

New England: Winds of Change?

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Data Sources Used in This Publication
ISO New England
EIA

To discover more about the data sources used, [click here](#).

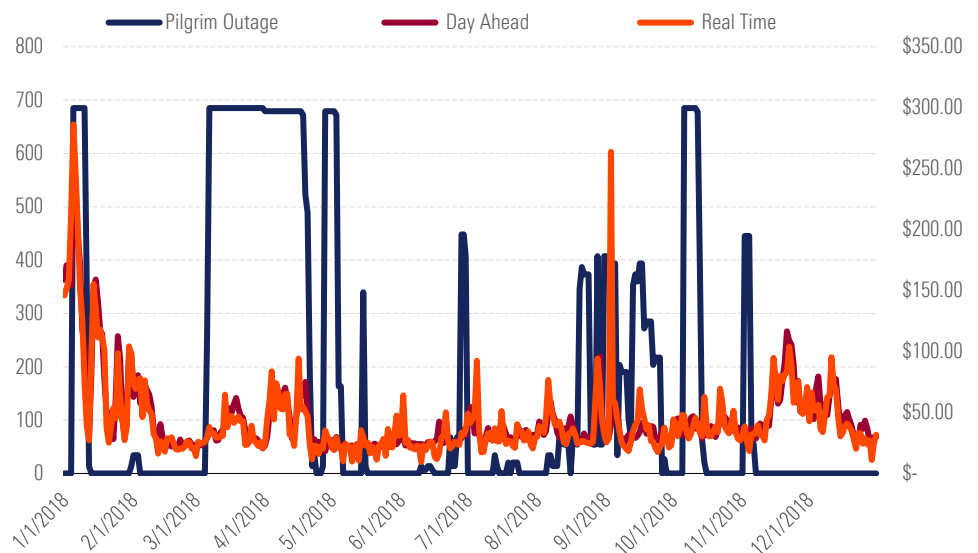
Price Formation

ISO New England saw two changes at the beginning of this month. One is another baseload nuclear generation unit retirement that leaves the ISO further reliant on natural gas. The second is a milestone in the Do Not Exceed dispatch project such that as of the beginning of June both hydro and wind generation can bid into the day-ahead market and those with supply obligation are required to do so. This should lead to better price formation in the day-ahead market and increase convergence between the day-ahead and real-time markets. This note looks at what the changes mean for the ISO.

Pilgrim Retired

The 690-megawatt capacity Pilgrim Nuclear Power Station officially retired at the beginning of June, increasing the burden on natural gas generation in New England. While the ISO should have enough generation capacity for this summer, it continues to operate under a fuel supply constraint rather than a generation capacity constraint that will continue to cause issues in the winter. The loss of Pilgrim will not likely be a major loss, as Exhibit 1 shows. In the last years of its operation, during heavy load events corresponding to major price spikes, Pilgrim had issues staying on line at times and went on outage during key days over the winter and the early September price spike. Keeping older plants on line past their prime can see intermittent generation from increased maintenance of old faulty equipment. It is not only renewable generation that is intermittent. The fact that the ISO has already dealt with heavy load events without Pilgrim gives a good indication that the loss will be acceptable for the ISO.

Exhibit 1 Pilgrim Megawatts on Outage and ISO New England Mass Hub Prices



Source: ISO New England, EIA, Morningstar.

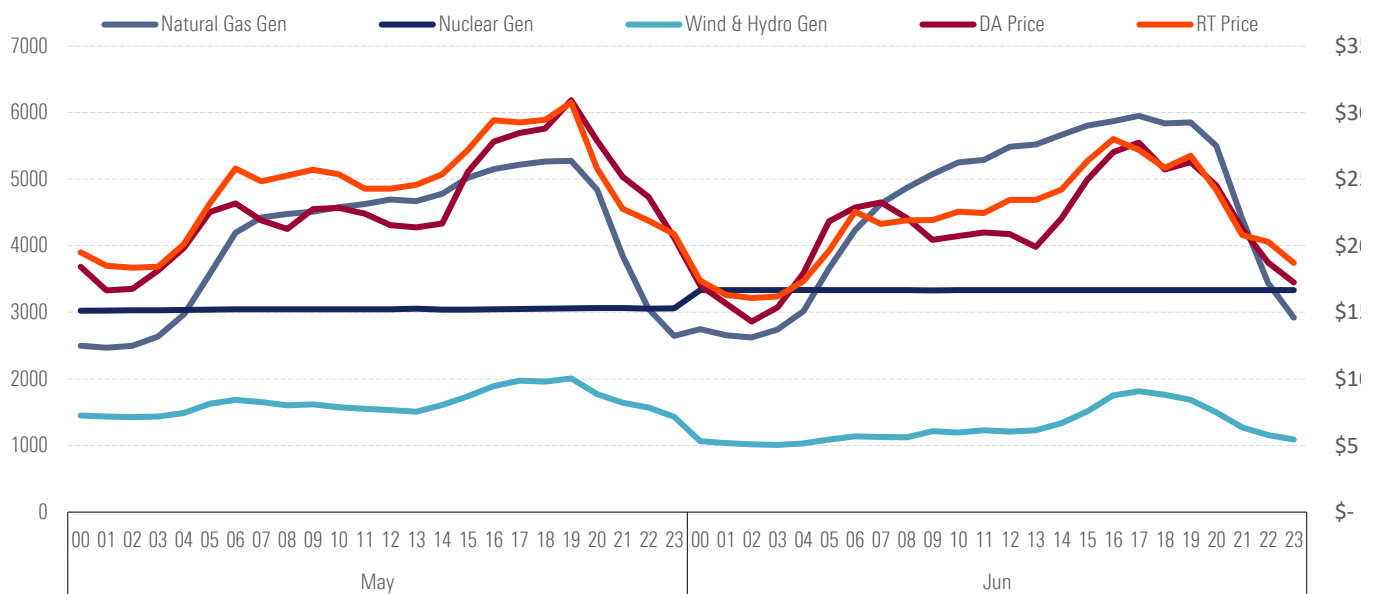
With Pilgrim gone, this leaves only Millstone 2 and 3 with 2,102 MW of capacity and Seabrook with 1,245 MW of capacity, for a total of 3,347 MW of nuclear capacity left in the region. Seabrook, owned by NextEra, has been granted a 20-year license extension earlier this year. Millstone units 2 and 3 are licensed until 2035 and 2045, respectively. At least for nuclear, Pilgrim looks to be the last retirement for some time. The remaining at-will units now at risk are coal and oil generators.

Do Not Exceed Project

In 2016, the ISO initiated the DNE project allowing wind and hydro to enter the real-time market. Previously renewable generation was only allowed to self-dispatch and thus not able to set price or receive electronic dispatch instructions. Without being able to be dynamically dispatched, the capacity could not be called upon to change output to help solve system constraints. The DNE dispatch project is moving to its second stage and will now incorporate wind and hydro resources into the day-ahead energy market. Allowing hydro and wind intermittent resources to offer into the day-ahead market will help protect generators from congestion curtailments by being shielded behind day-ahead priority as real-time resources get cut first. The change will also let these resources set prices in the day-ahead market now as well as real time.

The impact appears to already be showing up in price formation this month. Exhibit 2 shows the 24-hour average price curve in May and June. In May, the daily day-ahead and real-time price was generally set by natural gas and follows its dispatch level. With slightly higher natural gas output and higher load so far in June, though, we would previously have expected to see healthier power prices. Yet at least in part due to the addition of hydro and wind resources into the day-ahead stack, prices are more subdued.

Exhibit 2 ISO New England Price and Fuel Mix (24-Hour Average)



Source: ISO New England, Morningstar.

Wind and hydro sources will be able to take advantage of the new market access and enjoy protection from curtailments with good short-term wind forecasts. At the same time the ISO should be able to better manage expected generation for the next day so as to match output. However, despite the changes, at the end of the day, natural gas still reigns supreme in the region with generally two thirds of ISO output relying on it. It will remain the price setter outside of extremely low or high load situations.

Wind Project Updates

New England has become a hot spot for offshore wind that should now benefit from the new ability to participate in the day-ahead market. Rhode Island was the first in the U.S. to bring an offshore wind facility on line with the 30 MW Block Island Wind Farm. Being first hasn't prevented it from wanting to stay ahead, and the state plans to add another 400 MW from the Revolution Wind project scheduled to be on line by 2023. Revolution Wind project is also building for Connecticut as well, with a 200 MW project there recently expanded by 100 MW to 300 MW overall, scheduled for a 2023 on line date. Connecticut has also set a 2,000 MW goal for offshore wind by 2030 to replace Millstone when that plant retires. Maine has the most offshore wind potential but has fallen behind on its previous renewable standard, which included at least 300 MW of offshore wind by 2030. The Maine Aqua Ventus project is not using standing windmill designs from Europe but a unique 12 MW floating design that could produce 500 MW if the pilot project is a success. Massachusetts doubled down last year on its offshore goals by increasing its initial 1,600 MW by 2027 to add another 1,600 by 2035. The state procured 800 MW with the Vineyard Wind project, which hopes to start construction later this year and be on line by 2021.

With offshore wind being new to the area, there has been some pushback on project environmental impact statements. Without a previous proven benchmark, there is some back and forth about requirements. The 800 MW Vineyard Wind facility is seeing issues on this front but is well on its way in the overall permitting process. Given the continued push and number of projects, the permits should eventually get there once the authorities agree on the impact statement. Given the windmill base sizes for each windmill and the amount of underwater transmission lines for all of the projects the disruptions will not be insignificant, so some pushback to account for these and how to properly implement them was likely in any case. After the pioneers jump through these hurdles, it should become an easier and more defined process for future projects coming on line to meet state goals.

Exhibit 3 New England Wind Projects

State	State Goal	Project	On-Line
Maine	300	12	-
Massachusetts	3,200	800	-
Rhode Island	-	400	30
Connecticut	2,000	300	-
Total	5,500	1,412	30

Source: Morningstar

End Result

Natural gas is going to remain dominant in New England and is already heavily relied on—more so with nuclear, coal, and oil retirements. Yet the ISO continues to make improvements to integrate renewable resources into the market. With this trend comes a wave of offshore wind with no fuel costs over the next few years that will offer in low prices and displace part of the heavy reliance of natural gas. ■■

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