

DIRECTION

THE FUTURE OF WIND



Last year, the Port of Vancouver USA moved more than 7 million metric tons of commodities, with energy infrastructure components leading the effort. (Courtesy: Port of Vancouver USA)

Port of Vancouver USA sees record 2020; infrastructure components lead effort

The Port of Vancouver USA is reporting a record-breaking year in 2020, with the highest returns in its 108-year history: revenues totaling \$50 million — a 15 percent increase from the previous year.

The port moved more than 7 million metric tons of commodities, with energy infrastructure components leading the effort. More than 2,700 wind turbines crossed the docks of the port, the most of any West Coast port and enough to power 112,000 homes.

In 2020, the pandemic disrupted many businesses, but the Port of Vancouver's proficiency in bulk and break bulk cargoes allowed the port to leverage its best assets, including the ability to handle large-sized shipments, such as wind-energy components. This advantage, along with extensive laydown space for storage, a highly-skilled work force, and excellent transportation connections equipped the port to weather the economic disruption.

"Strategic investments, long-term customer partnerships, and a diverse product mix positioned the port well to continue service as an economic engine for our community during some very difficult times," said Alex Stroger, chief commercial officer with the Port of Vancouver.

In addition to wind-energy components, the port moved more than 5.4 million metric tons of grain, more than 300,000 metric tons of copper concentrate, and nearly 90,000 automobiles, with a record number of 3,350 autos received on a single vessel in October. Additionally, more than 450,000 labor hours were recorded by local ILWU Longshore workers, whose wages added millions of dollars into the local economy.

"As we look ahead in 2021, we continue to see opportunity for the further diversification of products handled by the port," Stroger said. "Our role as an economic engine for our community continues to grow regardless of the challenges faced."

The Port of Vancouver USA is one of the major ports on the Pacific Coast, and its competitive strengths include available land, versatile cargo handling capabilities, vast transportation networks, a skilled labor force, and an exceptional level of service to its customers and community.

MORE INFO www.portvanusa.com

Wärtsilä to supply, maintain two Texas storage systems

The technology group Wärtsilä will supply its advanced energy-storage technology for two major projects in southern Texas. The interconnected stand-alone systems will have a combined rated capacity of 200 MW. Wärtsilä has also signed 10-year guaranteed asset performance agreements for the installations. The order was placed by Able Grid Energy Solutions, Inc. ("Able Grid"), a utility-scale energy storage project development arm of MAP RE/ES, one of North America's leading investors in modern energy projects. The order was booked by Wärtsilä in February 2021.

The Madero and Ignacio energy storage plants will deliver valuable grid support to the Electric Reliability Council of Texas (ERCOT), the body responsible for managing the electric supply to more than 25 million customers. Wärtsilä will supply its next-generation, fully integrated Grid-Solv Quantum energy storage solution. The modular solution is designed for ease of deployment and sustainable energy optimization. The energy-storage systems will also feature Wärtsilä's GEMS smart energy management platform to monitor and control the flow of energy, enabling these projects to provide grid support for critical periods during extreme weather or grid instability conditions, such as those

that Texas has recently experienced.

"Able Grid selected Wärtsilä technology, among other considerations, for its critical safety and cyber-security features," said Sharon Greenberg, Able Grid Chief Operating Officer. "The system complies with all applicable standards, like UL9540A, to ensure sustained safe and reliable operations. In addition, the GEMS Power Plant Controller is U.S.-code based and meets all IEC62443 cybersecurity standards."

"The Madero and Ignacio projects will participate in the existing ERCOT wholesale electricity market, delivering key ancillary services required for grid stability, including frequency regulation," said Aaron Zubaty, CEO of MAP RE/ES. "Years of development by forward-looking innovators like Wärtsilä now allow us to deploy market-driven solutions that will improve electricity grid reliability and performance while enabling further decarbonization of electricity markets."

"Energy storage is rapidly becoming a key asset for the global energy markets, and Wärtsilä has a leading position in this field," said Risto Paldanius, Vice President, Americas, Wärtsilä Energy. "In the planning of these installations, we were able to provide solid expertise based on our depth of experience in energy storage, and this added considerable value to our energy optimisation capabilities."

The projects' 10-year Wärtsilä Guaranteed asset performance agreements will enable flexibility in system maintenance and operation in order to maximize revenue in the ERCOT market. The agreements include maintenance services, an availability guarantee, and a flexible capacity guarantee based on usage.

The systems are expected to become fully operational in January 2022.

Able Grid will provide construction management and operational asset management services for the facility, which is owned by a privately-held en-



200 MW of energy storage systems will enable continued growth of wind and solar in the ERCOT market by providing balancing and grid quality services. (Courtesy: ©Wärtsilä Corporation)

energy storage power producer building multiple utility-scale energy-storage projects across the US. Since its founding in 2016, Able Grid's focus has been on investing in communities and markets where energy storage will generate long-term value to utilities that manage diverse energy portfolios, providing low-cost and sustainable power for their customers. MAP RE/ES has been an innovating and leading investor in renewable energy projects since 2005 and has directly funded the development of more than 16,000 MW of operating wind and solar generating capacity located across the United States.

MORE INFO www.wartsila.com

Pattern Energy moves to protect vulnerable New Mexico bird

Pattern Energy, an independent renewable energy company, recently entered into an agreement to fund extensive new research by Bird Conservancy of the Rockies to study birds associated with piñon-juniper woodlands in New Mexico. Pattern Energy's \$80,000 contribution will support scientific monitoring of the potential impacts from management activities on the pinyon jay and other declining birds associated with piñon-juniper woodlands.

Pattern Energy is developing the

Western Spirit Wind Projects, collectively the largest single-phase wind project in the United States, in central New Mexico, where the landscape is typified by a mosaic of piñon-juniper woodlands and savannas. The contribution comes from financial agreements for four wind energy projects: Clines Corners Wind Farm LLC, Duran Mesa LLC, Red Cloud Wind LLC, and Tecolote Wind LLC (collectively, the "Western Spirit Wind Projects").

"The pinyon jay has suffered an 85 percent decline in population since the 1960s and is predicted to lose an additional 50 percent of its population by 2035," said Carol Beidleman with Defenders of Wildlife in Santa Fe. "This research will be absolutely vital to protecting this vulnerable species and its habitat."

"Along with the loss of over a million pinyon jays, many other bird species dependent on piñon-juniper woodlands, such as the juniper titmouse, have also declined significantly," she said. "The situation is dire, but thanks to strong support from Pattern Energy, there will be reliable science to guide land management projects to better protect this vulnerable habitat and the bird species that are dependent on it."

"We have learned from years of conducting extensive avian surveys that state and federal agencies, as well as conservation stakeholders, have expressed a lack of robust data on the current status and vulnerabilities of

pinyon jays and we wanted to resolve that," said Adam Cernea Clark of Pattern Energy. "Given the iconic nature of the pinyon jay and its role as a key-stone species in a delicate ecosystem, Pattern Energy wants to build our collective understanding of the species and its habitat in New Mexico."

Of the iconic landscapes in New Mexico, the most familiar is probably that of the piñon-juniper woodlands. Covering a significant portion of the state, this habitat has always been important to humans, as a source of firewood and the nutritious piñon "nuts," but also for birds and other wildlife. Without the pinyon jay, however, there would be few new piñon pines. Theirs is a symbiotic relationship, with this beautiful blue jay being the primary consumer, and disperser, of the seeds. It "caches" or buries the seeds, allowing for more successful germination. Many other bird species associated with this habitat are therefore dependent on the pinyon jay, just as we are.

Through a collaboration with Defenders of Wildlife, Audubon Southwest, and The Nature Conservancy of New Mexico, Cernea Clark saw an opportunity to support a new research project focused on piñon-juniper woodlands and their associated bird species in New Mexico.

"What I learned from the conservation community is that the pinyon jay, with its caches of seeds, is the primary means for the piñon pine to expand its distribution," Cernea Clark said. "We know that ecosystems themselves are migrating in elevation and latitude in response to climate change and piñon-juniper woodlands need this bird to adapt to a changing climate. Pattern Energy's mission is to transition the world to renewable energy, which we need to mitigate the intensity of climate change. There is an eloquent parallel in this bird's role in the environment and the role of renewable projects like the Western Spirit Wind Projects."

Some threats to the pinyon jay are known. Climate change and drought, accompanied by insect outbreaks, have killed many piñon trees. But,

less is known about how large landscape management projects, such as thinning for wildfire mitigation and clearing for rangeland improvements, affect this rapidly disappearing bird.

MORE INFO patternenergy.com

China installed 50% of global offshore wind capacity in 2020

Hong Kong-based floating wind-power generation pioneer Ocean Wind International Industrial Limited says recent news confirming that half of the total offshore wind-power capacity installed last year deployed by China is “highly encouraging and portends well for the Asia Pacific region as a whole.”

The world’s second-biggest economy installed 3.06 GW in 2020, representing half of the 6 GW deployed globally despite a global economy ravaged by



The jump in China’s offshore wind-power generation capacity — 9.89 GW — brings it close to the U.K.’s. (Courtesy Ocean Wind International)

the effects of the coronavirus pandemic. Though much of China’s installed generation used fixed foundations embedded in the seabed, Ocean Wind International believes that future installations will use more floating wind turbines that can be further out to sea and, thus, take advantage of stronger

winds while costing less to install and maintain.

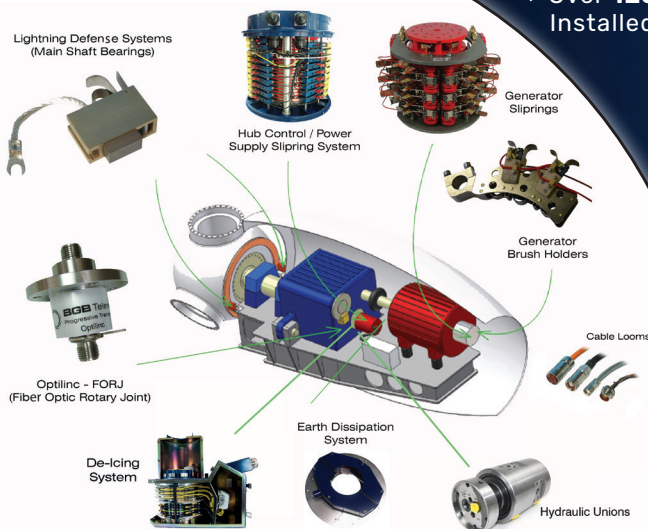
“China has a very ambitious goal of reaching carbon neutrality by 2060, but we believe that by making greater use of floating wind turbine solutions that deadline could be brought forward dramatically,” said Jeremy Fitzroy, Ocean Wind International’s chairman and CEO.

The jump in China’s offshore wind-power generation capacity — 9.89 GW — brings it to within a whisker of that being achieved by the world’s biggest offshore wind market, the United Kingdom’s 10.2 GW. Policy advancements being made in other Asian countries are seen as being particularly bullish by Ocean Wind International, especially those in Japan, given the understandable reluctance to revisit nuclear power generation after the devastating Fukushima power plant disaster of 2011. ✈

MORE INFO oceanwindinternational.com

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