



The SG 11.0-200 DD offshore wind turbine features a 200-meter diameter rotor using the 97-meter long Siemens Gamesa B97 IntegralBlade. (Courtesy: Siemens Gamesa)

## MANUFACTURING

### SGRE gets preferred supplier status for 1.1 GW in Germany

Ørsted has conditionally named Siemens Gamesa Renewable Energy as the preferred turbine supplier for two offshore wind power projects in the German North Sea totaling 1.142 GW. At both the 900 MW Borkum Riffgrund 3 and the 242 MW Gode Wind 3 sites, Siemens Gamesa will deploy its new SG 11.0-200 DD offshore wind turbine. A five-year service and maintenance agreement is included in the preferred supplier award.

The award is subject to certain conditions including Ørsted's final invest-

ment decision, which itself is subject to the projects receiving final grid dates and final consents from German authorities. The Borkum Riffgrund 3 project will be the largest offshore project in Germany to date.

"In this new decade, we need to translate social and political ambition into tangible action and change," said Andreas Nauen, CEO of the Siemens Gamesa Offshore Business Unit. "As a global leader in renewable energy, we are committed to helping move Germany toward a competitive decarbonization thanks to the implementation of our most advanced technologies. We are glad to do so together with global market leader Ørsted and to deploy our new Direct Drive offshore turbine with a 200-meter rotor at the same time."

"Driving innovation is at the core of Ørsted's DNA, and we look forward to once again introducing new turbine technology to the market," said Martin Neubert, executive vice president and CEO of Ørsted Offshore. "Subject to our final investment decision, we will install the new turbine on two German projects including Borkum Riffgrund 3, which will be the biggest offshore wind power plant yet in German waters, adding to the more than 1.3 GW offshore wind we have already installed in Germany. The increasingly larger turbines and projects have been key drivers in making offshore wind cheaper than newly-built, fossil-based power generation. Electrification through renewable energy is the fastest and most cost-efficient way to achieve the decarbonization of Europe

needed to fight global warming, and we're proud of contributing to Germany's transition to renewable energy."

The final number of turbines for both projects remains to be determined. Ørsted expects the installation of Gode Wind 3 to begin in 2023, with commissioning being completed in 2024. The installation of Borkum Riffgrund 3 is expected to begin in 2024, with commissioning being completed in 2025.

A total of about 1.2 million German households will be served by the projects once online: about 920,000 at Borkum Riffgrund 3 and about 250,000 at Gode Wind 3. About 7 million metric tons of CO2 emissions will be avoided annually compared to traditional power generation.

The SG 11.0-200 DD offshore wind turbine features a 200-meter diameter rotor using the 97-meter long Siemens Gamesa B97 IntegralBlade. The B94 blade design has been re-used and extended to reach the new length, whereas the generator capacity remains at 11 MW, as known from the SG 11.0-193 DD Flex. The upgraded machine with 200-meter diameter rotor provides an increase of 9 percent in Annual Energy Production compared to the SG 10.0-193 DD offshore wind turbine with 193-meter diameter rotor.

Extending on the proven offshore direct drive track record, the turbine upgrade is based on Siemens Gamesa's deep understanding and expertise gained over five product generations since the platform was launched in 2011.

Through close collaboration with both customers and suppliers, the upgrade has been made possible by using the flexible IntegralBlade production setup in the Siemens Gamesa blade factories. Extensive research and development have gone into developing the new blade, with a focus on keeping blade weight increase below 3.5 percent even as rotor diameter increases by 3.5 percent.

Over 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, and Taiwan, among others. Furthermore, confirmed orders for an additional 1,000 Offshore Direct Drive turbines have been received, with installations planned for the markets mentioned above and new offshore markets including the U.S. and France.

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

## ► MANUFACTURING

### Vestas wins first order for new V155-3.3 MW turbine in China

The global demand for sustainable energy solutions optimized for low and ultra-low wind conditions continues to grow as renewable technology improves in efficiency, making more sites viable for wind energy. This trend is especially prominent in the world's largest wind-energy market, China, where the wind industry at the same time is facing an increasingly competitive business environment with the transition to grid parity pricing and a more decentralized energy infrastructure with distributed wind projects.

To meet Chinese customers' needs in this changing market environment, Vestas introduced the V155-3.3 MW variant in the Chinese market in June 2019. The turbine combines the largest rotor with the lowest power rating of Vestas' globally proven 4-MW platform to optimize a project's capacity factor in low wind speeds. This solution will improve customers' business case by increasing annual energy production on park level (compared to the V120-2.2 MW), as well as providing high level output certainty in China's growing number of low and ultra-low wind sites.

Vestas has secured the first order for the V155-3.3 MW turbine variant



Vestas introduced the V155-3.3 MW variant in the Chinese market last year. (Courtesy: Vestas)

for two projects in China that total 201 MW. The order includes the supply of 61 turbines and towers as well as a 5-year Active Output Management 5000 (AOM 5000) service contract. Both projects are derived from the ongoing Chinese auction scheme.

"This order comes less than six months after the introduction of V155-3.3 MW, demonstrating the optimal market fit of the product in China's low wind market," said Thomas Keller, president of Vestas China. "Designed specifically to meet customer needs and market requirements in China, the V155-3.3 MW will offer our customers a lower cost of energy and better business case certainty. This will lay the foundation for success as the market transitions to distributed wind and grid-parity projects, causing a more competitive and complex business environment."

The variant's lower rotor rotational speed ensures low sound power levels that combined with the full-scale converter's advanced grid capabilities, make the turbine highly suitable for China's centralized projects as well as the increasing number of distributed wind-energy projects. The 76-meter blade is co-developed with a local partner, combining global and local expertise and underlining Vestas' commitment to ensure competitiveness in the Chinese market.

"This order demonstrates how Vestas' latest 4-MW variant is able to increase our customers competitiveness

in the Chinese market by offering enhanced customer value and improved grid integration,” said Thomas Scarinci, senior vice president of Vestas Product Management. “The new variant shows how we, together with our local partners, continue to strengthen our offerings in the world’s largest wind energy market.”

Project delivery is expected to be in the third quarter of 2020, with commissioning in the same quarter. Customer and project’s names are undisclosed at the customer’s request.

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

## CONSTRUCTION

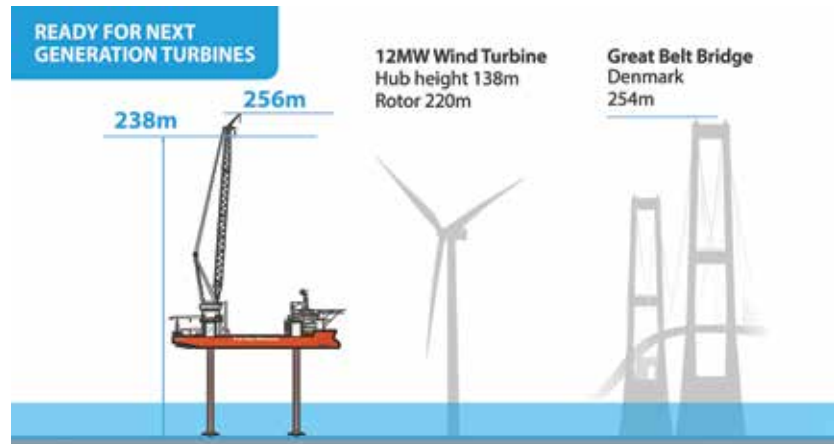
### Fred. Olsen Windcarrier prepares for next-gen turbines

Fred. Olsen Windcarrier is upgrading one of its Gusto 9000 jack-up vessels with a new crane capable of installing foundations and all known next generation offshore wind turbines. Upon delivery in 2022, the unique 1,600-ton leg encircling crane will be the highest in the market.

“With this new crane, we are gearing up for the next generation of offshore wind turbines,” said Even Larsen, CEO of Fred. Olsen Ocean. “After installing more than 600 offshore turbines, we continue to set our sights higher and higher, knowing that our clients need a partner who can support them in establishing tomorrow’s offshore wind gigaparks.”

With its upgraded crane and improvements to stability, the vessel will be capable of installing foundations up to 1,500 tons and handling all known next generation turbines.

“This unique crane has been enhanced with an even more extreme boom and outreach capacity,” said Managing Director Alexandra Koefoed, Fred. Olsen Windcarrier. “The crane allows us to stow the wind-turbine components in a more flexible way, despite the increased crane weight, thus maintaining or exceeding the payload



With its upgraded crane and improvements to stability, the Gusto 9000 jack-up vessels will be capable of installing foundations up to 1,500 tons and handling all known next generation turbines. (Courtesy: Fred. Olsen Windcarrier)

we carry for our clients. Furthermore, blades can be installed with the faster auxiliary hook and in higher wind speeds. All together, this is a considerable lifetime extension for the vessel, as the weight and dimensions of wind-turbine components continues to increase.”

Key performance of the new crane:

- ▀ Aux hook 400t @165m above deck (140m boom).
- ▀ 1250t@38.5m @155m above deck (140m boom).
- ▀ 1600t@32m (105m boom).
- ▀ Boom configuration can be changed in less than a week.

The new 1600t LEC 65500 crane will be supplied by Huisman.

“The compact size of the new crane in combination with its low own weight and high lifting capacity make the crane unique and suitable for both the installation of foundations and next generation wind turbines,” said Jan Atle Andresen, regional director of Huisman Norge AS. “Over the last years, we have established a unique working relationship with Fred. Olsen Windcarrier, and this is a great example of two leading companies working together and combining their knowledge and experience in the field of cranes and installation.”

Key facts about the new crane include:

- ▀ A unique Huisman 1600t LEC 65500.

▀ The new crane will be top of market for reliability and redundancy with its proven and enhanced design.

▀ Additional speed packages provide a very high operational speed.

▀ The Lambda shaped boom is very stiff giving reduced motions at the crane tip.

▀ The crane is fully electrically driven, resulting in reduced maintenance and higher reliability.

▀ The crane is more environmentally friendly with less power consumption, no oil leakage, and a lower noise level.

▀ Catchers on all blocks/hooks minimize time spent on stowing.

▀ Small tail swing allows for optimized utilization of free deck space.

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

## CONSTRUCTION

### NTC Wind Energy offers new foundation anchor bolt cap

NTC Wind Energy recently introduced a new foundation anchor bolt cap designed to combine all of the best features of the IronClad Standard Duty bolt cap and the IronClad Extreme Duty bolt cap.

The IronClad Super Duty founda-



NTC Wind Energy's IronClad Super Duty Foundation Anchor bolt cap. (Courtesy: NTC Wind Energy)

tion anchor bolt cap — made exclusively in the U.S. — has an integrated O-ring, eliminating the need for one installation. It is less expensive than the Extreme Duty bolt cap, and its polypropylene copolymer design and construction offers superior strength and durability. This new cap will fit any rod from #10 grade 75 to #11-150 KSI and any projection from 10 inches to 16 inches.

Because of its universal fit, large quantities are in stock and available to be shipped on any customer's schedule. The IronClad Super Duty bolt cap pushes on the rod quickly and easily and can be removed by hand for re-tensioning or bolt inspection and then re-installed without damage to the cap.

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

## CONSTRUCTION

# Subsea power cables to be critical link in U.S. offshore supply chain

SubCableWorld (SCW), the definitive data and information source for the submarine cable industry, recently released a new whitepaper that suggests demand for submarine wind



SCW's paper, "Forecasting the Next Decade of U.S. Offshore Wind Cable Demand," provides in-depth data and analysis to help scale the opportunity and challenge ahead. (Courtesy: SubCableWorld)

power cables in the U.S. could surpass 13,500 kilometers by 2030, representing a CAGR of nearly 11 percent from 2019 to 2030. The total value of the U.S. offshore wind cable market over the 12-year period will amount to at least \$8 billion.

The news comes amid growing commitment by the Northeastern states to develop offshore wind in the U.S. under an ambitious and encouraging timetable. Questions remain, however, about the urgent need to develop a robust wind cable supply chain to satisfy the long-term demand for cable and installation services.

SCW's paper, "Forecasting the Next Decade of U.S. Offshore Wind Cable Demand," provides in-depth data and analysis to help scale the opportunity and challenge ahead.

"Offshore wind in the U.S. will be a multi-billion-dollar market, with subsea power cables playing a central role in the supply chain," said SCW editor John Manock, commenting on the prospects for the U.S. supply chain. "Being able to model demand over the coming decade will prove essential for planning production schedules and future offshore infrastructure as we look to build out the United States' renewables energy capacity."

All forecasts are based on SCW's proprietary model for calculating offshore wind cable demand, the methodology of which is detailed in the report,

but there are a number of plausible scenarios that could play out over the coming years.

"Our model projects three possible scenarios in the U.S. over the coming decade, the first of which assumes a baseline demand built around state procurement commitments and lease awards to date," Manock said. "The second and third, however, factor in additional state procurements and varying timetables for floating wind deployment."

While SCW is perhaps better known for its 30-year coverage of the subsea fiber optic industry, in recent years it has taken a leading role in the analysis of the U.S. offshore wind cable market and in January 2020, in partnership with the Business Network for Offshore Wind, hosted the first conference to focus exclusively on offshore wind power cables in the U.S.

"Tomorrow's offshore wind farms' electricity infrastructure will bring hundreds of jobs and manufacturing opportunities to America's shores," said Liz Burdock, president and CEO of the Business Network for Offshore Wind. "The offshore wind industry is a blossoming new market opportunity worth millions of dollars — modeling future demand will allow the U.S. to plan for future production and infrastructure."

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



## INNOVATION

# New reference turbine gives offshore wind an upward draft

Only one commercial offshore wind farm currently exists in the United States — the Block Island Wind Farm in Block Island, Rhode Island. But market predictions show rapid growth for this industry over the next 10 years in states such as New York, Massachusetts, Maine, and Oregon. As the offshore wind industry grows and evolves, engineers and designers need tools that can help develop better-performing, more cost-competitive wind turbines.

Reference wind turbines (RWTs) — open-access designs of a complete wind-turbine system, with supporting models for simulation and design — make it possible to evaluate the performance and cost of proposed modifications before prototype development. NREL recently released the International Energy Agency Wind Technology Collaboration Programme 15-MW reference turbine, or IEA Wind 15-MW for short, which features options for both fixed-bottom turbines and those with floating substructures. This open-source model, now available on GitHub, can accommodate multiple software tools and will provide industry, researchers, and academics a public-domain tool for designing next-generation offshore wind turbines.

NREL's wind-energy communications team sat down with NREL Postdoctoral Researcher Evan Gaertner, who led the design effort, to learn more.

### Why is the tool named for the International Energy Agency Wind Technology Collaboration Programme?

While NREL led the development of the IEA Wind 15-MW, it was a collaborative effort with many researchers from around the globe. The International Energy Agency Wind Technology Collaboration Programme helped to



The IEA 15-MW features options for both fixed-bottom turbines and those with floating substructures. (Courtesy: Joshua Bauer, NREL)

coordinate that collaboration through one of its research tasks.

### Who was involved?

NREL worked in collaboration with the Technical University of Denmark [DTU] and the University of Maine. NREL designed the rotor, generator, drivetrain, nacelle, tower, monopile, and controller. DTU was invaluable for reviewing the design and suggesting improvements, performing loads analysis and developing public domain models for their simulation toolsets, and U of Maine designed the semisubmersible loading substructure. Several companies provided feedback on the design of individual subsystems.

### What's the most exciting thing about this reference turbine?

Offshore wind turbines have eclipsed the current slate of reference turbines in terms of size and utility. The IEA Wind 15-MW's configurations go beyond the capabilities of the 10- to 12-MW turbines already in development by industry, but are similar enough to serve as a baseline for 15- to 20-MW next-generation designs, which means the IEA Wind 15-MW will serve as a valuable development resource for the foreseeable future.

### How might this reference turbine impact the future for the wind industry?

The IEA Wind 15-MW will help support cutting-edge research for years to come. Several projects and project proposals are starting to use the reference turbine, even in its prerelease state. For instance, it's already being used to study lightweight generators and floating support structure design and to conduct wind turbine software tool comparisons.

Wind energy researchers, designers, and academics can learn more by reading the technical report and by using the tool themselves on GitHub.

The IEA Wind 15-MW was partially funded by the Department of Energy's Office of Energy Efficiency and Renewable Energy's Wind Energy Technologies Office.

MORE INFO [www.nrel.gov](http://www.nrel.gov)

## INNOVATION

# Leosphere launches Windcube Insights software

Leosphere, a Vaisala company that specializes in developing, manufacturing, and servicing turnkey wind Lidar (light detection and ranging) instruments for wind energy, aviation, meteorology, and air quality, recently launched Windcube Insights

at Wind Operations Europe 2020 in Munich. Windcube Insights is a proprietary data analytics software designed specifically for the Windcube Nacelle (previously called Wind Iris) nacelle-mounted Lidar that simplifies the wind turbine power performance testing process.

“This new tool empowers operators with International Electrotechnical Commission (IEC)-compliant data to verify that turbines are performing as promised so they can maximize the energy output of their wind farm,” said Alexandre Sauvage, CEO of Leosphere. “The easy-to-use software allows operators to perform power performance testing and suggest operational optimization — quickly, accurately, and efficiently.”

Windcube Insights enables true and fully transparent data analysis and reporting for Windcube Nacelle customers — all within a web-based user interface. The software is the first in the industry to enable the upload of both Windcube Nacelle Lidar and supervisory control and data acquisition (SCADA) turbine performance data with a simplified data synchronization process.

The method of operation includes:

- ▾ A variety of standardized Lidar and turbine data filters are available and fully configurable by the user, simplifying preparation of the data sets.

- ▾ The software leverages those data sets to calculate and display the power curve, and the complete set of IEC requirements can be applied with embedded guidelines that reference the proper IEC standard sections, making the service fully transparent and understandable.

- ▾ The production data, along with standardized uncertainties, are calculated and can be exported in the form of a traditional report table.

The handling of IEC standard requirements for issuing a power performance test (PPT) is complex, requires deep expertise, and represents a potential source of error. However, such testing is necessary for regulatory compliance, warranty verification, and turbine performance verification

during both the development and operations phases. Determining the power curve of a wind turbine in accordance with recognized standards is valuable because the power curve is one of the most important characteristics of the economic value of a wind project.

The Windcube Nacelle Lidar measures the wind conditions at hub height ahead of the turbine, enabling operators and wind-turbine original equipment manufacturers (OEMs) to efficiently and accurately assess performance and optimize design and production efficiency. When fully integrated within the wind turbine, Windcube Nacelle enables load reduction, design costs reduction, and continuous production gains.

Seeing the global energy demand accelerate at its fastest pace in more than a decade, wind energy and other clean energies are increasingly becoming further engrained into the world’s equation for energy demand. Since 2010, the size of the global wind power market has increased by 35 percent, and the global market is expected to approach \$125 billion by 2030.

“Without Windcube Insights, Lidar users would have to build their own software programs to analyze the data being collected by the nacelle Lidar and the wind turbine,” Sauvage said. “We’ve simplified the process of applying filters, calculating the uncertainties described in recognized IEC standards, and displaying data, ultimately creating a simple way to support the utilization of nacelle-mounted Lidar following IEC standards and industry best practices.”

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

## ▾ INNOVATION

### Low emission CMS developed by Bachmann, Nordex

Bachmann Monitoring, a leading provider of turbine monitoring systems, has developed a condition monitoring



The EMC test facility at Bachmann electronic GmbH: Measurement of electromagnetic emissions. (Courtesy: Bachmann Monitoring)

system (CMS) with extremely low electromagnetic interference emissions for a highly sensitive Dutch wind park.

Dutch wind park De Drentse Monden en Oostermoer (DMO) represented a real technical challenge for Bachmann. The CMS had to maintain electromagnetic interference emission levels significantly below the typical legal limit. In partnership with turbine manufacturer Nordex Group, whose N131/3900 turbine was built for particularly low interference emissions, Nordex and Bachmann presented a convincing solution to clients Duurzame Energieproductie Exploermond BV, Raedthuys DDM B.V., and Wind Park Oostermoer Exploitatie B.V.

The “DMO” wind park, expected to have a total capacity of 171.6 MW, is near the central antenna field of the “Low-Frequency Array” (LOFAR). This Europe-wide network containing thousands of highly sensitive radio antennas is used by the Netherlands Institute for Radio Astronomy ASTRON to research the universe. To avoid interference with the world’s largest antenna network, electromagnetic emissions from the wind park had to be kept to a minimum. To achieve this, Nordex asked Bachmann to reduce the emissions of its CMS, normally operating in the range of 30 MHz to 240 MHz, to a level of at least 35 dB below the quasi-peak value.

“Our CMS first had to be examined intensively and then adapted to meet this challenging requirement. The emissions are currently far below the legal limits,” said Bachmann Monitoring GmbH Managing Director Holger Fritsch.

Emission values were measured by independent third parties in the test turbine with installed CMS, erected by Nordex last year. ASTRON also confirmed very low electromagnetic emissions from the entire system.

Nordex and Bachmann have enjoyed a successful partnership for more than 10 years. In addition to remote monitoring services and CMS, new CMS functions are being jointly developed. This technological partnership also extends to the latest generation of the “Delta4000,” in which the Bachmann GMP232 module is used for grid measurement, grid protection, and wind-park control.

**MORE INFO** [www.bachmann.info/en/products/condition-monitoring-system](http://www.bachmann.info/en/products/condition-monitoring-system)

## INNOVATION

### Offshore Wind Summit scheduled for June in Boston

ASME’s Offshore Wind Summit, scheduled for June 16-17, 2020 in Boston, Massachusetts, will offer a unique focus on “Bringing the Power to Market,” while combining perspectives from technology, business, and government to drive the industry forward.

Attendees will have exclusive access to industry leaders, technical experts, and key decision makers who are shaping the future of U.S. offshore wind.

Highlights from the summit include:

- ▀ Learn about the latest technologies in design, materials, fabrication, and installation in offshore wind.
- ▀ Improve a project’s bottom line across its entire lifecycle costs from its initial capital cost to operations and maintenance costs.
- ▀ Understand and navigate the complexities of offshore wind.
- ▀ Create a more profitable business.
- ▀ Understand how business issues and government policy impact a project and its options, timeline, technol-

ogies, suppliers, and costs and how to mitigate these obstacles.

**MORE INFO** [event.asme.org](http://event.asme.org)

## MAINTENANCE

### Valley Forge brings benefits to bolted-joint service life

Critical joints require controlled bolting throughout their service life to maintain performance, enhance safety, save time, and improve uptime. However, the term is more often applied to installation than to the service life of the bolted joint. Valley Forge & Bolt’s family of load-indicating fasteners makes it possible to monitor bolted joints after installation and to always know fastener tension regardless of the service interval.

While there are no bolts that tighten themselves yet, the tension-based monitoring system of Valley Forge load-indicating fasteners is a reality, offering far greater accuracy than torque-based methods. Valley Forge & Bolt offers controlled bolting with technology that makes it possible to measure the tension directly from the bolt, not relying on inaccurate torque-based measurements. Accurate

to within a staggering  $\pm 5$  percent of minimum yield of the fastener, and ASTM F2482 compliant, now bolted joints can tell you their exact percentage of load at any time.

This load-indicating fastener technology is available in Valley Forge products Maxbolt™ Load Indicating Fasteners and the SPC4™ Load Indicating System. Each fastener tells you its percentage of minimum yield on a zero to 100 scale using either a built-in meter (Maxbolt) or, in the case of bolts with SPC4 technology, using quick-connect meters or wireless sensors to provide a precise measure of the load.

Catastrophic joint failure is costly and dangerous, underscoring the need for accurate, consistent, and repeatable controlled bolting, yet measuring torque to determine tension is inaccurate, indirect, and inadequate.

With Maxbolt and SPC4, any technician at any experience level can achieve accurate, consistent, and repeatable bolting, not only at installation, but also throughout service life. At maintenance intervals, they will know the accurate tension in seconds and only need to tighten those fasteners that require it. Wireless-compatible SPC4 can even be integrated into a plant’s condition monitoring system for remote readings and in-use monitoring.

The result is an unbeatable joint-fas-



With Maxbolt and SPC4, any technician at any experience level can achieve accurate, consistent, and repeatable bolting, not only at installation, but also throughout service life. (Courtesy: Valley Forge & Bolt)

tening solution that assures accurate tensioning for the service life of a fastener, increases speed of installation and maintenance, and saves labor costs—all while increasing safety and improving performance.

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

## MAINTENANCE

### Reygar hits 100-vessel milestone, expands team into new office

Reygar Ltd, the leading provider of advanced performance monitoring and control systems to the maritime and offshore renewable energy sector, recently announced the firm's BareFLEET remote monitoring system is now in use across 100 vessels worldwide.

This milestone comes as Reygar expands its control system capabilities across dynamic positioning, autonomous vessels, and consultancy, with two new engineering hires and a larger premises in Bristol.

Leading operators of smaller vessels throughout the offshore support market are driving investment in advanced monitoring systems as the maritime industry continues its push toward the complete digitalization of operating practices. The comprehensive oversight over fleet health and performance that these systems generate is increasingly powering commercial development, as charterers look for performance proof points from their contractors.

And, as vessel technology continues to evolve across dynamic positioning and autonomous control, Reygar has hired James Cook and Richard Crowder. Cook joins the business from Rolls Royce and will lead on industrializing Reygar's dynamic positioning technology and support the expansion of the firm's control system consultancy work. Crowder comes to Reygar with extensive experience in vehicle robotics and will drive the develop-



Leading operators of smaller vessels throughout the offshore support market are driving investment in advanced monitoring systems as the maritime industry continues its push toward the complete digitalization of operating practices. (Courtesy: Reygar)

ment of Reygar's Autonomous Vessel control system.

With further expansion likely over the course of the next 12 months, Reygar has taken new premises at the FutureSpace business innovation hub in Bristol. This location will enable the firm to subsequently increase its headcount, while offering close links with the university and convenient transport links to major maritime hubs.

"In an increasingly competitive offshore support and logistics market, vessel operators are faced with incredibly high client expectations around vessel availability and fuel economy," said Chris Huxley-Reynard, managing director of Reygar Ltd. "Fortunately for those operators looking to gain an advantage in contractual negotiations, cost-effective platforms like BareFLEET that are integrated into existing vessel systems have removed the barrier to entry for smaller vessels looking to take advantage of advanced monitoring."

"Our BareFLEET remote monitoring system is now in use on more than 100 vessels working around the world in offshore energy support, towage, fast ferries, and pilotage — with our technology also being used by boat builders to verify design and performance across the next generation of vessels, such as those deploying advanced hy-

brid propulsion systems," he said.

"At Reygar, we understand how digital technology can be harnessed to solve operational and financial challenges across maritime businesses," Huxley-Reynard said. "The actions and insights that our monitoring generates supports vessel operators' commercial operations and passes significant value on to our client's customers. As such, it's particularly exciting to see end users such as offshore wind-project operators mandating for the installation of the BareFLEET system on the vessels they charter."

"Green Marine was founded on the principles of versatility and high-quality engineering experience, and we are pleased to have found a partner with these values in Reygar," said Jason Schofield of Green Marine, Orkney-based leaders in the specialist marine asset support sector and one of the latest vessel operators to adopt BareFLEET. "The BareFLEET system allows us to guarantee quality of service for our clients by advising us on opportunities to save fuel, reduce motion sickness — therefore optimizing 'time on turbine' — and cut down on unscheduled vessel downtime. This will see us make the most of our fleet, drive operational improvements, and support commercial advancement." ↵

**MORE INFO** [www.reygar.co.uk](http://www.reygar.co.uk)