Fuel Assurance

The interaction between natural gas infrastructure and the power grid is coming under sharp focus as any disruptions in generator access to natural gas may increasingly have consequences for grid reliability. The increase in gas demand for electric generation, the economic pressure the state's nuclear units are facing as a result of low gas prices, and uncertainty over the likelihood of gas infrastructure expansions all contribute to strategic concerns over the gas system's ability to meet the future coincident requirements of gas-fired generation as well as residential, commercial and industrial gas customers, especially on winter and summer peak demand days.

Current Conditions

For the winter 2015-16 period, the NYISO projected 41,312 MW of installed generation capacity and 9,068 MW of capacity surplus for baseline (50-50) winter peak conditions. For extreme (90-10) weather conditions and loss of all gas without firm transportation arrangements, the projected capacity margin dropped to 3,835 MW. The current NYISO generation fuel mix consists of 14% Nuclear, 15% Hydro and Pumped Storage, 11% Coal and Oil, 46% Dual Fuel, 10% Gas only, and 4% Wind and other Renewables. While sufficient capacity has been bidding into the energy market during winter conditions, there have been operating challenges due to significant generator de-rates, tight adjacent control area conditions, and high oil-burn rates during prolonged cold weather conditions.

For these reasons the NYISO has implemented energy market enhancements and coordination improvements; including enhanced reserve shortage pricing, increased reserve requirements, seasonal and weekly fuel inventory monitoring, control room gas-expertise support, enhancements to reference level developments, state agency communication protocols, improved operator visualization of gas infrastructure Operational Flow Orders (OFO) status, continuation of Minimum Oil Burn provisions, and quarterly monitoring and coordination of gas maintenance work.

Going forward

There is a wide range of possible changes in the generation fuel mix looming in the future that will have implications for fuel assurance. Two nuclear power plants have announced retirements to take place over the next twelve months and there exists economic and political uncertainty with the state's four other nuclear power plants. The current gas pipeline system is heavily constrained to eastern NY, New York City, and Long Island and Gas LDCs serving retail load own most of the firm transportation across the interstate pipeline system. Meanwhile, adjacent RTOs are also experiencing increased reliance on gas-fired generation and there is growing uncertainty about the expansion of the gas pipeline infrastructure to support this regional growth. The burn rates of alternative fuels can exceed replacement rates during extended cold-weather conditions. Lastly, federal and state policy objectives are encouraging higher levels of renewable resources, which may require more generation flexibility in the form of regulation and ramping.

Table Discussion

PJM and ISO-NE are implementing significant capacity market enhancements to improve fuel assurance. The NYISO 2016 Project Plan has a defined project, “Performance Assurance Study” to evaluate fuel assurance issues. Understanding the NYISO has already implemented enhancements in the energy markets along with gas-electric coordination improvements, and understanding future uncertainties with respect to generation diversity, what next steps (if any) should the NYISO take to promote fuel assurance in support of reliability?

Table Questions

1. What do Market Participants see as likely, future generation fuel mix changes that could impact Fuel Assurance?

2. Given the steps already undertaken by the NYISO to address fuel assurance, should the NYISO wait-and-see if current market structures result in appropriate market responses before expanding its efforts in the capacity markets?

3. How should the NYISO monitor and assess the potential impact of fuel assurance on reliability?

4. If there is a need to continue market design enhancements to promote fuel assurance, should the enhancements be in the area of energy market, capacity market, or both? Why?

5. What specific types of market enhancements would promote fuel assurance most effectively?

6. Considering the various fuel assurance mechanisms that have been implemented across neighboring regions, are there concerns that such efforts will lead to new market seams where fuel procurement might prove to be more difficult during tight supply conditions?