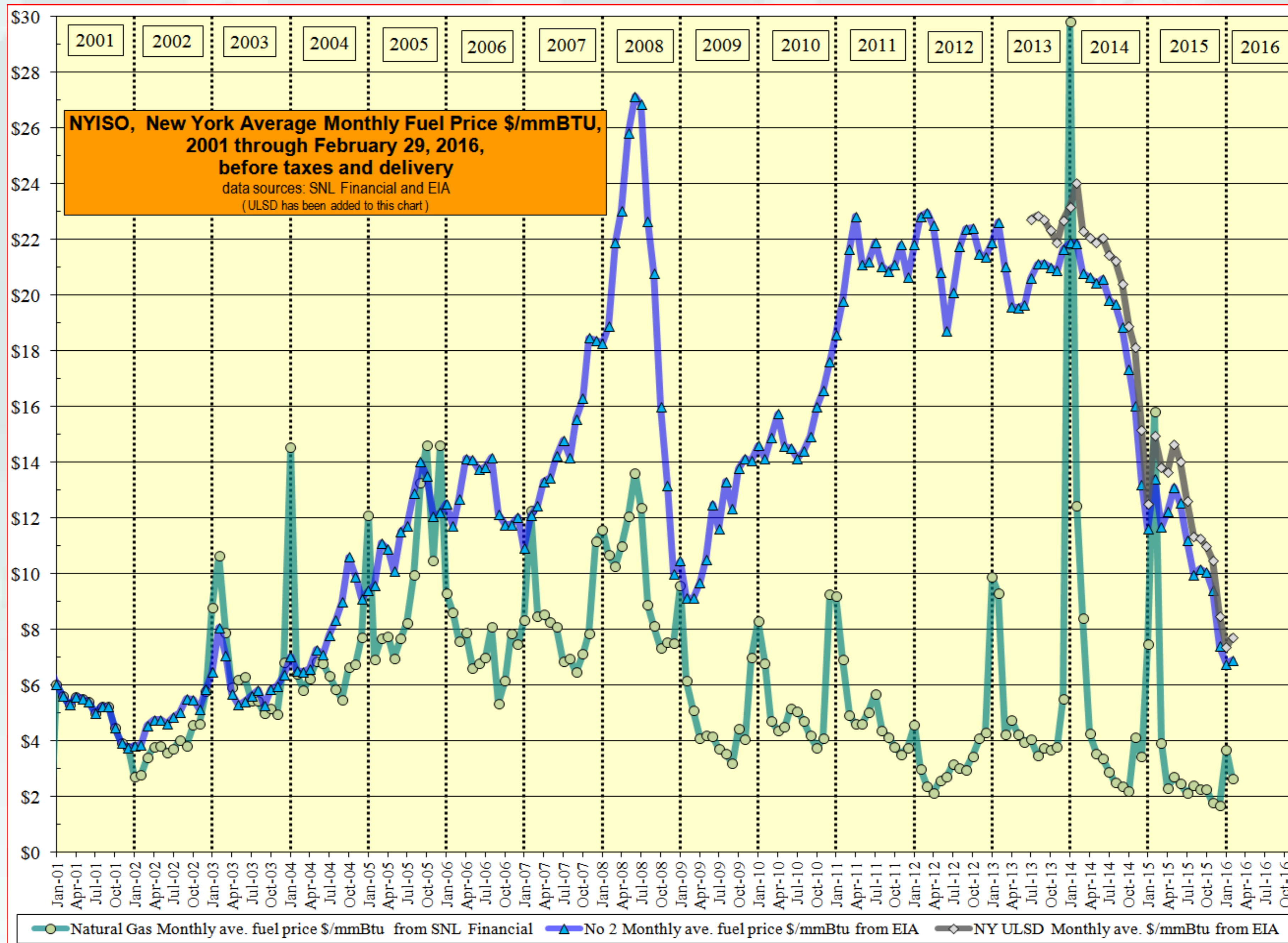


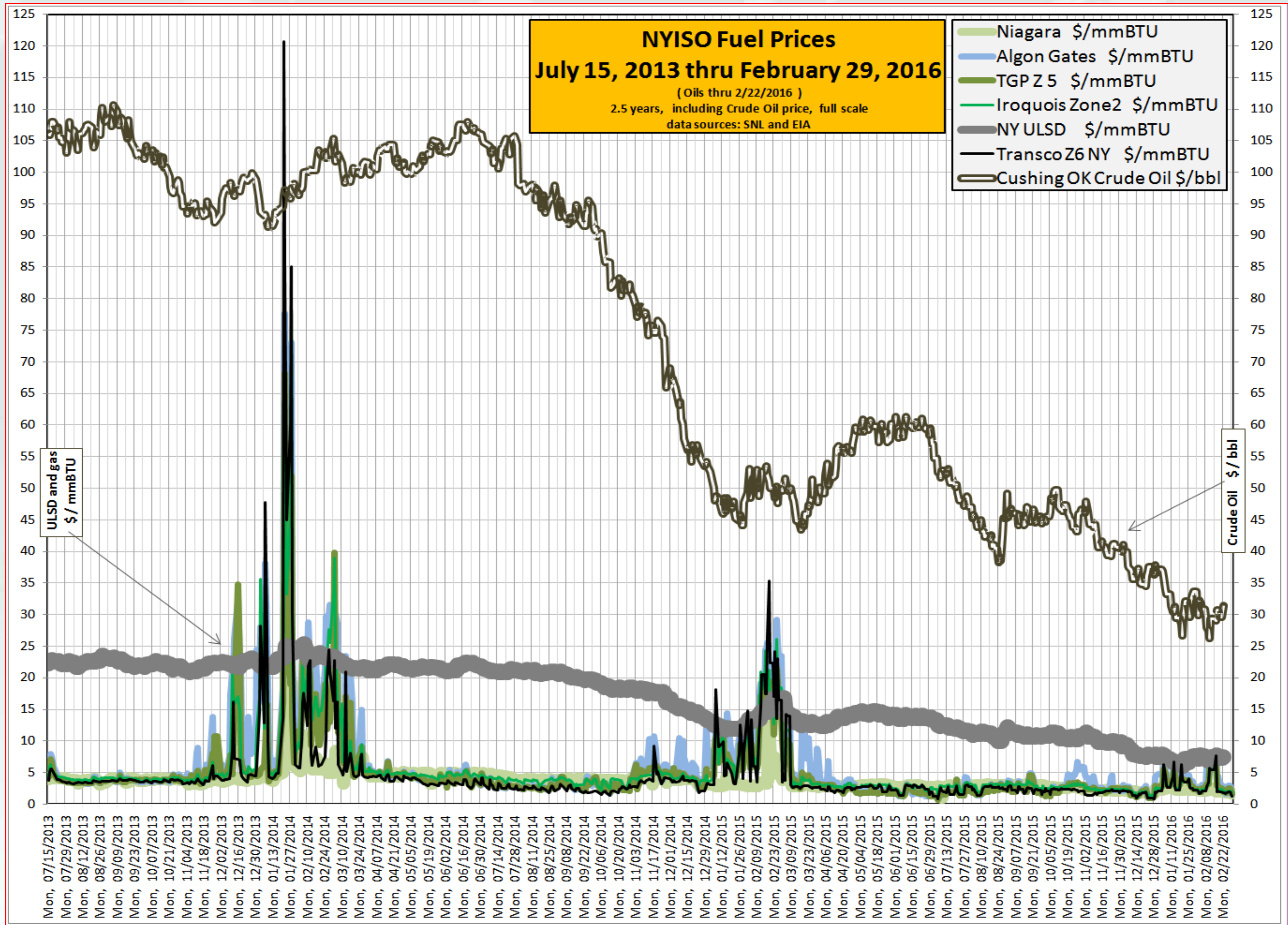
Winter 2016 LNG Deliveries By Facility



Winter Storage Comparison

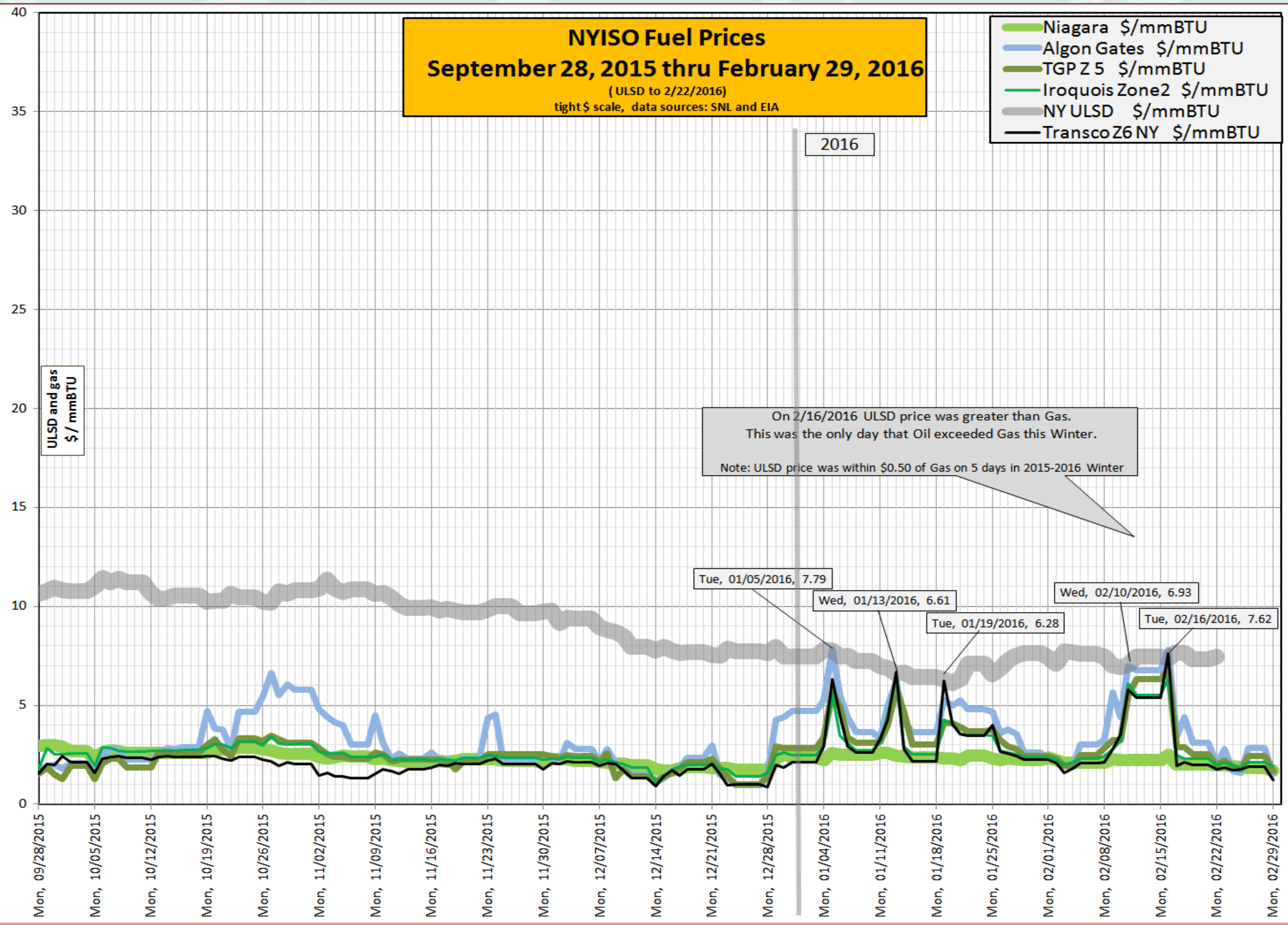


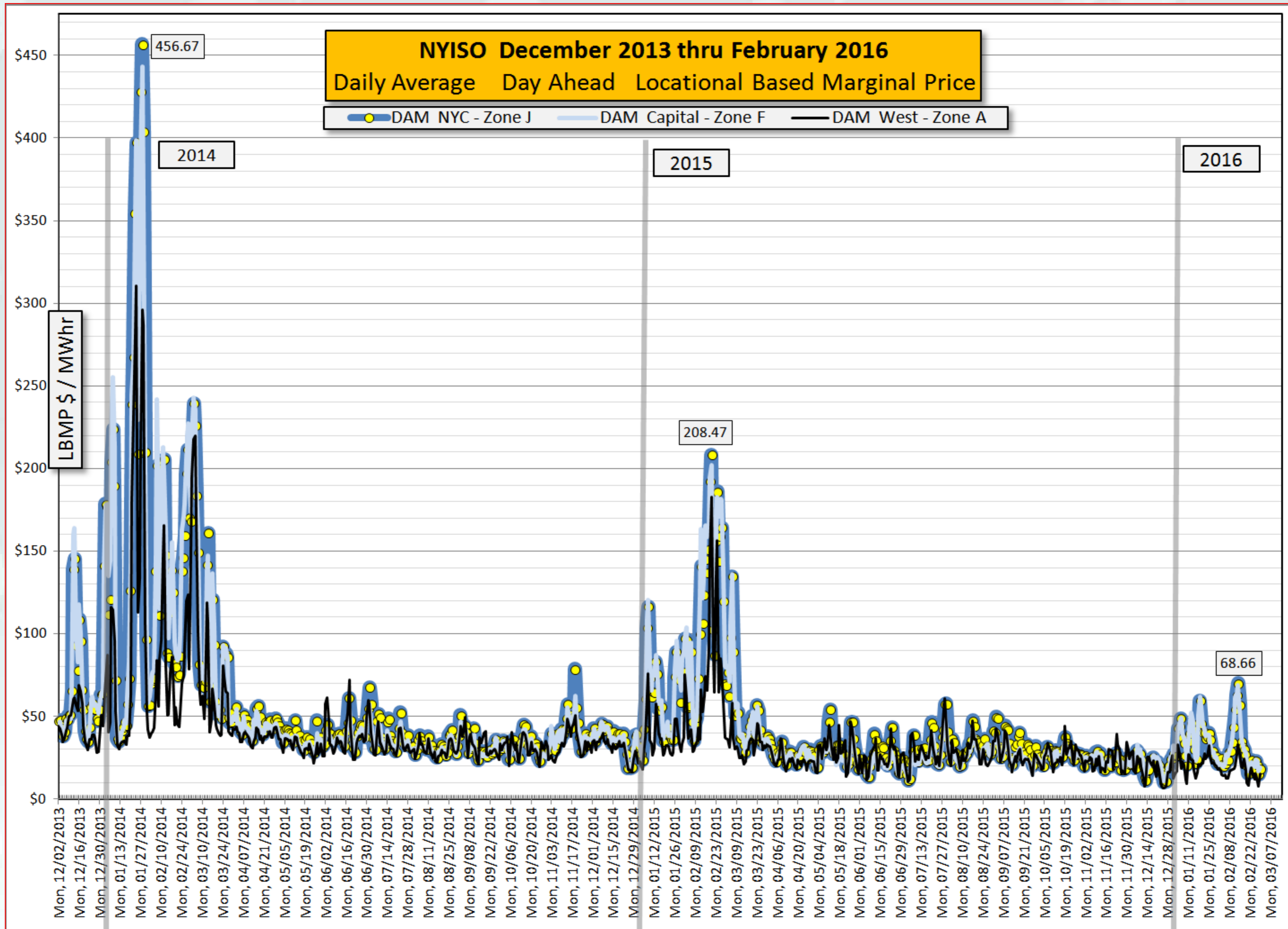


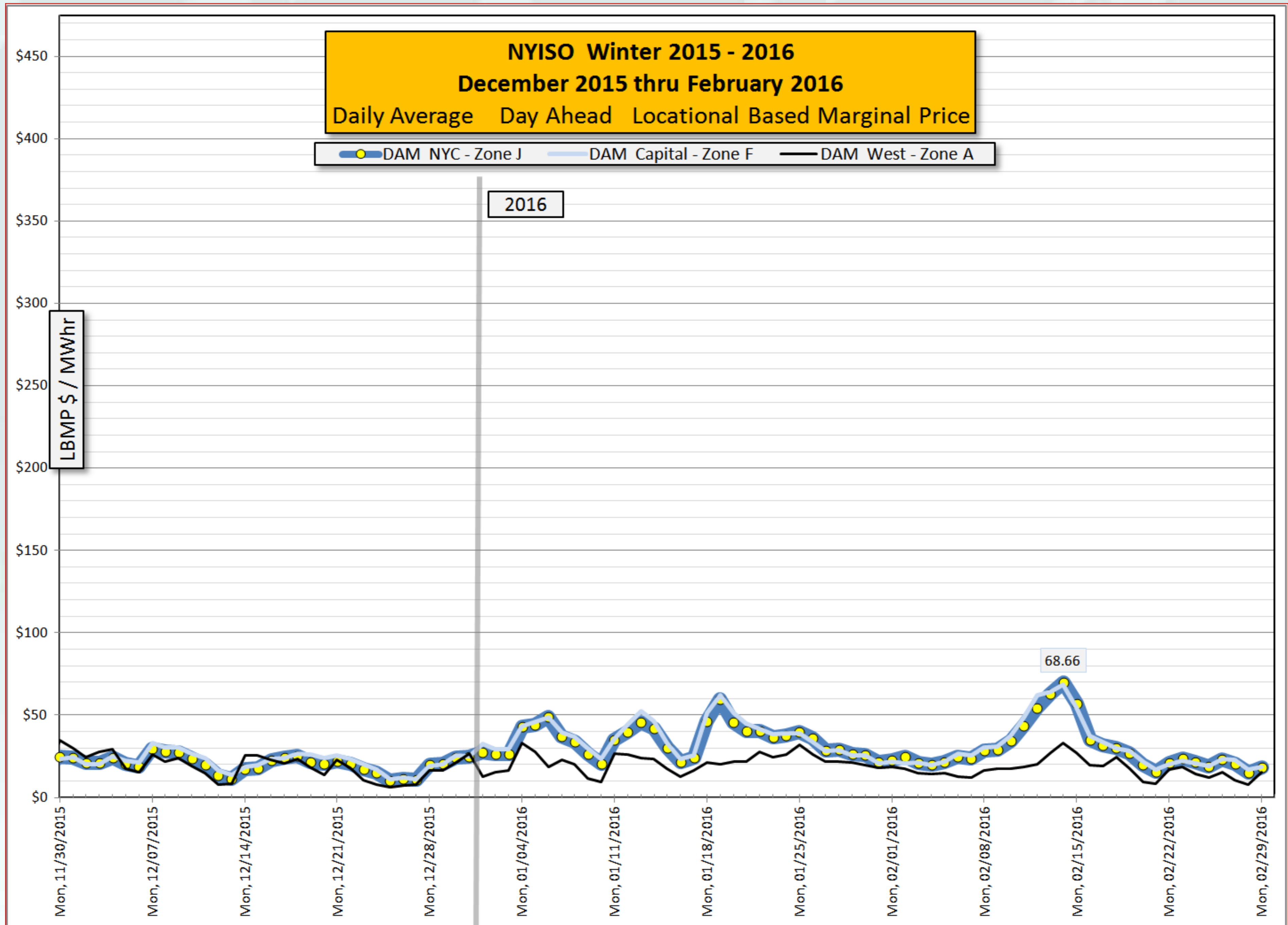


NYISO Fuel Prices
September 28, 2015 thru February 29, 2016
(ULSD to 2/22/2016)
tight \$ scale, data sources: SNL and EIA

- Niagara \$/mmBTU
- Algon Gates \$/mmBTU
- TGP Z 5 \$/mmBTU
- Iroquois Zone 2 \$/mmBTU
- NY ULSD \$/mmBTU
- Transco Z6 NY \$/mmBTU







The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefit 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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