



When the Chujin plant is finished, it will be South Korea's largest commercial-scale offshore wind farm. (Courtesy: DNV)

## ► CONSTRUCTION

### South Korea wind farm appoints DNV as engineer

Elenergy Co Ltd., a Korean renewable energy development company, has appointed DNV, an independent energy expert and assurance provider, as owner's engineer for Chujin, a 1.5-GW fixed-bottom offshore wind project.

When complete in 2027, the Chujin plant will be South Korea's largest commercial-scale offshore wind farm. DNV will supervise the final design, procurement, construction, commissioning, and operations phases and work on solutions for the building stages of the project.

The wind farm will be 10 kilometers east of Chuja-do in Jeju City in

southern Jeonam province, South Korea and will include about 100 wind turbines. The project will be constructed in three stages, consisting of 500 MW for Phase 1 and another 1 GW for phases 2 and 3.

The project will support the "Green New Deal," South Korea's development strategy to advance low carbon technology initiatives.

**MORE INFO** [www.dnv.com](http://www.dnv.com)

## ► CONSTRUCTION

### Vineyard Wind begins offshore cable installation

Vineyard Wind recently announced that cable installation for the first

commercial scale offshore wind farm has begun approximately 15 miles south of Martha's Vineyard. The company also announced it expects to begin nearshore cable work off the south coast of Cape Cod in the coming days.

The work is being conducted by Prysmian Group, the global leader in subsea cable manufacturing and installation. Prysmian recently announced plans to build the first U.S.-based offshore wind subsea cable factory in Somerset, Massachusetts, adding to its strong North American footprint that includes 28 manufacturing facilities.

"For a project that has achieved many firsts, the beginning of offshore cable installation is perhaps the most significant we have achieved so far," said Vineyard Wind CEO Klaus S. Moeller. "To get to this point has required an amazing effort by the Vineyard



Fishing vessel Fleet King is working with Vineyard Wind to ensure good communication with fisherman and other mariners in the area. (Courtesy: Vineyard Wind)

Wind team, and we are proud to work with Prysmian, a company with world class experience dedicated to creating jobs in Massachusetts. I want to thank all the local, state, and federal government agencies, which have been essential in thoroughly reviewing this

“Leveraging state-of-the-art technology, large production, and installation assets, our cable laying operations are in line with the industry’s regulatory and environmental standards. Across our wide North American footprint, Prysmian plays a key role in the de-

velopment and upgrade of power grid infrastructures to support the transition to renewable energy sources in the U.S.”

“Prysmian is proud to contribute to this important project that will accelerate the United States towards the energy transition,” said Hakan Ozmen, EVP Projects, Prysmian Group.

velopment and upgrade of power grid infrastructures to support the transition to renewable energy sources in the U.S.”

Prysmian is being supported by Foss Maritime, a U.S.-based, unionized maritime service company. The firm’s Nicole Foss will assist with both the offshore and nearshore work in the coming weeks.

“Foss is extremely pleased to be part of the Vineyard Wind export cable installation program,” said Joel Whitman, president of Foss Offshore Wind. “As a U.S. company, we are particularly proud to be involved in this milestone project for the U.S. Offshore Wind industry.”

The fully Jones Act compliant cable installation process permits the use of both U.S. and specialized European flagged vessels that work together. Fishing vessel Fleet King, which is being provide by Sea Services, is work-

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ing alongside the Cable Enterprise to ensure good communication with fishermen and other mariners in the area.

“We are thrilled to continue our relationship with Vineyard Wind, who has committed to using local commercial fishermen to provide safety vessels for the construction phase of the nation’s first commercial scale offshore wind farm,” said Sea Services CEO Gordon Videll.

In the coming weeks, Vineyard Wind will also begin nearshore at Covell’s Beach in Barnstable and will also employ fishing vessels to facilitate good communication with other local fishermen.

Cable installation is scheduled for the fall of 2022 as well as early 2023. Mariners can sign up for updates at [www.vineyardwind.com/fisheries](http://www.vineyardwind.com/fisheries), which can be sent out via email or text.

Vineyard Wind is committed to local supply chain and workforce and advancing the use of U.S.-flagged vessels on the project. In total, 52 U.S.-flagged



ECOcrete can be added to regular concrete mix to create a chemically-balanced concrete. This enables healthy and diverse marine ecosystems to develop. (Courtesy: ECOcrete)

vessels have or will have worked on the project by the end of this year.

Vineyard Wind, an 800-MW project 15 miles off the coast of Martha’s Vineyard, will generate electricity for more than 400,000 homes and businesses in the Commonwealth of Massachusetts, create 3,600 full-time-equivalent (FTE) job years, save customers \$1.4 billion over the first 20 years of operation, and is expected to reduce carbon emissions by more than 1.6 million metric

tons per year, the equivalent of taking 325,000 cars off the road annually.

Vineyard Wind will begin delivering clean energy to Massachusetts in 2023.

**MORE INFO** [www.vineyardwind.com](http://www.vineyardwind.com)

## CONSTRUCTION

### ECOcrete deployed off Long Island

Deployment of Droplock Ecological Scour Protection has been completed 12 miles off the shore of Long Island, New York, in coordination with the New York State Department of Environmental Conservation.

The project partners are ECOcrete Tech Ltd., provider for bio-enhancing concrete technology, and Holcim US, a cement producer. The concrete unit requires up to 30 percent less material, minimizes native habitat degradation, and supports ecological uplift in offshore wind projects.

“The unit’s ecological properties mimic natural marine habitats’ features while providing the armoring functionality required for scour protection,” said Dr. Ido Sella, ECOcrete Tech CEO and co-founder. “Offshore wind projects that integrate nature inclusive technologies are able to gain ecosystem services not achievable before.

The ecological uplift and long-term functionality of ecologically sensitive solutions can mitigate some of the associated impacts of offshore infrastructure. The ecological performance will be verified through comprehensive scientific monitoring comparing the bio-enhanced system to the standard rock-based scour protection to set new industry standards for responsible construction.”

“This deployment of materials is exciting and timely. The Nature Conservancy believes there is great potential in intentionally designing and constructing materials used in

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offshore wind-energy development in ways that are intended to create habitat for fish and other marine life,” said Carl LoBue, Nature Conservancy ocean program director.

“Renewable energy from wind is a critical part of building a more sustainable world and our Net Zero commitments; we also recognize wind generation needs to be built in a way that minimizes the ecological and environmental impacts,” said Michael LeMonds, VP, Environment,

Land & Public Affairs at Holcim US. “Meeting our renewable energy goals together with EConcrete Tech shows how an innovative approach using well-established building materials can protect natural habitats and help them flourish.”

This project provides the first and only structural solution that benefits both foundation resiliency and the local marine ecosystem. In a recent report, The Nature Conservancy recommended EConcrete’s nature-based

design for cable protection and scour protection.

**MORE INFO** [www.econcretetech.com](http://www.econcretetech.com)

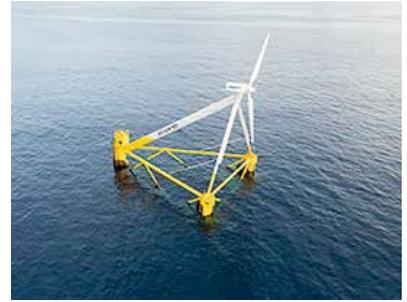
**INNOVATION**

## X1 Wind installs floating wind platform in Canary Islands

X1 Wind’s floating platform has been successfully installed at the PLOCAN test site in the Canary Islands.

As summer trade-winds abated, a suitable weather window allowed X1 Wind and partners from the EU-backed PivotBuoy Project to complete the installation process, connecting the fully-functional floating wind prototype to the mooring system and dynamic cable pre-installed last June.

X1 Wind Operations Manager Jorge Casanovas said operations will soon



X1 Wind and the PivotBuoy Project installed a floating wind platform in the Canary Islands. (Courtesy: X1 Wind)

commence collecting valuable data to validate performance in open ocean conditions for the first time.

“As installation work comes to a close another exciting chapter begins for X1 Wind as we prepare for operations to deliver first power to the PLOCAN smartgrid,” he said. “This is the result of a massive team effort, and we would like to extend our appreciation to all project partners and local suppliers who have supported so diligently

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throughout the build and installation process.

We are especially thankful to those partners and suppliers that have played an instrumental role in the final installation phase, developing a ground-breaking mooring, connection and installation solution for our X30 prototype. Now successfully installed, we will begin monitoring the platform in real-time with multiple sensors integrated within our in-house SCADA system.”

The X30 platform has been developed with key design features to streamline the installation process, including a light-weight and stable floater, which can be wet towed by local vessels. The PivotBuoy Project focuses on demonstrating a mooring system configuration that combines the advantages of a SPM (single point mooring) with a small TLP (Tension-Leg Platform) mooring system, allowing the ability to reach deeper waters and minimizing the footprint and impact on the seabed.

Fitted with a Vestas V29 turbine, the 1:3 scale prototype has been stationed at a 50-meter water depth in a downwind configuration, creating a passive weather-vane effect that eliminates the need of an active yaw system. The scalability of X1 Wind’s technology will enable the firm to provide platforms for the 15-MW scale turbines and beyond and to deploy them at very deep sites.

“This is a key milestone for our company and for the floating wind sector in general being able to install a floating wind platform using a TLP mooring system and requiring only small vessels,” said X1 Wind CEO and co-founder Alex Raventos. “This reduces not only the costs but also the impact on the seabed. Data obtained from the X30 will contribute to de-risk the technology, improve the design, and obtain the certification of our commercial-scale platforms in preparation for upcoming tenders in Spain and other countries worldwide.”

After completing the installation, the PivotBuoy project will be tested in fully operational conditions until



The Wärtsilä 31SG contains a cost-efficient plant construction design, based on prefabricated power plant modules. (Courtesy: Wärtsilä)

March 2023, feeding the electricity produced to PLOCAN’s smartgrid, after it has been commissioned.

**MORE INFO** [www.x1wind.com](http://www.x1wind.com)

## INNOVATION

### Wärtsilä launches grid balancing technology

Wärtsilä recently launched its next-generation grid balancing technology, designed to provide flexible grid capacity in adverse weather conditions and enable renewables to perform as the lowest-cost, most resilient power source for grids worldwide.

The solution is based on three fully integrated key components: the Wärtsilä 31SG Balancer engine, prefabricated modules for cost-efficient plant construction, and Wärtsilä Lifecycle services. The Wärtsilä 31SG Balancer offers 12,400 kW (8 percent more power) at a heat rate of 6,800 Btu/kWh/+50 percent efficiency, lowering the cost and risk of the renewable transition through flexible, resilient capacity.

The new engine technology is designed to provide power producers

with fast-ramping balancing power, which can be scaled up as the share of renewables in power systems increases. The engine can start and ramp up to support intermittent renewable generation so that the lowest cost cleanest energy technology can become the dominant power source.

The engine in the Wärtsilä 31SG Balancer solution has been designed for U.S. environmental conditions, including adverse weather, to provide the optimal flexible technology and ensure continued running at times of extreme cold, or heat, from minus-40°C to 45°C (minus-40°F to 113°F).

“Extreme weather is intensifying — and ‘weatherization’ is now a requirement in states such as Texas,” said Risto Paldanius, Vice President, Americas, Wärtsilä Energy. “Through the freezing winter blackouts in Texas last winter and California’s heatwave this summer, renewable plants supported by our engines kept running. Our fast-ramping, agile engines are designed for the climate-changed world utilities now operate in, enabling the greater deployment of renewables in grids around the world.”

The Wärtsilä 31SG Balancer responds to market needs with a cost-efficient plant construction design,

based on prefabricated, high-quality power plant modules. It reduces time-to-electricity with 30 percent less site work than traditional construction methods.

“The energy transition is picking up speed rapidly around the world, especially in the U.S. where, by 2029, solar and wind could be the cheapest in the world at less than 5 USD per megawatt-hour,” Paldanius said. Our latest grid balancing engine is designed to help utilities transform the energy mix of their power plant portfolios, so that the lowest cost technologies, renewables, provide most of the power, most of the time.”

**MORE INFO** [www.wartsila.com](http://www.wartsila.com)

## INNOVATION

### WindESCo and Deloitte team up for Spain, EU wind farms

WindESCo, a wind plant optimization company, has signed a distribution agreement with Deloitte to expand WindESCo’s offerings to wind assets in Spain. Deloitte will be bringing WindESCo’s two SaaS offerings – Find, Fix, Measure and Swarm to its in the region. This partnership will help accelerate the global energy transition from fossil fuels to renewables by increasing the profitability of wind energy.

With profit margins being squeezed in an increasingly competitive market and supply chain issues continuing to halt new projects, wind-farm owners and operators are turning to innovative technologies to improve the profitability of their existing fleets.

WindESCo Swarm is a patented solution for autonomous, cooperative control of wind assets. The system, licensable by OEMs and partners, enables turbines to cooperatively adjust positioning to mitigate wake effects and boost production for the entire farm by 3 to 5 percent, as well as monitor for issues such as rotor imbalance.

WindESCo’s Find, Fix, Measure is a software that uses high-resolution SCADA, rather than standard 10-minute SCADA, to detect more than 60 known issues that contribute to decreases in energy production. Find, Fix, Measure monitors for these issues.

The partnership between WindESCo and Deloitte will unlock additional megawatts for Deloitte customers in the region.

“The Deloitte energy team, led by Enrique Doheijo and Juan Pedro Gravel, is highly respected in the wind energy industry in Spain,” said Ed Wagner, chief revenue officer of WindESCo. “Together, we will be able to help customers in Spain unlock the true value of their wind projects, making renewable energy much more attractive for larger companies that are still heavily invested in oil and gas.”

“WindESCo has shown itself as a leader in energy production improvement, from its case studies and current implementations to the fact that AWS

invited them to be a part of the Clean Energy Accelerator in Lisbon, Portugal, this year.” said Enrique Doheijo, director, Energy, at Deloitte Spain.

**MORE INFO** [www.windesco.com](http://www.windesco.com)

## MAINTENANCE

### Perceptual Robotics previews inspection capabilities

Perceptual Robotics has given the wind inspections and maintenance industry a preview of its unique capabilities by holding demonstrations with potential partners.

The company, which has offices in the U.K. and Europe, welcomed eight companies across Spain to take part in its demonstration day at Sotavento Experimental Wind Farm in Lugo, Spain. Perceptual Robotics engineers flew



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Perceptual Robotics engineers flew an M300 drone to autonomously inspect a G47 wind turbine. (Courtesy: Perceptual Robotics)

an M300 drone and used its unique Dhalion system to autonomously inspect a G47 wind turbine at the site.

Two demos were held, with attendees receiving a first-hand preview of the Dhalion system and an inspection as it happened. Perceptual Robotics engineers then showed post flight what data processing looked like and how inspection images and results were presented and analyzed in the system's web portal.

"This was an excellent opportunity for different stakeholders in the industry to see up close how our system works in real operating conditions. We had people from all aspects of the industry attending, from asset and utility owners to drone companies and inspection organizations. By sharing our extensive experience of inspecting these massive structures, we can bring about the change the industry needs to make inspections more cost effective, timely and safer for all," said



A rendering of the Brevity-class vessel. (Courtesy: Strategic Marine)

Kostas Karachalios, CEO of Perceptual Robotics.

Perceptual Robotics' Dhalion system is designed for autonomous, in-depth turbine inspections, collecting and analyzing high-quality data from turbines in fewer than 20 minutes.

Earlier this year, the company announced the advanced technology of robotic systems and artificial intelligence had proven to be almost 15 percent more accurate in detecting faults in wind turbines thanks to an Innovate U.K. Research and Development project, which had been ongoing in collaboration between Perceptual Robotics and the University of Bristol. The project showed the partners' unique system had a 14 percent improvement in fault detection accuracy when compared with expert humans carrying out the same inspections.

**MORE INFO** [www.perceptual-robotics.com](http://www.perceptual-robotics.com)

## ► MAINTENANCE

### Strategic Marine signs 3-vessel order for Chartwell

Strategic Marine has signed an order to build three Brevity-class crew transfer vessels (CTVs) from Chartwell Marine. The Brevity-class 27-meter catamaran design forms part of Chartwell's offshore wind support vessel range.

The Brevity has a capacity of 32

personnel. It responds to the need in the offshore wind support market for a high-powered CTV capable of cost-effective and low-emissions operation. Multiple crew configurations enable flexibility in space planning and enhance comfort necessary for longer offshore stays.

The three Brevity CTVs are meant for a new client for the Singapore based shipbuilder, and the order shows a vote of confidence from Strategic Marine in Chartwell's class-leading design expertise. As the first Chartwell project to be launched in Asia, the Brevity trio will enter a new proving ground in the continent's offshore wind support market.

"Strategic Marine is a key player in the region, and we're proud to be able to work with them on our own designs, alongside their current CTV roster," said Rob Sime, principal naval architect at Chartwell Marine. "Our offshore wind range is built to be a one-stop shop to meet the varying and increasingly complex needs of the industry, and we hope we can offer some of that support to the ongoing growth of green energy in Asia."

"Strategic Marine is committed to building vessels that will accelerate the growth of the offshore wind industry," said Chan Eng Yew, Strategic Marine CEO. "The quality of our materials and expertise go hand in hand with Chartwell's design philosophy of efficiency and adaptability."

**MORE INFO** [www.strategicmarine.com](http://www.strategicmarine.com)

## MANUFACTURING

### Siemens Gamesa to supply 105 MW of wind power to Finland

Siemens Gamesa has been chosen by leading international project developer Energiequelle to deliver wind turbines for the Mikonkeidas wind farm in Finland.

Located in the municipality of Kristiinankaupunki, the 16 SG 6.6-170 wind turbines that will make up the 105-MW project will sit on 145-meter towers to best capitalize on the wind conditions in the region. The installation of the wind farm is expected to be carried out in the first half of 2024. The companies have also signed a 35-year service agreement covering the maintenance of the wind turbines.

“It is great to begin a new relationship and partnership with Energiequelle, and we will collaborate closely to ensure the success of the Mikonkeidas wind project,” said Clark MacFarlane, CEO of Siemens Gamesa’s operations in Northern Europe and the Middle East. “Energiequelle has considerable experience of project development in Finland, and it is exciting to see the Siemens Gamesa 5.X wind turbine join their extensive portfolio.”

“We are convinced that Siemens Gamesa is the best suitable partner for our Mikonkeidas wind energy project, and we are looking forward to a successful cooperation with one of the world’s leading wind energy turbine and service providers,” said Michael Raschemann, managing director at Energiequelle.

Wind energy is growing fast in Finland. According to industry body WindEurope, wind energy accounts for 10 percent of the country’s electricity, and its objective is for that to increase to at least 27 percent by 2025, through both onshore and offshore wind.

**MORE INFO** [www.siemensgamesa.com](http://www.siemensgamesa.com)



Once installed, the project will generate enough clean energy to power more than 700,000 U.S. homes. (Courtesy: Atlantic Shores Offshore Wind)

## MANUFACTURING

### Atlantic Shores selects Vestas for New Jersey offshore wind project

Atlantic Shores Offshore Wind recently announced its selection of Vestas as the preferred supplier for its 1.5-GW offshore wind project in New Jersey.

Vestas will provide its V236-15.0 MW offshore wind turbines, with installation expected in 2027. Once installed, the project will generate enough clean energy to power more than 700,000 U.S. homes.

The preferred supplier agreement (PSA) was signed shortly after New Jersey Gov. Phil Murphy issued an executive order increasing the state’s offshore wind target by 50 percent to achieve 11 GW by 2040.

“The Murphy administration has set bold offshore wind development and emissions reduction goals, and we’re backing up those commitments to a more sustainable Garden State through focused action and concrete investments that address climate change while creating good family sustaining jobs,” said Jane Cohen, executive director of the New Jersey Governor’s Office of Climate Action and the Green Economy.

“Atlantic Shores’ selection of Vestas

as the preferred supplier of its New Jersey offshore wind project marks another crucial step toward our state’s transition to a green economy and realizing our clean energy future.”

“Today’s announcement by Atlantic Shores Offshore Wind and Vestas is an exciting step forward for one of New Jersey’s first offshore wind projects,” said New Jersey Board of Public Utilities President Joseph L. Fiordaliso. “This key development milestone helps keep the state on track for achieving Governor Murphy’s goal of 100 percent clean energy by 2050 and our nation leading goal of 11 GW of offshore wind by 2040.”

With this project, New Jersey, Atlantic Shores, and Vestas are taking a leading role in meeting the state’s clean energy goal, while also advancing the Biden administration’s goal to support the deployment of 30 GW of offshore wind in the United States by 2030.

“We are proud to partner with Atlantic Shores Offshore Wind as the preferred supplier for its project and deploy our flagship V236-15MW turbine to help New Jersey achieve its goal of rapidly developing offshore wind and creating new clean energy jobs,” said Laura Beane, president of Vestas North America. ✨

**MORE INFO** [www.atlanticshoreswind.com](http://www.atlanticshoreswind.com)