



Appendix 9-3:
Media Highlights



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Rhode Island just built America's first offshore wind farm, which will create clean energy and fight climate change.



America's First Offshore Wind Farm May Power Up a New Industry

A just-completed project off the coast of Rhode Island, though relatively tiny, is at the forefront of a sea-based transition to renewable energy.

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Deepwater Wind's project near Block Island, R.I. Courtesy of Deepwater Wind

CLEAN ENERGY SPECIAL REPORT

Wind Power Takes to the Seas

Brian Dumaine

Mar 14, 2017

**The first U.S. offshore wind project is up and running.
Is it a sign of things to come?**

It was a brisk Sunday morning in October 2015, and Deepwater Wind CEO Jeffrey Grybowski's cell phone buzzed. His construction manager, who was driving piles 200 feet beneath the floor of the Atlantic Ocean, three miles from Block Island, R.I., said he had to halt work on the company's wind farm because a humpback whale had meandered near the site. Under the Endangered Species Act, it's illegal for humans to "harass"

certain marine mammals, and loudly pounding steel into the ocean floor would certainly qualify.

Worse, from Grybowski's perspective, the law permits driving in piles only during certain months, when the whales aren't migrating to the area. Bad weather was moving in, and if his team didn't finish the project that day, Grybowski would have to wait another six months before the feds would allow him to sink in the final post for the five giant wind turbines that would provide the island's power. That meant millions in losses and a disaster for his small company. Recalls Grybowski: "It was a nail-biting moment. We had no way of knowing when the whale would stop hanging out."

Over the next few hours Grybowski hounded his foreman for information. How far away was the whale? Was it moving at all? Was it drifting closer to the construction site? By midafternoon, he had only a few hours left to finish before time ran out. Grybowski's cell rang again, and he learned that with a magnificent flip of its flukes the humpback had swum away. The crew then sank the last piling, just making the deadline.



Deepwater CEO Jeffery Grybowski in Providence in front of bases for wind turbines. Jamel Toppin — The Forbes Collection/Contour by Getty Images

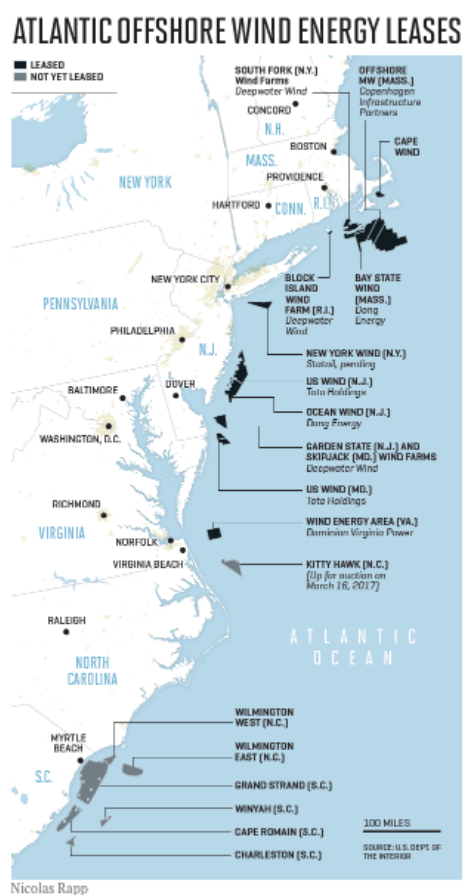
No one ever said it would be easy to build the first offshore wind farm in America. But in December, Deepwater Wind's Block Island turbines started spinning out electricity. What the company accomplished is much more than replacing the island's dirty, diesel-power plant with clean wind. The project marked the beginning of what many experts and investors are betting is a boom in offshore wind along the northeast coast of the U.S. After decades of false starts, bankrupt projects, and protests—Ted Kennedy once

complained that a proposed wind farm would ruin the view from his Hyannis Port compound—offshore wind is looking practical.

Europe has been building offshore wind since the early 1990s, but American developers couldn't figure out how to make those farms compete with cheap coal and natural gas. In the past few years, however, the turbines have gotten larger and more efficient, and the installation costs have dropped. As a result, the wholesale cost of European offshore wind power has fallen from an average of 20¢ a kilowatt-hour (kwh) to less than 10¢. And the cost curve keeps sloping downward.

For the first time, U.S. investors see a path to profitability. The gold rush has begun. In the U.S., 23 offshore wind projects totaling 16 gigawatts (GW), the equivalent of about 16 nuclear power plants, are on the drawing board. Almost all are located along the northeast coast. Over the past year, Denmark's oil and gas giant Dong Energy bought federal leases off the coasts of Massachusetts and New Jersey. Norway's Statoil won a 33-round auction to secure a 79,000-acre site south of Jones Beach on Long Island for \$42.5 million, far more than the \$16 million generated by all earlier offshore wind auctions combined. Shell has been sniffing around. Wall Street players such

as Citigroup (C, -0.98%), HSBC (HSBC, +0.98%), and, as we'll see, D.E. Shaw are lining up to finance the most promising projects.



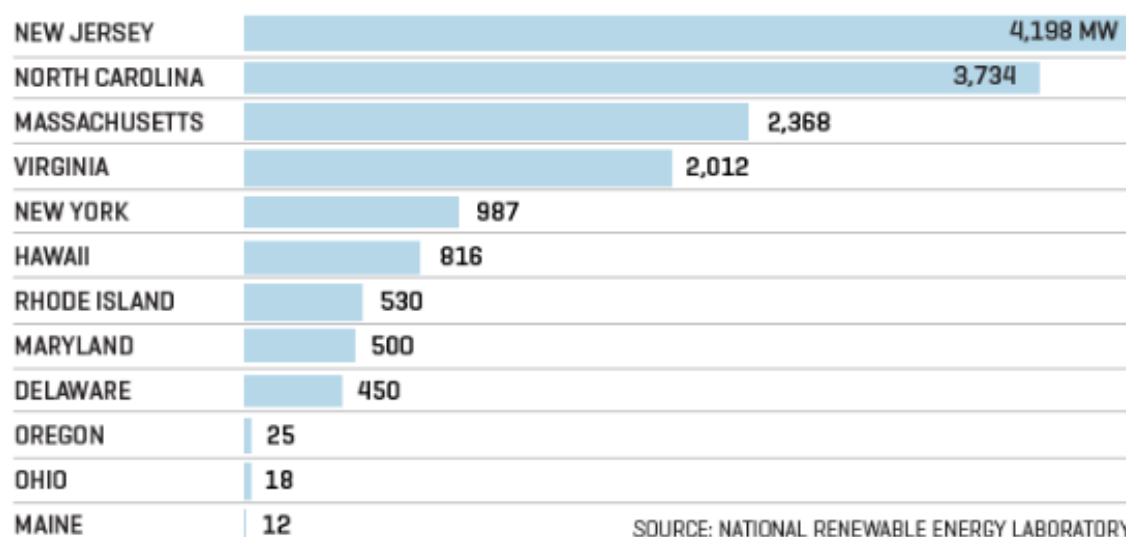
At the same time, state governments are generating favorable winds. Last summer, Massachusetts Gov. Charlie Baker, a Republican, signed a law that requires that state to procure 1.6 GW of offshore wind by 2027. Not to be outdone, New York's Democratic governor, Andrew Cuomo, committed to develop 2.4 GW of offshore wind as part of his pledge to get 50%

of the state's power from renewables by 2030 (roughly twice the current percentage). As Cuomo tells *Fortune*: "New York will continue to advance the largest offshore wind development in the nation that will bring resilient and reliable power, create jobs, and combat climate change."

All told, the U.S. Department of Energy projects that offshore wind will produce 86 GW of power by 2050—about 7% of America's current electricity demand. That's up from virtually zero today. (Land-based wind now delivers 82 GW in the U.S., vs. just 4 GW 15 years ago.)

U.S. OFFSHORE WIND PROJECTS

New Jersey leads the U.S. with the most offshore wind energy in the planning stage.



But making offshore wind viable in the U.S. won't be easy. New projects in the U.S. cost roughly twice the national average of 7.5¢ for all sources of electricity. One reason is that America doesn't have the infrastructure and supply chains in place to build offshore wind farms affordably. In addition, the permitting process is complicated and time consuming, and a new administration in Washington has made it clear that coal—and not renewable energy—will be its priority.

Industry backers argue that offshore wind will follow the same steep cost decline of other technologies. The price of land-based wind (without any subsidies) plummeted from 14¢ to 4.7¢ a kilowatt-hour from 2009 to 2016, according to financial advisory and asset management firm Lazard. That's cheaper than the energy from a new natural-gas or coal plant.

Now we're seeing the start of a similar downward trajectory for offshore wind. The DOE estimates that the price of offshore wind will drop by 43% by 2030, which would make it nearly competitive with other new sources of electricity. Irene Rummelhoff, who runs Statoil's offshore wind and other "new energy" businesses, is more optimistic: "Two years ago they said European wind wouldn't be competitive until 2030. We became competitive last November. In the U.S. it can happen extremely quickly too."

Deepwater's small operation off Block Island doesn't prove that wind power is competitive. The

island had a small diesel plant that was expensive to run. The wind power replacing it is cheaper than diesel fuel but still more than double the national electricity rate. But wind power can be competitive in select markets—heavily populated parts of the country where building a new fossil-fuel plant is expensive, if even possible. In other words, along the Northeast Corridor.

That's what Grybowski hopes to prove with his next project: building and operating the South Fork Farm, a 90-megawatt (MW) plant—enough to power 50,000 homes—30 miles off the coast of Montauk, and serving the eastern tip of Long Island. The project, which is slated to come on line as early as 2022, will provide much-needed power when the hedge fund kings and celebrities descend on the Hamptons each summer and thousands of megamansions start drawing outsize loads of power. Grybowski thinks that if he can get it up and running, it might just provide the gust of momentum the industry needs to take off.

By the look of its bright but cramped office suite in downtown Providence, Deepwater Wind might seem like a shoestring operation run by a band of Birkenstock-wearing environmentalists. It's anything but. The company is principally owned by D.E. Shaw, a New York hedge fund and private equity firm, which manages \$40 billion in assets.

And Deepwater's chairman, Bryan Martin, is no tree-hugging idealist. A former partner at J.P. Morgan's private equity unit, he has decades of experience building huge oil and gas projects and, later, solar and onshore wind farms as CEO of D.E. Shaw Renewable Investments, his current position. Believing that offshore wind could be the next big economic win, Martin first invested in then-fledgling Deepwater in 2007 and hired Grybowski, a lawyer and a former chief of staff to a Rhode Island governor; Grybowski moved up to CEO in 2012. Martin saw that Grybowski, an animated, quick-talking executive with an infectious laugh, had the drive to run projects like the Block Island farm, plus the political experience to navigate the complexities of federal and state policies. (The company is private and will not release financial data.)

Martin and Grybowski saw a huge opportunity to replace aging fossil-fuel plants in New York and New England. Some of the coal, oil, and nuclear facilities, at 50 to 60 years old, have exceeded their expected lives. New York State is closing the Indian Point nuclear operation, which supplies the equivalent of 25% of New York City's power. Long Island is scheduled to shut three or four of its fossil-fuel plants over the next few years.



D.E. Shaw's Martin (in a blue shirt with raised fist), Grybowski (center), Rhode Island Gov. Gina Raimondo (with thumb up), and others celebrate an early construction milestone at Deepwater's wind farm in 2015. Brian Snyder — Reuters

But replacing them with new fossil-fuel or nuclear plants, in blue states populated with citizens concerned about clean air and climate change, would be costly and controversial. When the local utility simply tried to install larger power poles on the leafy streets of East Hampton a few years ago, the public outcry was so great that the power company had to back off. Says Martin: “We have limited cost-effective options to replace aging power plants in New York and New England. Offshore wind will be one of the lowest-cost sources of new power.”

Geography is also working in the favor of offshore power. Finding enough land to build giant solar and wind farms in the heavily populated east, where land values are high, poses a problem. (The town of East Hampton spent \$7 million just to buy the rights to prevent 20 acres from being developed.) Why not build wind farms in upstate New York, where land is cheap and plentiful? As it turns out, the state doesn't have the grid capacity to move the power from upstate to the population centers in the south, and building miles of new high-voltage power lines would face serious local resistance.

The technology enjoys another advantage in the region: The Atlantic is very shallow— typically 90 feet or less—near the East Coast, making it cost-effective to drive in the pylons that support the turbines. Plus, the wind blows harder and more steadily there than in many other places. Offshore wind tends to peak in the afternoon and early evening; onshore wind blows stronger at night. The biggest demand in summer comes in the

afternoon and evening, when the sun is hottest and people return home from work (and the beach) and turn up their air-conditioning. It's a perfect match.

The result: a surge in interest from developers. When the Long Island Power Authority (LIPA), the agency responsible for supplying power to Long Island, asked for bids for the South Fork Wind Farm, some 20 companies, including ones that wanted to build natural- gas and biofuel plants, vied for the project. Deepwater Wind won the bidding. Under the 20-year contract, Deepwater will provide LIPA with electricity that will likely cost in the vicinity of 17¢ a kilowatt-hour. In addition, the project will help LIPA fulfill its pledge to add more renewable energy to the grid. Says Tom Falcone, the CEO of LIPA: “We hope the South Fork Farm will serve as a gateway project for us. By starting to develop that resource, the next wind farms will cost a lot less.”



To deliver electricity at that price, Grybowski will have to do some scrambling. For one thing, building an offshore wind farm requires special ships and equipment. No such fleet exists in the U.S., and federal law (meant to protect American shipping) prohibits hiring European operations, which have been doing this type of work for years.

Grybowski turned to the fossil-fuel industry. Because of the slump in oil and gas drilling, many service vessels in the Gulf of Mexico are sitting idle. For the Block Island project, Grybowski hired Gulf Island Fabrication of Louisiana to build the foundation and another Louisiana company to help install the turbines. “The Gulf ship owners see offshore wind as a big opportunity,” says Grybowski. For the South Fork project, the CEO anticipates, he’ll be working out of multiple ports, creating hundreds of jobs. Little by little he hopes to achieve the scale of the operations in Europe.

Deepwater is already making progress in its quest to cut costs. The company says the \$740 million South Fork farm will be 30% less expensive per unit of energy than the Block Island project. Prices of turbines are falling, and Deepwater thinks it can obtain permits more quickly this time.

Offshore turbines boast advantages compared with their land-based brethren. They are much

larger because there is simply more wind to harness over the ocean. Typically, a landlocked turbine generates 2 to 3 MWs. The ones Deepwater Wind uses for the Block Island wind farm were made by GE (GE, +0.74%) and crank out 6 MWs. One project in Europe has deployed 8 MW turbines, the largest in the world, made by Vestas. Each of the three blades is 265 feet long—bigger than the wingspan of a 787 Dreamliner. From waterline to the tip of the blade, the turbines stretch 722 feet, more than twice as high as the Statue of Liberty and its base combined.

These behemoths are getting smarter and more efficient. Because offshore wind turbines are bigger, taller, and in windier areas, they are 50% efficient, meaning that over time they convert half the theoretical wind power into electricity. That efficiency level is significantly higher than land-based ones. The giant turbines can rotate 360 degrees, and the blades can tilt to capture the best angle of the wind.

Some experts think that efficiency number could reach 55%, and manufacturers like GE are applying advanced software to do the job. Says Markus Rieck, managing director of commercial operation, sales, and marketing for GE's offshore wind business: "Every 1% improvement in efficiency generates a lot of cash for our customers." In one example, turbines could be designed to communicate with one another. Those nearest the wind might be blocking the airstream for those in the rear. GE's system, still in development, could use algorithms to adjust the angle of the turbines so that the maximum amount of power is produced. The software can also be used to predict when the turbines are likely to break or need maintenance to avoid sending a worker up—sometimes in horrendous weather—to check what's wrong. GE currently uses similar software for its jet engines. Next up: drones with cameras that could fly up to the turbines to detect material failure, rust, or a missing bolt.

Such technological progress will need to overcome the changed political climate in Washington. The new administration is unabashedly hostile to renewable energy, and soon after Trump's Inauguration the White House took down all mention of climate change on its website. Still, there are good political and economic reasons to support offshore wind. This fledgling industry is just the kind of heavy steel and construction project that the new President envisions for his infrastructure program. And offshore could bring a dollop of sorely needed revenue to the Treasury. The DOE estimates that annual lease payments for offshore wind projects could total \$440 million annually through 2050.

Certainly, the Republican-controlled Congress could decline to renew the subsidies that wind power now enjoys. The production tax credit, which is slated to phase out by 2020, helped the onshore wind industry become competitive and create 100,000 jobs, most of

them in red states. Onshore wind doesn't need the tax credit any longer, but why not extend it for offshore wind to help create more high-paying jobs more quickly? Even if Congress doesn't come through, New York State is looking to provide some financial incentives for offshore wind. Says John Rhodes, president of Nyserda, the agency that oversees the state's energy policy: "We want developers to come here with the certainty that they can build the wind farms and sell the power."

Some help from Washington would be nice, but Grybowski and his investors aren't counting on it. They believe they can build out this industry, if they have to, without much in the way of

government subsidies. If they can deal with the endless technical challenges, and even the occasional pesky humpback whale, they just may have the gumption to go it on their own.

A version of this article appears in the March 15, 2017 issue of Fortune with the headline "Wind on the Water."

The New York Times

SUNDAY, AUGUST 28, 2016

The Unlimited Power of Ocean Winds

The first offshore wind farm in American waters, near Block Island, R.I., was completed this month. With just five turbines, the farm won't make much of a dent in the nation's reliance on fossil fuels, but it shows the promise this renewable energy source could have. When the turbines start spinning in November, they will power the island, which currently relies on diesel generators, and will also send electricity to the rest of Rhode Island.

Putting windmills offshore, where the wind is stronger and more reliable than on land, could theoretically provide about four times the amount of electricity as is generated on the American grid today from all sources. This resource could be readily accessible to areas on the coasts, where 53 percent of Americans live.

This technology is already used extensively in Britain, Denmark, Germany and other European countries, which have in the last 15 years invested billions of dollars in offshore wind farms in the North, Baltic and Irish Seas. In 2013, offshore wind accounted for 1.5 percent of all electricity used in the European Union, with all wind sources contributing 9.9 percent of electricity. By contrast, wind power made up only 4.7 percent of electricity in the United States last year.

While electricity generated by offshore wind farms is more expensive than land-based turbines, costs have fallen with larger offshore turbines that can generate more electricity. Construction firms have also become more efficient in installing offshore farms.

The United States is coming late to offshore wind partly because federal and state governments were slow to support it. A bitter fight between residents on Cape Cod and developers of a wind farm in Nantucket Sound known as Cape Wind, along with financial problems, helped torpedo that project and may have discouraged others from pursuing similar ventures.

But in recent years, the Obama administration has issued regulations to encourage the lease of federal waters to private wind-power developers. And states like Massachusetts, Rhode Island and New York have pledged to support the nascent industry by requiring local utilities to buy the electricity that offshore turbines generate.

Gov. Charlie Baker of Massachusetts, a Republican, recently signed legislation that directs utilities to purchase 1,600 megawatts of offshore wind power — or about 2 percent of the total wind-energy capacity of the United States in 2015. New York State has committed to getting 50 per-



ARIEL DAVIS

cent of its electricity from renewable sources by 2030, and officials say a big chunk of that will come from offshore wind farms.

There are 22 other offshore wind projects in various stages of development across the country, according to a recent report by the Lawrence Berkeley National Laboratory. Many of them are in the Northeast, including a proposal before the Long Island Power Authority for a wind farm 30 miles off the coast of Montauk that would supply electricity to the Hamptons. The Atlantic coast is a good place to build wind farms because the water is relatively shallow, which makes it cheaper to install the turbine platforms. Pacific coast waters, being much deeper, would require placing turbines on more expensive floating platforms.

A few decades ago, the idea of harnessing the power of ocean winds seemed entirely impractical. In the next 10 years, these offshore farms should become commonplace.

The New York Times

TUESDAY, AUGUST 23, 2016 D1

ScienceTimes

The New York Times

BY DEGREES | JUSTIN GILLIS



Power in a Sea Breeze

The first offshore wind farm in the U.S. heralds a growing renewable energy industry.

BLOCK ISLAND, R.I. — The towering machines stand a few miles from shore, in a precise line across the seafloor, as rigid in the ocean breeze as sailors reporting for duty.

The blades are locked in place for now, but sometime in October, they will be turned loose to capture the power of the wind. And then, after weeks of testing and fine-tuning, America's first offshore wind farm will begin pumping power into the New England electric grid.

By global standards, the Block Island Wind Farm is a tiny project, just five turbines capable of powering about 17,000 homes. Yet many people are hoping its com-

pletion, with the final blade bolted into place at the end of last week, will mark the start of a new American industry, one that could eventually make a huge contribution to reducing the nation's climate-changing pollution.

The idea of building turbines offshore, where strong, steady wind could, in theory, generate large amounts of power, has long been seen as a vital step toward a future based on renewable energy. Yet even as European nations installed thousands of the machines, American proposals ran into roadblocks, including high costs, murky rules about the use of the seafloor, and stiff opposition from people who did not want their ocean views marred by machinery.

"People have been talking about offshore wind for decades in the United States, and I've seen the reaction — eyes roll," Jeffrey Grybowski said last week in an interview on Block Island. "The attitude was, 'It's not going to happen; you guys can't do it.'"

Mr. Grybowski and the company he runs, Deepwater Wind of Providence, R.I., have now done it. They had a lot of help from the political leadership of Rhode Island, which has seized the lead in this nascent industry, ahead of bigger states like New York and Massachusetts.

Now, offshore wind may be on the verge of rapid growth in the United States.

Using a law passed by a Republican-led Congress in 2005 and signed by President

George W. Bush, the Obama administration has been clarifying the ground rules and leasing out large patches of the ocean floor for wind-power development. Nearly two dozen projects are on the drawing board, with some potentially including scores of turbines.

Equally important, state governments in recent months have been making big, new commitments to renewable power, driven by a rising sense of urgency about climate change.

Gov. Andrew M. Cuomo of New York set a goal of getting 50 percent of the state's power from renewable sources by 2030, and the state will probably need large offshore

CONTINUED ON PAGE D6

Power in a Sea Breeze



PHOTOGRAPHS BY KAYANA SZYMCAK FOR THE NEW YORK TIMES

CONTINUED

FROM

wind farms to help achieve that. In Massachusetts, Republican governor, Charlie Baker, just signed a bipartisan bill ordering the state's utilities to develop contracts with offshore wind farms for an immense amount of power, 50 times the expected output of the Block Island Wind Farm.

Other states are looking at wind power, too, and studies by the Department of Energy suggest that many thousands of these turbines may eventually ring the United States coastline.

If that sounds ambitious, consider that the country has installed some 50,000 wind turbines on land over the past two decades. They now supply roughly 5 percent of the nation's electric power, a figure that reaches double digits in particularly windy states like Kansas and Iowa.

The turbines are easier and cheaper to build on land. But the wind is also weaker on land, and the power the machines produce there is intermittent. The stronger breezes in the ocean can produce steadier power, potentially helping to balance out intermittent renewable sources like solar panels and on-shore turbines.

The technology has been proved in Europe, where offshore wind farms as large as 300 turbines are being developed, with each turbine costing up to \$30 million to build, install and connect to the power grid.

But the first major proposal in the United States, an immense project off Cape Cod that was to be called Cape Wind, was too big — 130 turbines — and too close to shore, many experts now believe. It drew ferocious opposition from oceanfront homeowners, gradually lost political support in Massachusetts and appears unlikely to go forward.

The companies now trying to start an offshore wind industry are determined not to repeat the mistakes that plagued Cape Wind. That is one reason Deepwater Wind decided to start with a small project.

The focus is still on the Northeast. That region has dense cities with strong electrical demand, high power prices, opposition to new power plants on land and some of the world's stiffest ocean breezes off the coast. And the water remains relatively shallow many miles from shore, so wind farms could be installed far enough away that most of them would not be visible from the beaches.

With Northeastern states committing to the idea, the big question is: How much would it cost to get thousands of offshore turbines up and running?

When the first offshore projects were built two decades ago, European nations had to promise the developers extremely high prices for the electricity generated by their turbines, sometimes three or four times the wholesale power price, to get a new industry going.

Since then, offshore wind turbines have become a big business in Europe, worth billions, and the companies installing them have been able to create economies of scale. Recently, European nations have scrapped their old subsidy methods and have used competitive bidding to drive down the cost of the projects.

In some ways, the United States benefited by waiting for the industry to mature, as it can now take advantage of those falling costs. Installation is still pricier here than in Europe, and may be for a while, because few American companies have invested in the boats and other gear necessary to do the work.

The Block Island turbines were built overseas by a division of General Electric and were installed by a ship from Norway, brought over at a cost of millions of dollars, with help from an American vessel.

Yet if states go forward with their plans, experts say the costs are likely to fall sharply as domestic industry scales up to meet the demand. On the Block Island project, a company in Houma, La., won the contract to build the metal foundations in the water, and other Gulf Coast businesses that have long built offshore oil structures see wind power in the Northeast as a potential new market.

For now, the construction of the first wind farm off an American coast sends a simple

message to governments, investors and citizens: It can be done.

"Spectacular!" Mr. Grybowski said from the deck of a boat last week as he watched the final stages of construction.

The Block Island project was a marriage of Rhode Island political will and New York financial expertise. Initial financing for the \$300 million project came from the D. E. Shaw Group, a big investment firm based in Manhattan.

D. E. Shaw's head of United States private equity investment, Bryan Martin, had invested huge sums over the years on the firm's behalf in onshore wind farms, convinced that renewable energy was poised to displace fossil fuels. He saw offshore wind power as the next step and has been pushing the Block Island wind farm and other Deepwater Wind projects forward for more than a decade.

The turbines are about three miles off Block Island and can be seen easily from land. That drew some opposition, and could have been fatal.

But Block Island is a rustic vacation spot where residents turned out to be largely supportive of the project. Not only does it help the environment, but it will connect their power grid to the mainland for the first time, giving them a more reliable supply.

Competitors are moving to challenge Deepwater Wind for the coming wave of offshore contracts, but the company hopes to hold its lead and win the next project, a proposed wind farm 36 miles off Montauk, N.Y., meant to supply the power-hungry South Fork of Long Island.

"I do believe that starting small has made sense," said Mr. Martin, who is also Deepwater Wind's chairman. "I would say that the next projects are going to be substantially bigger."

AP

Associated Press

1st US offshore wind farm to usher in new era for industry

By JENNIFER McDERMOTT Aug. 11, 2016 11:20 AM EDT







PROVIDENCE, R.I. (AP) — The nation's first offshore wind farm is set to open off the coast of Rhode Island this fall, ushering in a new era in the U.S. for the industry.

Developers, federal regulators and industry experts say the opening will move the U.S. industry from a theory to reality, paving the way for the construction of many more wind farms that will eventually provide power for many Americans.

Deepwater Wind is building a five-turbine wind farm off Block Island, Rhode Island to power about 17,000 homes. The project costs about \$300 million, according to the company.

CEO Jeffrey Grybowski said the Block Island wind farm enables larger projects because it proves that wind farms can be built along the nation's coast.

"I look at Block Island as sort of the key to unlocking the code of how to do offshore wind in the U.S.," he said.

This comes as other states have "suddenly woken up" to offshore wind's potential, Grybowski added.

Areas suitable for offshore wind farms have been identified off seven states and the Bureau of Ocean Energy Management has already awarded 11 commercial offshore wind energy leases for sites in the Atlantic Ocean.

Developers have requested commercial wind leases for areas off California and Hawaii. And a lease sale is planned for 81,000 acres off New York for commercial wind energy this year.

"There's a tremendous amount of activity and I think this will be viewed in history as the year

that changed everything for the U.S. offshore wind industry," said Kit Kennedy, an energy and transportation expert at the Natural Resources Defense Council.

Offshore wind farms, which benefit from strong winds because of their location, are being proposed near population epicenters that lack the space to build on land.

Abigail Ross Hopper, director of the Bureau of Ocean Energy Management, said climate change is driving interest in offshore wind and she expects to see more wind farms being built in about three to five years.

"We are right on the edge of the cliff and we're about to leap off into the building of many wind farms," she said. "I really think that's true. State and federal policy, and the technology, are all coming together at the same time."

Indeed, several states are pushing ambitious clean energy goals, which include offshore wind. Among them is California, which has a target of generating 50 percent of its power from renewable sources by 2030. Vermont hopes to hit 55 percent by next year and Hawaii has called for 100 percent renewable power by 2045.

Massachusetts decided to ramp up its reliance on renewable and alternative sources of energy under a bill signed into law just this week. The law, in part, requires utilities to solicit long-term contracts with offshore wind farm developers to bring at least 1,600 megawatts of wind energy, enough to power about 240,000 homes, to Massachusetts in the next decade. New York state recently committed to generating half its power from renewable sources by the year 2030. Many other states have set more modest goals.

But offshore wind is not without its growing pains.

Cape Wind would've built the nation's first offshore wind farm, had the 130-turbine project off of Cape Cod, Massachusetts not stalled. The company faced a series of legal challenges brought by project opponents, largely funded by billionaire businessman William Koch.

Last month, a New York utility was set to approve a different Deepwater Wind project, this one a 15-turbine wind farm off eastern Long Island. But the vote was put on hold after officials said they wanted to wait until after the state's offshore wind master plan is released, sometime in the next several weeks.

Deepwater Wind is looking to sell power for approximately 50,000 homes to the Long Island Power Authority. It's considered the first phase in the company's ambitions to eventually build turbines producing 1,000 megawatts of power in the waters between eastern Long Island, Rhode Island and Massachusetts.

Catherine Bowes, a climate and energy expert at the National Wildlife Federation, said it has been hard for some people to think about offshore wind as a real, viable option 7/8—

until now. She sees the Block Island wind farm coming online as a "springboard" for the industry.

"It's a shift from offshore wind being something that might happen in the future, to being a here and now clean energy opportunity," Bowes said.



[The Day](#)

Investment in New London key in Deepwater Wind offshore wind pitch



Published May 29, 2018 8:33PM | Updated May 29, 2018 9:20PM

By **Benjamin Kail** Day staff writer

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New London — Block Island Wind Farm developer [Deepwater Wind](#) says its proposal to inject offshore wind power to the state includes a \$15 million investment in the Connecticut Port Authority to help create a manufacturing and [deployment hub](#) in the region.

A week after winning Rhode Island's offshore wind bid but losing one in Massachusetts to New Bedford-based [Vineyard Wind](#), Deepwater Wind Vice President Matthew Morrissey said Tuesday in an interview with The Day's Editorial Board that the firm has shifted its strategy to heavily focus on Rhode Island and Connecticut.

As developers compete to deliver thousands of megawatts of offshore wind power to a half-dozen states on the East Coast, Morrissey echoed port, city, environmental and labor leaders who've cited New London's prime location, skilled workforce and lack of height restrictions as assets that could [drive jobs and development](#) in the region.

Deepwater Wind's proposed \$15 million investment would help "the state and New London punch above its weight in future offshore wind deployment," Morrissey said. "The supply chain at a certain point in Europe will reach an economic threshold where it just makes sense to start manufacturing in the U.S."

Deepwater Wind's proposed port investment matches an [influx of \\$15 million](#) for New London State Pier upgrades announced by Gov. Dannel Malloy on Tuesday. Morrissey on Tuesday said he had heard of potential state investments in the pier, but that he was unaware of the governor's proposal.

If selected, Deepwater Wind plans a host city agreement with New London, which Morrissey described as "a very significant number" to fund economic and workforce development.

"The overall objective is to see industrial development, project after project over several years," he said.

Substation assembly, steel fabrication possible for New London

The Block Island Wind Farm included many parts made in Germany and France barged to Rhode Island for post-fabrication work in the [Port of Providence](#) and the [Port of Davisville](#) in Quonset, R.I.

Morrissey said Deepwater Wind could assemble the wind farm's substation and perform secondary steel fabrication, such as welding ladders and rails, in New London. Components shipped into New London for assembly or fabrication could end up in wind farms in federal waters off other states.

The company plans to start construction in 2021 and deliver power by 2023. The 25-turbine wind farm would be in federal waters about 15 miles south of Martha's Vineyard. Morrissey said Deepwater Wind is considering newer designs such as 8-, 10- or 12-megawatt turbines compared to Block Island Wind Farm's 6-megawatt turbines.

The wind farm interconnection is planned for the industrial park in Davisville, R.I., where Deepwater Wind also proposes storing wind power in two 50-megawatt hour Tesla Powerpack battery systems "to firm up our delivery during peak periods," Morrissey said.

Deepwater Wind would lease space at the 22-acre State Pier terminal from a yet-to-be-named operator. The Connecticut Port Authority expects to issue a [request for proposals](#) to run the port "very soon," according to port board Chairman Scott Bates.

Morrissey said Deepwater Wind wants to partner with the University of Connecticut at Avery Point to let maritime science students participate in the project.

Asked about pricing in potential 20-year contracts with utilities, Morrissey said he could not provide details as Deepwater Wind remained in competition in Connecticut with Vineyard Wind and Bay State Wind.

Morrissey said costs have declined globally due to increased competition and an uptick in projects as states look to ramp up renewable energy production.

"People think about offshore wind and they think of enormously high costs for this stuff. That's just not the case any longer," he said. "People are not going to be paying enormous premiums and the impact to the rate base across all of Connecticut is just not going to be what the critics say."

He said Deepwater Wind hoped to release Rhode Island and Connecticut prices soon, as the Department of Energy and Environmental Protection expects to pick winning bids in early June.

Morrissey touted Deepwater Wind's efforts to include fishermen and environmental, labor, tribal and other groups during construction of the Block Island Wind Farm. Production only occurred, he said, during certain time windows to protect right whale migrating patterns, per an agreement with the [Conservation Law Foundation](#).

He noted the Block Island proposal was initially for six turbines but was reduced to five "in part because of stakeholders that were at the table."

As to some critics of Deepwater Wind's [South Fork Wind Farm](#) off Montauk, N.Y., who say they "don't want any turbines in the water ... on that we need to agree to disagree. We're looking to be good neighbors and share ocean," he said.

Three proposals push Connecticut as hub

[All three firms](#) vying to provide offshore wind power to Connecticut mention potential for hundreds of new jobs.

A partnership between Copenhagen Infrastructure Partners and United Illuminating parent company Avangrid, Vineyard Wind won a Massachusetts bid for 800 megawatts of offshore wind power last week.

In addition to manufacturing in New Bedford for its Massachusetts project, Vineyard Wind has eyed ports in New London and Bridgeport as potential hubs.

Vineyard Wind's Connecticut proposal includes \$10 million in grants split evenly between energy-storage projects through the [Connecticut Green Bank](#) and capital improvements by the [Connecticut Port Authority](#).

Vineyard Wind spokesman Scott Farmelant said in a phone interview Tuesday that the proposed \$5 million investment into state ports was "not only for our product, but so Connecticut ports can participate in the offshore wind industry as it takes shape on the East Coast."

Farmelant added that Vineyard Wind was about six months ahead of competitors in state and federal permitting.

Eversource and Orsted paired up to form [Bay State Wind](#), proposing a 200-megawatt offshore wind farm for the state. Bay State Wind proposed \$2 million to the Connecticut Economic Development Fund, \$600,000 to scholarships for energy-focused educational programs and a \$4 million commitment to support the state's programs for low-income families.

A message left with Bay State Wind was not immediately responded to Tuesday afternoon.

Bay State Wind's proposal highlights New Bedford's Marine Commerce Terminal and a redacted Connecticut port that it described as "an ideal candidate" enjoying "significant indigenous advantages that position it to become a central hub for the offshore wind industry in the Northeast."

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[AP](#)

Connecticut to buy offshore wind power for the first time

Updated: Jun 13, 2018 - 5:30 PM

HARTFORD, Conn. (AP) - Gov. Dannel P. Malloy says Connecticut will purchase power from offshore wind for the first time.

The Democratic governor announced Wednesday that Connecticut will purchase 200 megawatts from Deepwater Wind in Providence, Rhode Island.

Deepwater Wind was already planning for a new 400-megawatt wind farm south of Martha's Vineyard to power Rhode Island homes. Plans called for up to 50 turbines.

The company says it would add about 25 turbines to the federal lease area to provide power for Connecticut.

Deepwater Wind also built the nation's first offshore wind farm off Block Island, Rhode Island.

Malloy says Deepwater Wind committed to improve infrastructure in New London, Connecticut and do construction work there.

Malloy also announced fuel cell projects and an anaerobic digestion facility, investments he says will grow the economy.

Hartford Courant

[Hartford Courant](#)

State Taps First-Ever Offshore Wind Power Among Clean Energy Projects



Connecticut's first wind farm opened in 2015 in Colebrook and includes two turbine towers, each 450 feet high.



By **Stephen Singer** · **Contact Reporter**
ssinger@courant.com

JUNE 13, 2018, 12:25 PM

Connecticut's first wind farm opened in 2015 in Colebrook and includes two turbine towers, each 450 feet high.

The Malloy administration on Wednesday directed the first-ever purchase of offshore wind power as part of more than 250 megawatts of clean energy projects.

The state also made a commitment to fuel cells, welcomed by one of two fuel cell manufacturers in Connecticut.

Six projects selected by the Department of Energy and Environmental Protection include 200 megawatts of offshore wind from Deepwater Wind, which is harnessing wind power off Block Island and Massachusetts. The Connecticut project will contribute to 400 megawatts selected by Rhode Island.

The Malloy administration also directed that 52 megawatts of fuel cell energy be generated, including projects in Colchester, Derby, Hartford and New Britain.

In addition, 1.6 megawatts of energy will be generated by an anaerobic digestion project in Southington. The process uses microorganisms that break down biodegradable material.

“We have an obligation to our children and grandchildren to invest in energy projects that reduce the impacts of harmful emissions,” Malloy said. “That’s why Connecticut is making investments in the technologies of the future, not of the past.”

The selections in the procurement are equivalent to about 5 percent of Connecticut’s load, or the amount of electricity that Connecticut consumes. Selected projects will now enter negotiations with Eversource and United Illuminating, the state’s two regulated utilities, to reach agreement on 20-year contracts.

If successful, the contracts will be subject to approval by the state Public Utilities Regulatory Authority.

Jeffrey Grybowski, chief executive officer of Deepwater, said Connecticut’s commitment to wind power is significant. Connecticut cannot generate much wind power because it lacks access to the ocean, which is the source of the strongest wind power, and sweeping vistas on land.

But the Malloy administration has committed Connecticut to buying 200 megawatts of offshore wind power to be offered to the New England electricity grid that Grybowski called a “huge help.”

“That’s frankly the most important thing states can do is support these projects,” he said in an interview.

Broad energy legislation enacted this year by the [General Assembly](#) and Malloy year includes two components related to fuel cells. The state is authorized — but not required — to approve, over six years, fuel cell projects of up to 10 megawatts of power per year, with individual projects capped at 2 megawatts.

The law increases to 6 percent from 4 percent of total load the procurement of power from fuel cells for the energy grid.

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[The Day](#)

Connecticut taps Deepwater Wind for offshore wind project



Published June 13, 2018 1:26PM | Updated June 13, 2018 1:49PM

By **Benjamin Kail** Day staff writer

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Hartford — State regulators on Wednesday tapped [Block Island Wind Farm](#) developer [Deepwater Wind](#) to bring offshore wind power to Connecticut.

One of three offshore wind firms that submitted bids to the state in April, the Providence developer has pledged to invest at least \$15 million into the Connecticut Port Authority for infrastructure upgrades that officials say could help the New London State Pier become a hotbed of [offshore wind activity](#).

"We have an obligation to our children and grandchildren to invest in energy projects that reduce the impacts of harmful emissions," Gov. Dannel Malloy said in a statement announcing winning bids in the state's clean energy auction. "That's why Connecticut is making investments in the technologies of the future, not of the past."

The 200-megawatts of offshore wind to Connecticut will come from Deepwater Wind's Revolution Wind project, a 25-turbine wind farm in federal waters south of Martha's Vineyard. The company plans to start construction in 2021 and deliver power by 2023.

State and local leaders say New London's prime location, skilled workforce and lack of height restrictions could boost manufacturing and development in the region as states along the East Coast look to inject offshore wind power over the next 20 years.

Deepwater Wind officials say workers could assemble the wind farm's substation and perform secondary steel fabrication, such as welding ladders and rails, in New London. Components

shipped into New London for assembly or fabrication could end up in wind farms in federal waters off other states.

"We're proud to partner with Connecticut to help the state achieve its bold renewable energy goals," said Jeffrey Grybowski, Deepwater Wind CEO. "Our Revolution Wind project will bring hundreds of direct new jobs to Connecticut and deliver affordable, homegrown energy to ratepayers."

Deepwater Wind, recently selected as [Rhode Island's offshore wind](#) developer, beat out pitches to Connecticut made by New Bedford-based Vineyard Wind and Bay State Wind, a joint venture between Orsted and Eversource. Massachusetts picked Vineyard Wind for an offshore project last month.

The Revolution Wind project will be paired with what Deepwater Wind calls a "first-of-its-kind offshore transmission backbone" developed along with National Grid Ventures. The company says the transmission system would support not only Revolution Wind but future offshore farms in the region, even if built by competitors.

"As a key project partner in the Rhode Island and now Connecticut offshore projects, we will leverage our past successes, global experience and ability to tap into economies of scale for interconnecting the wind resources to the mainland," said Will Hazelip, National Grid Ventures vice president, in a statement. "We are excited for the continued growth of the offshore industry in the U.S. and are proud to advance a clean energy transition for the good of customers, local communities and the environment for generations to come."

The wind farm interconnection is planned for the industrial park in Davisville, R.I., where Deepwater Wind also proposes storing wind power in two 50-megawatt hour Tesla Powerpack battery systems "to firm up our delivery during peak periods," per Vice President Matthew Morrissey.

In addition to offshore wind, Malloy and Department of Energy and Environmental Protection Commissioner Rob Klee announced that the state procured more than 50 megawatts of energy from four fuel cell projects and 1.6 megawatts in an anaerobic digestion facility in Southington.

"Offshore wind, anaerobic digestion and fuel cells are the clean, resilient, and diverse energy sources that our state and nation need," Klee said. "Connecticut is showing the rest of the nation what the future of clean energy looks like."

Developers picked by the state will soon enter negotiations with utilities Eversource and United Illuminating to finalize 20-year contracts that must be approved by state regulators.

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[The CT Mirror](#)

Connecticut joins the offshore wind rush

By: **JAN ELLEN SPIEGEL** | June 13, 2018

Connecticut has officially entered the offshore wind energy world.

The Department of Energy and Environmental Protection Wednesday awarded its first offshore wind project to Deepwater Wind for a 200-megawatt installation in the area it owns about half-way between Montauk, N.Y. and Martha's Vineyard. It could begin providing electricity to the state by 2023 – enough to power about 100,000 homes.

The renewable and clean power solicitation also awarded fuel cell and anaerobic digester projects totaling about 50 megawatts. But it's the prospect of offshore wind that created the most excitement and anticipation not only for its renewable energy, but also for the economic development potential that comes with it.

“Connecticut today is showing the region that it wants to participate in the budding offshore wind market and will share in the benefits of being an early mover in adopting this technology,” said Emily Lewis, a policy analyst at Acadia Center in a statement released by multiple environmental groups and unions. Acadia has been advocating for offshore wind for several years. “We hope the state continues to build on this commitment by setting an ambitious offshore wind mandate that creates a sustainable offshore wind industry and continued economic growth.”

John Humphries, the lead organizer for the Connecticut Roundtable on Climate and Jobs, said in the statement that the decision showed the state is serious about getting a piece of the offshore wind job action ramping up in the region.

Connecticut's decision brings to 1,400 megawatts the amount of offshore wind projects approved by three New England states in just the last few weeks. It is being watched carefully nationally as well.

Nancy Sopko, director for offshore wind at the American Wind Energy Association, called it “a golden opportunity for heavy manufacturing companies and shipbuilders to invest in American jobs, factories and infrastructure.”

Deepwater wins another round

Deepwater is the group that developed the nation's first – and so far only – offshore wind project in late 2016: five turbines providing 30 megawatts of power to Block Island. It has projects in the works for Long Island and Maryland and just last month was awarded a 400-megawatt project for Rhode island.

Connecticut's project piggybacks on Rhode Island's, providing an economy of scale and lower prices – which are confidential — that got it over the finish line first.



Keith M. Phaneuf / CTMirror.org file photo

DEEP Commissioner Robert Klee.

“It demonstrated that this buying in bulk and moving with our neighbors to leverage the collective procurement – is to the benefit of Connecticut ratepayers,” said Rob Klee, DEEP’s commissioner.

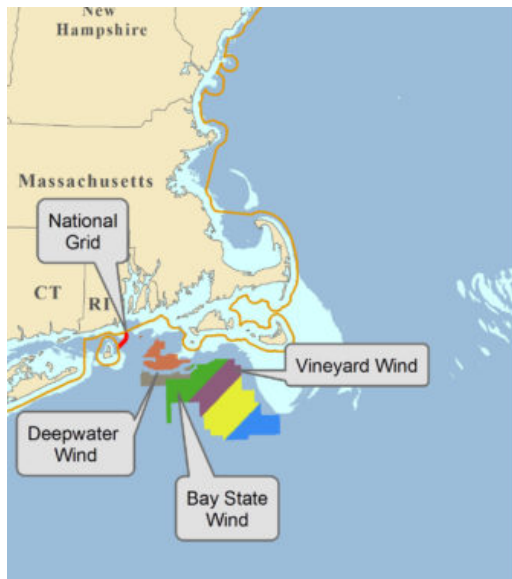
What also sold Connecticut on the Deepwater proposal were commitments that it would create 1,400 direct and indirect jobs and other economic benefits. They included a \$15 million investment in refurbishing the port of New London to handle staging and other industrial needs for this and future offshore wind projects.

Deepwater also committed to workforce development initiatives, a research partnership with UConn at Avery Point, local partnerships with the city of New London and most uniquely a promise to contract with a local boatbuilder to build a transfer vessel for work crews.

“This particular offshore wind project – investments in the state pier and the manufacturing supply chain, really made it one of the great opportunities for offshore wind,” Klee said.

Deepwater Wind vice president Matthew Morrissey said Connecticut seemed to have done something very savvy in issuing its request for proposals when it did and how it did – riding the volume coming out of Massachusetts and Rhode Island and the price reductions that come with it.

“We were able to offer the state of Connecticut very aggressive pricing and at the same time offer an investment to essentially help Connecticut punch above its weight in offshore wind projects,” he said.



The competitors for the project off Connecticut's coast.

Deepwater is one of three groups that own wind lease areas off New England, all of which bid for the state's blessing to provide power to a state. The two not selected by Connecticut were Vineyard Wind, which last month was awarded an 800-megawatt project by Massachusetts. The other was Bay State Wind – a 50-50 partnership of Orsted, a powerhouse Danish offshore wind company and Eversource. That leaves Bay State with no projects so far.

Thomas Brostrøm of Orsted and Lee Olivier of Eversource said in a statement they were disappointed, but not surprised because of the tie-in to the earlier Massachusetts and Rhode Island bids. “We remain fully committed to developing offshore wind in the United States, and together we plan to pursue future solicitations in New England and New York.”

Klee said it was just the beginning of offshore wind procurement in New England and the Northeast. “There's plenty of opportunity,” for the Bay State group he said. “We run these multiple procurements and the costs keep coming down.”

Playing catch-up

Wednesday's offshore wind announcement and the recently approved \$15 million bond funding for the port of New London to handle potential offshore wind work brings Connecticut into a growing fold of East Coast states committing to offshore wind as a renewable energy option, long a staple in Europe, but a newcomer here.

But it still leaves the state behind its neighbors in terms of commitment to wind as an energy resource as well as an economic development potential. The 800-megawatt project for

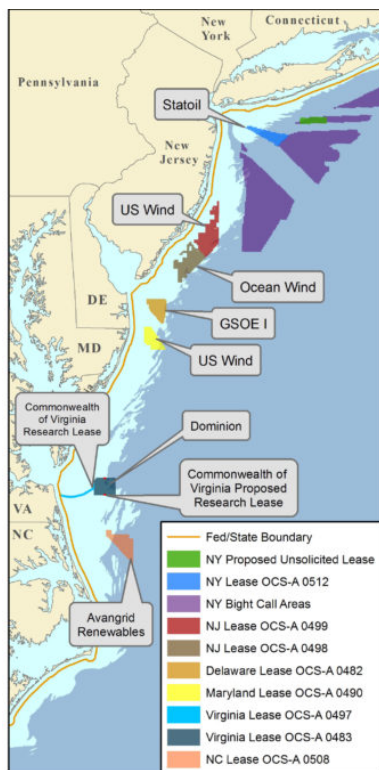
Massachusetts is just half of its 1,600-megawatt offshore wind mandate by 2027 – a mandate that is likely to be increased dramatically by that state’s legislature.

New York has mandated 2,400 megawatts by 2030 and New Jersey’s new governor wasted no time in committing to 3,500 megawatts by 2030.

Connecticut has no such mandate and had also structured its proposal process to cap the amount of offshore wind power as opposed to other states that ran or plan to run offshore wind-only solicitations that set minimums rather than caps — with the potential to go much higher.

“What I think is really interesting is it’s starting to shape up as what I think will be a regional competition. Every state is going to try to be the biggest,” said Stephanie McClellan, director of the University of Delaware’s Special Initiative on Offshore Wind. “The most exiting part about this — with 1,400 megawatts of offshore wind going in — that is the scale that actually starts to drive costs down.

“It’s scale and state action that are the secrets to success,” she said.



Massachusetts and to a lesser extent, Rhode Island, are farther along on those fronts. Massachusetts rebuilt its New Bedford port several years ago, constructing a \$113 million Marine Commerce Terminal that can handle the heavy offshore wind development loads. It, along with ports in Rhode Island, have already been used for staging for the Block Island project. And Massachusetts long ago secured commitments from Massachusetts offshore wind developers to use it, though it’s widely believed many ports will be needed to accommodate the amount of staging space anticipated. Massachusetts has also identified 18 other ports in the state that would be suitable for offshore wind-related industry. New London does

have the benefit of a wider, better-dredged harbor with no overhead restrictions or the constricting hurricane barrier New Bedford has.

Massachusetts has also actively and successfully been recruiting all types of on-shore major industry related to offshore wind. And it's already established workforce-training programs at several of the state's college campuses. Officials have made a number of trips to Denmark to learn how it, as a small country, was able to become the offshore wind's international on-shore industry powerhouse.

But the offshore wind potential in federal waters – that's three miles offshore – these projects represent is just starting to be tapped. (Block Island is in state waters except for a tiny sliver of it.)

The lease areas already purchased off New England and New York alone can handle close to 8 gigawatts – nearly four times the power from both units of the Millstone Nuclear Power Station in Waterford. More lease sales are planned for the region and the federal Bureau of Ocean Energy Management is exploring the potential for even more. A recent study by the Clean Energy States Alliance on behalf of New York, Massachusetts and Rhode Island determined offshore wind projects from Maryland to Maine could create 40,000 jobs by 2028.

There are lease areas under active development off New Jersey, Delaware, Maryland, Virginia, North Carolina and South Carolina.

Non-wind awards

For the rest of the proposal, Connecticut selected four fuel cell projects out of 20 proposed – two from Fuel Cell Energy totaling about 22 megawatts, one from Bloom Energy and a nearly 20-megawatt project known as the Energy Innovation Park in New Britain. It will be a multi phase project powered by Doosan fuel cells that will supply combined heat and power to area businesses – including Stanley Black & Decker. Phase one is expected to create more than 400 direct and indirect jobs.

This is a long-awaited win for the state's homegrown fuel cell industry, which has come up short in recent clean energy proposals. That slight has not helped the largest fuel cell company headquartered here – Fuel Cell Energy – which laid off 17 percent of its workforce after its last failed state bid. And just last week its quarterly report showed it had missed targets, sending stocks on a nearly double-digit percentage nose-dive.

Fuel cells have never been a darling in the environmental community. While they are clean – producing heat and water byproducts that can be used for other purposes – they are not renewable. Fuel cells use natural gas to create the hydrogen needed to produce power.

But Connecticut has seen them as a valuable electricity source in urban areas with limited space and as backbone generation for microgrids that can run when grid power is out.

One of four anaerobic digester projects submitted was selected: Turning Earth's Southington food waste project. It has been on the books for several years and is fully permitted and ready to go.

DEEP also noted that it plans another clean energy solicitation this summer – the so-called Millstone solicitation in which the nuclear plant will be allowed to compete against other renewables. The hope in the environmental community is that the offshore wind prices will be low enough to beat out Millstone.

Especially with all of offshore wind's economic benefits, said Francis Pullaro of RENEW Northeast, "If the offshore wind prices are as good as being touted, we can expect to see offshore wind ramp up pretty quickly."



[TheDay](#)

Scientists, offshore wind developer look to minimize marine life impacts



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By **Benjamin Kail** Day staff writer

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Despite lacking ears, oysters respond to noise.

"We don't think of underwater noise as an issue ... but most marine life — if not all marine life — listens to the world around it in one way or another," said Aaron Rice, a researcher at [Cornell University's Lab of Ornithology](#).

As part of the lab's bioacoustics program, Rice's research dives into the sounds animals make, helping scientists pinpoint habitats and behavior patterns. He also examines how human-made sounds impact sea critters, whether oysters slamming their shells shut at the hum of a cargo ship or whales within earshot of a pile driver for an offshore wind turbine foundation.

Rice said he's been encouraged by what he's learned about [offshore wind](#), even with an immense amount of "steel in the water" planned off the shores of the East Coast within the next five to 10 years.

[Deepwater Wind](#), which built and operates the [Block Island Wind Farm](#), plans a 75-turbine wind farm south of Martha's Vineyard that will deliver electricity to Rhode Island and [Connecticut](#) by 2023. The company is proposing to help New London State Pier become a [hub](#) for offshore wind deployment.

While noise pollution associated with pile driving into the seabed is "not an insignificant noise footprint," Rice said it was "a fairly short noise event," especially compared to geophysical exploration for oil and gas, in which "seismic activity will go on for months and months on end."

Rice added that Deepwater Wind could consider other foundation and turbine types that could lessen the impact of pile driving or eliminate the need to pile drive at all. Trenching a cable from turbines to the shore, and ships required for maintenance and construction also will produce noise that could impact sea life, Rice said.

"A quiet ocean is a good thing," Rice said. "Elevated noise has demonstrated effects to all animals, including people. But wind is not the most severe by any stretch of the imagination."

He described the overall impact of offshore wind on marine life as "a drop in the bucket ... compared to global shipping on which the world depends."

Stephen Boutwell, a spokesman for the federal Bureau of Ocean Energy Management, said BOEM "is unaware of any harm to marine life as a result of operating a wind facility."

BOEM leases swathes of federal waters to offshore wind developers and researches potential impacts on marine life. The agency has reshaped wind lease areas based on concerns from the commercial fishing industry and conservationists, Boutwell said.

Deepwater Wind says [surveys](#) of the site area and sea floor likely will begin this summer. Construction should begin by 2021 after lengthy state and federal permitting processes. The costs of the project have not yet been revealed, and Deepwater Wind and utilities still need to hammer out contracts.

Scientists: no evidence linking turbines to whale strandings

Last June, after a [humpback](#) whale carcass was found stranded ashore in Jamestown, R.I., University of Rhode Island researchers called into question some widespread reports that tried to pin the Block Island Wind Farm as the culprit, arguing "it is highly unlikely the whale's death had anything at all to do with a turbine."

Bob Kenney, a URI marine research scientist, and Jim Miller, a URI professor of ocean engineering and oceanography, said the five turbines off Block Island produce about 100 underwater decibels at a range of about 50 meters, "very low and only detectable when ships are not nearby and when the wind is not too strong."

Additionally, the pair noted that noisy pile driving and construction occurred a few years before the whale was stranded in Jamestown, and that "whales themselves are louder than turbines."

The researchers said social calls of humpbacks have measured between 123 and 183 underwater decibels at 1 meter, while scientists have measured fin whale vocalizations near the Block Island Wind Farm at more than 140 underwater decibels at a range of 500 meters.

In an email Sunday, Kenney said nothing had changed his opinion since last year. Offshore wind projects "will all have mitigation plans ... which typically include seasonal restrictions" on construction to protect marine life, he said.

He added that the impact of turbine foundations in the water was not as great as some had feared, "and for some species, sea turtles, some fish, added structure is probably a benefit rather than a negative impact."

"Marine mammals are not following some narrowly defined movement routes along the shore, so it's not like building something in one lane of the highway," he said.

At the time of the humpback's stranding in Jamestown last year, Mendy Garron, the Regional Marine Mammal Stranding Coordinator, told the [Block Island Times](#) that, "We don't believe the Wind Farm would have any negative activity on the humpback whales."

Asked about the Jamestown humpback last week, NOAA spokeswoman Jennifer Goebel said, "The report on this whale was that it is a presumed ship strike case based on test results, which are apparently limited."

Professor Ian Boyd, who has researched acoustic disturbance to whales at the University of St. Andrews in Scotland, was misquoted by a United Kingdom news outlet seven years ago in what he described to The Day as a "spurious and untrue" article about whale deaths. Several websites since have directly or loosely referenced "research at St. Andrews University" linking turbines to whale deaths.

"I know of no evidence supporting a connect of wind farms to the deaths of whales," Boyd wrote to The Day on Friday. "Frankly, it's really unlikely. The greatest risks occur during construction but even then they are only likely to cause disturbance, be relatively short-lived and vary between species. Many species are pretty robust to disturbance. There are also well developed methods to mitigate these effects."

Deepwater Wind to schedule construction around whale migration season

Ensuring protection of the North Atlantic right whale is a top concern, according to scientists and Deepwater Wind.

Rice noted it was a "highly endangered species hunted nearly to extinction" that was rebuilding for a time but is "slow moving and vulnerable to ship strikes or getting tangled in fishing gear."

Aileen Kenney, Deepwater Wind's senior vice president of development, acknowledged that noise from construction equipment and shipping potentially could disturb whales and other species, making them go into deeper waters or change their movement patterns. Kenney has no relation to the URI scientist.

When building the Block Island Wind Farm, Deepwater Wind complied with BOEM requirements to stop construction if workers spotted certain sea life within specific distances. The company also established agreements with groups such as the Conservation Law Foundation, the National Wildlife Federation and the Natural Resources Defense Counsel to limit impact on right whales.

"We're saying we're not going to do any pile-driving, not any survey activities ... from the November time frame to April or May," Kenney said. "It is a big logistical challenge for us, but it's an important commitment that minimizes impact to the species."

Kenney and several scientists noted that no right whale calves had been born so far in 2018, and NOAA says only about 450 right whales remain in the Atlantic.

NOAA is investigating three separate waves of abnormal fatality totals among three species of whales between 2016 and 2018, including the [right](#) whale, [minke](#) whale and [humpback](#) whale.

Since June 2017, NOAA has investigated 19 dead stranded right whales, 12 of them in Canada and seven in the U.S. In the past two years, 33 minke whales have been found stranded along East Coast beaches, including a dozen in Massachusetts. Since 2016, 76 humpbacks have met the same fate, 20 of them in New England.

The causes of the overall increase in deaths — deemed by NOAA as [Unusual Mortality Events](#) for each species — remain undetermined. But many necropsies show evidence of vessel strikes or entanglements in fishing gear, and NOAA said more study is needed.

"Contributing factors to the whale mortalities are still being investigated as part of this ongoing event," NOAA spokeswoman Katherine Brogan said Friday.

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[Connecticut Magazine](#)

Connecticut Finally Makes a Commitment to Offshore Wind

Luther Turmelle Aug 20, 2018

It has been a historic couple of years for those who believe offshore wind projects are a critical component in Connecticut and the nation's energy future.

Deepwater Wind's Block Island Wind Farm, the nation's first commercial wind farm, began operating about 4 miles southeast of Block Island in December 2016. The five-turbine project generates 30 megawatts of power, enough for about 17,000 homes.

Connecticut made some history of its own this June when the [state Department of Energy and Environmental Protection selected Deepwater Wind as one of the winners of its renewable energy-procurement efforts](#). The 200-megawatt project, which could be operational by 2023, will be built in federal waters about halfway between Montauk, New York, and Martha's Vineyard.

But Connecticut's initial foray into offshore wind power pales in comparison to neighboring states in New England and the Northeast, some renewable energy experts are quick to point out.

The 200-megawatt project that DEEP officials selected in June represents only 3 percent of Connecticut's electric load, according to Emily Lewis, a policy analyst with Acadia Center, a New England-based environmental group with offices in Hartford. The output is expected to power about 100,000 homes. Connecticut's neighbors have far more ambitious offshore wind plans moving forward.

New Jersey's goal is to have 3,500 megawatts of power in its portfolio by 2032, for example. Massachusetts has been a trailblazer in the wind power movement. Even tiny Rhode Island — with less than a third of Connecticut's population — is procuring 400 megawatts of offshore wind power, Lewis says.

"It seems like Connecticut has been playing catch-up for years," Lewis says.

State Rep. Lonnie Reed, D-Branford, chairwoman of the Connecticut legislature's Energy and Technology Committee, says that "a sense of proportion and perspective is required when making these kinds of 'lagging behind' comparisons." She adds, "Our state has certain physical constraints that others don't. The state lacks direct access to parts of the ocean where the wind

power is at its strongest. The Sound is a fragile estuary — not wide-open ocean: wind speeds there are slow.”

Rob Klee, DEEP’s commissioner, also dismisses claims that Connecticut is playing catch-up to neighboring states when it comes to adding offshore wind to energy portfolios. “We have demonstrated with our actions, our priorities, that we are in the wind-power game,” Klee says.

The latest evidence of that, he says, is the July 31 request for proposals that DEEP released seeking energy producers that give off no carbon emissions.

Lewis says that amid concerns the owner of the Millstone nuclear power plant in Waterford — Virginia-based Dominion Energy — may close the plant early, Connecticut officials ought to view offshore wind “as an important part of any transition plan when the state has to move away from that source of power.”

The language in the RFP appears to give DEEP some flexibility in how much offshore wind it can select in the zero-carbon process. Klee describes the language in the RFP as “a recognition that nuclear [power] isn’t going to be around forever. This is about making the transition from nuclear to other renewables.”

Connecticut has committed to reduce greenhouse gas emissions in the coming decades. The first target comes in 2020, when emissions must be 10 percent below 1990 levels. By 2030, emissions must be 45 percent below 2001 levels, ramping up to 85 percent below 2001 levels by 2050. The state also must hit targets for percentage of Connecticut electricity that comes from renewables such as wind, solar and fuel cells. Twenty percent of power needs to be met by renewables by 2020. The percentage doubles a decade later.

Energy suppliers who want to be considered for inclusion in the zero-carbon RFP process have until Sept. 14 to submit their proposals. DEEP will announce the projects it has selected either by the end of this year or in early 2019, according to Klee. The expectation, Klee says, is that the specific language in this latest RFP will attract additional wind power proposals.

The issue of offshore wind and how much Connecticut needs to have in its energy portfolio isn’t just about making sure the state has enough energy in the coming years. An expansion of offshore wind projects serving southern New England states is expected to be a significant economic driver.

To that end, Massachusetts officials several years ago remade New Bedford, historically a whaling, fishing and shipbuilding center, into a hub to service offshore-wind projects off the state’s southeastern coast. Connecticut officials have seen what Massachusetts has done with New Bedford’s \$113 million Marine Development Terminal and hope to duplicate that in New London, a city with its own rich whaling history.

The Connecticut Bond Commission has approved a \$15 million investment in the city’s state pier so it can become a staging area for the Deepwater Wind project and any others that may come

along in the future. Deepwater Wind has agreed to invest \$15 million of its own money to develop New London as a staging area.

Turning the New London pier into a center for this and other heavy industry projects is expected to result in 1,400 direct and indirect jobs in Connecticut, according to state officials.

“This announcement, combined with the state’s recent commitment of bond funding to revitalize the State Pier, demonstrates that Connecticut is serious about securing its share of the highly paid offshore wind jobs coming to the Northeast,” says John Humphries, lead organizer for the Connecticut Roundtable on Climate and Jobs, a coalition of environmental groups and labor unions.

Mike Ausere, vice president of business development and energy strategy for the state’s largest utility, Eversource, is bullish on the role offshore wind will play in driving Connecticut and New England’s economic and energy future.

“The offshore wind industry is still in its infancy in the United States, but I see us catching up with the rest of the world quite quickly,” says Ausere, whose company was one of two unsuccessful bidders for Connecticut’s 200-megawatt project. “This is an industry that is moving very fast and we’re still very much committed to it. We are going to see a tremendous level of growth going forward.”

Wind farms off the southern New England coast have a unique advantage that shouldn’t be lost on Connecticut lawmakers, Ausere says. “New England’s major load centers are in southern New England and are relatively close to the ocean,” he says. “That reduces the cost of building lengthy transmission lines [from other parts of the region].”

Ausere declined to predict how many jobs might be created if New London becomes a staging area for the offshore wind industry. But he says if growth in offshore wind farms in New England and the Northeast plays out as expected, there will need to be multiple hubs up and down the New England coast to service them. “One advantage that New London has that New Bedford doesn’t is direct access to the ocean,” Ausere says. Klee says that is important because bridges and other types of impediments would make it harder to bring out to sea partially assembled turbines and towers that make up wind farms.

As the number of offshore wind farms off southern New England grows and reaches a critical mass in the coming years, it is likely to drive down the cost of the renewable energy source, according to Ausere. Currently, electricity produced by burning fossil fuels is cheaper than that created by offshore wind, he says.

Lewis of the Acadia Center says the price range for offshore wind power in Massachusetts is between 6.5 cents and 7.4 cents lower than most industry observers had expected. Original projections have Massachusetts consumers saving \$1.4 billion over the life of a 20-year contract, she says.

Matthew Morrissey, vice president of Deepwater Wind's development efforts in New England, says pricing of offshore wind is already highly competitive with fossil fuels in some cases. The 90-megawatt South Fork Wind Farm that Deepwater is developing more than 15 miles south of the Rhode Island coast was so competitively priced that the Long Island Power Authority selected it over a natural gas project. The project is supposed to begin operating in 2022.

ISO-New England, which oversees the regional electric grid, is projecting that fossil fuel-powered generation units equal to about 16 percent of the region's current generating capacity will shut down between 2013 and 2021. These coal- and oil-fired and nuclear power plants are likely to be replaced primarily by new wind resources and natural gas-fired plants.

Morrissey says replacing older, less efficient power plants with offshore wind power is another way the industry will drive costs down for consumers.

Having the projects located in federal waters is critical because the strongest winds are found farther from shore. Some of the highest sustained wind speeds along the entire U.S. coast are found off southern New England's shores, Ausere says, particularly in the winter when the region's demand for electricity is high.

Reed, the legislator from Branford, is encouraged by the fact that the state's two dominant energy companies "are now pushing hard for wind farm development. Eversource has proposed joint ventures of its own," she says, adding that none of those projects have been selected thus far.

Eversource's partner is a Danish company, Orsted, a well-known player in the renewable energy business. Their joint venture company is Bay State Wind.

Wind farms' greater distances from shore also reduce the potential for complaints that wind turbines will spoil ocean views, a problem that some say was responsible in part for the demise of a Massachusetts project in Nantucket Sound several years ago.

A spokesman for the holding company that oversees The United Illuminating Co., Orange-based Avangrid, says the company "is firmly committed to renewable energy in general and wind energy in particular."

Ed Crowder, a spokesman for the holding company, which oversees all of the U.S. properties of Spanish energy giant Iberdrola, says Avangrid Renewables "is one of the nation's leading renewable energy companies, with 7.1 million gigawatts of renewable energy capacity — mostly wind — and a presence in 22 states."

But even though Avangrid is headquartered in Orange, Connecticut is not one of the states that are part of the company's wind power portfolio.

Avangrid has partnered with a Danish company, Copenhagen Infrastructure Partners, to create the joint venture known as the Vineyard Wind project. Massachusetts officials picked the 800-megawatt project and are giving Vineyard Wind the right to negotiate a purchase power

agreement with that state's electric utilities. Vineyard Wind could be operational by 2021, a full two years sooner than the Deepwater Wind project that Connecticut officials chose.

Connecticut residents who fear they will one day see wind farms in Long Island Sound should not worry about that possibility, Reed says.

“Any proposal to bring wind turbines offshore in Long Island Sound is dead on arrival,” she says. “The fishing industry, recreational boaters, commercial shipping, along with shoreline residents and environmentalists, would go on the attack.”

And while Connecticut has a smattering of land-based turbines — off Route 44 in Colebrook and in New Haven — high density levels and comparatively low wind speeds limit wind power's potential on land. For the state to get a significant portion of its electricity from wind power, the future lies not on land, but out to sea.