



Follow-up Questions on Effects of Fuel Derates Winter 2004-'05

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BIC – June 29, 2005

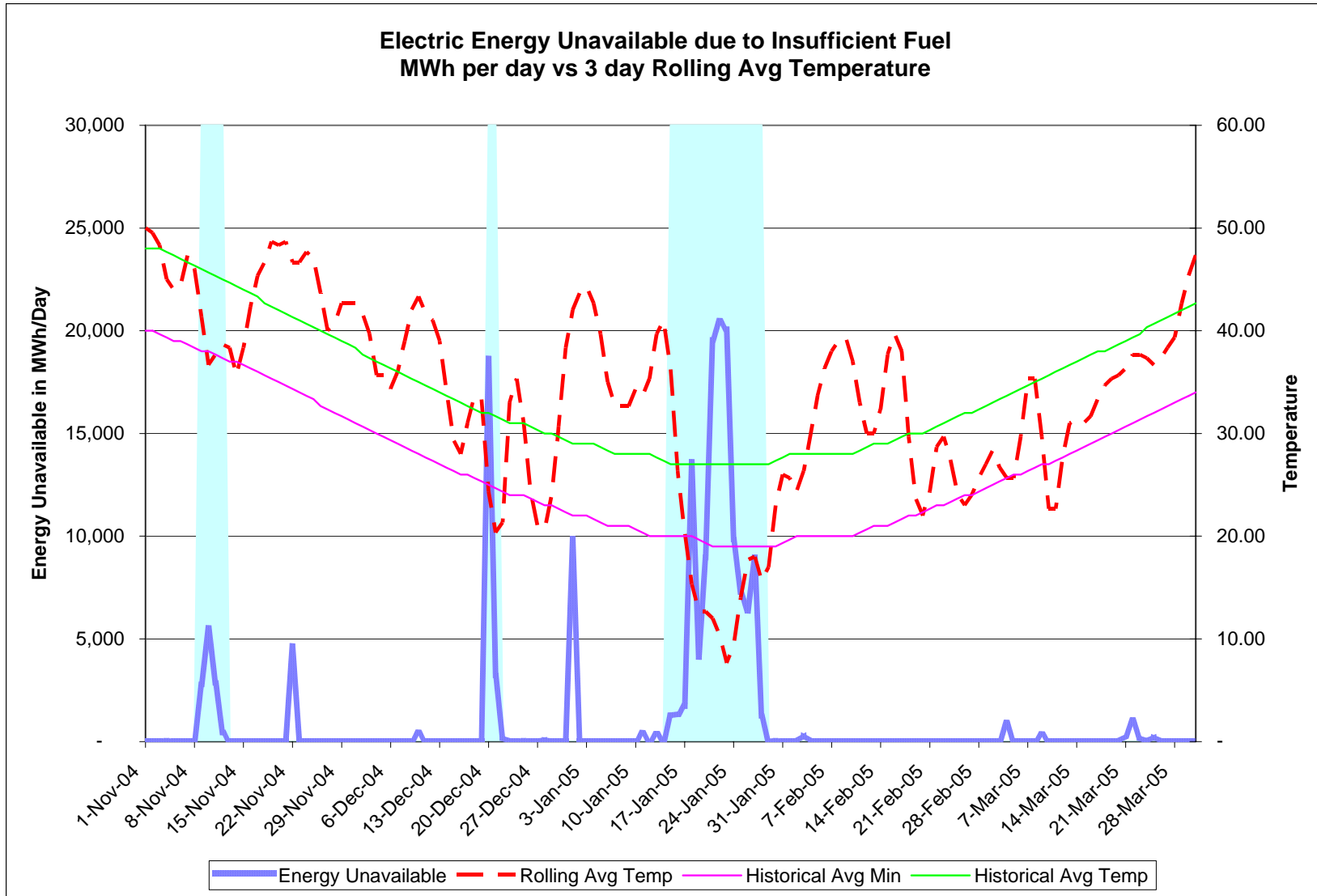
Questions Raised by MPs

- ✓ Regarding the fuel derating presentation made in April:
 - *What was the fuel composition of units operating on the days discussed in the previous fuel derating presentation?*
 - *How much capacity was left undispached after fuel deratings are taken into consideration?*
 - *What was the fuel composition of the units not scheduled?*
 - *For units out in January for a week or longer, were the units unavailable due to environmental restrictions?*

Fuel Deratings Winter 2004-'05

- ✓ The previous presentation reviewed the three periods with the most significant fuel outages last winter:
 - November 8 – 16;
 - December 16 – 22; and
 - January 15 – 21 and 22-28.
- ✓ The hour with the most fuel-related derates occurred on December 20, with 1,127 MWs of capacity unavailable.

Fuel Deratings



Fuel Capabilities and Usage

- ✓ The NYISO has limited data on fuel capabilities (e.g. which fuels generating units are capable of burning).
- ✓ Data available to the NYISO includes the annual Gold Book as well as reference price data gathered by Market Monitoring.
- ✓ NYISO does not receive or collect data regarding actual hourly fuel usage.

Fuel Capabilities and Usage

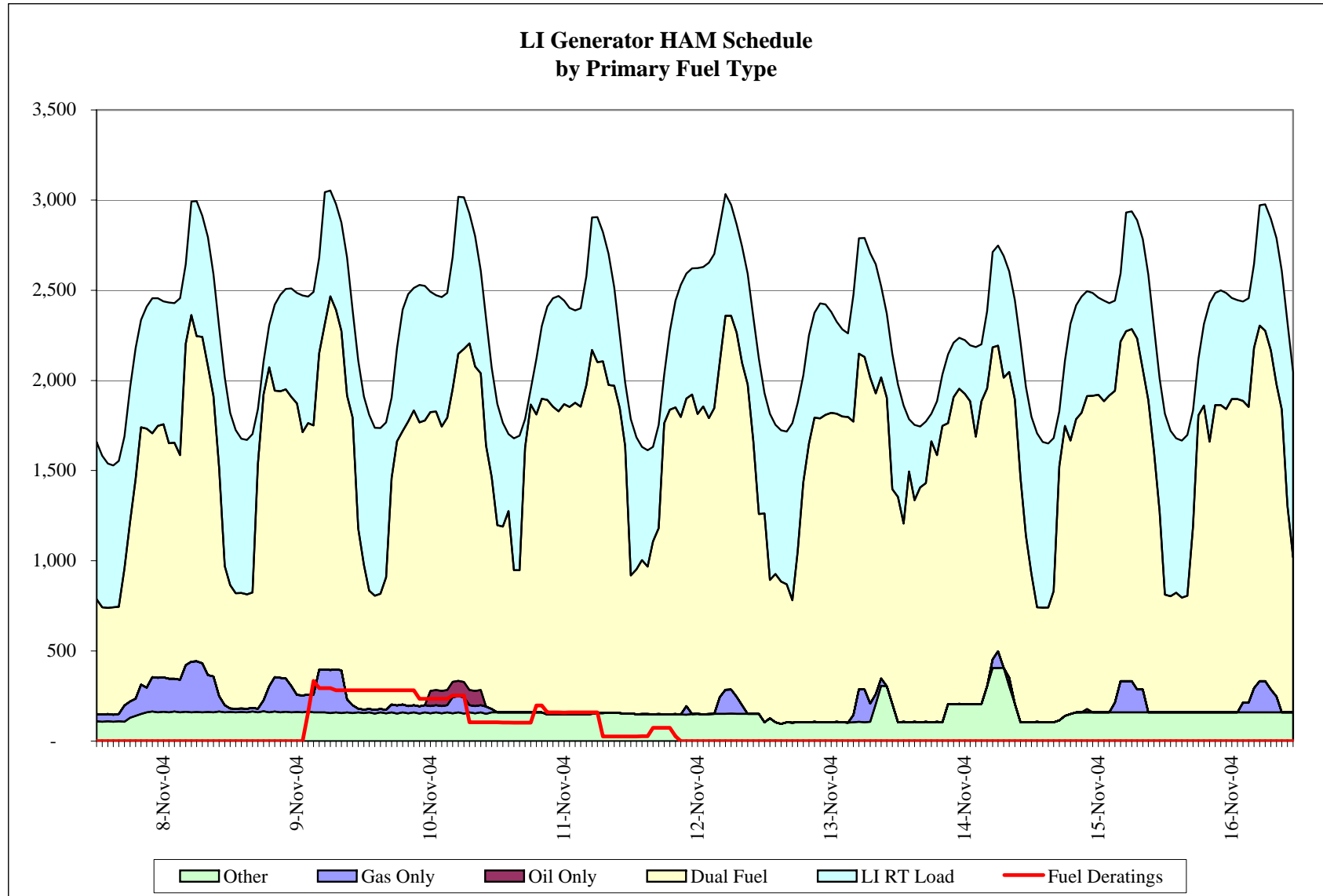
Generating units in New York City and Long Island generally fall into one of three categories:

- *dual fuel, capable of burning natural gas and at least one alternative fuel oil;*
- *natural gas, capable of burning natural gas only; or*
- *oil only, capable of burning fuel oil only.*

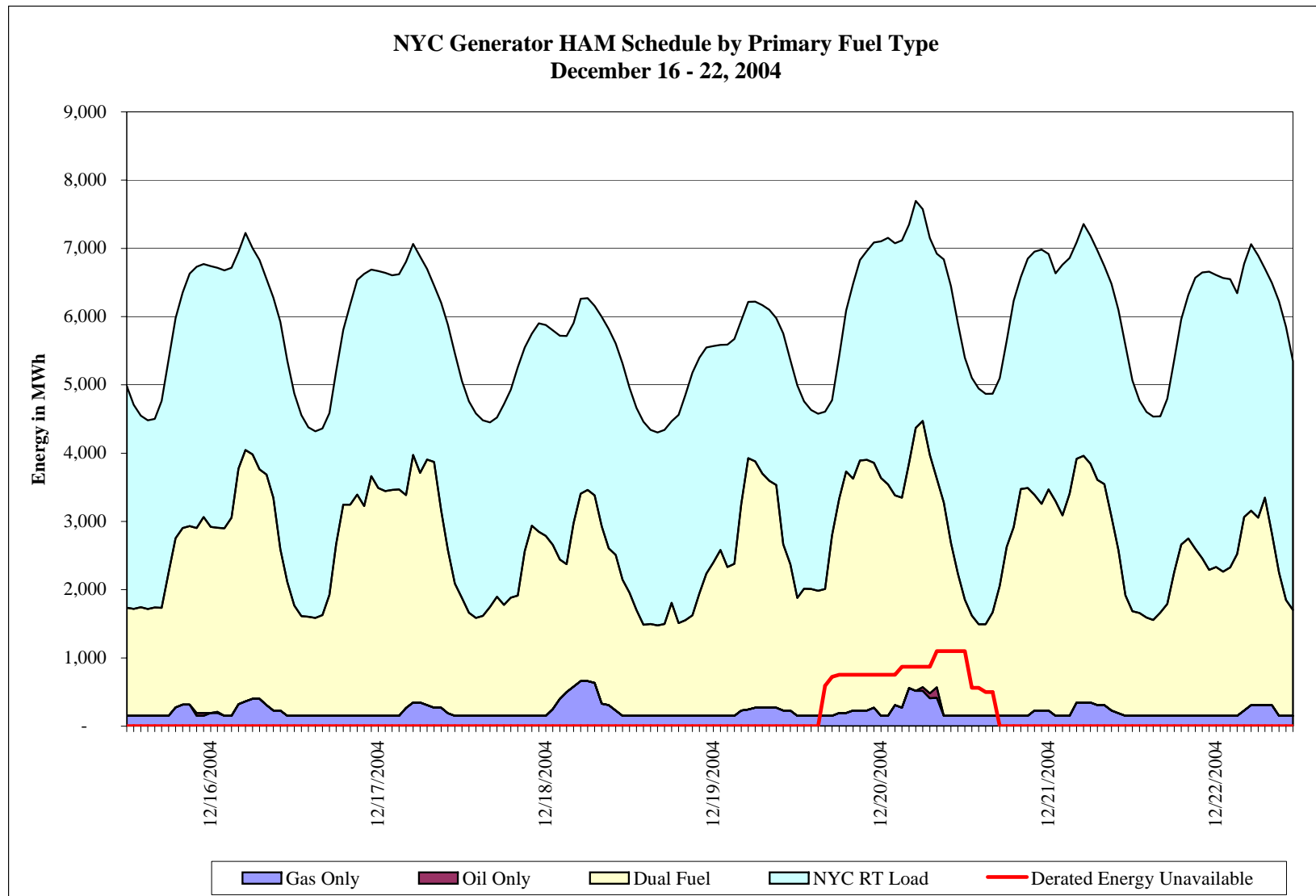
Fuel Composition of Scheduled Units

- ✓ The majority of the units scheduled during the periods of largest fuel deratings were base load dual fuel units. These units are characterized by older steam fired generators which typically burn fuel oil #6 or natural gas.
- ✓ Based on spot prices for fuel, it is likely during most of these periods generators were burning residual fuel oil.
- ✓ However, as many of these units are optimized within a portfolio of units, they could have been burning natural gas for some periods.

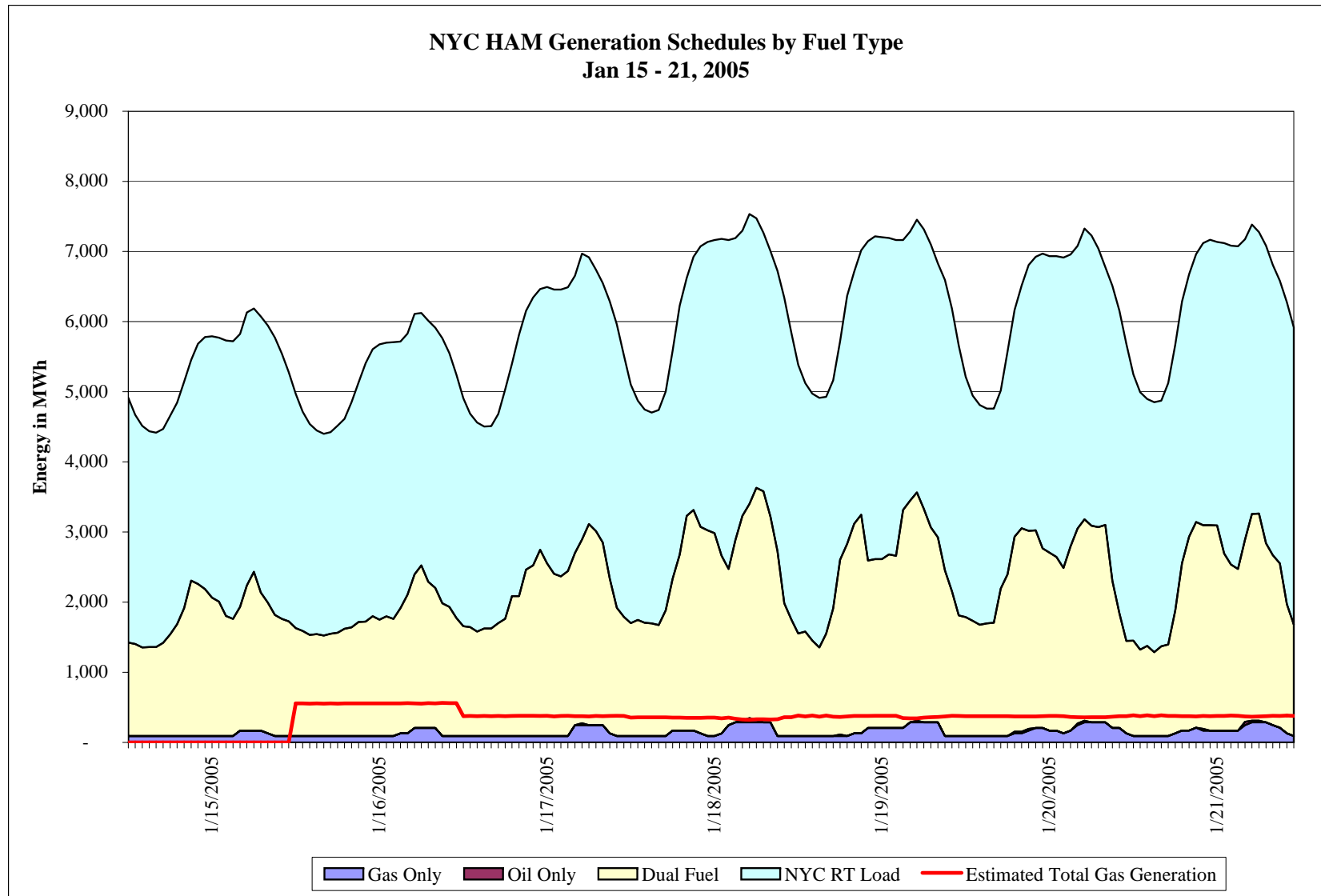
LI Fuel Composition: Nov 8 - 16



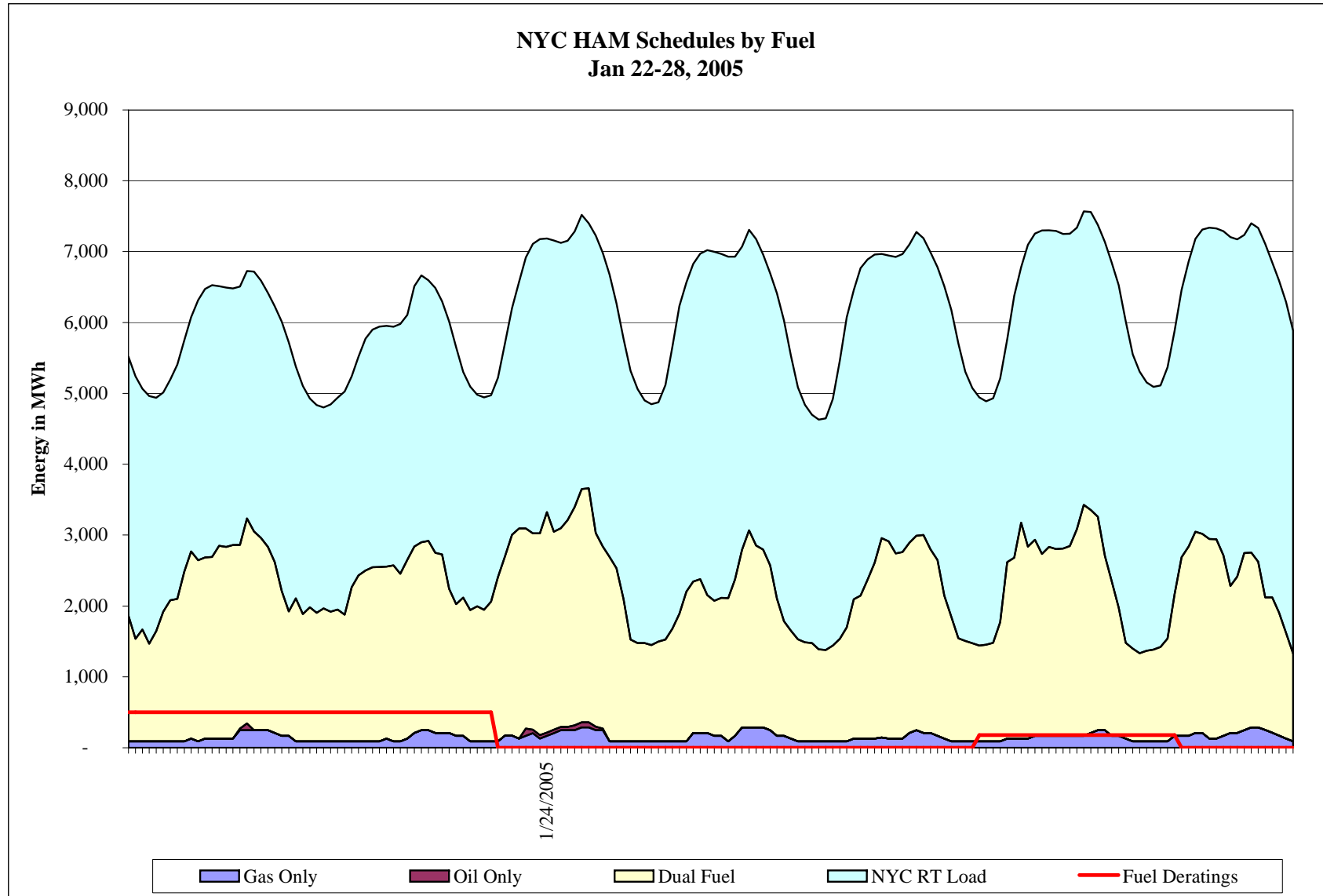
NYC Fuel Composition: Dec 16-22



NYC Fuel Composition: Jan 15 - 21



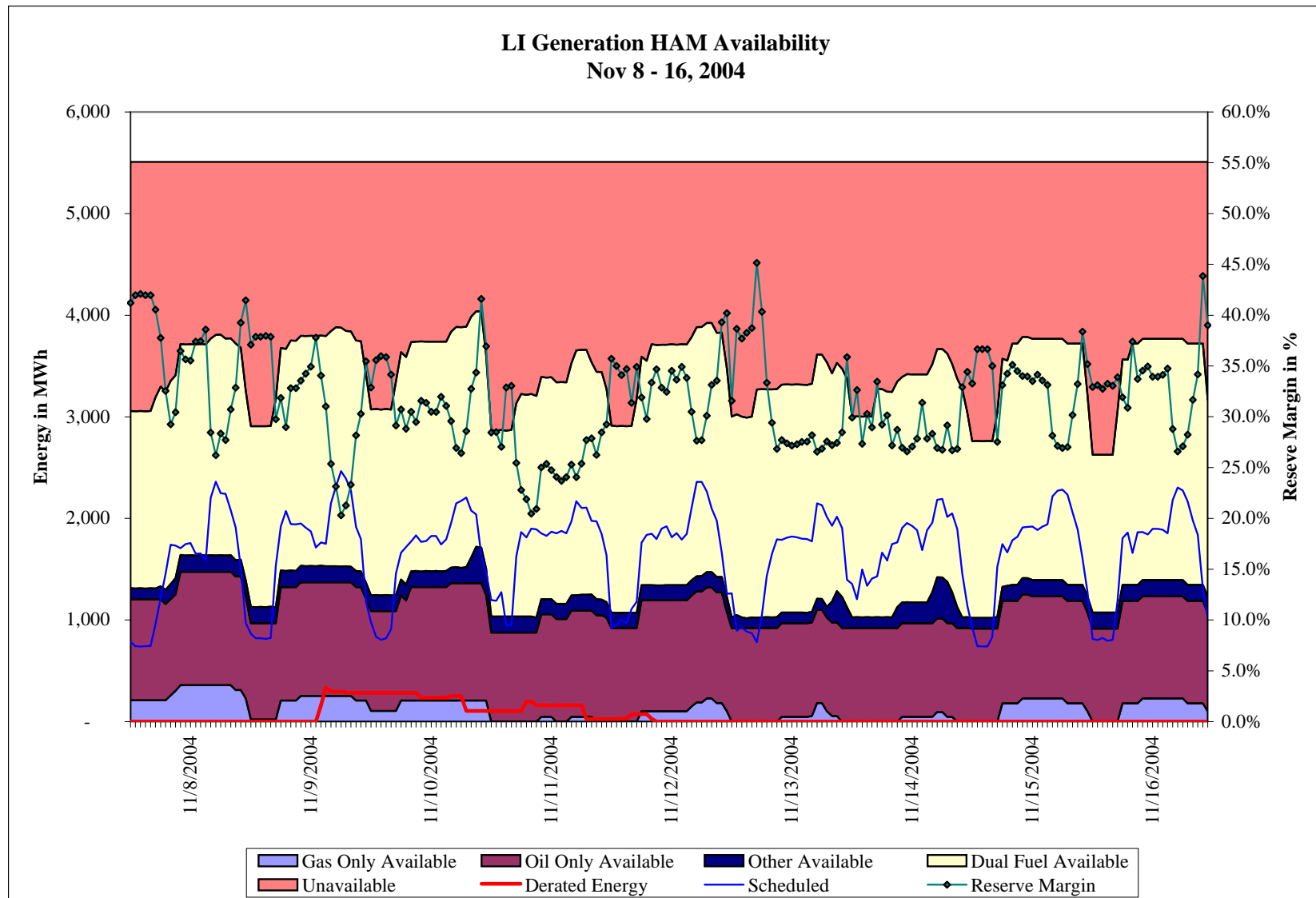
NYC Fuel Composition: Jan 22 - 28



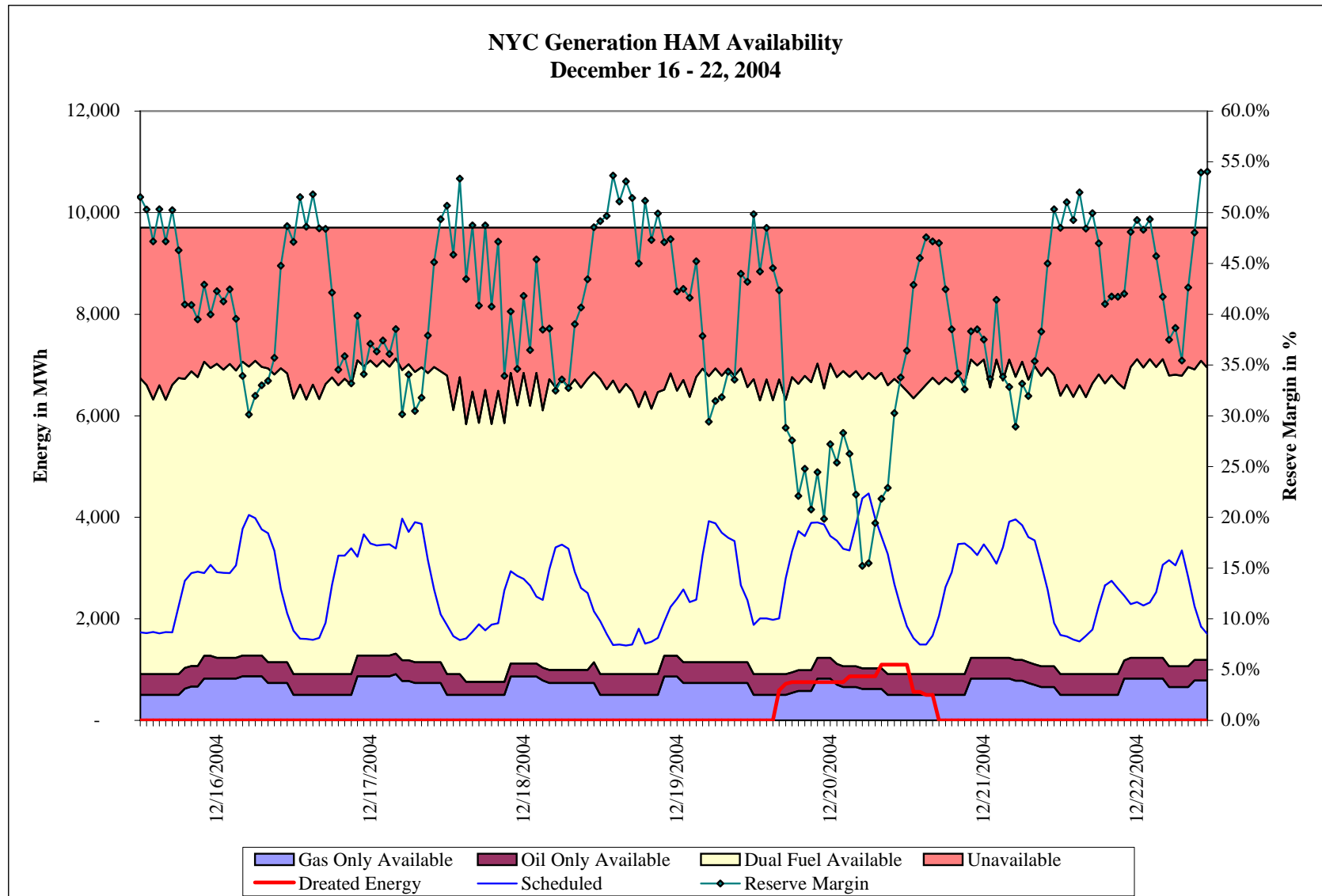
Composition of Undispatched Units

- ✓ In most hours, there appears to be sufficient zonal generation during the studied periods of fuel deratings.
- ✓ While many oil and gas only units bid as if they were available to the NYISO, the NYISO does not know if these units could have run if they were actually called upon.
- ✓ The estimated zonal reserve margin for most hours exceeded 20%. During the peak winter hours, reserves dipped to 15% for two hours.

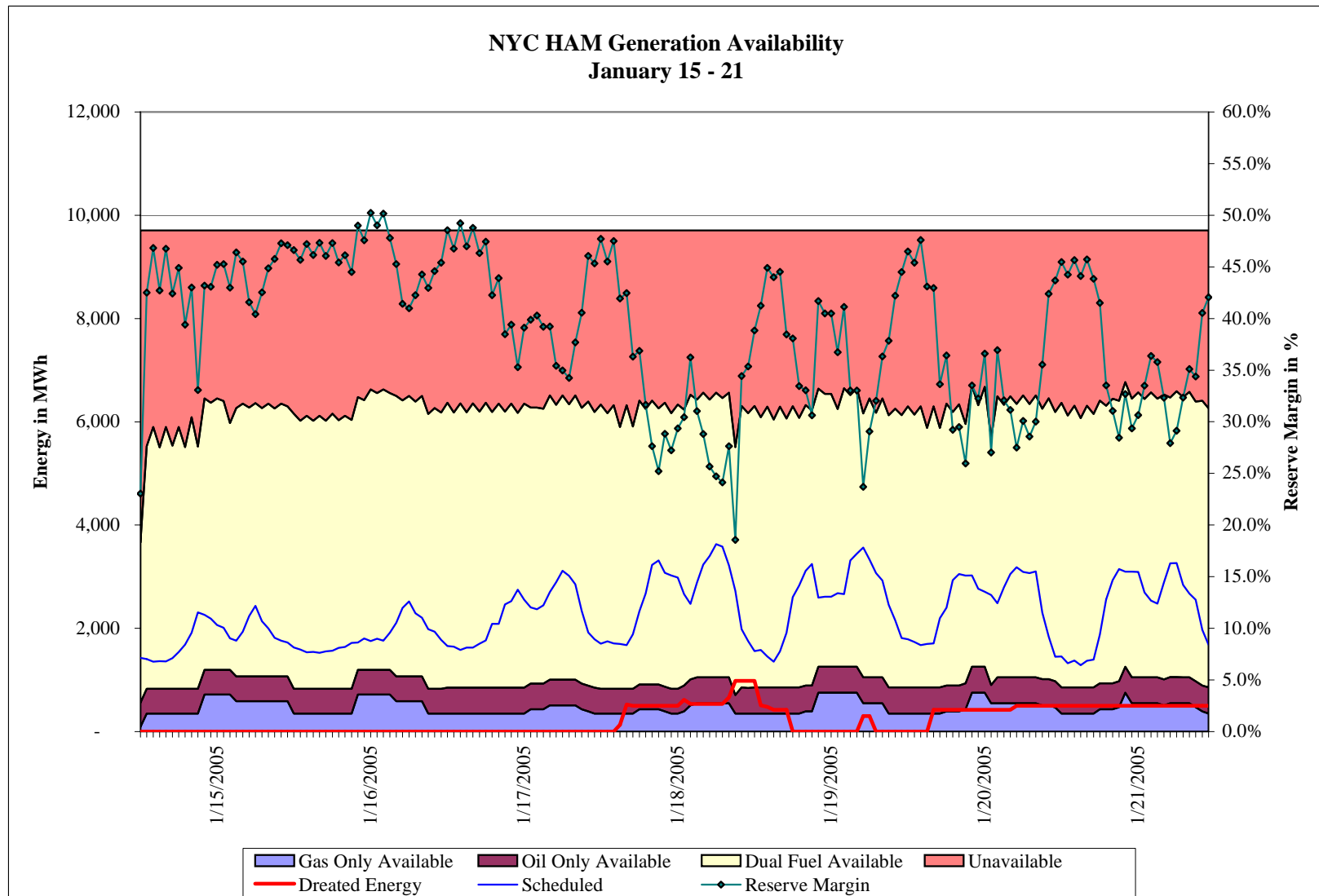
LI Fuel Composition: Nov 8 - 16



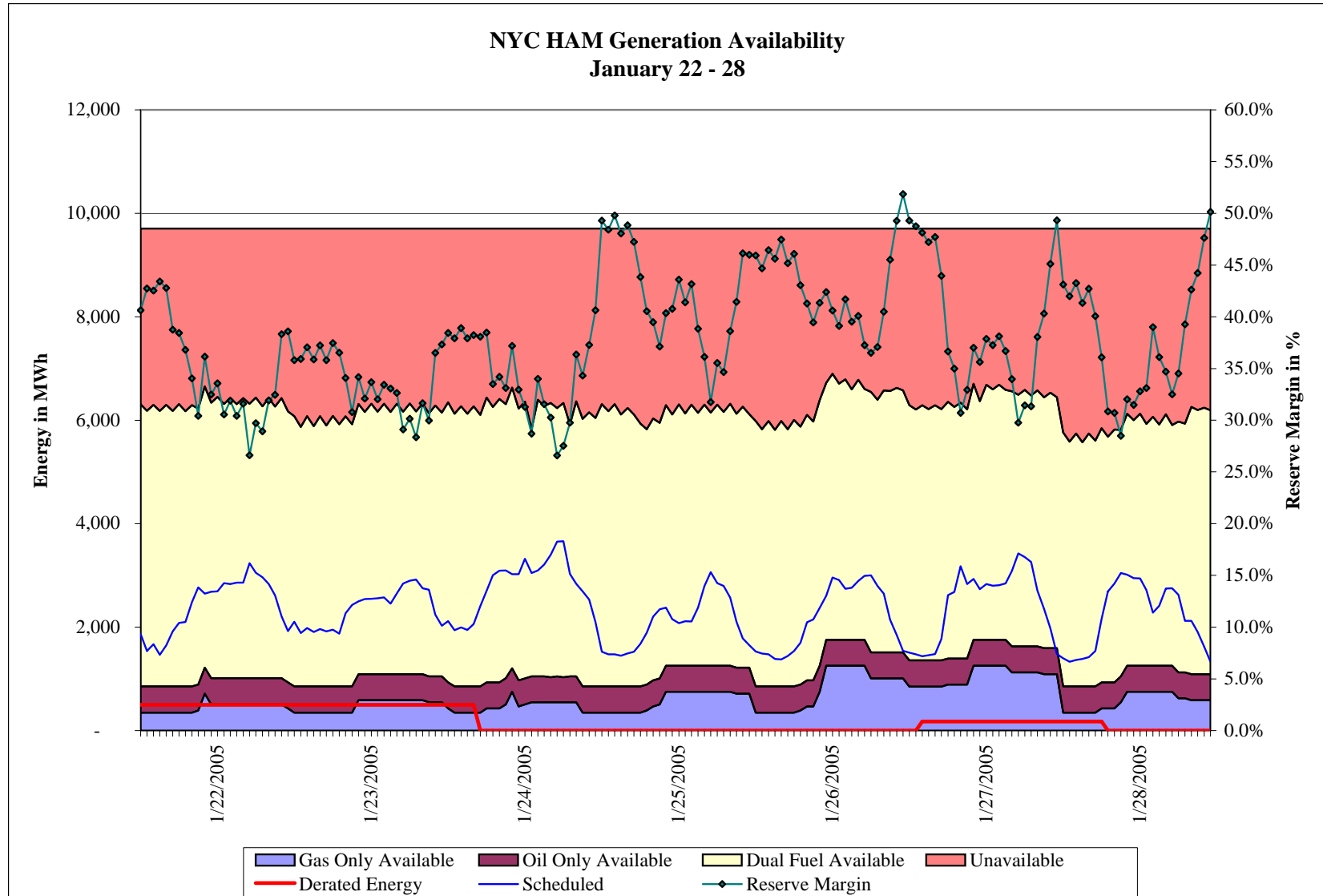
NYC Fuel Composition: Dec 16-22



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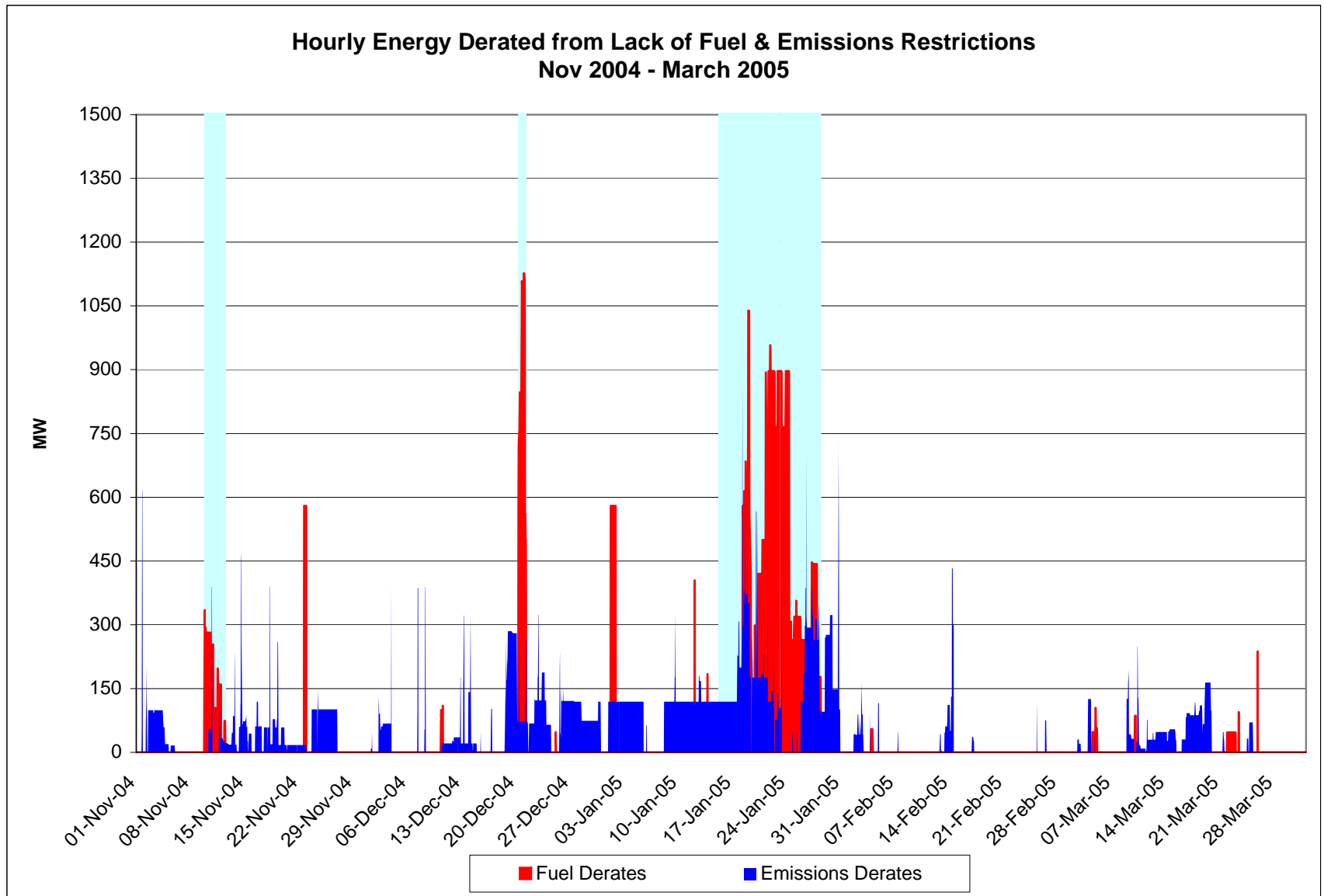
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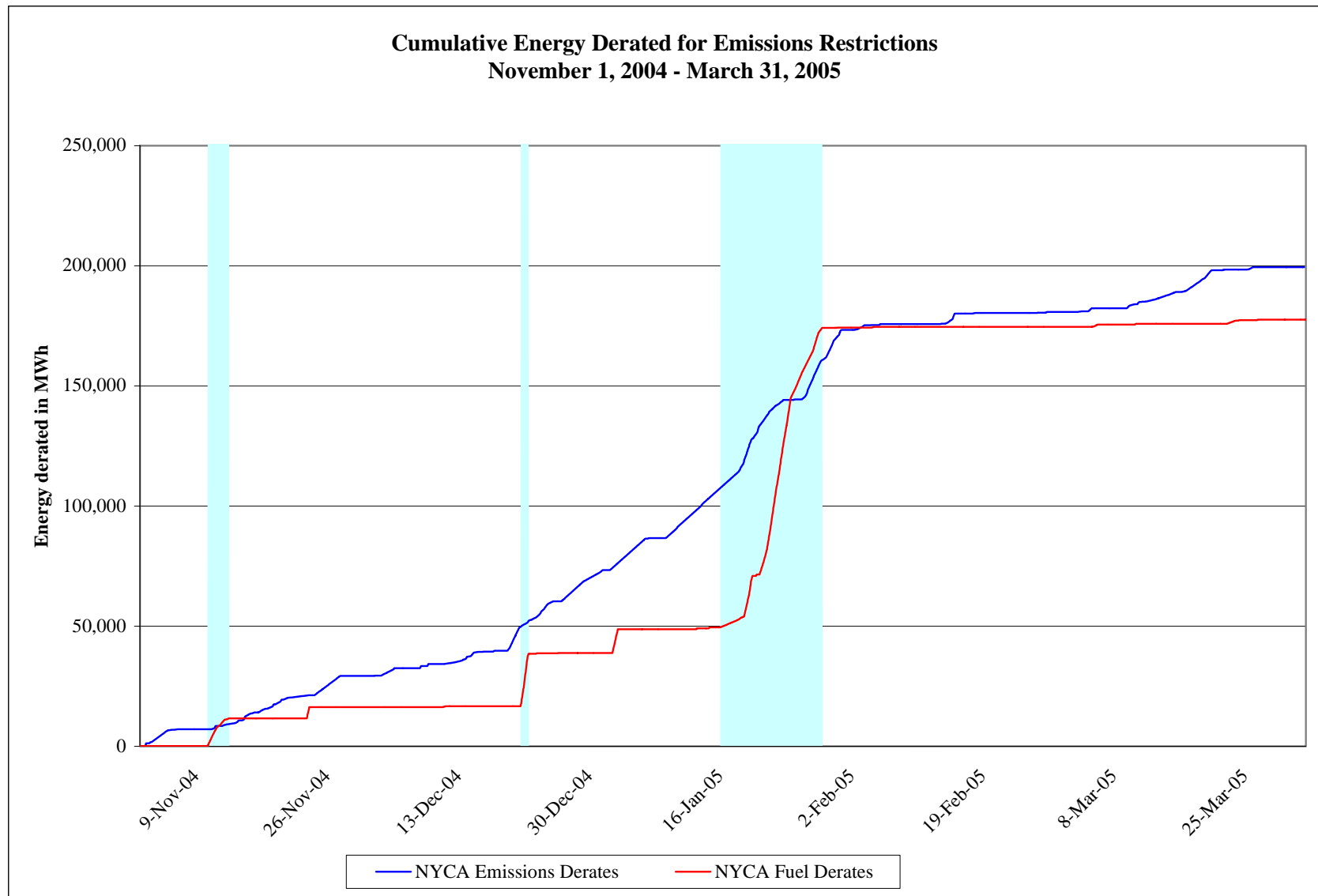
Emissions Restrictions

- ✓ From November 1, 2004 to March 31, 2005 there were a total of 2,789 unit hours derated due to air emissions restrictions compared to 1,223 unit hours derated for lack of fuel.
- ✓ The total derates for emissions restrictions were 199,438 MWh; 12% greater than fuel derates over the same period.
- ✓ However, most of the derates for environmental restrictions applied to the coal units in upstate New York.

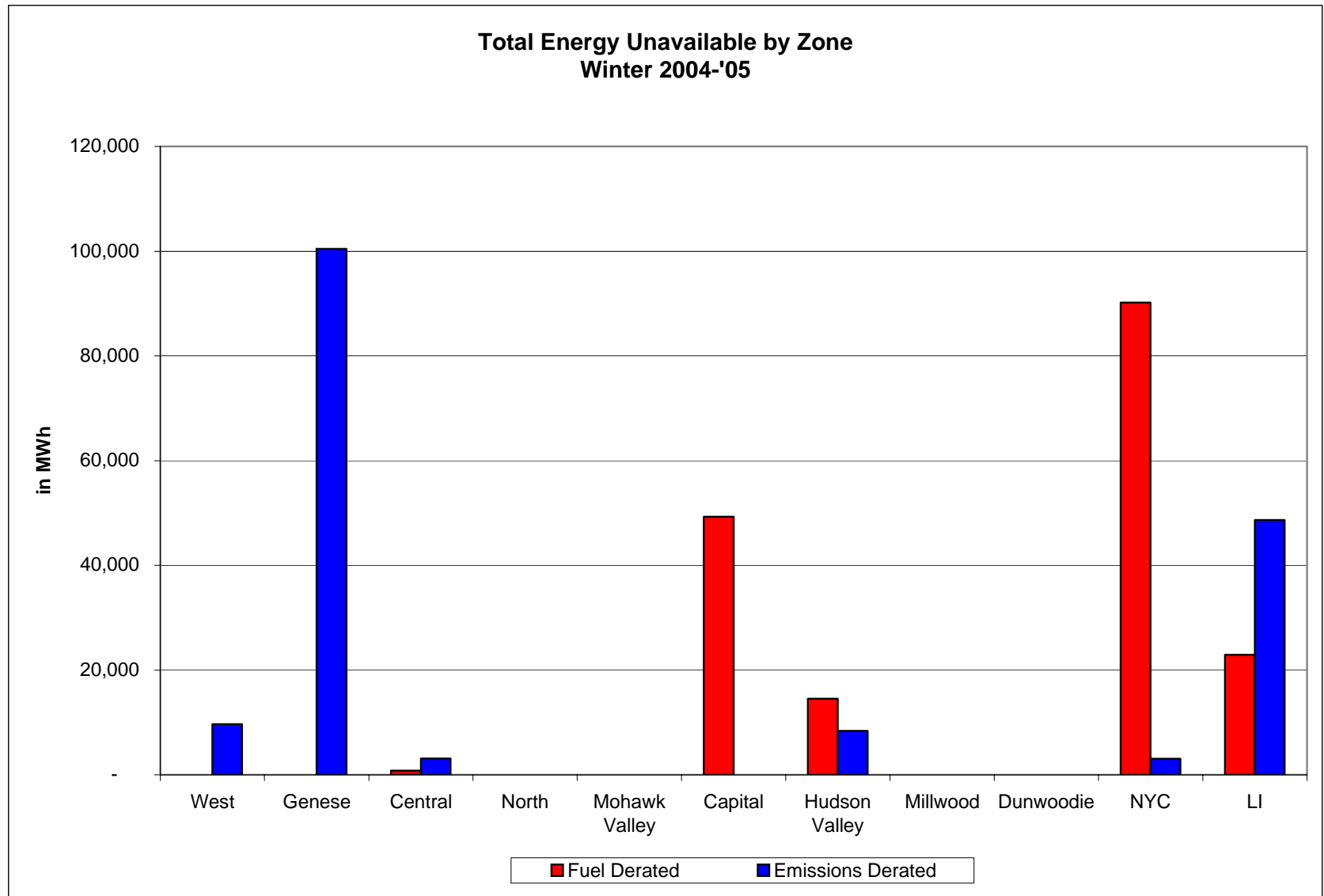
Emissions vs. Fuel Derates



NYCA Winter Emissions Derates



Emissions vs. Fuel Derates



Conclusion

- ✓ While the NYISO experienced deratings due to lack of fuel and emission restrictions, these events did not materially impact the reliability of the electric grid.
- ✓ The following observations were significant in reaching this conclusion:
 - *the NYISO is a summer peaking region with sufficient resources to satisfy winter peak demand;*
 - *the generation mix in NYISO is relatively diverse, with a large number of dual fuel generators; and*
 - *most emissions derates occurred upstate and had limited impact on downstate generators.*