

2015-2016 Winter Capacity Assessment & Winter Preparedness

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New York Independent System Operator

Operating Committee Meeting

November 12, 2015

Rensselaer, NY

Agenda

- ◆ **Winter 2015-16 Capacity Assessment**
- ◆ **Winter Preparedness**
- ◆ **Status of FERC Order 809**
- ◆ **Continued Gas-Electric Issues**

Winter Assessment Summary

- ◆ Includes capacity changes since 2015 Gold Book:
 - 75 MW of retirements
 - 374 MW of increases
- ◆ Two Weather Scenarios:
 - Normal
 - 90/10 Cold Weather
- ◆ Two Fuel Cases:
 - Base Case
 - Loss of Gas Scenario
- ◆ Southeastern NY Transmission Security Review

2015-2016 Capacity Margins (MW)				
	Base Case		Loss of Gas Case	
Region	Normal Weather	90/10 Weather	Normal Weather	90/10 Weather
NYCA	9,068	7,486	5,417	3,835
SE Region (N-1-1)	9,180	8,576	7,505	6,901

NYCA Winter Installed Capacity Assessment - Base Case

Line	Item	2015-2016 Baseline Forecast	2015-2016 90th Percentile Forecast
1a	Installed Capacity Resources	41,312	41,312
1b	SCR - ICAP Values	885	885
1c	Net ICAP External Imports	338	338
1	NYCA Resource Capability	42,535	42,535
2	Total Projected Capacity Outages	6,332	6,332
3	Net Installed Capacity Resources	36,203	36,203
4	Load Forecast	24,515	26,097
5	Operating Reserve Requirement	2,620	2,620
6	Capacity Margin	9,068	7,486

During last year's Winter Peak (*January 7, 2015*)

- **Actual winter peak -- 24,638 MW**
- **All-time winter peak -- 25,738 MW (*Set on January 7, 2014*)**

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1	NYCA Resource Capability	42,535	42,535
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3 = (1-2)	Net Installed Capacity Resources	36,203	36,203
4	Load Forecast	24,515	26,097
5	Operating Reserve Requirement	2,620	2,620
6 = (3-4-5)	Capacity Margin	9,068	7,486
7a	Subtract All Gas Only Units	6,540	6,540
7 = (6-7a)	Capacity Margin, Loss of Gas	2,528	946
8a	Add Back Units with Firm Gas Contracts	2,889	2,889
8 = (7-8a)	Expected Capacity, Loss of Gas Case	5,417	3,835

Southeastern New York: Winter Transmission Security - Base Case

Line	Item	2015-2016 Baseline Forecast	2015-2016 90th Percentile Forecast
1a	Generation Capacity Resources	15,684	15,684
1b	Net ICAP External Imports	338	338
1c	Transmission Capability from UPNY to SENY (N-1-1)	3,450	3,450
1d	Transmission Capability, Long Island to NYC	250	250
1	Total Capability	19,722	19,722
2	Projected Capacity Outages	0	0
3 = (1-2)	Total Capability	19,722	19,722
4	Load Forecast	10,542	11,146
6 = (3-4-5)	Capacity Margin	9,180	8,576

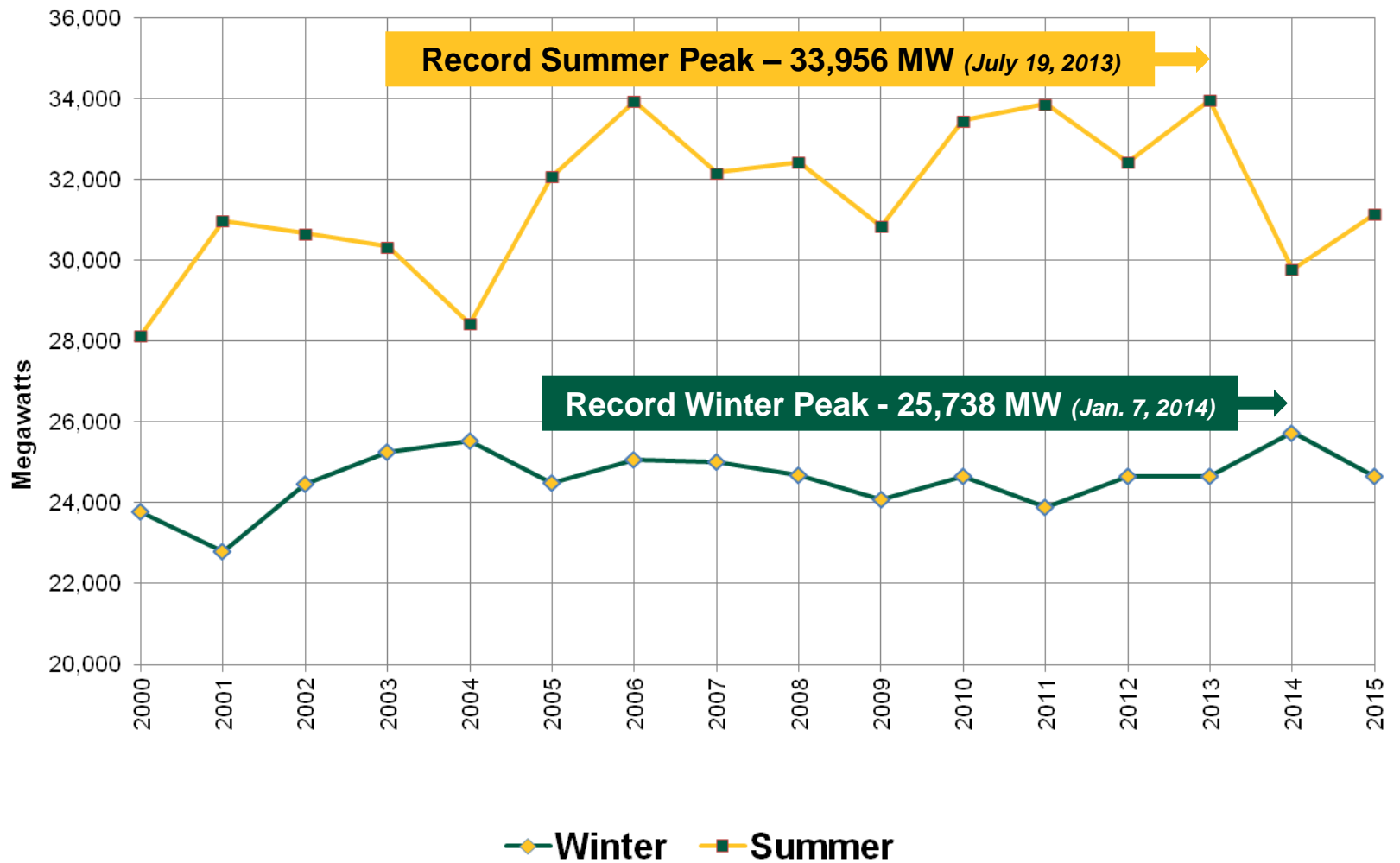
Transmission security assessments assumes all generation capacity is available and does not include Demand Response resources

Southeastern New York: Winter Transmission Security - Loss of Gas

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3 = (1-2)	Total Capability	19,722	19,722
4	Load Forecast	10,542	11,146
6 = (3-4-5)	Capacity Margin	9,180	8,576
7a	Subtract All Gas Only Units	2,297	2,297
7 = (6-7a)	Capacity Margin, Loss of Gas	6,883	6,279
8a	Add Back units with Firm Gas Contracts	622	622
8 = (7-8a)	Expected Capacity, Loss of Gas Case	7,505	6,901

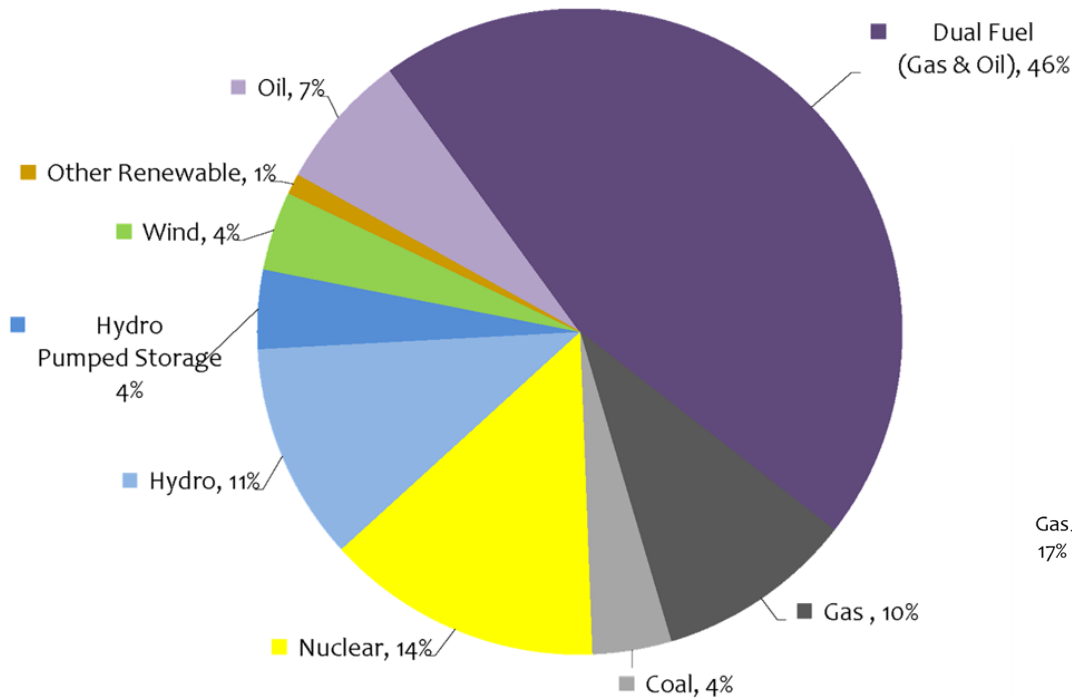
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New York Seasonal Peaks - 2000 to 2015

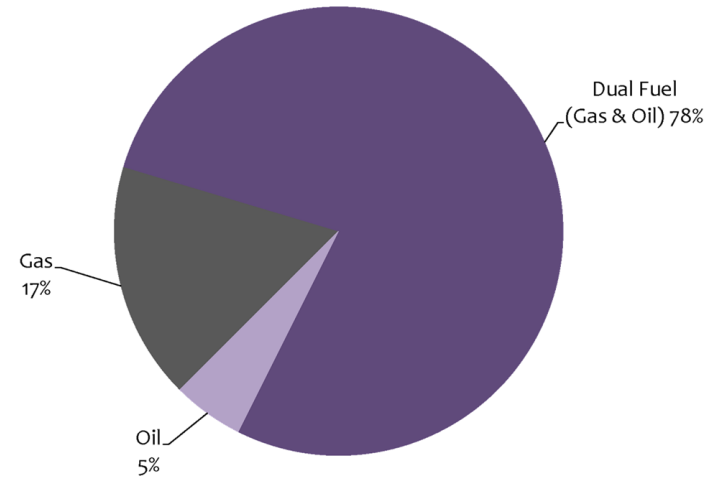


New York Fuel Mix

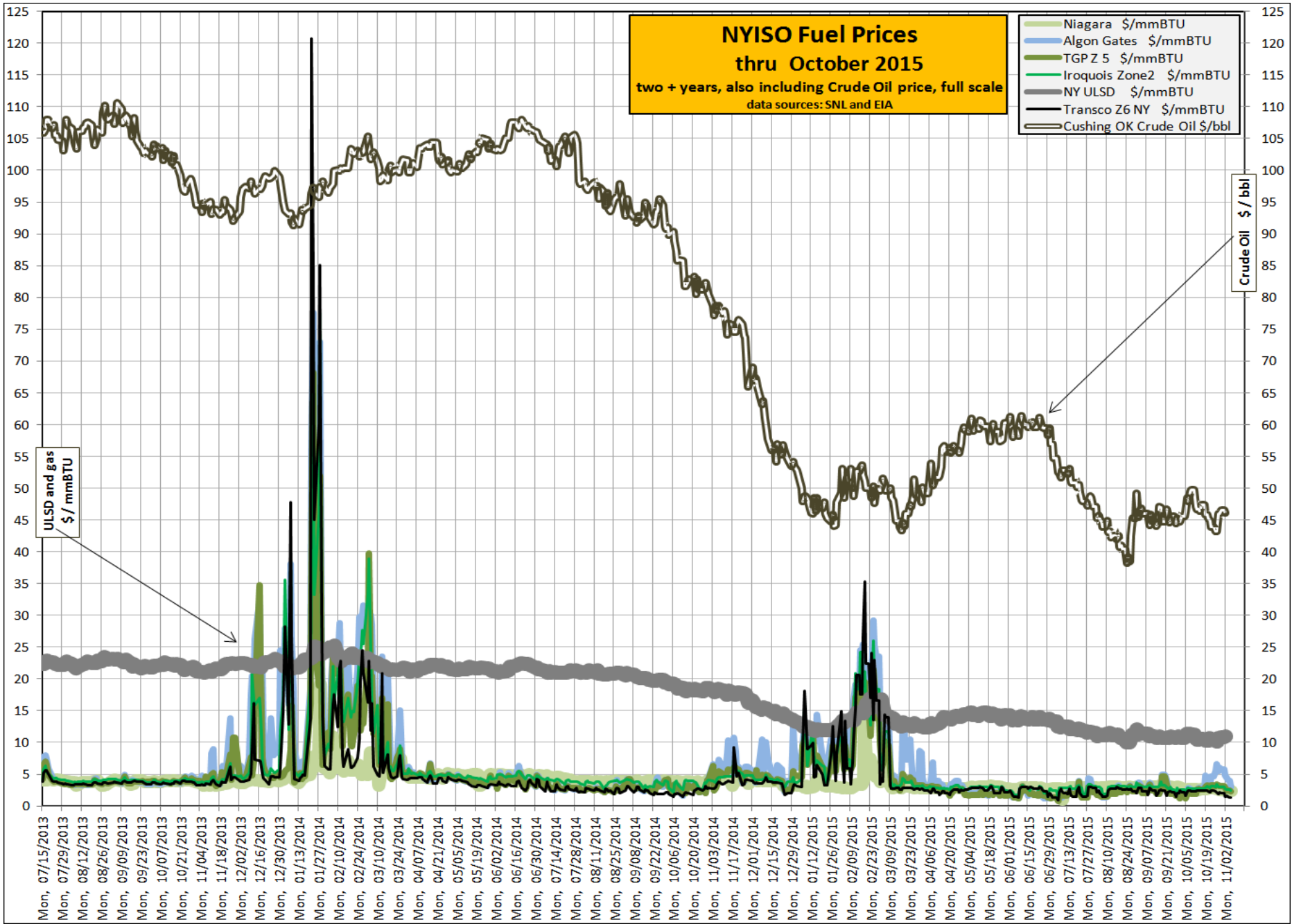
Generating Capacity in New York State by Fuel Source -
Statewide: 2015



Generating Capacity in New York State by Fuel Source -
New York City: 2015



SOURCE: *Power Trends 2015*, New York Independent System Operator, June 2015



Winter Preparedness

- ◆ Issued the winter preparedness fuel surveys and reviewed the status of starting oil inventories, oil replacement arrangements, and gas transportation arrangements
 - *Web-based fuel application is now available*
- ◆ Continued Control Room gas-electric support position
 - *Monitor status of gas pipeline system*
 - *Monitor alternative fuel inventory*
 - *Monitor potential emissions limitations*
- ◆ Communications protocol in-place to improve speed and efficiency for state agencies to evaluate potential generator requests for emissions waivers if needed for reliability

Winter Preparedness

- ◆ **Infrastructure maintenance coordination**
 - *Operations has coordinated gas pipeline, generator, and transmission maintenance schedules*
- ◆ **Market Mitigation & Analysis Department visited some generating stations to review maintenance and testing preparations**
- ◆ **Expect Minimum Oil Burn rules to be approved at the November 12 Operating Committee meeting**

Operator Awareness

- ◆ **Northeast interstate pipelines displayed on Control Room Video Board**
 - *Operational Flow Orders are posted with enhanced brightness on the Video Board*
- ◆ **Will begin to design enhanced operator awareness displays reflective of the Fuel Availability Reporting**

Market Enhancements

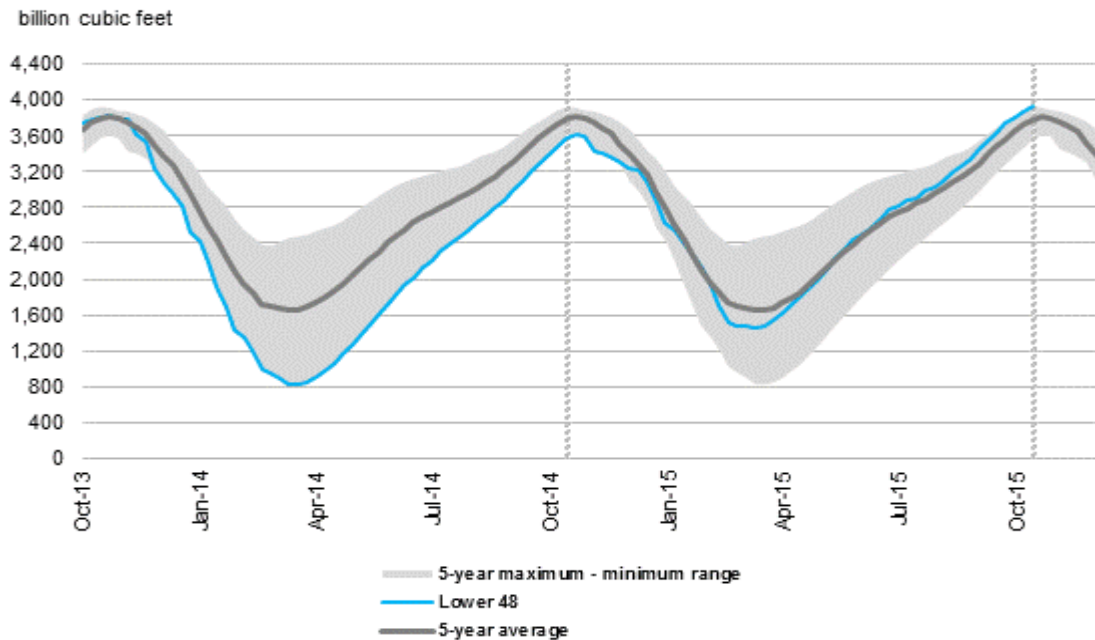
- ◆ **Enhanced reserve shortage pricing curves (November 4, 2015) to better value energy & reserves during tight operating conditions**
 - *Increase total operating reserves secured in the market*
- ◆ **Capability exists for generators to provide expected costs for day-ahead reference level developments**
- ◆ **Market design concept for Fuel Constrained Bidding**
 - *Design concept to be presented at Nov 13 BIC for approval*
- ◆ **Continue to work with stakeholders to evaluate capacity market enhancements to encourage fuel assurance investments**

Winter Generator Scheduling

- ◆ **Currently the Outage Scheduling manual describes the approach for NYISO to accept or reject a generator maintenance outage requests**
 - *Annually, NYISO publishes the “Installed Capacity & Load Maintenance Survey” that is posted on www.nyiso.com*
- ◆ **In light of cold weather fuel and equipment derates, NYISO is considering -- for the winter peak load period -- including an additional unplanned outage amount for calculating the Net Margin.**
 - *To be discussed further at SOAS*

Weekly Natural Gas Storage Report

Working gas in underground storage compared with the 5-year maximum and minimum



 Source: U.S. Energy Information Administration

Note: The shaded area indicates the range between the historical minimum and maximum values for the weekly series from 2010 through 2014.

Source: Form EIA-912, "Weekly Underground Natural Gas Storage Report." The dashed vertical lines indicate current and year-ago weekly periods.

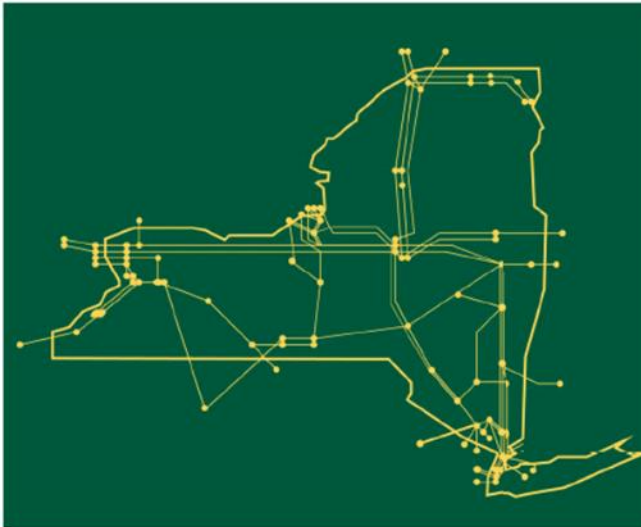
FERC Order 809 (4/16/2015)

- ◆ **Adopts two proposals submitted by NAESB.**
 - ***Revises Nomination Timeline***
 - Timely Nomination schedule moved from 12:30 PM to 2:00 PM EST
 - ***Adds a third intraday nomination cycle***
 - ***Declines to change the gas day to align with the power day***
 - ***Each ISO must (1) make a filing that proposes tariff changes to adjust the time at which it posts the results of its day-ahead energy market and reliability unit commitment process to a time that is sufficiently in advance of the timely and evening nomination cycles to allow gas-fired generators to procure natural gas supply and pipeline transportation capacity to serve their obligations; or (2) show cause why such changes are not necessary***
 - ***NYISO was already in compliance – no changes needed***

Continued Cold Weather Gas-Electric Issues

- ◆ **Gas Availability**
 - *Gas LDC retail load has gas transportation priority across the Gas LDC's and firm transportation service on the interstate pipeline system*
 - *The interstate gas pipeline system is heavily constrained to eastern NY, New York City, and Long Island during cold weather conditions*
- ◆ **Extended Cold Weather Conditions**
 - *Burn rates of alternative fuels can exceed replacement rates of alternative fuels during extended cold weather -- resulting in reduced generation*
- ◆ **NOx Restrictions**
 - *Generator switching from gas to oil in some instances result in capacity limitations due to newer, more restrictive NOx emission limitations*
- ◆ **Becoming more challenging for generation to burn oil**
 - *More restrictive NOx emission limitations, less Northeast refinery capability, and upcoming rigorous Clean Power Plan carbon targets*
- ◆ **Gas pipeline siting remains challenging**

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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