2016-2017 Winter Preparedness

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DRAFT – FOR DISCUSSION PURPOSES ONLY

Winter 2017 Assessment

- **For projected baseline forecast peak conditions and expected performance of the transmission, generation, and gas pipeline infrastructure, the NYISO expects to meet reliability criteria throughout Winter 2016-17.**

2016-2017 Capacity Margins - MW

Region	Base Case		Loss of Gas Case	
	Normal Weather	90th Weather	Normal Weather	90th Weather
NYCA	10,963	9,359	6,961	5,357
GHIJ	5,494	4,871	3,659	3,036
NYC	5,281	4,779	3,621	3,119

NYCA Winter Installed Capacity Assessment - Loss of Gas

Line	Item	2016-2017 Baseline Forecast	2016-2017 90th Percentile Forecast
1a	Installed Capacity Resources	40,092	40,092
1b	SCR - ICAP Values	842	842
1c	Net ICAP External Imports	2,034	2,034
1	NYCA Resource Capability	**42,968**	**42,968**
2	Total Projected Capacity Outages	**4,940**	**4,940**
3 = (1-2)	Net Installed Capacity Resources	**38,028**	**38,028**
4	Load Forecast	24,445	26,049
5	Operating Reserve Requirement	2,620	2,620
6 = (3-4-5)	Capacity Margin	**10,963**	**9,359**
7a	Subtract All Gas Only Units	7,168	7,168
7 = (6-7a)	Capacity Margin, Loss of Gas	3,795	2,191
8a	Add Back Units with Firm Gas Contracts	3,166	3,166
8 = (7-8a)	Expected Capacity, Loss of Gas Case	6,961	5,357

- **During last year's January 19, 2016 Winter Peak Load;**
  - **Actual peak load was 23,317 MW. Weather-adjusted peak was 24,220 MW**
  - **The all-time winter peak was 25,738 MW, set on January 7, 2014**
  - **Loss of Gas values may change based upon results of 2016-17 Fuel Survey**

Southeast Region: Winter Installed Capacity Assessment - Loss of Gas

Line	Item	2016-2017 Baseline Forecast	2016-2017 90th Percentile Forecast
1a	Installed Capacity Resources	15,689	15,689
1b	SCR - ICAP Values	300	300
1c	Net ICAP External Imports	635	635
1d	Transmission from UPNY to SENY (N-1-1)	3,650	3,650
1	NYCA Resource Capability	**20,274**	**20,274**
2	Total Projected Capacity Outages	**1,549**	**1,549**
3 = (1-2)	Net Installed Capacity Resources	**18,725**	**18,725**
4	Load Forecast	10,611	11,234
5	Operating Reserve Requirement	2,620	2,620
6 = (3-4-5)	Capacity Margin	**5,494**	**4,871**
7a	Subtract All Gas Only Units	2,517	2,517
7 = (6-7a)	Capacity Margin, Loss of Gas	2,977	2,354
8a	Add Back units with Firm Gas Contracts	682	682
8 = (7-8a)	Expected Capacity, Loss of Gas Case	3,659	3,036

Winter Preparedness

- **Seasonal generator fuel surveys indicate sufficient winter starting oil inventories along with arrangements for replacement fuel oil for oil-burning units.**
- **The NYISO Market Mitigation and Analysis Department has performed many on-site visits of generating stations to discuss past winter operations and preparations for Winter**
- **Minimum Oil Burn procedures defined by the New York State Reliability Council; IR-3 & IR-5**
  - ***Establish fuel switching at certain cold weather load thresholds to mitigate gas pipeline contingencies***

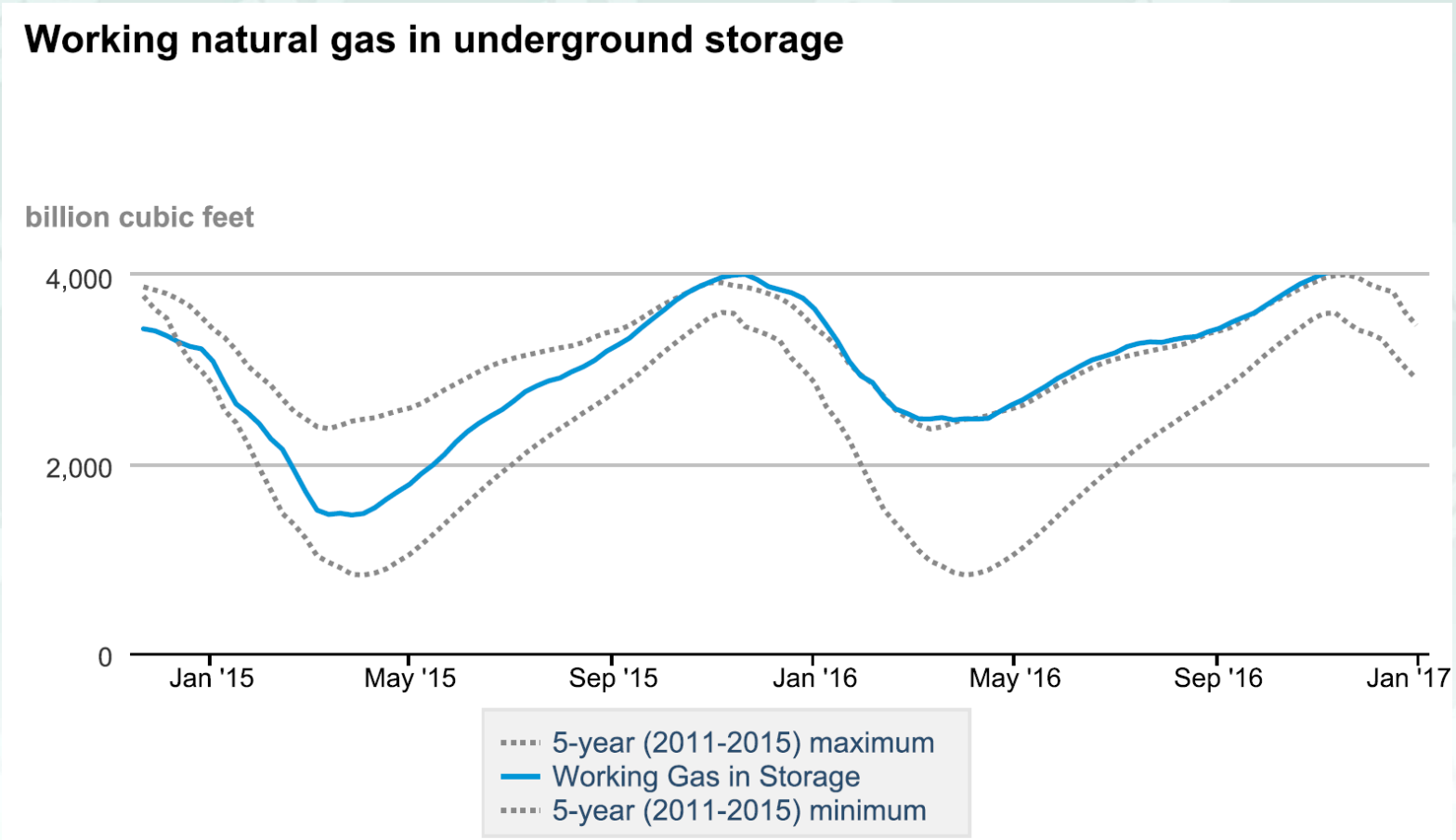
Situational Awareness

- Control Room gas-electric support
- Northeast interstate pipeline system is displayed on the operator Video Board. Operational Flow Orders are posted with enhanced brightness on the Video Board
- A web-based, fuel survey “portal” provides generator fuel information to the operators
  - *This is updated weekly by generators and updated daily during cold weather conditions*

Gas Electric Communications

- **A communications protocol is in place with NY state agencies to improve the speed and efficiency of generator requests to state agencies for emissions waivers if needed for reliability**
  - ***Weekly dashboards & daily dashboards during cold weather conditions are issued indicating fuel and capacity margin status***
- **An emergency communication protocol is in place to communicate electric reliability concerns to pipelines and gas LDCs during tight electric operating conditions**
- **FERC Order 787**
  - ***The NYISO modified its code of conduct per the FERC Order 787 to accommodate pipeline requests for reliability information***

Winter Storage Comparison



Source: Form EIA-912, "Weekly Underground Natural Gas Storage Report"

Market Enhancements

- **November 2015**
  - ***Implemented enhancements to Shortage Pricing to increase incentives for generators to secure sufficient fuel to meet Day-Ahead schedules***
- **November 2015**
  - ***Increase the Total Operating Reserve Requirement from 1965 MW to 2620 MW in the day ahead market and real time dispatch on November 1, 2015***
- **June 2016**
  - ***Enhanced Scarcity Pricing for Demand Response activations deployed***

Continued Winter Challenges

- **Gas Availability**
  - *It continues to be a fact that Gas LDC retail load has gas transportation priority over electric power generation during cold weather conditions.*
- **Extended Cold Weather Conditions**
  - *Burn rates of alternative fuels can exceed replacement rates of alternative fuels during extended cold weather and result in reduced generation capacity (and during extended time periods when oil costs are below gas costs)*
- **Emissions challenges to dual fuel capability**
  - *Burning oil may be further restricted by reduced NOx emission limits, less Northeast refinery capability, or potential for reduced carbon emissions targets*
- **New gas pipeline siting remains challenging**

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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