Our Ocean Backyard

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Offshore Wind Moving Fast

Two weeks ago I wrote that I was going to stick to good news for a while because it seems like there isn’t usually enough of that to go around. We all need to have hope and I’m going to try to spread it around a bit.

On December 7, a positive story emerged from the first auction of leases for offshore floating wind turbines off California. The two areas up for lease were about 20 miles off Humboldt County on the north coast and a similar distance off Morro Bay in San Luis Obispo County on the central coast. Competitive bids were submitted by five different companies and totaled $757.1 million. This lease sale was significant for two reasons, it was the first floating offshore wind lease sale in U.S. waters, and also the first wind lease of any kind off the West Coast.

The five leases when fully developed will be capable of generating 4.6 gigawatts of energy, or enough to power about 1.5 million homes. It’s a good start. The district representative for Operating Engineers Humboldt County stated that “We are happy to be working with so many responsible parties to make the development of clean, renewable, offshore wind energy a reality, while ensuring that it will create tens of thousands of construction jobs on the West Coast. We’re not talking about low-wage, low-skill jobs either, but union jobs that provide apprenticeship opportunities and the basis for a stable career with great benefits”.

Other supporters stressed that the development is a significant milestone in meeting the state and nation’s goals to address the climate crisis. Wind energy will complement solar energy, which is plentiful during the day while wind speeds are stronger after the sun sets.

Deep-water floating wind farms are still relatively new with just three commercial operations globally. Two of those are in Scotland with the oldest one operating since 2017, which demonstrated the feasibility of floating turbines. Wind turbines supported on the seafloor, however, have been in operation for 12 years, and there are literally thousands of them. The United Kingdom is the leader of the pack and has 1,905 individual turbines operating with more under construction. China is in second place with 1,473 offshore turbines, followed by Germany with 732, The Netherlands with 440, Denmark with 183 and Belgium with 140. Globally there are now a total of 4,880 wind turbines generating clean renewable energy.

The U.S. has been late to the party, however, and currently has only two offshore wind farms with 7 total turbines, but with many more on the way. The nation’s first commercial offshore wind project, the Block Island Wind Farm, came online in December 2016. Developed by Deepwater Wind, the Block Island Wind Farm has five turbines located in state waters off the coast of Block Island, Rhode Island, which provides all of the power for the island and replaces diesel generators. The state was looking ahead some years ago and essentially zoned their offshore waters for specific uses. So when the Block Island project moved forward in an area designated for wind power, they didn’t have to deal with years of litigation and opposition.

The two-turbine, 12 MW Coastal Virginia Offshore Wind (CVOW) pilot project finished construction in June 2020 and commenced commercial operations off the coast of Virginia Beach in January 2021. While small, the CVOW project is significant in being the first offshore wind project in federal waters. For explanation, individual states control and administer any offshore uses or lease in the inner three miles; beyond that it’s under federal jurisdiction, whether wind farms or oil platforms.

The U.S. now has offshore wind projects of over 14,000 MW in federal lease areas issued to date, which would power about 4.5 million homes. In addition, two offshore wind demonstration projects are planned for development in state waters off Ohio and Maine. Project developers currently expect 12 offshore wind projects totaling 10,300 MW to be operational by 2026, just four years from now.

States are driving strong demand for offshore wind energy and have established targets to procure a total of close to 45,000 MW of offshore wind by 2040 (enough energy for approximately 14.5 million households or roughly 45 million people.  With stable policies in place, the Department of Energy found the U.S. could develop a total of 86,000 megawatts (MW) of offshore wind projects by 2050.

The International Energy Agency (IEA) released a report on December 6 indicating that renewable energy capacity worldwide is expected to grow by 2,400 GW - equal to the entire power capacity of China - in the next five years. This growth rate is 30% higher than was forecast just a year ago, due to both high gas and power prices, and also policies and market reforms in the United States, China and India that are all promoting deployment of renewables faster than originally planned.

The IEA also reported that renewables (solar and wind) are set to account for over 90% of global electricity expansion over the next five years, overtaking coal to become the largest sources of global electricity by 2025. Global solar photovoltaic capacity is set to almost triple by 2027, becoming the largest source of power capacity globally, with wind capacity set to almost double in the same time period.

What wasn’t imagined just a decade ago is quickly becoming a reality. Predictions or projections are one thing, but getting these projects approved, funded and constructed is another, and not likely to be a walk in the park. But the good news is we are moving quickly in the right direction.