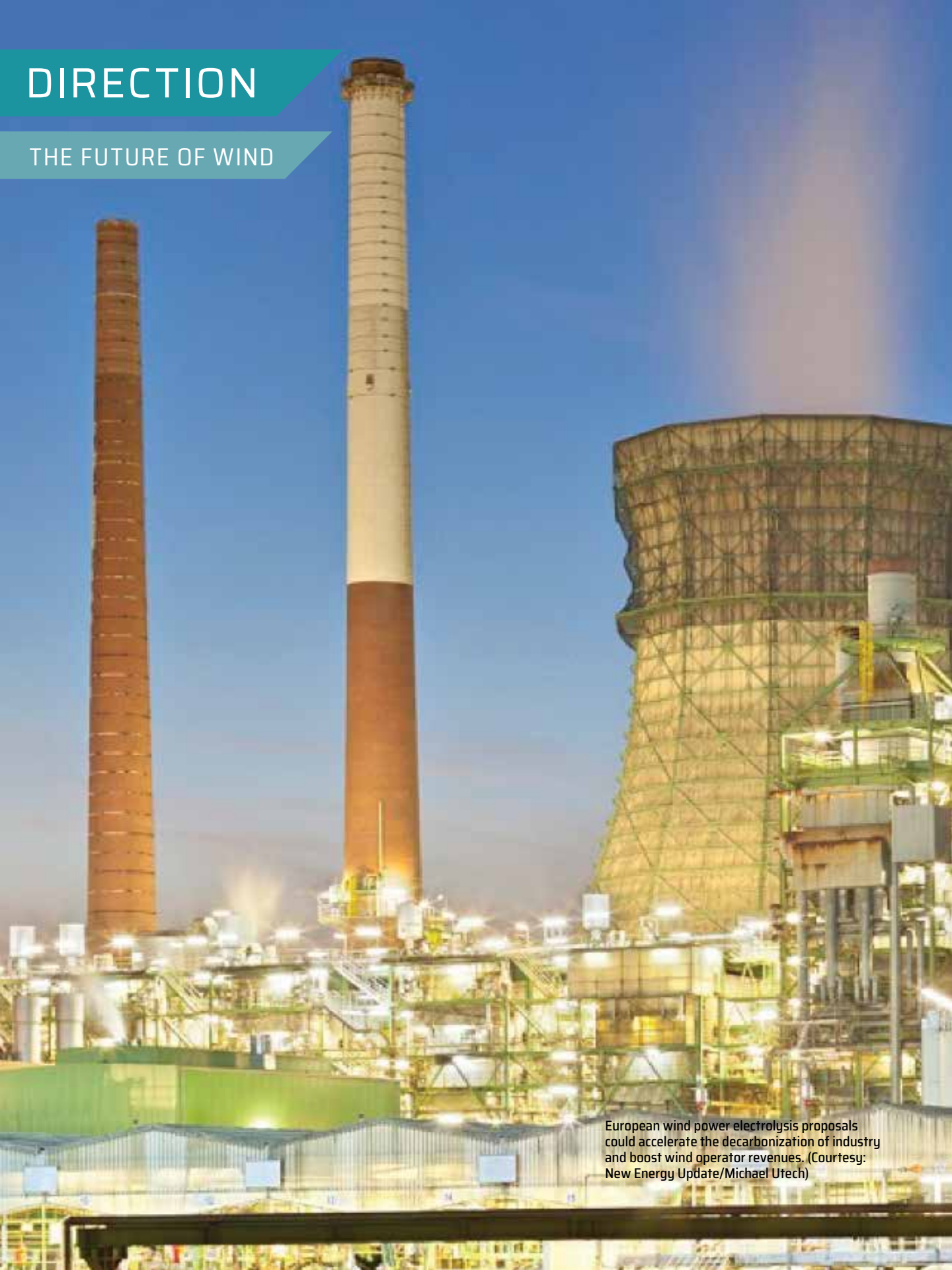


DIRECTION

THE FUTURE OF WIND



European wind power electrolysis proposals could accelerate the decarbonization of industry and boost wind operator revenues. (Courtesy: New Energy Update/Michael Utech)

Offshore wind hydrogen production could be subsidy-free within 10 years

New offshore wind hydrogen proposals in Germany and Netherlands expand the revenue potential for offshore wind and deployment learnings will lower hydrogen production costs toward natural gas reforming levels, project participants told New Energy Update.

Europe's leading offshore wind developers are looking to hydrogen production through electrolysis as a way to expand wind power potential and accelerate the decarbonization of energy supply.

In March, Denmark's Ørsted announced it is developing green hydrogen projects as part of its bid for the Holland Coast South 3&4 projects in the Netherlands. Ørsted is the world's largest offshore wind developer by capacity and plans to increase its installed capacity from 5.6 GW to 15 GW by 2025.

Recent offshore wind tenders have produced zero-subsidy bids, exposing winning developers to wholesale market risks. Ørsted wants to use power from the Holland Coast South 3&4 wind farms to produce hydrogen, which would be sold to industrial customers to provide additional revenue to the operator.

Hydrogen production can help mitigate grid capacity limitations restricting offshore wind-power expansion in many parts of Europe.

Shell, Siemens, and grid operator TenneT recently joined forces to propose new joint offshore wind power and hydrogen tenders in Germany.

The tenders, drawn up by E-Bridge Consulting, could support the installation of 900 MW of wind capacity and 800 MW of hydrogen capacity per tender, in offshore sites not used for regular wind projects, the partners said. Tenders could be held every two years from 2021-2022 and project construction could start in 2026-2030.

Investors in the projects would receive a tariff premium for hydrogen production while electricity revenues

would be market-based, Vigen Nikogosian, principal consultant at E-Bridge Consulting told New Energy Update.

As more hydrogen production capacity is deployed, this tariff price would fall, Nikogosian said.

MORE INFO newenergyupdate.com

Connecticut governor announces offshore wind plan

Connecticut Gov. Ned Lamont recently announced that the state and its partners have reached an agreement on a harbor development plan for State Pier in New London that will enable its revitalization and put in place the needed components to establish the region as a central hub in New England for the developing offshore wind industry.

The Connecticut Port Authority, the state's quasi-public agency responsible for marketing and coordinating the development of the state's ports and maritime industry, and terminal operator Gateway, are partnering with Bay State Wind, a joint venture

between Ørsted and Eversource, on a new deal that will redevelop State Pier into a world-class, state-of-the-art port facility through combined public-private investment of \$93 million to upgrade its infrastructure and heavy-lift capability. These upgrades will allow State Pier to meet the facility requirements of the offshore wind industry and will benefit the port's long-term growth by increasing its capability to accommodate heavy-lift cargo for years to come.

"Connecticut's maritime economy has significant potential to drive economic growth and create jobs across the state, and redeveloping State Pier is a central component to that growth," Lamont said. "This new public-private partnership reaffirms the unwavering commitment of the state to increase procurement of offshore wind and make the economic expansion of our maritime economy a reality. We look forward to working with our new partners to position Connecticut as a leader in the offshore wind industry and expand economic opportunity throughout the region."

The State Pier harbor development



State Pier in New London Connecticut. (Courtesy: State of Connecticut)

plan calls for a two-phased effort at State Pier. First, a three-year development project will upgrade the facility infrastructure to meet the heavy-lift requirements of Ørsted and Eversource's offshore wind components.

Second, following the successful completion of the project, Ørsted and Eversource will enter into a 10-year lease agreement granting their joint venture the use of State Pier for wind-turbine generator assembly and staging.

"The Connecticut Port Authority was established to grow the state's economy and create jobs by investing in the maritime industry," said Scott Bates, chairman of the Connecticut Port Authority. "For over a year, we have been working toward a vision where increased port activity drives economic growth and creates jobs throughout the state. This Harbor Development Plan brings that vision to life. In the short-term, our local workforce will upgrade State Pier into a world-class port facility, and our regional manufacturing workforce will build components for our new partners in the offshore wind industry. Longer-term, the increased capacity of State Pier will continue to expand the flow of cargo into New London, which will extend our state's economic reach even farther, benefiting workers throughout Connecticut."

This deal aligns with the Lamont administration's plans to expand the use of carbon-free energy sources.

"We've worked closely with the Connecticut Port Authority, Ørsted, and Eversource to help realize the collective vision of bringing the offshore wind industry to New London," Philippe De Montigny and Matthew Satnick, co-CEOs of Enstructure, Gateway's financial partner, said in a joint statement. "We believe our partnership will yield strong long-term growth for the City of New London and the State of Connecticut. As the port operator for both New Haven and New London, we will also ensure that our maritime terminal operations continue to deliver best-in-class service for our conventional cargo customers."

"(The) announcement lays the foundation for Connecticut to play a leading role in the United States' fast-growing offshore wind industry and supports our transition from older, dirtier fuel sources to clean, affordable, carbon-free energy," said Lee Olivier, Eversource executive vice president for Enterprise Energy Strategy and Business Development. "Our collaboration with the State of Connecticut, the Connecticut Port Authority, the City of New London, and Gateway Terminal brings together the resources and expertise needed to redevelop the New London State Pier into a state-of-the-art offshore wind facility to help Connecticut reach its critical greenhouse gas reduction goals."

MORE INFO orsted.com

Turbine engineering and services firm moves to Portland

Greater Portland Inc. recently announced Diamond WTG Engineering & Services Inc., a division of Mitsubishi Heavy Industries, Ltd. has relocated its headquarters to Portland, Oregon, from California.

The company provides products, services, and engineering expertise for onshore renewable assets — namely wind turbines. Diamond has sold 3,615 onshore wind turbines across the U.S. and remains committed to the owners of those wind turbines, who are among the largest owners of renewable assets in the country.

The relocation process began in 2017 and was completed in early 2019. Diamond will occupy more than 10,000 square feet of office space in downtown Portland, where staff will support its engineering, accounting, supply-chain, and commercial functions, as well as Diamond's operational and inventory facilities in Texas and New Mexico. The Portland office is at 1618 SW First Ave.

Diamond chose to relocate to Portland due to its proximity to MHI cus-



Diamond WTG Engineering & Services Inc. has sold 3,615 onshore wind turbines across the U.S. (Courtesy: Diamond WTG Engineering & Services Inc.)

tomers, access to local engineering and other professional talent, lower real estate costs, excellent mass transit system, long-standing civic and cultural relationship between Portland and Japan, and availability of nonstop flights between PDX and Tokyo.

The firm's investment in the Greater Portland region represents yet another foreign direct investment in the region from a firm with roots in Japan. More than 140 Japanese companies are located in Greater Portland.

The company's recruitment was also supported by GPI partners Business Oregon, Portland General Electric and Prosper Portland.

MORE INFO DiamondWTG.com

Allete to sell wind power to Fortune 500 companies

Allete Clean Energy recently announced it has acquired the Diamond Spring wind project in Oklaho-

ma from Apex Clean Energy and will build, own, operate, and sell wind power from the site to two large Fortune 500 companies under 15-year power sales agreements.

Diamond Spring will be the first Allete Clean Energy wind site to have contracts with corporate customers. Corporate and industrial customers represent a growing market as companies embrace sustainability goals and demonstrate to customers they are powered by clean energy.

“Allete Clean Energy is honored to work with well-known and highly respected companies to advance their sustainability goals and add renewable energy to reduce their carbon footprints,” said Allete Clean Energy President Allan S. Rudeck Jr. “In addition to renewable energy, these customers are seeking competitive energy costs, and the Allete Clean Energy team is pleased to deliver clean energy supplies with a track record of timely, responsible, and cost-effective project execution. Serving the corporate and industrial market opens new opportunities for Allete Clean Energy, and the southern Oklahoma location is strategic in that it provides a new beach-head in the highly attractive Southwest Power Pool where significant potential exists for serving new customers in the utility and corporate and industrial segments. We are pleased to be working with Apex Clean Energy to bring Diamond Spring to market.”

Allete Clean Energy purchased a 100-percent interest in the up to 303-MW Diamond Spring wind farm from the project’s developer, Apex Clean Energy. The purchase includes two power sales agreements negotiated by Apex totaling up to 228 MW and additional capacity to serve the growing corporate and industrial market.

“Corporations are taking a clear leadership position in curbing carbon emissions, and we applaud them for aggressively working to achieve their sustainability goals,” said Mark Goodwin, president and CEO of Apex Clean Energy. “Apex is proud to part-

ner with Allete at Diamond Spring Wind, one of several Apex projects this year that is expected to help leaders in the corporate, commercial, and industrial sectors meet their clean energy commitments.”

Allete Clean Energy will begin construction this year with the wind project coming online in 2020. It will be the largest wind facility owned by Allete Clean Energy, pro-

ducing enough power for 114,000 homes, and increase the company’s total wind capacity to approximately 1,000 MW at nine sites.

The project has the support of the local communities, where benefits include \$48 million in tax revenue and \$54 million in payments to landowners. ✈

MORE INFO www.allete.com.

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