The Atlantic Endeavor crew transfer vessel. (Courtesy: Atlantic Wind Transfers)

CONSTRUCTION

Atlantic Wind Transfers sends first CTV to Virginia

The Atlantic Endeavor crew transfer vessel (CTV), owned and operated by Atlantic Wind Transfers, America's first CTV operator, recently was delivered to support Dominion Energy's Coastal Virginia Offshore Wind (CVOW) pilot wind farm.

Pioneering next-generation vessel designer Chartwell Marine, headquartered in the United Kingdom, oversaw the vessel's construction despite travel restrictions from the coronavirus pandemic. Chartwell Marine used data-driven analytics to foster an open and collaborative process with Atlantic Wind Transfers and U.S. commercial boat builder Blount Boats & Shipyard in Rhode Island.

With several gigawatts of offshore wind capacity to be installed the next few years, the U.S. offshore wind sector must rapidly build out its maritime supply chain to ensure new projects can be constructed, operated, and maintained effectively. Atlantic Wind Transfers selected the versatile Chartwell Marine design, which can keep pace as project requirements change. The vessel will enable AWT to continue setting a reference point for effective crew transfer operations in the U.S., offering high standards of comfort and reliability for technicians working on offshore turbines.

AWT also opted to equip the vessel with advanced surveying equipment to prepare for future operations in the region, supporting wind-farm owners and operators such as Dominion Energy, as additional generation capacity comes online. The U.S. East Coast will require diverse operational profiles and versatile fleets, and flexible vessel platforms will be a cornerstone for building these vessels.

"Even with the pandemic, international collaboration to build out an innovative U.S. CTV fleet has continued," said Andy Page, managing director of Chartwell Marine. "We've been proud to continue working remotely with Blount to deliver a vessel to AWT's specifications, a testament to the yard's adaptability. As U.S. offshore wind continues to grow, it will be crucial to ensure a strong blueprint for a sustainable future is laid using reliable, trusted vessel designs."

"This is our second CTV entering

into service, and Chartwell Marine has been a responsive partner throughout the design and build process, adapting its proven vessel formula to ensure we continue to provide the highest levels of service for our current and future clients," said Charles Donadio, CEO of Atlantic Wind Transfers. "The Chartwell 24 has set the benchmark for effective vessel performance in the U.S., and we look forward to continue working with Chartwell on improvements to future designs as the U.S. East Coast offshore wind farms build out."

"Safety and reliability are top priorities for Dominion Energy, and AWT has a proven track record in the U.S. of delivering on these priorities," said Joshua Bennett, Vice President of Offshore Wind, Dominion Energy. "As the owner and operator of the first offshore wind farm in U.S. federal waters, we take our responsibility to meet and exceed established global standards in crew transfer operations very seriously."

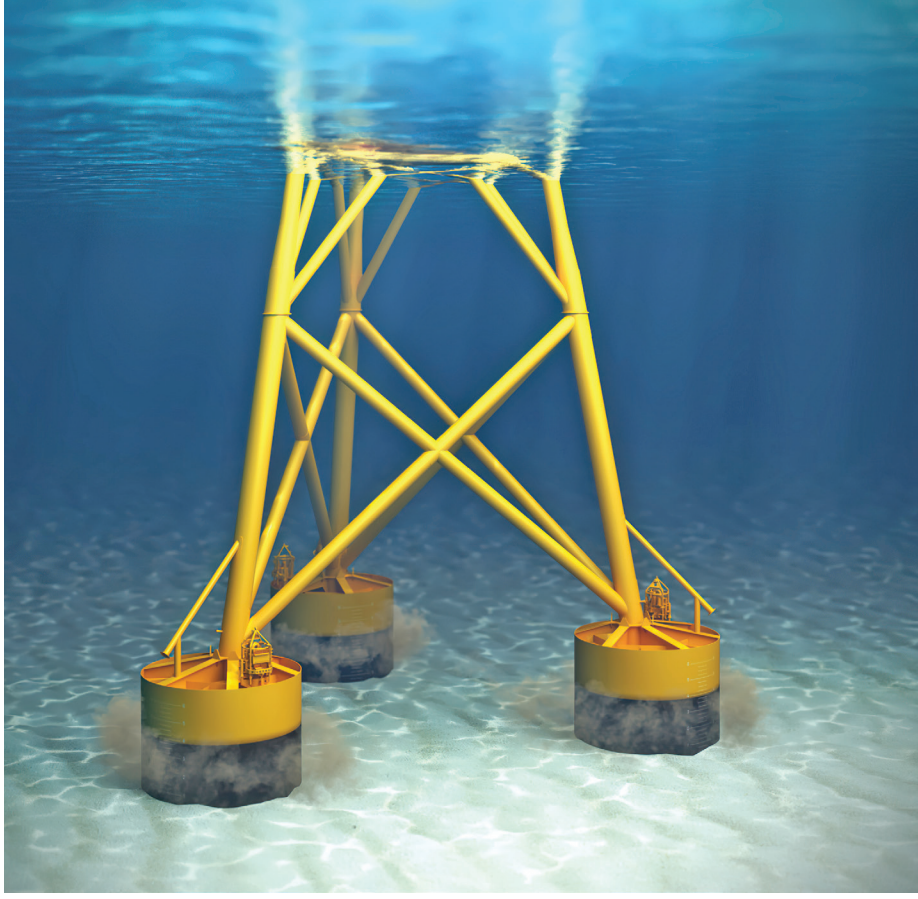
"Maturing the offshore wind industry's logistics solutions is a key part of making offshore wind in the U.S. a success," said James Saunders, offshore operations manager for Siemens Gamesa. "We look forward to working with AWT and Dominion Energy to help realize the industry's goals."

AWT's Atlantic Endeavor joins the Atlantic Pioneer, the first CTV to be launched in the U.S market, which has serviced the Block Island Wind Farm since 2016 through construction and now long-term O&M.

MORE INFO
www.atlanticwindtransfers.com

CONSTRUCTION

Framo supplies marine pumping systems to offshore wind farm



Framo suction anchor pumping system (SAPS) in action. (Courtesy: Framo)

The Alfa Laval company and world-leading pump manufacturer Framo will supply pumping systems for foundations of Scotland's largest offshore wind-farm project. It is the second order for pumping systems in this application and marks an important milestone as it applies the company's extensive experience from the offshore industry to renewable energy applications.

The order from Saipem, a global leader in engineering, drilling, and construction in the energy and infrastructure sectors, comprises Framo pumping systems. They will be used in a so-called suction bucket technology in the installation of Seagreen, Scotland's largest offshore wind park. Once finalized, it will include 114 turbines producing 1,075 MW to supply 1.3 million households with low-carbon energy. Framo pumping system technology will secure and safely anchor the wind turbine platforms to the seabed.

"This second order for our Framo pumping systems used in suction bucket foundations to wind farms is an important milestone for us as it cements our position in this application and takes our long-proven and validated technology from offshore oil platforms to renewable applications," said Sameer Kalra, president of the Marine Division in Alfa Laval. "Our knowledge and experience from delivering innovative and reliable products to the offshore industry is now also making a difference within renewable energy, to the benefit of our customers and the environment."

Suction anchor technology has an environmentally friendly footprint. Besides lowering costs due to the increased installation speed, the concept provides for easy decommissioning and a practically noise-free installation.

The technology of suction and bucket foundation has secured and safely anchored platforms and offshore installations around the world since the 1990s. Now, the concept of bucket foundation has been adapted for offshore wind-turbine foundations. Framo is meeting the market demand by offering complete pumping systems required for the installation of the turbine foundations.

MORE INFO www.framo.com

CONSTRUCTION

Progeneration logged 35,000 construction hours in 2020

Progeneration Energy, an energy company specializing in renewable energy generation and energy efficiency solutions, recently announced that it achieved 35,000 construction hours without a lost time incident in 2020, all while doubling company revenue, increasing overall project completion to $68.2 million and employing 135 employees.

According to the latest report from the United States Department of Labor, about 20 percent of worker fatalities in 2019 were in construction — accounting for one in five worker deaths for the year.

Due to these industry-wide challenges, Progeneration Energy places an increased emphasis on creating a workplace culture rooted in safety. The renewable solutions company uses the "Zero Harm Process" program to ensure its employees understand why they need to work safely and take care of each other. Beyond the programs, its construction teams end each morning's on-site meeting by addressing any potential safety issues — making it the last discussion point workers hear before heading out for the day.

"Progeneration Energy is growing rapidly while effectively managing the safety, quality, and scheduling of projects," said Anthony Shaw, founder and president of Progeneration Energy. "It's one thing to demand safety, but leaders must physically lead by example as well as consistently remind their team the importance of following safety protocols to really have an impact. Our executive team consistently checks in on workers' safety in the field while also prioritizing safety guidelines themselves."

The renewable energy company had a perfect safety record in 2019 while completing 19,000 construction hours with 88 employees. In 2018, it also had a perfect record with 53 employees.

Along with safety, Progeneration Energy also values quality. It partners with a variety of experts in energy, financing, construction, design, maintenance, and engineering — positioning the company to handle renewable-energy projects from commissioning and financing to routine maintenance, monitoring, and marketing. The company's projects have performed within 1 percent of design specifications with 100 percent customer satisfaction.

MORE INFO
www.progenerationenergy.com

INNOVATION

Firetrace to install fire suppression system in 500 MW of turbines

Firetrace, a leading provider of fire suppression systems for the wind industry, recently announced the installation of its technology across 500 MW of wind assets across four states for a major American wind farm owner/operator. This order follows a recent incident where Firetrace's system prevented a minor component fire from spreading and completely destroying a turbine.

In the incident, a fire sparked inside the nacelle due to mechanical error in the turbine that could easily have spread and destroyed the unit within 60 seconds. However, a number of months before, the turbine owner opted for not only fire detection, which would not have helped in this instance, but fire suppression technology that is able to put out a fire that has already started. As a result of this proactive mitigation strategy, the installed Firetrace system was able to detect and suppress the fire before it caused irreparable damage to the unit. Without this technology in place, this single fire could have cost $7 million to $8 million in damage and caused months, potentially over a year, of lost revenue.

Fire is a major risk for wind-turbine owners due to the difficulties of suppressing fires at the height of wind turbines and in the remote locations these assets are placed. Wind turbines have grown to staggering new heights, with new designs and components developed to enable these assets to generate more megawatts of power. However, many of these advances in design and technology expose the turbine to additional risk of catastrophic fires. This issue could hold the industry back if not addressed, causing additional costs and slowing the rate of adoption of the technology.

"90 percent of the time, a fire leads to a total loss of the wind turbine, or at least a level of downtime that results in the accumulation of substantial economic losses," said Angela Krcmar, Firetrace global sales manager for wind. "We are delighted to partner with some of the leading owners and operators globally to offer 15,000-plus wind turbines protection against fire risk, and ultimately allow them to take advantage of technological progress to improve operations and safety. Our systems have a tangible impact on their bottom-line, as companies that use our products can expect reduced losses, better safety outcomes and improved insurability."

MORE INFO firetrace.com

INNOVATION

Senvion chief joins ZX Lidars to spearhead Lidar technology

ZX Lidars recently confirmed the appointment of Dr. Steven White as director of Turbine Mounted Lidar as the company scales in market sectors including wind turbine integrated Lidar Assisted Control and non-integrated Lidar for wind-turbine/wind-farm optimization. Having previously led Senvion's engineering EU North team and with a PhD in laser optics, White combines technical knowhow with

ZX Lidars provides industry-leading wind Lidar products, ZX 300, ZX 300M, and ZX TM for wind energy and meteorological applications. (Courtesy: ZX Lidars)

practical turbine experience.

Lidar technology, which displaces the use of met masts for wind resource assessment onshore and offshore, provides look-ahead wind characteristics to validate, monitor and optimize wind-turbine performance on both existing and new turbines for the purpose of increased energy output and lifetime extension.

"Innovation, quality, and collaboration are at the heart of the 'ZX-way,' and this unique mix is an ideal recipe to bridge the gap between Lidar and turbine technology" White said. "I passionately look forward to closing that gap through customer-focused improvements in operational wind resource understanding and turbine performance, validation, lifetime operations, and control."

"On our 18th anniversary of installing the world's first nacelle-mounted Lidar on a Nordex N90 turbine, it is perfect timing for Steven White to join ZX Lidars as we see a now mature technology providing real performance benefits to wind-farm owners, operators, and turbine OEMs," said ZX Lidars Managing Director Ian Locker. "We have exciting news to share on Lidar Assisted Control this year, and Steven will be spearheading this and all turbine Lidar activities across the business."

Recent turbine Lidar announcements from the company include:

- The 105-MW Högaliden Wind Farm featuring Vestas V150-4.2 MW turbines will include nacelle-based ZX TM wind Lidars on each turbine.
- Siemens Gamesa Renewable Energy approval of ZX TM for Power Performance Testing of wind turbines.

ZX Lidars provides industry-leading wind Lidar products, ZX 300, ZX 300M, and ZX TM for wind energy and meteorological applications. These Lidars deliver accurate wind measurements in both onshore and offshore applications at measurement heights/ranges across the full swept area of the blades of modern wind turbines and beyond. With more than 30 million hours of operation in the field and more than 7,000 deployments (and counting), ZX Lidars has pioneered the use of Lidar in the wind industry. The company is proud of the many world firsts it has achieved with customers including: upwind measurements from a turbine nacelle, turbine wake studies, offshore deployments of both fixed and floating wind Lidar, an industry-accepted validation process, re-financing and re-powering of a wind farm, successful demonstration of measurement accuracy in a wind tunnel, and total wind project financing from a Lidar without need for a met mast.

MORE INFO www.zxlidars.com

B&K Vibro is a leading worldwide independent supplier of condition monitoring solutions for rotating machinery. (Courtesy: B&K Vibro)

MAINTENANCE

NSK adds Brüel & Kjær Vibro to its portfolio

Brüel & Kjær Vibro (B&K Vibro), one of the leading worldwide independent suppliers of condition monitoring solutions for rotating machinery, has been acquired by NSK, a global organization specializing in researching, designing, and manufacturing motion and control solutions.

NSK's portfolio of products and technologies enhance automotive performance and industrial productivity, while reducing energy consumption. As the leading supplier of bearings in Japan and the third largest supplier in the world by market share, NSK employs approximately 30,000 people in more than 200 locations across 30 countries, alongside a vast network of joint ventures and partnerships.

NSK has been developing condition monitoring systems (CMS) for internal and field use for decades. Having identified the market need and opportunity to put CMS technology directly in the hands of customers, NSK established a Condition Monitoring System Development Center in April 2019 to create solutions to help customers manage the health of their machinery. To accelerate this initiative, NSK has acquired B&K Vibro, who will be empowered to lead NSK's global CMS business development as a new autonomous unit within the NSK organization, as NSK grows to become a global leader in condition monitoring.

"I am excited to welcome all of B&K Vibro's valuable team members to the NSK group," said Toshihiro Uchiyama, president and CEO, NSK. "Condition monitoring systems and services are a growing market, and B&K Vibro is the current and future leader in this industry. By combining B&K Vibro's expertise with NSK's strength as a global leader in the bearing industry with more than 100 years of accumulated knowledge and experience across a range of applications, our two companies will create even more value for society."

"B&K Vibro is truly honored to become a part of NSK, a company that has set out to become a leader in condition monitoring," said Marcel Van Helten, CEO, B&K Vibro. "The synergies between our companies are evident, and with the combination of the talent and the knowledge residing within our companies, we will together be able to deliver exciting, innovative business and engineering solutions for our customers. We look forward to enhancing the NSK CMS business platform and accelerating growth in the burgeoning CMS market."

MORE INFO www.nsk.com

MAINTENANCE

Reygar to work with EDF to streamline offshore operations

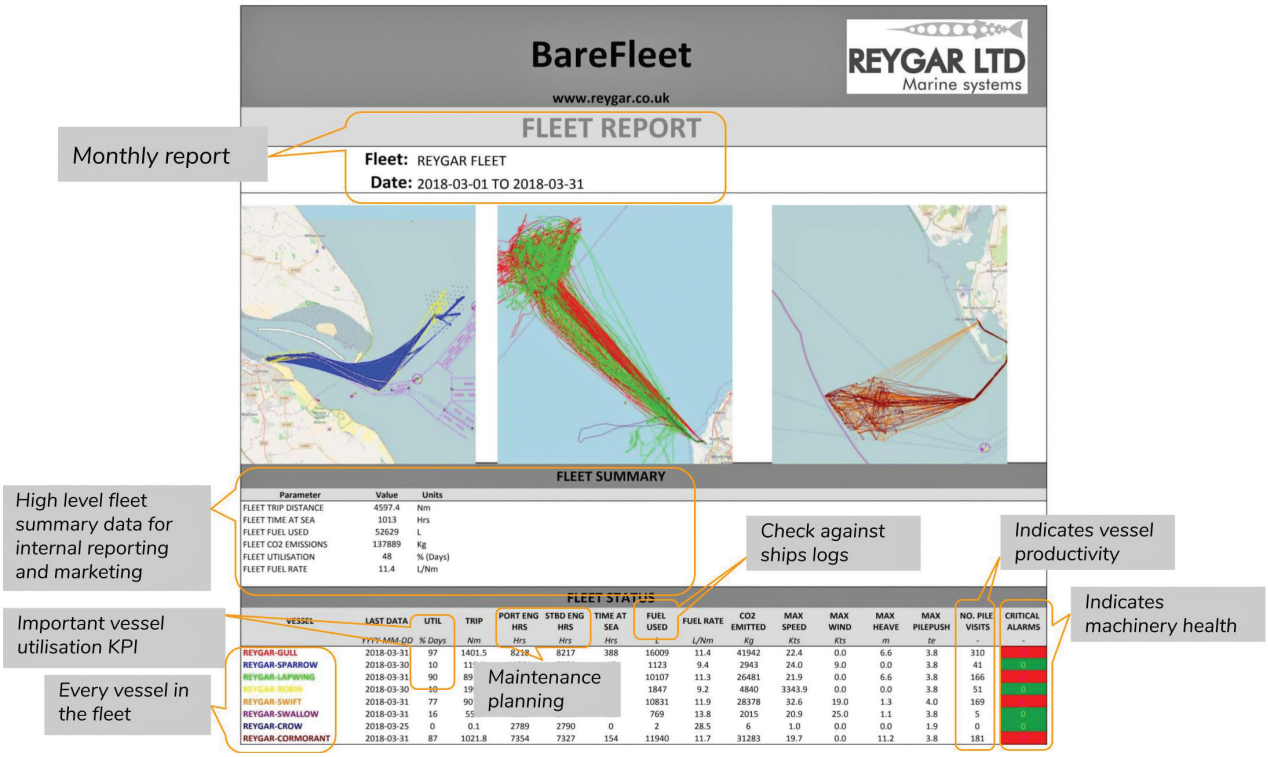
EDF Renewables, a market-leading independent power producer, has selected Reygar Ltd., the leading provider of innovative remote monitoring and reporting platforms to the offshore wind industry, to power the establishment of a transparent, data-based approach to efficiency and safety across its operations. Reygar's BareFLEET system has now been fully commissioned on an EDF-chartered crew transfer vessel (CTV) working across EDF's European offshore wind portfolio.

In response to the uptick in demand for support vessels to service Europe's flourishing offshore wind industry, forward-thinking project owners and vessel operators are increasingly committing to working together to ensure that no trip is wasted due to technician sickness or cut short due to mechanical failure. By deploying BareFLEET to collate in-depth health and performance data from across the vessel's critical equipment, Reygar will provide the CTV operator and EDF with the insight they need to guarantee high levels of safety and vessel availability.

BareFLEET automatically monitors the health and performance of all critical equipment across each vessel, inclusive of engine health, fuel consumption, motion, and impact onto the turbine, transmitting this data to the shore team and relevant stakeholders via the cloud. The crew can also supplement BareFLEET's digital reporting platform by manually inputting their observations in context, providing full visibility over activity on board the vessel and the factors that influence it.

"Comprehensive data monitoring and reporting has a fundamental role to play in limiting vessel down-time, guaranteeing the maintenance of safe, comfortable conditions for both crew and technicians, and supporting a mutually beneficial relationship between project owner and support vessel operator," said Chris Huxley-Reynard, managing director, Reygar Ltd. "By commissioning Reygar, EDF has invested in guaranteeing that the technicians who work on their projects are fit to work on arrival while the CTV operator can deploy this data to ensure vessel availability is maximized, allowing them to take on as many projects as possible."

"EDF is committed to deploying pioneering technology that will power Europe toward the achievement of its renewable energy goals; our partnership with Reygar is therefore a nat-



BareFLEET automatically monitors the health and performance of all critical equipment across each vessel. (Courtesy: Reygar)

ural next step in that journey," said James Wilson, area manager, EDF Renewables. "We will be working directly with Reygar to collate enhanced high-frequency motion data for our own in-depth analysis, with the aim of increasing our understanding of how motion affects crew and technician comfort."

MORE INFO www.reygar.co.uk

MAINTENANCE

ONYX brings increased energy production to APAC wind industry

ONYX InSight, a leading provider of data analytics and engineering expertise to the global wind industry, has cemented its presence in the Asia-Pacific (APAC) region, following the demonstrable success of its Brisbane office after its first year of operations. Joining offices in Chennai and Seoul, Brisbane marks the third regional hub for APAC, serving as a base to deliver its flexible, full-service offer in support of the growing wind-energy industry across Australia and New Zealand.

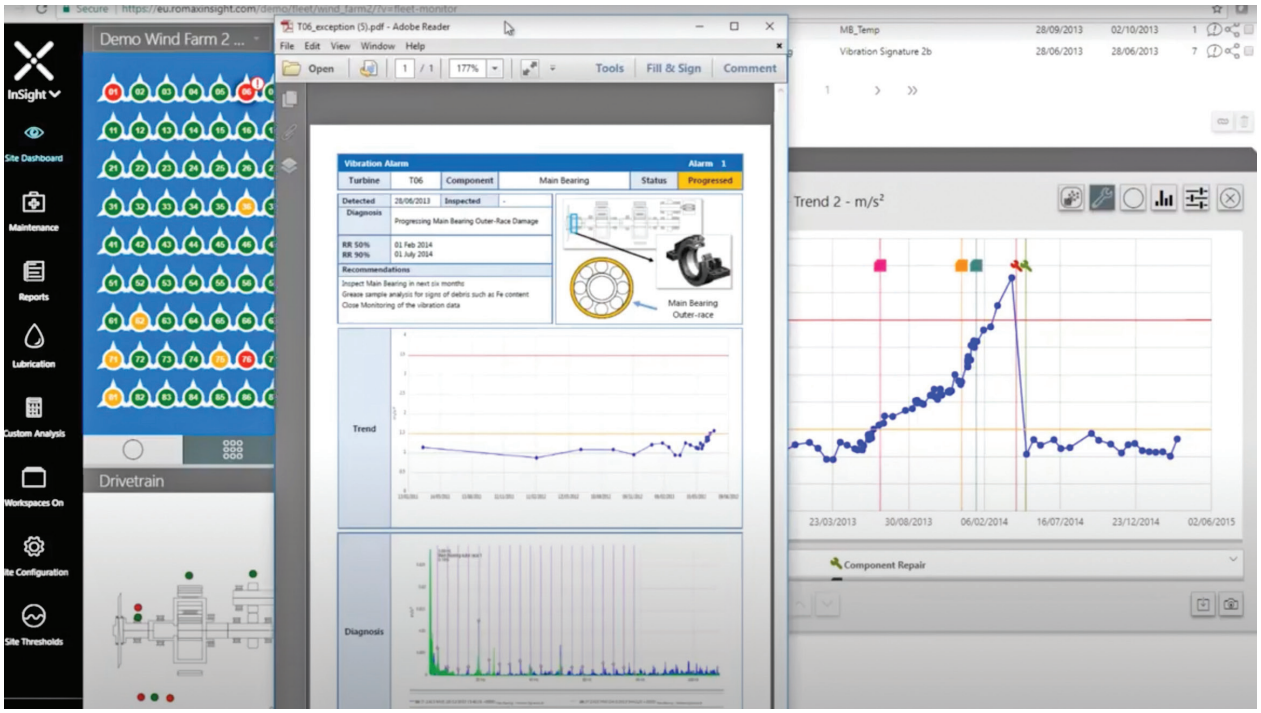
With OEMs accounting for almost half of the service market in Australia and New Zealand, demand is high for independent service providers (ISPs) that can bring a tech-agnostic approach to data analytics in order to drive greater turbine performance and increased returns on investment.

Recognizing this challenge, ONYX InSight has developed significant partnerships in the Australia/New Zealand region, resulting in a 15 percent market share for software and 10 percent share for hardware, through the successful installation of its pioneering advanced sensing technology, ecoCMS, and roll out of its condition monitoring software platform fleetMONITOR, complete with user-training. This has been bolstered with 4G communications for the simplification of data transfer, enabling greater access to a broader turbine network.

The consolidation of advanced data sensing technology and monitoring software has been instrumental in identifying machinery faults sooner, leading to improved predictive maintenance plans. With longer lead times of six to 12 months to plan for repairs, owners and operators are better placed to optimize maintenance strategies and streamline procurement.

"We are proud to be supporting the increased share of renewables within the APAC energy mix, in line with the climate change targets," said Ashley Crowther, Global VP, ONYX InSight. "Our physical presence in Australia over the last year has already made a significant impact in our ability to support our local partners, enabling us to provide on the ground support and training in-line with our advanced monitoring services."

"With our current monitoring capacity upwards of 370 MW across Australia and New Zealand growing, we



ONYX InSight's condition monitoring software platform, fleetMONITOR. (Courtesy: ONYX InSight)

are continuing to support asset owners to better manage their projects through the modernization of equipment in order to extract better quality data," he said. "Joining up the dots between the existing and improved data with the latest in predictive analytics software will enable owners and operators to get ahead of machinery failures to ensure that fleets continue to operate at peak efficiency and profitability."

MORE INFO www.onyxinsight.com

MANUFACTURING

SGRE receives order from EDF for offshore project in France

Leading France's wind-power revolution, Siemens Gamesa Renewable Energy (SGRE) has been awarded the firm order from the EDF Renewables-Enbridge-wpd consortium for the 448 MW Courseulles-sur-Mer offshore wind-power project. Located 10 kilometers off the Bessin coast, the project brings the total capacity awarded to Siemens Gamesa by the consortium in France to approximately 1 GW. Both the wind-turbine nacelles and blades for the Courseulles-sur-Mer project are scheduled to be produced at the Siemens Gamesa facility under construction in Le Havre.

"We are delighted to again be the partner of choice for EDF Renewables, Enbridge, and wpd, and to deliver our second firm French offshore order to them," said Marc Becker, CEO of the Siemens Gamesa Offshore Business Unit. "As we unlock more of the future of wind in France, we thank them for their vote of confidence in our technology, people, and ambitious growth plans in the country. Our facility in Le Havre and the Courseulles-sur-Mer project including service will provide local jobs and value for years to come."

The 448 MW project will rely upon the stable technology of the SWT-7.0-154 Direct Drive offshore wind turbine, a part of the world's most installed offshore turbine fleet. Installation and commissioning of the Courseulles-sur-Mer project is scheduled for 2024.

Together with the 497 MW Fécamp offshore wind-power project signed with the EDF Renewables-Enbridge-wpd consortium in 2020, Siemens Gamesa has now signed firm orders with them for approximately 1 GW, further cementing the company as the leader in the French offshore wind-power industry. Siemens Gamesa has an additional firm order in France for the 496 MW Bay of Saint Brieuc offshore wind-power plant with Ailes Marines. Siemens Gamesa has furthermore been named preferred supplier for the 496 MW Dieppe le Tréport and 496 MW Yeu Noirmoutier offshore wind projects.

The Siemens Gamesa facility under construction on the Quai Joannès Couvert in the Port of Le Havre will be the first in the world to manufacture complete offshore nacelles and blades under one roof. It is the largest industrial project in the French renewable energy industry to date and will be used to supply Siemens Gamesa offshore wind projects in France and

potentially abroad. Start of operation for the plant is scheduled to take place in the first half of 2022.

Expected to create approximately 750 direct and indirect jobs when fully operational, particularly in the fields of composite materials, mechanical assembly, and logistics, the facility has already begun recruiting employees.

More than 1,000 Siemens Gamesa Direct Drive offshore wind turbines have been installed in all major offshore wind markets globally. They include the U.K., Germany, Denmark, The Netherlands, Belgium, Taiwan, and the U.S., among others. Furthermore, confirmed orders for more than 1,000 additional Offshore Direct Drive turbines have been received for these markets and new offshore markets.

MORE INFO www.siemensgamesa.com

The 448 MW project will rely upon the stable technology of the SWT-7.0-154 Direct Drive offshore wind turbine. (Courtesy: Siemens Gamesa)

MANUFACTURING

Vestas adds EnVentus order, service contract for proejct in Sweden

Vestas has bolstered its Swedish pipeline with a 67-MW order for the Grönhult project in southwest Sweden from The Renewables Infrastructure Group (TRIG). Vestas will supply, install, and commission 12 V162-5.6 MW turbines, part of Vestas' EnVentus platform. A long term 30-year Active Output Management 5000 (AOM 5000) service agreement will provide maximum security for the Grönhult project throughout its lifetime by optimizing park performance and limiting downtime.

The Grönhult project was acquired by TRIG from Vattenfall in February 2021, and is ready-to-build. The project is in the Gislaved region in southwest Sweden, and will provide clean, sustainable wind power for more than 20,000 Swedish households.

Vestas will supply, install, and commission 12 V162-5.6 MW turbines. (Courtesy: Vestas)

"The V162-5.6 MW is an optimal turbine for the Grönhult project's wind speeds and site specifications, and we're delighted to be partnering with The Renewables Infrastructure Group for the delivery and construction of our first project together in Sweden," said Juan Furones, Vice President, Sales North & West, Vestas Northern & Central Europe. "The EnVentus platform continues to increase its footprint into the market, and we're pleased TRIG has entrusted Vestas with this ready-to-build project."

"We are pleased to expand our presence in Sweden with high-quality partners," said Richard Crawford, director of Infrastructure at InfraRed Capital Partners, TRIG's investment manager. "The Nordic region represents a key market for the company with a strong pipeline and favorable economics for onshore wind."

Vestas has installed more than 5 GW capacity of wind turbines in Sweden.

First turbines will be delivered to the project in the second quarter of 2022, with the project expected to become operational in the fourth quarter of 2022.

MORE INFO www.vestas.com