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Massachusetts Energy Bill Boosts Prospects for Offshore Wind and Energy Storage

State Policies Provide an Alternative to Embattled Federal Efforts in Supporting Clean Energy

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Policy Brief

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Key Takeaways:

- The Massachusetts State Legislature has passed H. 4568, setting an ambitious offshore wind energy target of 1,600 MW by 2027
- The legislation could lead to energy storage procurement targets for Massachusetts utilities and open opportunities for utilities to own energy storage
- State-level policies continue to expand opportunities for clean energy and storage technologies to accommodate growing renewable energy as federal policies are contested in court

Entities Mentioned:

- American Wind Energy Association
- Department of Energy
- Department of the Interior
- Energy Storage Association
- Massachusetts Department of Energy Resources
- Massachusetts Department of Public Utilities
- New York State Public Service Commission

Related Research

[Utah Law Expands Energy Storage Markets to Meet Growth of Renewables](#)

[Wind Generators to Provide Reactive Power Under Revised Interconnection Agreements](#)

Insight for Industry – Massachusetts Bill Establishes Landmark Offshore Wind Energy Target, Clean Energy Procurements, and Energy Storage Provisions

On August 1, 2016, the Massachusetts State Legislature passed [H. 4568](#) (An Act to promote energy diversity) which will shape the state's energy future with an ambitious offshore wind energy target of 1,600 MW, provisions for energy storage mandate, and additional clean energy procurements. The policy will likely provide a much-needed impetus for the U.S. offshore wind industry and also help other industries, such as solar companies that offer solar-plus-storage products.

The legislation takes an unprecedented approach in creating a carve-out for offshore wind and specifying that energy storage – traditionally classified as generation – may be owned by distribution companies, which have hitherto been precluded from such ownership due to the distinction between generation and distribution companies. In addition, Massachusetts could potentially become the third U.S. state to set targets for energy storage procurement, after California and Oregon, as the bill requires the Department of Energy Resources to decide by the end of 2016 on setting targets for electric utilities to procure energy storage by 2020.

H. 4568 requires utilities to procure 1,600 MW of offshore wind capacity by 2027 and an additional 9,450,000 MWh of annual electricity generation from Renewable Portfolio Standard (RPS)-eligible resources and hydroelectricity by 2022. Among other provisions, the legislation calls for a program to promote property-assessed clean energy (PACE) projects to finance energy efficiency upgrades and clean energy for commercial buildings. The legislation also allows for amendments to the net energy metering tariff to create a program for small hydroelectric net metering facilities and a cost allocation method to ensure cost-sharing among all ratepayers.

Clean energy advocates hailed the legislation for supporting investment in clean energy. The American Wind Energy Association (AWEA) [expects](#) the legislation to vitalize the U.S. offshore wind industry. However, the 486-MW Cape Wind project offshore Massachusetts, proposed in 2001 and currently halted due to commercial challenges and litigation, falls outside the scope of the bill, which stipulates that offshore projects must be located ten miles from any inhabited area.

The Massachusetts bill adds to the list of state-led efforts to expand opportunities for renewable energy and storage technologies. On the same day (August 1), the New York Public Service Commission ([NY PSC](#)) [approved \(16-E-0270\)](#) the Clean Energy Standard ([CES](#)), which establishes a 50 percent clean energy target and a commitment to support struggling nuclear plants upstate. New York's approach in aiding the nuclear power sector is unprecedented in that it recognizes the social and environmental benefits of nuclear and considers it worthy of benefits similar to those provided to renewable energy sources.

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Massachusetts Offshore Wind Mandate Could Jumpstart the U.S. Offshore Wind Industry

The ambitious offshore wind procurement target set forth under Massachusetts [H. 4568](#) is expected to provide the much needed impetus for the U.S. offshore wind industry, which has been plagued by regulatory uncertainty, permitting hurdles, high infrastructure costs, and public resistance. While the top three European countries in offshore wind - the United Kingdom, Germany, and Denmark - have built more than 9 GW of combined capacity to date, Deepwater Wind's 30 MW Block Island Wind Farm, the [first U.S. offshore wind project](#), off the coast of Rhode Island, is expected to come online in 2016.

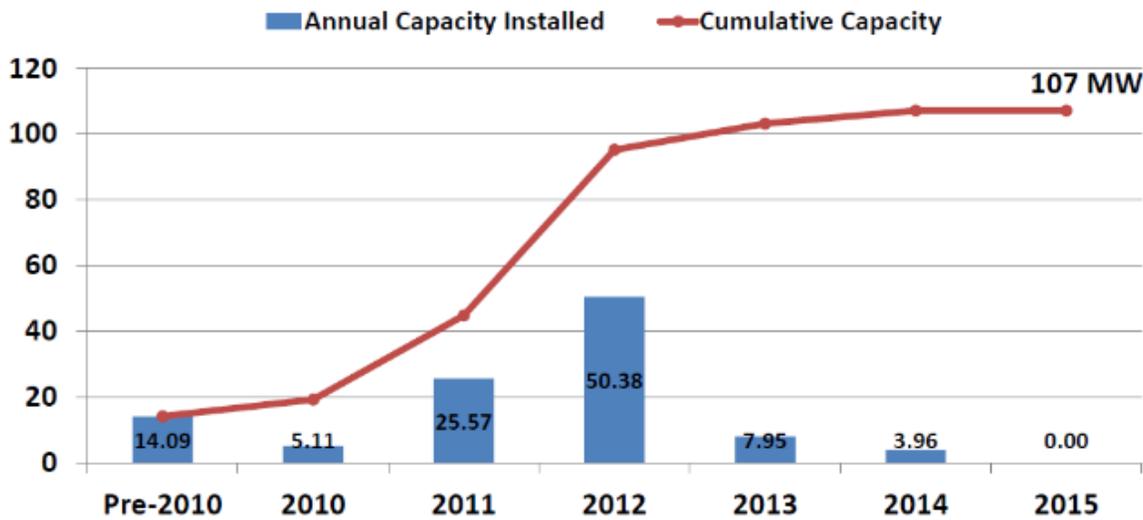
However, [Cape Wind](#), a 486-MW project proposed in 2001 and halted due to significant challenges and litigation, is unlikely to benefit from the legislation due to the requirement that offshore wind projects be located 10 miles from an inhabited area on the Outer Continental Shelf. Cape Wind project would be located less than 5 miles from Cape Cod, 5.5 miles from Martha's Vineyard, and 11 miles from Nantucket. The Alliance to Protect Nantucket Sound, a non-profit that has been opposing Cape Wind, commended the legislation for excluding the project.

H. 4568 allows offshore wind solicitation to be coordinated and issued jointly with other New England states or state-designated entities. The legislation requires distribution companies to procure approximately 1,600 MW of offshore wind power capacity by June 30, 2027 through long-term contracts and sets minimum size requirement of 400 MW nameplate capacity for individual solicitations. The AWEA observes that the 400 MW capacity is twice that of the average onshore wind farm installed in the U.S. in 2015 and expects projects of this scale to create real momentum for offshore wind. The process will be subject to Massachusetts Department of Public Utilities ([MA DPU](#)) regulations that will entitle distribution companies to cost recovery of payments under an approved contract and also include a provision for annual remuneration of up to 2.75 per cent of the annual payments to compensate the distribution company for accepting the financial obligation of the contract.

In addition to offshore wind, AWEA [estimates](#) the additional renewable energy procurement of 9.45 TWh will render viable about 1,700 MW of onshore wind. The legislation also allows Class 1 renewables, which includes onshore wind and solar projects, to compete with hydropower. Over the past six years, installation costs of onshore wind have fallen by two-thirds, placing wind among the least costly energy options. Massachusetts has 107 MW of installed wind capacity as of June 2016. The state has a goal to install 2,000 MW of wind energy in 2020 (Figure 1).

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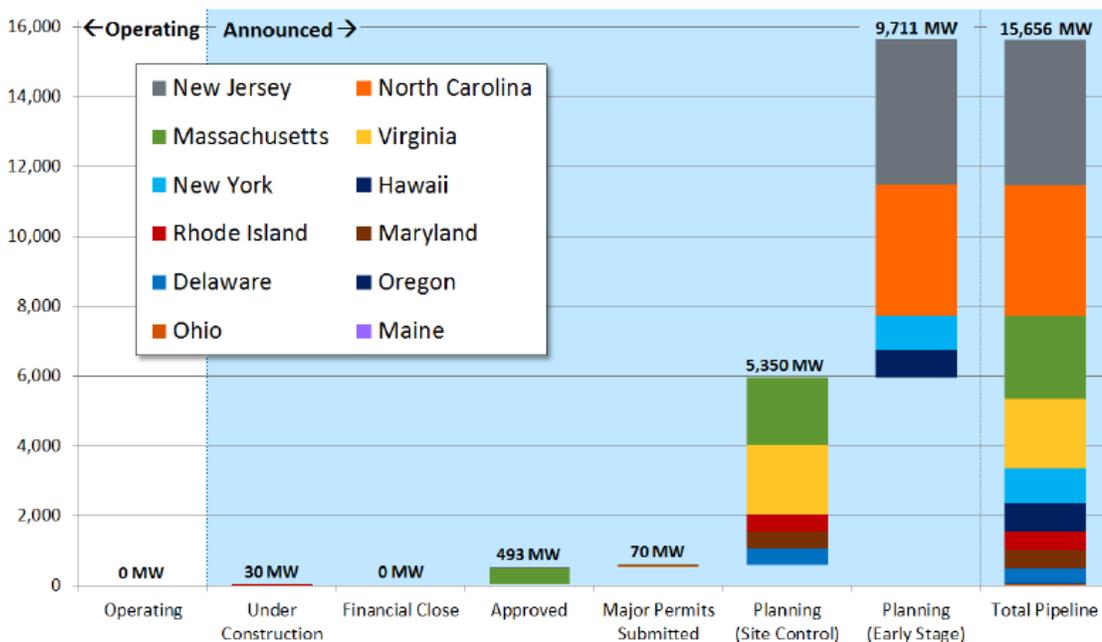
Figure 1– Installed Wind Capacity in Massachusetts



Source: Massachusetts Department of Energy Resources

The Department of the Interior’s (DOI) responsibilities in granting offshore leases and the Department of Energy’s (DOE) funding for demonstration projects endeavor to develop the offshore wind industry. According to the DOE’s [2014–2015 Offshore Wind Technologies Market Report](#), as of June 2015, 21 U.S. offshore wind projects were underway, representing 15,650 MW of offshore wind. Out of these projects, 13 projects, comprising 5,939 MW, have obtained site control or reached an advanced development phase (Figure 2).

Figure 2 – U.S. Offshore Wind Pipeline by State (MW) as of June 2015



Source: DOE

According to the National Renewable Energy Laboratory (NREL), the U.S. has 4,200 GW of developable [offshore wind potential](#), compared to 11,000 GW of onshore wind potential. Measuring the power density of wind based on a scale of zero (lowest) to seven (highest), the NREL finds that more than 66 percent of offshore wind in the U.S. is in class six or seven.

Massachusetts Likely to Dominate Energy Storage with Procurement Targets and Utility Ownership

Massachusetts will potentially become the third U.S. state to set targets for energy storage procurement, after [California](#) and [Oregon](#). California's 2010 Energy Storage Law ([AB 2514](#)) is the first state law that called for a statewide energy storage mandate to transform the market for emerging technologies and remains in forefront of residential and commercial storage with a goal of procuring 1.3 GW by 2020.

The Energy Storage Association (ESA) [applauded](#) the Massachusetts energy bill for putting forth new ownership models for energy storage. [H. 4568](#) specifies that distribution companies may own energy storage, which has been traditionally classified as generation and therefore banned from utility ownership. The reason for this is that storage as generation can bid into the wholesale market which requires generation and distribution companies to be separate. However, the legislation specifies that distribution companies may own storage systems provided they reduce emissions and peak demand; defer or substitute for generation, transmission or distribution assets; and improve grid reliability.

To encourage cost-effective storage deployment, the Massachusetts Department of Energy Resources (DER) may refine existing procurement methods, use alternative compliance payments to develop pilot programs, and use energy efficiency funds, among other policy options. H. 4568 requires the DER to determine by the end of 2016 whether it is appropriate to set targets for electric utilities to procure viable energy storage by 2020. If found appropriate, DER must adopt procurement targets by 2017, and review them every three years. Furthermore, the legislation allows energy storage to be paired with offshore wind or clean energy contracts.

State-Level Policies Continue to Expand Opportunities for Clean Energy

Following the Massachusetts energy bill, on August 1, the [NY PSC](#) approved the Clean Energy Standard ([CES](#)), which aims to procure 50 percent of the state's energy from clean sources by 2030 and reduce overall emissions by 40 percent. With the new standard, New York joins other states with bold clean energy targets: California with a 50 percent target by 2030; Vermont with a 75 percent target by 2032; and Hawaii with a 100 percent target by 2045. The CES requires utilities and energy suppliers to obtain renewable energy credits to finance new renewable generation and is estimated to add less than \$2/month to the average residential customer's bill. Notably, the CES supports the state's financially-challenged nuclear power plants through a subsidy plan that values

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the zero-emissions attributes of nuclear plants based on the social cost of carbon.

Other recently enacted state clean energy policies include:

- Oregon's [SB 1547](#), enacted in March 2016, to phase out coal-fired generation from the state's electricity mix by 2035 and double the state's RPS to 50 percent by 2040.
- Utah's [SB 115](#), enacted in March 2016, establishes utility investments in several clean energy programs, including battery storage
- California's [SB 350](#), enacted in September 2015, increases the state's RPS to 50 percent by 2030 from the previous goal of 33 percent by 2020.
- Oregon's [HB 2193](#), enacted in June 2015, requires the state's major electricity providers, to have a minimum of 5 MWh of energy storage in service by 2020.

Massachusetts' offshore wind and clean energy procurement targets will contribute to the state's broader effort to reduce emissions under the [2008 Global Warming Solutions Act](#), which mandates emissions reductions of 25 percent by 2020 and 80 percent by 2050, relative to 1990 levels. The legislation will significantly increase the state's reliance on renewable energy generation and foster the emerging offshore industry. The policy will likely have broader implications for the U.S. offshore wind industry by facilitating partnerships with neighboring states and providing the policy framework needed to spur investment and enable the industry to gain experience. Energy storage is poised for significant growth, facilitating grid flexibility that will enhance solar and wind deployment.

Moving forward, new regulatory policies – particularly at the state level – will expand opportunities for renewable energy and storage technologies. In effect, states such as Massachusetts, New York, California, Oregon, and others, have already formed a figurative “coalition of the willing” by passing state-level policies aimed at strengthening the role of renewables in their power sectors. As federal efforts to combat emissions, such as the [Clean Power Plan](#) targeting carbon emissions from fossil fuel-powered plants or the New Source Performance Standards addressing methane leaks, become bogged down in litigation, such state-led efforts as the [H. 4568](#) could help drive down the costs of renewables further and ultimately widen their commercial appeal.

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Disclosures Section

RESEARCH RISKS

Regulatory and Legislative agendas are subject to change.

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