

Winter 2015-16 Preparedness

Wes Yeomans

Vice President – Operations

New York Independent System Operator

FERC Commission Meeting

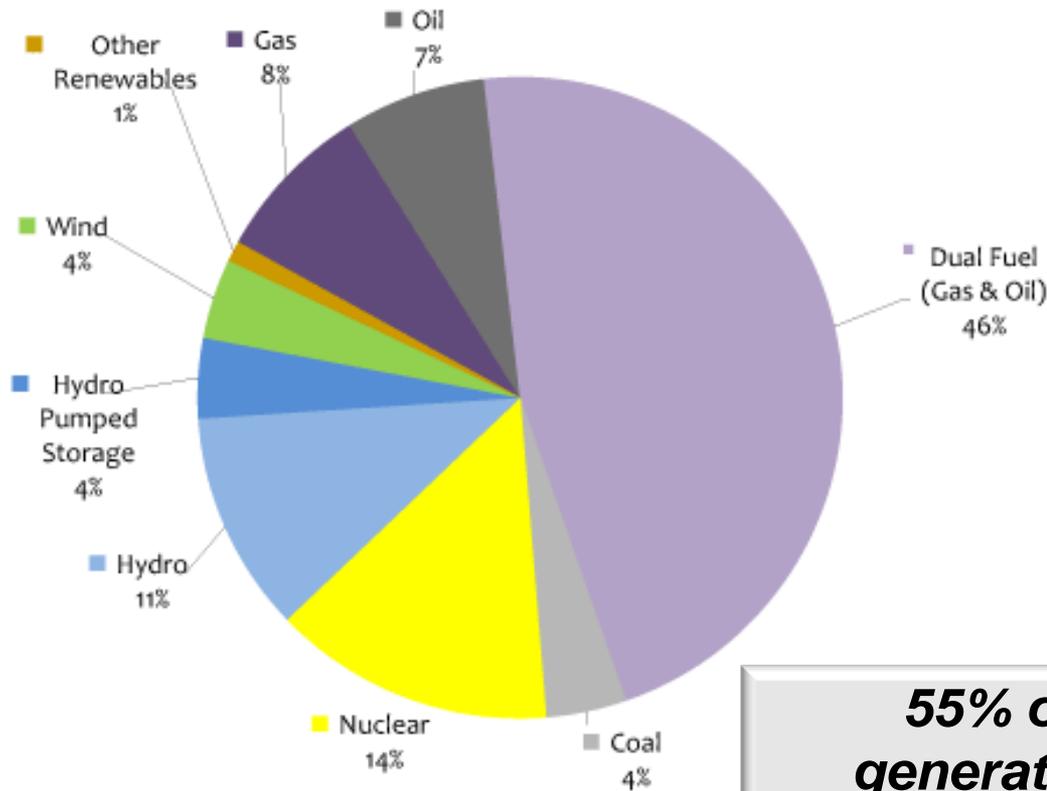
September 17, 2015

Winter Preparedness

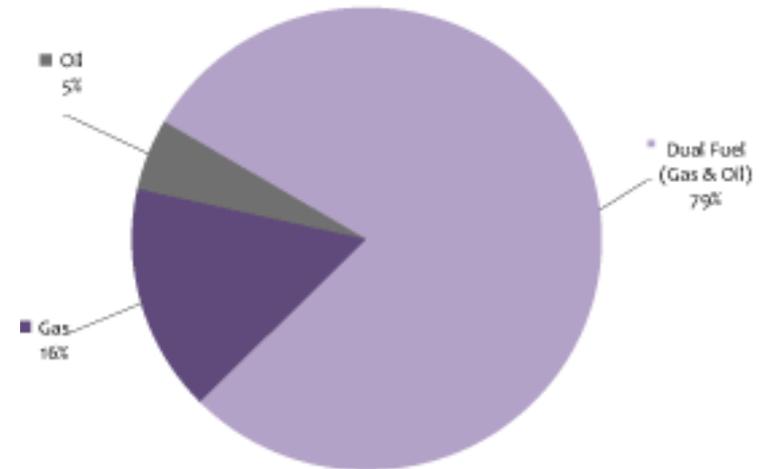
- ◆ **Capacity Projections**
- ◆ **Winter Preparedness**
- ◆ **Situational Awareness**
- ◆ **Gas-Electric Communications**
- ◆ **Transmission Constraints**
- ◆ **Market Enhancements**
- ◆ **Continued Challenges**

Generator Fuel Mix NYISO

New York State



New York City



**55% of
generating
capacity is gas**

NYCA Winter Installed Capacity Assessment - Loss of Gas

| Line | Item | 2015-2016 Baseline Forecast | 2015-2016 90th Percentile Forecast |
|--------------------|---|-----------------------------------|--|
| 1a | Installed Capacity Resources | 40,938 | 40,938 |
| 1b | SCR - ICAP Values | 885 | 885 |
| 1c | Net ICAP External Imports | 338 | 338 |
| 1 | NYCA Resource Capability | 42,161 | 42,161 |
| 2 | Total Installed Capacity Derates | 4,738 | 4,738 |
| 3 = (1-2) | Net Installed Capacity Resources | 37,422 | 37,422 |
| 4 | Load Forecast | 24,515 | 26,097 |
| 5 | Operating Reserve Requirement | 2,620 | 2,620 |
| 6 = (3-4-5) | Capacity Margin | 10,287 | 8,705 |
| 7a | Subtract All Gas Only Units | 7,168 | 7,168 |
| 7 = (6-7a) | Capacity Margin, Loss of Gas | 3,119 | 1,537 |
| 8a | Add Back Units with Firm Gas Contracts | 3,166 | 3,166 |
| 8 = (7-8a) | Expected Capacity, Loss of Gas Case | 6,285 | 4,703 |

Loss of Gas values may change based upon results of 2015-16 Fuel Survey.

Winter Preparedness

- ◆ **The NYISO Market Mitigation and Analysis Department performed on-site visits of several generating stations (sum 14,901 MW) to discuss past winter operations and preparations for Winter 2015-16**
 - *Focused on units with low capacity factors*
 - *Pre-visit questionnaire included: Natural gas availability during peak conditions, issues associated with burning or obtaining oil, emissions limitations, preventative maintenance plans, causes of failed starts, programs to improve performance, and programs in place to insure switchyard reliability*
- ◆ **Findings;**
 - *Increased generation testing, cold-weather preventative maintenance, fuel capabilities, and fuel switching capabilities*

Winter Preparedness

- ◆ **Issued the seasonal generator fuel surveys;**
 - *Gas transportation arrangements*
 - *Alternative fuel capabilities (business decisions)*
 - *Starting fuel inventories, on-site storage capabilities, and off-site arrangements*
 - *Fuel replacement arrangements*
- ◆ **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 be updated and approved at the NYISO November Operating Committee meeting*

Situational Awareness

- ◆ **Control Room gas-electric expertise support:**
- ◆ **Northeast interstate pipeline system is displayed on the large operator Video Board. Operational Flow Orders are posted with enhanced brightness on the Video Board**
- ◆ **A web-based, fuel survey “portal” will go into production in December. This will provide the opportunity to automatically post fuel conditions to the Video Board for the operators**

Gas Electric Communications

- ◆ **Developed a communications protocol to improve speed & efficiency of generator requests to state agencies for emissions waivers if needed for reliability**
 - *Weekly dashboards & ad hoc during cold weather conditions*

- ◆ **FERC Order 787**
 - *The NYISO modified its code of conduct per the FERC Order 787 to accommodate pipeline requests for reliability information*

Transmission Constraints

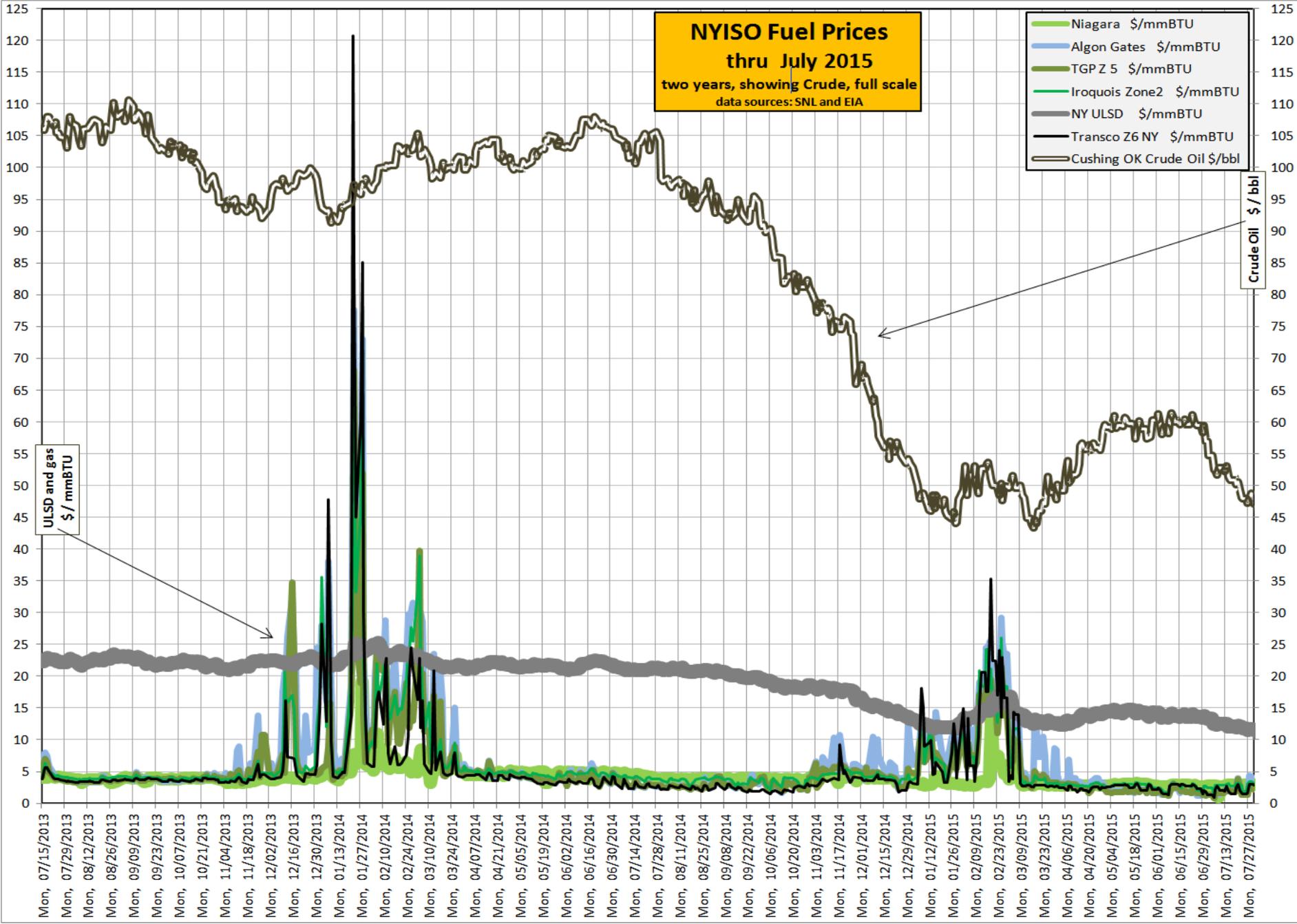
- ◆ **There are transmission upgrade projects and preventative maintenance work scheduled over the next eight months**
- ◆ **The NYISO will work with the NY Transmission Owners to monitor ambient weather conditions and re-schedule transmission work to maintain reliability**
- ◆ **The NYISO also monitors gas pipeline maintenance conditions and works with Transmission Owners, Gas Pipelines, and Generator Owners to avoid reliability conflicts**

Market Enhancements

- ◆ **Enhanced Reserve Shortage curves will be implemented November 1, 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**
- ◆ **Regarding FERC Order 809, the NYISO market closes at 5 AM (est.) and makes a “best efforts” to post around 9:30 AM (est.) and decided not to advance the market timing**
- ◆ **Continuing discussions with Stakeholders on fuel assurance in the form of capacity market enhancements**
 - *No capacity market enhancements scheduled for Winter 2015-16*

Continued Winter Challenges

- ◆ **Gas Availability**
 - *It continues to be a fact that Gas LDC retail load has gas transportation priority across the Gas LDC's 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)*
- ◆ **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*
- ◆ **New 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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