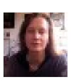
Region needs energy upgrades, including more natural gas pipeline capacity, says grid operator ISO New England

System operators in the ISO New England control room keep a careful watch on the use and flow of electricity in New England in this photo taken in 2006. *(Michael S. Gordon / The Republican File)*



By **Mary Serreze | Special to The Republican**
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New England will see an upward trend in electricity prices until the region adds more energy infrastructure -- including power generators, transmission upgrades, natural gas pipeline capacity, and fuel storage -- ISO New England president and CEO Gordon van Welie told reporters in a "state of the grid" briefing Wednesday.

ISO New England, based in Holyoke, is the federally-regulated, independent organization which dispatches power plants over six states, administers wholesale energy markets, and works to ensure grid reliability. ISO stands for "Independent System Operator."

Natural gas pipeline constraints are both hobbling the ability of New England power plants to produce competitively-priced electricity and threatening grid reliability, said Van Welie, who described the 2015 regional power grid as a "system in transition."

The region has not developed enough gas infrastructure to keep pace with the growth of gas-fired power plants, he said. Fifteen years ago, the portion of New England's power produced by natural gas stood at 15 percent; by last year, that number had jumped to 44 percent.

New England needs an additional 1.1 to 1.6 billion cubic feet of additional daily pipeline capacity to fuel the region's current natural gas generators during periods of peak demand, which occur on about 40 cold winter days per year, said Van Welie, adding that Massachusetts represents about half of New England's electricity consumption.

"It doesn't matter whether it's the Kinder Morgan pipe or any other pipe, as long as we get the supply into the region," said Van Welie, referring to a **controversial proposed pipeline** that would traverse three counties in Western Massachusetts.

Van Welie explained that because of pipeline capacity constraints, low wholesale prices and ample supply at the gas wellhead do not necessarily translate into low electricity prices and grid stability **for New England**, particularly during cold weather.

When natural gas prices are low, the region's gas-fired generators are dispatched more often because ISO dispatches the lowest-cost generators first. During the coldest days of the winter, when the plants can't get enough natural gas, they turn to higher-priced alternatives such as oil or liquefied natural gas (LNG), driving up the price of electricity, said Van Welie. Older, dirtier plants that burn coal or oil are called into service during such periods of peak demand, he said.

A recent boom in residential and commercial heating system conversions from oil to gas has further restricted the amount of gas left over for power plants, he said.

New England has about 350 generators that can be dispatched at any one time, and hundreds of smaller resources, totaling 31,000 megawatts. Around 15,000 megawatts, or nearly half of the region's capacity, have been added since the electricity industry was restructured in 1997, and most of the new power plants are natural-gas powered, said Van Welie.

Around 3,500 megawatts are due to go offline with the retirement of aging coal and nuclear power plants over the next several years. Major plant retirements include Vermont Yankee (nuclear), Salem Harbor (coal and oil), Norwalk Harbor (oil), Brayton Point (coal and oil), and Mount Tom Station in Holyoke (coal).

While renewable resources are trending up, said Van Welie, they still don't meet the region's needs. Industrial wind generation shows promise, but new, high-voltage transmission lines will be needed if wind is going to be a practical part of the mix, he said. Imported Canadian hydropower is also limited by transmission constraints, and not abundant during periods of peak demand, according to the ISO.

While new power projects totaling 9,500 megawatts have applied to connect to the New England grid, history has shown a 70 percent attrition rate in such proposals, said Van Welie.

The growth of gas-fired generation "occurred organically" even before domestic shale gas production took off around 2008 and lowered prices for the fuel, Van Welie said.

On the upside, Van Welie pointed to $7 billion in private transmission system upgrades since 2002, but said another $4.5 billion is needed to ensure grid reliability in all parts of New England, including greater Boston, Southeastern Massachusetts and Rhode Island.

Increasing liquefied natural gas storage capacity in New England could help with grid reliability and price-spiking issues, said Van Welie.

Issue of who would pay still up in the air

ISO's annual press briefing comes as Western Massachusetts grapples with the prospect of a high-capacity natural gas pipeline proposed by energy giant Kinder Morgan. The 36-inch pipeline would cross Berkshire, Hampshire and Franklin counties on its way to regional markets. **Opposition** to the **Northeast Energy Direct** project has been strong; at the same time, **construction workers** and organizations such as the Associated Industries of Massachusetts support the pipeline plan.

The question of who would pay for such a pipeline is still up in the air, and represents a "conundrum," said Van Welie.

In the electric industry, transmission line upgrades are designed to meet peak demand 10 years into the future, but the pipeline industry is only allowed to build capacity if they have customers signed up for long-term contracts.

While the region's gas-fueled power plants would be big pipeline users, they are reluctant to enter into long-term capacity contracts for various reasons, including the low price of oil. In short, said Van Welie, it's cheaper for gas generators to switch to oil during periods of peak demand than to commit to year-round pipeline capacity.

Because of regulations, local distribution companies such as Baystate Gas cannot contract for gas capacity beyond the needs of their commercial and residential customers. And for economic, legal, and regulatory reasons, private investors are not interested in funding more gas pipelines, he said.

Without committed customers, the pipelines will not be built; but pipeline capacity is needed for grid reliability reasons, said Van Welie.

That leaves the region's ratepayers potentially on the hook. While Van Welie declined to weigh in on political topics, energy watchers are waiting to see if the six New England governors, post-election, will reinvigorate stalled talks on a possible ratepayer tariff.

Last summer, then-governor Deval Patrick **walked away from tariff talks** and commissioned a statewide gas demand study instead. That study recommended adding up to an additional 800 million cubic feet of daily gas capacity to the state's portfolio, **much to the chagrin** of pipeline foes. Newly-elected governor Charlie Baker said during his inauguration that he will work regionally to address soaring energy prices, but has not taken a stand on the tariff issue.

However, Kinder Morgan **has publicly stated** that it can afford to build its controversial pipeline without the benefit of a ratepayer tariff.

Not everyone buys the capacity analysis provided by ISO New England. According to the Conservation Law Foundation, wholesale prices for electricity and natural gas this winter are running well below last year, and power plants are getting the fuel they need to run, even in very cold weather.

While the CLF admits there were price challenges last year, "the new, calmer reality we are seeing this winter should force rational policymakers to dial back the energy crisis hysteria," **writes** Christopher Courchesne, senior attorney with the advocacy group.

Courchesne attributes this year's high residential electricity bills to "poorly timed energy buys by electric utilities." According to **Forbes**, the high rates are due to utilities anticipating that power generators will have to fire up coal and oil burners, even though gas prices proved to be lower and temperatures higher than in 2014.

Environmental advocates say increasing natural gas pipeline capacity is wrong-headed. Katherine Eiseman, director of Mass. Pipeline Awareness Network (**MassPLAN**) notes that demand for electricity has not been increasing in New England, thanks to advances in energy efficiency.

"ISO New England should focus on measures that reduce peak demand, including fuller implementation of the Demand Response Program they have in place. Reducing peak demand is the best way to reduce unnecessary costs of expanding gas infrastructure," said Eiseman.

Rich Cowan of Dracut Pipeline Awareness maintains that a billion cubic feet of existing pipeline serving Massachusetts and the region is underutilized, and should be deployed before new capacity is built.

"Better use of the **Portland Natural Gas** and **Maritimes & Northeast** Pipelines, and more natural gas storage in the Maritimes, can solve the peak day problems if they recur," said Cowan.

The ISO has no financial stake in the energy industry and takes no position on any one proposed natural gas pipeline, said ISO spokeswoman Ellen Foley. Foley said ISO's employees and management are prohibited from having an interest in any of the companies that participate in their energy markets. ISO is fuel- and technology-neutral, she said, and maintains the primary purpose of maintaining and planning for grid reliability.

Numerous pipeline proposals are under consideration in the Northeast region to transport natural gas from the Marcellus shale fields in Appalachia. Interstate pipeline siting is under the jurisdiction of the Federal Energy Regulatory Commission, or FERC.