

Energy Insights -- April Update

Briefing on New England Energy Issues and Trends

Study shows importance of nuclear power to region

A recent report by the Analysis Group found that the Millstone Power Station in Connecticut:

- Supplies nearly 60 percent of the electricity demand in Connecticut. It is the largest power station in New England.
- Avoids the generation of 2.2 million metric tons of carbon-dioxide - the amount that would be generated if the electricity was produced from natural gas-fired power plants - equivalent to 470,000 passenger cars.
- Saves the region's consumers \$536 million per year compared with what consumers would pay if it were replaced with other resources.

The report concludes that "Millstone's continued operation is key to enabling Connecticut to stay on track in its clean energy, climate and affordable energy goals". It notes that compared to the other 49 states, Connecticut has the fifth lowest carbon emissions per person - due in part to reduced reliance on fossil fuels for electricity generation and increased amounts of carbon-free electricity, 98 percent of which comes from Millstone.

According to ISO New England, despite the recent retirement of Vermont Yankee, nuclear generation continues to provide around 30% of the region's electricity and is critical on the coldest winter days when natural gas supply is constrained.

With the planned retirement of Pilgrim in 2019, it will be important to maintain the continued safe operation of the region's remaining nuclear plants including Millstone and Seabrook in New Hampshire to attain emissions goals and maintain system reliability.

Source: Millstone Power Station: Providing support for achieving Connecticut's clean energy goals, Analysis Group, December 2016.

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Did You Know:

California is getting so much power from solar that wholesale electricity prices are actually turning negative at times?

According to the U.S. Energy Information Administration (EIA), on March 11 - for the first time for a few hours - more than half the electricity needs of the state came from utility-scale solar photovoltaic farms, solar thermal plants and rooftop panels.

This doesn't mean that Californians are paying less for electricity - as wholesale prices don't translate directly into retail prices as they are based on averages, not single days.

But it's clear that solar generation is becoming cheaper.

Source: [U.S EIA](#)

Region's electricity usage projected to decline slightly over 10-year period

ISO New England's draft long-term forecast projects a compound annual growth rate of 0.9% in total electricity usage from 2017 to 2026. However, when energy efficiency and solar energy forecast estimates are taken into account, electricity usage in the region is expected to actually drop to a growth rate of -0.6% between 2017 and 2016.

Peak demand - a measure of the highest amount of electricity used in a single hour in the region - is projected to increase by a compound annual growth rate of 1.0% with normal summer weather. Taking into account the demand reducing benefits of energy efficiency and solar, ISO New England projects that peak demand will remain flat over the 10-year period. The long-term forecast for electricity use is developed each year using state and regional economic forecasts, 40 years of weather history, federal appliance efficiency standards, energy efficiency and solar photovoltaic forecasts. The forecast helps ensure the region has an adequate supply of resources to meet electricity demand.

Source: Draft 2017-2026 Load Forecast, ISO New England. The finalized forecast will be published on May 1.

Wind power supplied 5.5% of U.S. electricity in 2016 - 2.4% in New England

According to the U.S. Energy Information Administration (EIA), wind power generated over 5.5 of the nation's electricity in 2016 - up from 4.7% in 2015.

Wind turbines operating in 40 states generated a total of 226 million megawatt-hours (MWh) during 2016, approximately four times the amount of solar electricity production, and approaching what hydroelectric dams generate in the U.S.

In at least five states (IA, SD, KS, OK, ND), wind power generated more than 20 percent of electricity - and 14 states produced over 10 percent of their electricity from wind. In New England, wind power generated just 2.4% of the region's electricity in 2016.

A 2016 study from the National Renewable Energy Lab found that the grid comprising most of the Eastern U.S.

could reliably and affordably obtain 30 percent of its electricity from wind and solar within the next 10 years using today's technology and tools.

Source: U.S. Energy Information Administration data, reported by the American Wind Energy Association.

RI ramps up clean energy goal

Rhode Island Governor Gina Raimondo recently announced a new renewable portfolio standard that would increase the state's clean energy generation capacity to 1,000 MW by the end of 2020 from about 100 MW in 2016 - a ten-fold increase.

In order to achieve the new "1,000 by 20" goal, the state will use a broad range of clean energy resources including offshore and onshore wind as well as solar and hydropower. Rhode Island is the first and currently only state in the nation with an operational offshore wind farm - the 30 MW Block Island wind farm developed by Deepwater Wind, which went into service at the end of 2016.

Source: Rhode Island Targets 1 GW of clean energy by end-2020

MA GHG emissions down 21 percent since 1990

According to the MA Department of Environmental Protection (DEP), the state's greenhouse gas emissions in 2014 were 21% below 1990 levels. State law requires emissions be 25 percent lower than 1990 levels by 2020. DEP said "the decline in statewide greenhouse gas (GHG) emissions is a result of GHG emissions reduction policies and other factors such as weather conditions, economic conditions and relative fuel prices".

While significant emissions reductions in the electricity generation sector have resulted from switching from oil and coal to cleaner burning natural gas, MA State Secretary of Energy and Environmental Affairs Matthew Beaton said more work needs to be done in the transportation sector where low gas prices contributed to increased vehicles miles traveled. Nonetheless, Beaton said the 2020 emissions reduction level is achievable.

Source: "Massachusetts greenhouse gas emissions down 21 percent compared to 1990", Michael Norton, Statehouse News

Service and as reported in Boston Business Journal, April 3, 2017.

Region is leader in natural gas energy efficiency

The American Council for an Energy-Efficiency Economy tracks utility-sector natural gas savings at both the state and utility level - which helps identify leaders in natural gas energy efficiency savings.

In fourteen states in 2015, utility-funded energy efficiency programs saved more than 0.5% of retail natural gas sales (residential and commercial) - including five New England states: Rhode Island, New Hampshire, Massachusetts, Vermont and Connecticut. Rhode Island was the highest achiever in the nation saving more than 1.2% of retail natural gas sales through natural gas energy efficiency programs.

Source: American Council for an Energy Efficient Economy

EIA publishes short-term energy outlook for nation

Notable trends from EIA's short-term energy forecast include:

- Electricity generation from natural gas will decrease 2% in both 2017 and 2018 as a result of higher expected natural gas prices
- Electricity generation from coal will increase 1% both in 2017 and 2018
- Non-hydropower renewables are forecast to provide 9% of electricity generation in 2017 and nearly 10% in 2018. Hydropower generation is expected to remain unchanged.
- Wind energy capacity is projected to increase 17%
- Utility-scale solar generation capacity is forecast to increase by 44% -- to total more than 1% of utility-scale electricity generation in 2018
- Energy-related carbon emissions are projected to decrease by 0.5% in 2017 and then increase by 2.2% in 2018. According to EIA, these emissions are sensitive to changes in weather, economic growth and energy prices.

Source: U.S. Energy Information Administration, Short-Term Energy Outlook, April 2017

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. Follow on twitter @NEEAlliance