

What's next for offshore wind in the U.S.?

September 22 2017, by Sarah Fecht, Earth Institute, Columbia University



Rhode Island's Block Island Wind Farm is the only operating offshore wind facility currently operating in the U.S., but experts are optimistic that this renewable energy source will grow rapidly. Credit: National Renewable Energy Lab

Wind farms installed off the coasts of the U.S. could potentially generate more than 2,000 gigawatts of clean, carbon-free energy. That's about twice as much electricity as Americans currently consume. But so far,

only the 30-megawatt Block Island Wind Farm off Rhode Island is operating, and America is falling dramatically behind on offshore wind. What's holding us back, and why is there reason to hope for a better future?

On Monday evening, panel of business leaders, policy makers, advocates and opponents gathered to discuss these questions and more. The event was organized by the Sabin Center for Climate Law, part of the Earth Institute at Columbia University, in honor of Climate Week NYC.

If we continue relying on fossil fuels to power our homes and our cars, the world could see a six-degree rise in global temperatures by the end of the century, warned Michael Gerrard, environmental law practitioner and director of the Sabin Center. Under these conditions, some parts of the country will warm by as much as 15 degrees Fahrenheit, and many states will experience 50 days a year with temperatures above 100 degrees. That's bad for people, crops, and the water supply. Plus, the seas could rise by up to six feet, drowning critical infrastructure.

To avoid these extreme conditions, we need to cut our carbon emissions, said Gerrard, and he identified three key ways to do that: first, we need to increase energy efficiency, so that our gadgets use less electricity; second, we need to de-carbonize the electricity supply by replacing [fossil fuels](#) with [renewable energy](#) such as wind and solar; and third, we should convert our cars to rely on our future, de-carbonized electricity supply. Putting offshore [wind farms](#) to work is one important element to making this plan work.

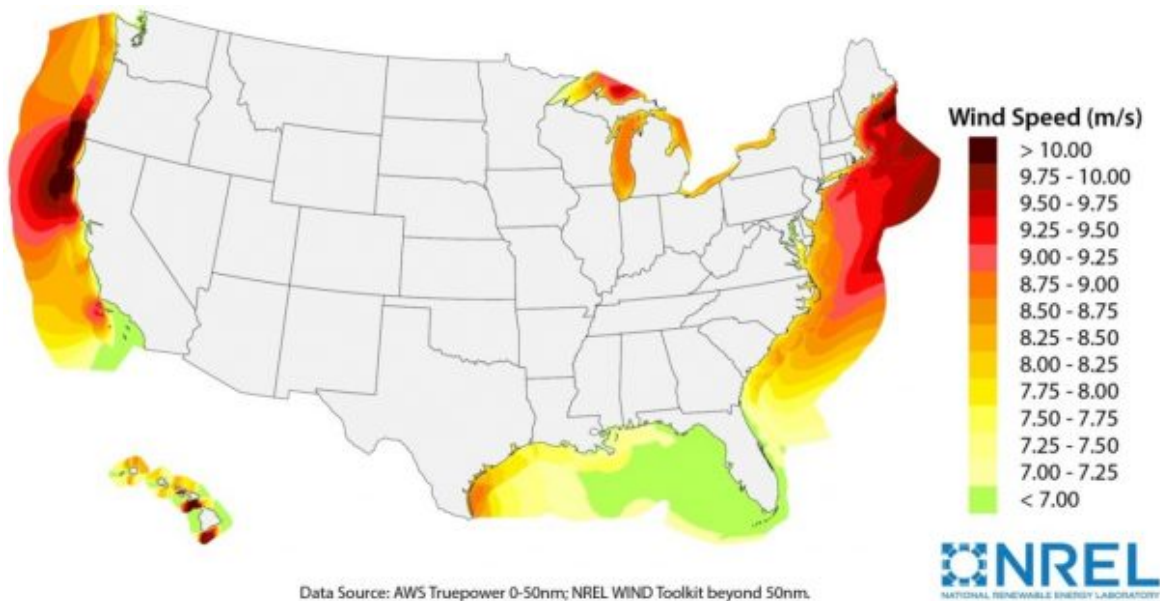
"In order to meet our climate objectives, we need an utterly massive increase in the amount of renewable energy capacity in the United States," says Gerrard.

But it won't be easy. Since 2001, developers have been trying to get

permission to install the 468-megawatt Cape Wind [farm](#) off the coast of Massachusetts. After more than 14 years of going through the processes, a lawsuit in 2015 left the plan "dead in the water"—indicating that the processes of siting and approving offshore wind farms aren't working, says Gerrard. Yet in order to significantly de-carbonize by 2050, the U.S. would need to install between 4 and 37 Cape Wind-sized facilities every year.

Some proposals are being considered off the coasts of New Jersey, Virginia, Massachusetts, and New York, but it takes years for offshore wind farms to get approval, begin construction, and start operating. After 11 years of negotiations, the South Fork Wind Farm finally won approval to build off the coast of New York in 2017, but the 90-megawatt farm isn't expected to come online until 2022. "It isn't unreasonable to think that offshore wind will always take several years to install," said Doreen Harris, director of the New York State Energy Research and Development Authority (NYSERDA).

Anne Reynolds, executive director for the Alliance for Clean Energy New York, agrees. "It's going to take a very long time," she says, "so we need some things to happen soon"—such as finding new areas where offshore wind farms would be appropriate.



High wind speeds make the East Coast “the Saudi Arabia of offshore wind.”
Credit: National Renewable Energy Lab

That's one of the things NYSERDA is working on. The organization is conducting studies and surveys to seek out new sites for offshore wind development, create guidelines for developers, and figure out how New York can best support offshore wind development.

The Sabin Center, too, is developing legal pathways to speed up this process.

But while many hope to cut through the red tape, others, including Reynolds, reiterate the need for a rigorous environmental review process.

"There needs to be significant amounts of baseline data collection," said Edward Anthes-Washburn, director of the Port of New Bedford in Massachusetts. "As turbines are put up, there needs to be a lot of study

about what impact it might have." He's concerned about the effects wind farms will have on New Bedford's commercial fishing, which is not just important to the local economy but to the identity of the community. The city is actually suing the company behind the South Fork Wind Farm because of its proposal to build in vital scallop fishing grounds. But Anthes-Washburn does think that fisherman can coexist with offshore wind developers—if they're engaged in the right way. For example, he suggested, in addition to considering the fishing industry in their siting decisions, they can make sure wind farms are fisherman-friendly by burying transmission cables and ensuring that the windmills are spaced so that boats can move through.

Offshore wind still faces many challenges—developers need to find ways to store this intermittent resource and integrate it into existing, outdated electricity grids. But there are a lot of reasons to be optimistic, said Katherine Kennedy, director of the Energy and Transportation Program at the Natural Resources Defense Council. Up and down the East Coast, she says, states are committing to developing [offshore wind farms](#), whether they're led by Democrats or Republicans. Offshore wind is unifying labor groups and local business organizations with environmentalists as well as other stakeholders who don't always agree on everything.

Plus, the costs are going down. Lars Sunde from Statoil said that nowadays, the cost of a 10 megawatt turbine is not much more than a 2.5 megawatt turbine, and the installation is becoming easier.

In Europe, offshore wind power costs 7.6 per kilowatt-hour. (For comparison, natural gas costs about 5 cents in the U.S.) That's down by 50 percent compared to a few years ago, said Harris. "You see the results and you think it couldn't get any lower, and then in the next round it does. We don't know when it will bottom out."

"A few years ago, you might have thought that offshore [wind](#) was a pipe dream," says Kennedy, "but we're making tremendous progress."

This story is republished courtesy of Earth Institute, Columbia University
<http://blogs.ei.columbia.edu>.

Provided by Columbia University

Citation: What's next for offshore wind in the U.S.? (2017, September 22) retrieved 9 April 2024 from <https://phys.org/news/2017-09-offshore.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--