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Offshore wind report offers positive outlook ahead of lease auction

Guests tour one of the turbines of America's offshore wind farm, owned by the Danish company, Orsted, off the coast of Block Island, R.I., as part of a wind power conference, Monday, Oct. 17, 2022. (Photo: David Goldman/AP)

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The first auction for offshore wind leases in California is set for Tuesday, and a report from the offshore wind industry states that may be the beginning of a new era of economic prosperity for communities along the coast, as long as the development is done right.

On Friday, the trade group Offshore Wind California released a report that states coastal communities like Humboldt County could benefit from rapidly improving floating offshore wind technology, but it's crucial to make upgrades to the transmission infrastructure, ensure a clear permitting process is in place, and invest in equipping the state's ports with the infrastructure needed to manufacture, assemble and maintain turbines and other components.

"Responsible offshore wind development that incorporates local protections, community benefit agreements, and leasing bid credits can bolster California jobs, workforce development, supply chain growth and investment, and state revenues that will result from and support a strong green economy," the report states. "Offshore wind will also help California meet its climate goals by reducing greenhouse gas emissions, and improve environmental justice and health conditions for local communities by reducing the state's reliance on fossil-fueled power plants."

The Paris Agreement, signed by almost 200 parties at the U.N. Climate Change Conference in 2015, commits to limiting global warming to 2 degrees Celsius and preferably 1.5 degrees above pre-industrial levels, which requires rapidly transitioning off of fossil fuels and shifting toward the use of renewable energy like solar and wind power.

A report on the offshore wind industry from McKinsey & Company projects the Asia-Pacific region has the largest growth potential for offshore wind, with China leading the way, but expects, "by the end of this decade, thousands of turbines will likely be turning along the coasts of Asia, Europe, North America, and other regions."

"Excess offshore wind capacity can now serve as an alternative fuel source for hydrogen electrolysis, a versatile energy storage, transmission, and fuel technology that can be used to decarbonize many hard-to-abate industries and applications," the McKinsey report states. "Because electrolysis is so capital intensive to build, companies are eager to maximize utilization, an objective that offshore wind also supports due to its high capacity."

California is working on having 90% clean energy by 2035 and set ambitious planning goals of 2 to 5 gigawatts of offshore wind capacity by 2030 and 25 GW by 2045 earlier this year. In September, the Biden-Harris administration set a goal of deploying 15 GW of floating offshore wind by 2035 to complement its goal of deploying 30 GW of offshore wind by 2030, which is expected to be achieved largely through fixed-bottom technology deployed in the shallower waters of the Atlantic Ocean.

The fact that both the U.S. and the state have committed to "going big" with their offshore wind energy goals is good news for the industry, along with commitments to research and development specifically for floating offshore wind.

"As floating technologies move from demonstration and pilots to full-scale projects mid-decade, research and technology will be critical to unlock cost savings and economies of scale," the Offshore Wind California report states. "Technology advancement will unlock not just overall GWs from projects, but also efficiencies from component development, including turbine sizes, floating substructures, and dynamic cables."

Floating offshore wind technology is expected to be deployed in federal waters about 20 miles off the coast of Humboldt Bay by the end of this decade. On Tuesday, the Bureau of Ocean Energy Management is set to auction two leases — one for 63,338 acres and the other for 69,031 acres — in the Humboldt wind energy area and three leases that are about 80,000 acres each in the Morro Bay wind energy area.

After the auction is complete, it could take up to five to six years to get all the permits in place from all the federal, state and local regulatory agencies, making a clear roadmap for permitting essential, according to the report from Offshore Wind California. The California Public Utilities Commission and California Energy Commission, along with their partners, are expected to present that permitting road map before the end of the year, as required by Assembly Bill 525.

It will also be essential to make significant upgrades to the state's port infrastructure, some of which is already beginning to take place. McKinsey's report also pointed out the scarcity of "some construction equipment and wind turbine installation vessels" that are needed to deploy larger turbines; there are currently only about 10 vessels in the world that can accommodate a 10-MW turbine.

"While initial work is underway at the Port of Humboldt Bay on the North Coast," the report states. "California does not currently have port capacity necessary to support the construction of multiple commercial-scale offshore wind farms, especially on the Central Coast, where there is available sea space and transmission necessary to build as much as 5 GW of offshore wind at the Morro Bay WEA by 2030. The state must move forward expeditiously with planning to address issues of port improvements, as well as sea-space, environmental permitting, transmission, supply chain, and workforce training."