



Energy Insights -- March 2013 Monthly Briefing on Energy Issues and Trends

New England's Reliance on Natural Gas Could Impact Winter Electricity Reliability -- Working on Solutions

In recent testimony before a U.S. House Subcommittee on Energy and Power, Gordon van Welie, President and CEO of ISO New England, alerted members to the region's growing dependence on natural gas that, combined with supply constraints, could threaten electricity reliability during winter months.

New England now generates about half of its electricity from natural gas -- up from 15% since 2000 -- due to abundant low-cost supplies and because environmental rules have shifted the region away from oil and coal. Natural gas is also widely used for home heating.

Van Welie stated that while natural gas supplies are abundant, New England's existing natural gas pipeline infrastructure, however, is insufficient. It does not allow the region full access to supplies from the west and the south during winter months when there is simultaneous high demand for natural gas for both home heating and electricity generation.

During times of peak demand, there may not be enough pipeline capacity to satisfy both heating and electric demand. According to ISO New England, companies that procure natural gas for heating receive priority contracts with pipelines for natural gas delivery. Natural gas-fired power plants, however, do not typically pay for firm service, using instead a "just-in-time" delivery system.

Mr. Van Welie noted that at one point during the Winter Storm Nemo in February, 6,000 MW of electricity - about a fifth of the region's total capacity - was not available, in part, because natural gas electricity generators could not secure adequate supplies.

ISO New England and industry stakeholders are working on a broad range of solutions to alleviate any future threats to wintertime reliability some of which include greater natural gas market flexibility, more fuel storage inventory (in the form of LNG), strengthening fuel supply arrangements and pipeline expansion.

Sources: Lindsay, J. (2013, March 20). Grid chief warns of future NE power problems, Associated Press.

ISO New England CEO testifies at congressional subcommittee hearing on growing role of natural gas for electricity production, ISO New England, March 19, 2013.

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U.S. Power Plant Emissions Significantly Down

According to a new EPA report, carbon emissions from U.S. power plants fell 4.6 percent in 2011 from the previous year. This reduction reflects a decline in the use of coal, the dominant energy source for electricity generation in the U.S., and an increase in natural gas and renewable sources that produce fewer carbon emissions.

The Energy Information Administration also reported that emissions of sulfur dioxide and nitrogen oxides from electricity generation in 2012 fell to their lowest level since the passage of the Clean Air Act Amendments of 1990. This decline is due primarily to four factors: an increasing number of coal-fired units are being retrofitted with scrubbers; coal plants are switching to lower sulfur coal; plants are using selective catalytic (or noncatalytic) reduction, or low-NOx burners; and the nation is decreasing use of coal for electricity generation.

Sources: Daly, M. (2013, February 5). EPA: Decline in carbon pollution from power plants, Associated Press.

Varela, R. (2013 March 4). EIA: SO₂ and NO_x emissions last year were at lowest levels since 1990. *Public Power Weekly*.

New England's Electricity Forecast Indicates Slow Growth

ISO New England's preliminary projections of long-term electricity use from 2013 to 2022 show that both energy consumption and peak demand will grow slightly over 1% annually, on average, over the next decade.

These preliminary projections represent the baseline forecast and do not take into account the impacts of state sponsored energy efficiency programs. With energy efficiency factored in, energy consumption is expected to barely grow at an average annual rate of 0.2% rather than the 1.1% in the baseline load forecast. Similarly, peak demand growth is also slower when energy efficiency is factored in -- decreasing from 1.4% to 0.8%.

This long-term load forecast is developed each year using state and regional economic forecasts, 40 years of weather history in New England and other factors. The forecast is expected to be finalized later this spring.

Source: *Preliminary load forecast indicates slow growth in annual electricity consumption and peak demand*, ISO Newswire, February 28, 2013.

CT and ME Consider Revising Renewable Portfolio Standard Framework

A draft study issued by Connecticut's Department of Energy and Environmental Protection (DEEP) recommends restructuring the state's existing Renewable Portfolio Standard (RPS) which was first adopted in 1998 to require Connecticut electricity providers to secure a certain percentage of electricity from renewable resources.

The study notes that the current RPS framework has resulted in the state's Renewable Energy Credits coming largely from out-of-state biomass burning and landfill gas facilities. An updated framework is recommended to ensure the cleanest and most cost-effective renewable energy is being procured for CT ratepayers.

A key recommendation is to increase the amount of renewable electricity mandated -- from the current 20% required by 2020 to 25% by 2025. The plan also allows the state to run a competitive bid process to buy a portion -- 7.5% by 2025 -- of electricity needed to meet the target. This procurement would be done in conjunction with other New England states.

DEEP recommends that large-scale hydroelectric projects of greater than 30 MW be allowed to compete within the "contracted tier". The study also recommends phasing out subsidies for older biomass plants and landfill gas that do not provide optimal economic or environmental benefits.

These changes will allow Connecticut to buy power from large hydropower projects in Canada, while reducing reliance on biomass plants and creating more renewable projects in CT. The state is soliciting comments on these changes and will hold public hearings.

Maine's existing RPS requires that at least 30% of the state's electricity come from renewable energy, including solar, biomass, hydro and wind. The standard also requires that the generation facilities contributing to the mix be limited to 100 MW, with only wind energy exempt from the limit.

A bill authored by Governor LePage's Energy Office would remove the 100 MW limit for all renewable resources including hydropower, potentially allowing generators up to 400 MW to be included -- opening the door to cheaper Canadian hydropower. The legislature is expected to take up the bill for discussion soon.

Sources: *Restructuring of Renewable Portfolio Standard Provides More Balanced and Flexible Approach to Clean Energy*, CT Department of Energy & Environmental Protection, March 18, 2013.

Dowling, B. (2013, March 19). State's new plan for renewables turns to large hydropower, away from biomass, McClatchy-Tribune Regional News, *Hartford Courant*.

Thistle, S. (2013, March 13). LePage measure would remove 100-megawatt cap for all renewables, McClatchy Tribune Regional News, *Sun Journal*.

Smart Meters Can Improve Grid Efficiency

According to a recent article, deployment of smart meters is increasingly becoming commonplace in many parts of the U.S. Approximately one-third of all U.S. households now have a smart meter installed. California and Texas have led these efforts with many other states following suit. For example, in New England, Maine is deploying smart meters to customers and Massachusetts has undertaken several pilot projects.

Utility benefits of these meters include: lower meter reading costs and improved outage and restoration management. Potential benefits to consumers include access to real-time electricity consumption in order to modify usage to reduce costs or to take advantage of lower pricing periods offered through utility time-of-day pricing programs.

A new emerging application of smart meters is improving grid efficiency by minimizing losses on the existing distribution system.

With smart meters, data once only available at the substation level, is now available at every metering point in real time

One Virginia utility is pursuing conservation voltage reduction that leverages this new data. For example, every household outlet is a nominal 120 volts. Utilities are allowed to operate the system in a band that ranges from 114 to 126 volts. Simply delivering voltage to every home in the lower part of the band (114 to 118 volts) results in significant savings to consumers.

The technology to reap these benefits is currently under development. Preliminary testing has shown that 90% of savings go directly to consumers. Optimizing the voltage to household appliances, results in more efficient operation, producing a lower utility bill without requiring any behavioral changes.

Source: Doswell, M. (2013 March). Smart Meters Improving Grid Efficiency. published on *EnergyBiz*.

Cabinet Nominations from New England

President Obama named a high-ranking official at the Environmental Protection Agency as the new EPA leader and a veteran of the Clinton administration as energy secretary -- both with ties to New England.

Gina McCarthy, currently an assistant administrator in charge of air and radiation, would replace Lisa Jackson, EPA's leader in Obama's first term. McCarthy is a former state environmental regulator who has been an advisor to five Massachusetts governors. From 2004 to 2009, she was commissioner of the Connecticut Department of Environmental Protection where she was responsible for programs to expand energy efficiency, reduce emissions and promote renewable energy.

Ernie Moniz, a physicist at the Massachusetts Institute of Technology and director of MIT's Energy Initiative, was nominated to replace Steven Chu as Secretary of Energy. Moniz served as both a scientific advisor and an undersecretary in the Energy Department during President Bill Clinton's administration where he oversaw science and energy programs and led a comprehensive review of nuclear weapons stockpile stewardship.

About the New England Energy Alliance, Inc.

The New England Energy Alliance is a coalition of energy companies advocating to ensure the availability, reliability and affordability of future energy supplies which are vital to the region's economic growth and prosperity. Formed in 2005, the Alliance works to balance public debate about solutions to New England's energy infrastructure by providing information on the region's energy needs and the resources, technologies and policies needed to meet those needs.

Please visit www.newenglandenergyalliance.org for more information on the Alliance.