



The GreenerTower will ensure a CO₂ reduction of at least 63% in the tower steel plates compared to conventional steel. (Courtesy: Siemens Gamesa)

INNOVATION

Siemens Gamesa introduces GreenerTower

Siemens Gamesa has announced the GreenerTower, a wind-turbine tower made of more sustainable steel. Towers consist of approximately 80 percent steel plates. The new GreenerTower will ensure a CO₂ reduction of at least 63 percent in the tower steel plates compared to conventional steel. Siemens Gamesa's new thorough qualification process will verify that only a maximum of 0.7 tons of CO₂-equivalent emissions are permitted per ton of steel, while maintaining the same steel properties and quality.

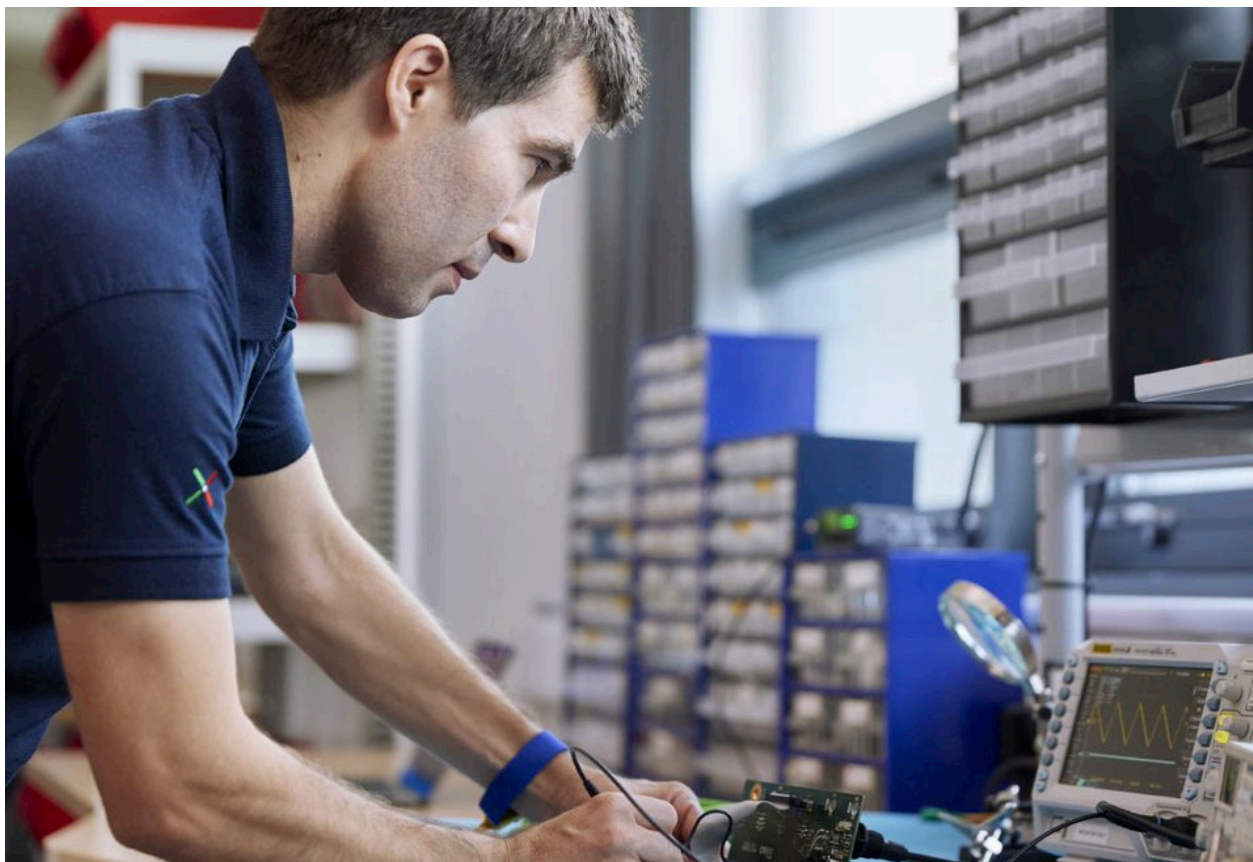
"Wind power is one of the cornerstones of the green-energy transition," said Maximilian Schnipper, head of sustainability at Siemens Gamesa. "With more than 600 GW of new capacity to be installed worldwide in the next five years, it is important for the wind industry to reduce its carbon footprint. Our project to address emissions with greener steel is one such solution. With the launch of the GreenerTower, Siemens Gamesa leads the efforts to further push wind circularity and net-zero emissions."

Tower production accounts for more than one-third of all wind-turbine-related CO₂ emissions. If all towers installed by the company in one year were exchanged with GreenerTowers, it would be the same as removing more than 466,000 cars from the roads in Eu-

rope for a year. This new CO₂-reduced tower will be available as an option for both onshore and offshore wind turbines for projects to be installed from 2024 onward.

The GreenerTower has already closed its first order. RWE and Siemens Gamesa have agreed to introduce 36 GreenerTowers at the 1,000-MW Thor offshore wind power project in Denmark. In total, 72 SG 14-236 DD offshore wind turbines are planned to be installed starting in 2026.

"Offshore Wind already has one of the lowest life-cycle carbon footprints of power generation technologies," said Sven Utermöhlen, RWE Offshore Wind CEO. "At RWE, we are fully committed to working toward circularity and net-zero emissions. We are already testing the world's first recy-



Funding will support ONYX Insight expanding its predictive maintenance solutions from the drivetrain to the blades. (Courtesy: ONYX Insight)

cable wind-turbine blades by Siemens Gamesa under real-life conditions. By piloting the GreenerTower at our Thor offshore wind farm, RWE is now once again taking the lead by helping to significantly reduce the carbon footprint of wind turbines.”

The German steel manufacturing company Salzgitter AG, with its heavy plate mill Ilseburger Grobblech GmbH, is the first supplier to be qualified. The process to produce greener steel entails increased use of scrap steel, less energy-intensive steel manufacturing processes, and an increased use of renewable energy sources. As one of the measures to decarbonize steel production, for example, the electric arc furnace will be fed with green electricity from offshore wind projects.

On average, 1.91 metric tons of CO₂ are emitted during the manufactur-

ing process for every ton of steel. By setting an ambitious threshold of 0.7 tons CO₂-equivalent emissions per ton of steel, Siemens Gamesa reduces the footprint of the largest component in terms of CO₂-equivalent emissions.

MORE INFO www.siemensgamesa.com

INNOVATION

ONYX Insight wins grant to boost blade sensing technologies

ONYX Insight recently secured a grant that will supercharge the adoption of blade sensing technologies for the wind industry in a bid to reduce downtime for wind operators across their turbine

fleets. The Nottingham-based company has been awarded the funding by the U.K.’s Offshore Wind Growth Partnership (OWGP), part of the Offshore Renewable Energy Catapult.

The funding will support a project over the next 18 months that will see ONYX Insight expand its predictive maintenance solutions from the drivetrain into the blades. The project will build on the success of ONYX’s wind-turbine drivetrain condition monitoring product, ecoCMS.

“The funding from OWGP provides us with a welcome grant to accelerate the development of advanced sensing for the blades,” said Bruce Hall, ONYX Insight CEO.

As a provider of condition monitoring services (CMS) to the wind industry, ONYX Insight uses advanced sensing technology and data analytics to sup-



Biome Renewables' FeatherEdge shows promising results in noise reduction.
(Courtesy: Biome Renewables)

port wind-farm operators in identifying potential faults and planning maintenance. The company collects data directly from more than 14,000 turbines across 30 countries. "Identifying when and where maintenance for wind blades is needed has been traditionally difficult for the industry, with operators often having to rely on drone technology, manual maintenance by technicians, or having to act once a fault occurs," said Henry Tanner, ONYX Insight product manager.

"Blade failures can incur expensive blade repairs and replacements, result in secondary damage to the wind-turbine structure, not to mention huge safety implications for the industry. Predictive maintenance allows operators to tackle progressive blade faults sooner at a relatively low cost. The grant will enable us to continue to develop holistic approaches to CMS that provide ever more detailed and wide ranging data insights for our customers."

Catastrophic blade failure in onshore settings can cost upwards of 300,000 pounds in materials, equipment, labor, and unscheduled downtime, and can be much higher in an offshore setting. However, if this same fault is predicted and remedied when it is less severe, repairs can be significantly less.

It is anticipated that the adoption of blade-monitoring technologies will increase over the coming years, delivering significant financial and time savings for wind operators, with blade failure being one of the leading contributors to offshore and onshore asset downtime after gearbox faults. OWGP funding is provided to projects that focus on the commercialization of technologies, products, and services that will either support offshore wind decarbonization or improve the reliability of offshore wind developments.

MORE INFO onyxinsight.com

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INNOVATION

Biome's FeatherEdge announces noise reduction success

Biome Renewables recently announced the results of wind tunnel test measurements carried out on the FeatherEdge® trailing edge serration technology, reporting a promising noise reduction of 8 dB off a baseline Ris B1-18 airfoil operating under similar conditions. The testing took place January 2023 in the Poul la Cour Tunnel (PLCT) at DTU Wind Energy, Ris Campus, Roskilde, Denmark.

"Noise emissions from wind turbines are largely caused through the formation of a turbulent boundary layer at the trailing edge of the airfoil in the outer sections of a turbine blade," said Ryan Church, Biome CEO and CTO. "To combat this, FeatherEdge design focused in on the specific morphology that enables an owl's silent flight."

To validate the technology, Biome entrusted DTU and their wind tunnel to complete a measurement campaign of aerodynamic coefficients and noise measurements. The PLCT uses a closed loop airline with a volume inside the airline of about 3,875 cubic meters. It is one of the largest university owned wind tunnels, with a test section of 2 x 3 meters and 9 meters long, and achievable flow speeds of 105 m/s (378 km/h). With turbulence intensity < 0.1 % and very low background noise, it is the ideal location to complete wind tunnel validation testing.

"The noise emission of wind turbines is one of the main obstacles for the increase of onshore wind installations all over the world," said Christian Bak, professor in rotor aerodynamics for wind turbines at DTU Wind and Energy Systems. "Trailing edge serrations have been commercially applied to reduce the noise emission of wind turbines, but it is believed that even more noise reduction can be achieved with optimized serration designs. In this context, the Poul la Cour Tunnel has shown its efficiency and value by

validating the FeatherEdge design at airfoils with the representative flow speeds and dimensions."

FeatherEdge is the latest in a series of technical solutions for the wind industry that Biome designs using a biologically-inspired approach to engineering and innovation.

MORE INFO www.biome-renewables.com/featheredge

CONSTRUCTION

Codling Wind Park makes successful energy bid

Codling Wind Park has been successful in Ireland's first offshore wind energy auction.

Codling Wind Park is a 50/50 joint venture between EDF Renewables and Fred. Olsen Seawind. With an expected capacity of up to 1,300 MW, it has the potential to supply the equivalent of more than 1 million Irish homes with low carbon, locally produced, low-cost electricity, and to save almost 2 million metric tons of carbon emissions every year.

EirGrid provisionally confirmed that Codling Wind Park's bid under the Offshore Renewable Electricity Support Scheme (ORESS) has been successful, ahead of final auction results to be issued in mid-June.

"This is a great day in the fight against climate change, and for Ireland's plans to become energy self-sufficient," said Codling co-project director Scott Sutherland. "With Codling Wind Park's successful bid, Ireland's largest Phase 1 offshore project of 1,300-MW capacity, moves a considerable step closer to reality."

"There is an immense wealth of low-carbon, potential power available in the seas around this country," said Codling co-project director Thomas Gellert. "Today's successful auction results will increase confidence in Ireland's ability to realize the opportunities of offshore energy. We look



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forward to working with the government, state agencies, and, most of all, local communities to ensure that the significant benefits of Irish offshore energy can be delivered to the people of Ireland.”

“We’re delighted that Codling Wind Park has been successful with its OR-ESS bid,” said Matthieu Hue, EDF Renewables UK and Ireland CEO. “As the country’s largest Phase 1 offshore wind farm, Codling will be crucial to Ireland meeting its renewable energy targets and securing its energy supply.”

“As the largest offshore wind-farm project in Ireland, considerable economic benefit will be brought to Ireland,” said Lars Bender, Fred. Olsen Seawind CEO. “We look forward to engaging further with local communities, government, and supply chain in developing Ireland’s offshore wind skills base and contributing toward Ireland succeeding in delivering on climate change targets.”

MORE INFO codlingwindpark.ie

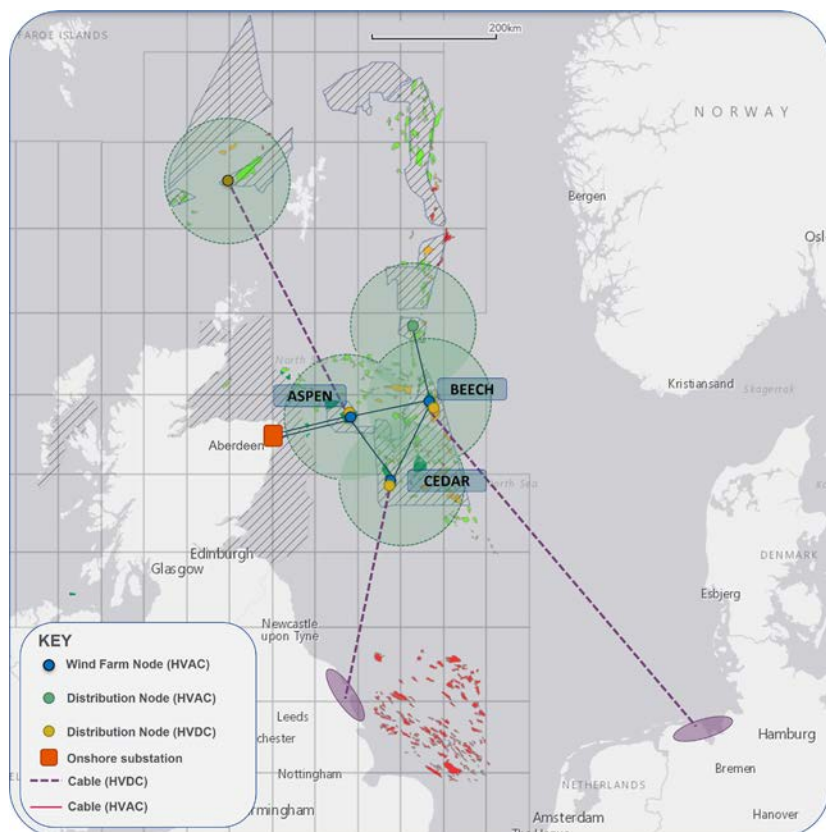
CONSTRUCTION

Cerulean Winds reveals North Sea grid plan

Cerulean Winds has revealed plans to build the North Sea Renewables Grid (NSRG), an offshore integrated green power and transmission system, powered by floating wind, that oil and gas platforms will plug into for clean power.

Cerulean and partner Frontier Power International will develop three 333 square kilometer sites of hundreds of floating turbines, producing multiple gigawatts of electricity, after being offered the lion’s share of seabed leases in the recent Crown Estate Scotland INTOG round.

The scale and location close together in the Central North Sea will enable a new basin-wide offshore transmission system to be constructed, which platforms can access, allowing them to



Cerulean Winds has revealed plans to build the North Sea Renewables Grid (NSRG). (Courtesy: Cerulean Winds)

remove millions of tons of production emissions by trading gas and diesel generation for a flexible, cost effective, and cleaner alternative.

With its delivery consortium of partners including NOV, Siemens Gamesa, Siemens Energy, DEME, and Worley, Cerulean Winds will deliver one of the country’s largest infrastructure investment projects (20 billion pounds) and support the sector’s decarbonization targets.

Phase 1 of the NSRG will focus on oil and gas operators to support brown-field modifications.

“The oil and gas sector is wrestling with the challenges of meeting the North Sea Transition Deal emissions reduction targets whilst supporting U.K. energy security,” said Dan Jackson, founding director of Cerulean Winds. “We recognize that, to achieve meaningful reductions at the pace required, a reliable basin-wide approach is need-

ed that they can plug into when they are ready to for affordable power. Early oil and gas electrification supports the country’s energy security, net zero action, and delivers huge benefits to the supply chain and economy, creating 10,000 jobs. With our partners, we will accelerate access to green power and provide the infrastructure for the next phase of the North Sea’s life.”

“For Scotland, the HVDC transmission not only provides clean energy to the National Grid, but provides export of power directly to continental Europe,” said Humza Malik, Frontier Power founding partner.

Cerulean has agreed to an approach with its industrial partners early to reduce risk in the project in the same way other large scale infrastructure developments are initiated. In total, the three windfarms will contribute more than 12 billion pounds GVA to the U.K.’s economy.

“We are targeting a build-out before ScotWind developments, allowing the supply chain to respond, creating crucial partnering opportunities for the ports and getting the market ready to deliver floating wind at scale,” Jackson said. “It will make a material impact on Scotland’s emissions, removing millions of tons of CO2 a year to support a just transition. Basin-wide scale gives greater flexibility, lower pricing, and supply robustness. Work with end users has begun in earnest so that we can aim for first power availability in 2028.”

MORE INFO ceruleanwinds.com

MAINTENANCE

ONYX Insight, bp Wind Energy sign new deal

ONYX Insight has deepened its partnership with bp Wind Energy with deployment of its predictive maintenance technology across the operator’s U.S. onshore wind portfolio.

The latest long-term deal will see ONYX continue the delivery of engineering, technical, and analytics solutions to bp for the next five years, following a successful seven-year relationship.


The two companies have worked together since 2016, when ONYX first deployed its fleetMONITOR condition monitoring software across 242 of bp’s onshore turbines. In 2017, as a technology leader, bp was the first company to deploy ONYX’s ecoCMS advanced sensing at scale and will continue its use as part of the new deal. The technology is a unique blend of advanced sensing and analytics, delivering effective data that allows engineers to understand the health of their assets. With successful payback in under 12 months, bp adopted the project as its go-to technology for turbine predictive maintenance.

ONYX’s solution can be deployed across any make and model of asset, such as bp’s GE, Vestas, and Nordex

sites, with nearly all the bp fleet using the technology. bp will also be adopting new technology with ONYX’s case management tools, enabling bp’s engineering and site teams to streamline their approach to all operations and realize even higher operational expenditure savings from predictive maintenance.


“By leveraging ONYX’s technolo-

gy, we can better understand the life span of turbine components at our wind farms, improve maintenance schedules, reduce costs, and avoid breakdowns,” said Alistair Warwick, CEO bp Wind Energy. “This agreement helps bp Wind Energy remain a technology leader. It also supports our commitment to produce secure, affordable, lower-carbon energy while accelerat-




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ing our net zero ambition.”

“We have been providing extensive engineering service to our key clients like bp Wind Energy, and, recently, more and more clients chose to sign a longer-term framework with us to streamline the procurement management process, and we can better manage the complex engineering issues across a large and diverse fleet more effectively and efficiently,” said Zhiwei Zhang, chief delivery officer, ONYX Insight.

MORE INFO onyxinsight.com

MAINTENANCE

AMSOIL acquires Benz Oil

Two Wisconsin-based, family-owned companies are joining forces. AMSOIL INC., a global leader in synthetic lubricant technology, has acquired Milwaukee-based Benz Oil. Founded in 1898, Benz specializes in the development, manufacture, and supply of industrial and metalworking fluids. Benz Oil will become part of AMSOIL and the AMSOIL Industrial business unit.

“Bringing the Benz team and facilities onboard as part of AMSOIL Industrial immediately boosts our capabilities and expertise with industrial fluids,” said AMSOIL Chairman and CEO Alan Amatzio. “This acquisition makes AMSOIL Industrial the premier choice for companies that want to maximize the efficiency and reliability of their operations. Our solutions, expertise, and passion make AMSOIL an indispensable partner.”

The AMSOIL Industrial product portfolio includes turbine oil, hydraulic oil, gear oil, compressor oil, stationary engine oil, grease, coolant, and flushing and cleaning products. Now, cutting and grinding metalworking fluid, process fluid, heat-transfer fluid, and other specialty fluids are added to that list.

“The most exciting thing about this



ONYX and bp have signed a new five-year deal. (Courtesy: ONYX Insight)

acquisition is how similar our companies are in our approach to business,” said Dave Meyer, AMSOIL VP, Industrial. “We both place high value on our people and our customers. AMSOIL Industrial is very focused on a consultative approach to selling and providing value outside the transaction, and Benz operates the same way.”

AMSOIL Industrial and Benz Oil both feature strong teams with rich industry experience.

“Benz has a very talented team already in place, and they will play a critical role in driving growth for AMSOIL Industrial and setting us further apart from the competition,” Meyer said.

The Benz facilities in Milwaukee will be rebranded as AMSOIL. Sales, laboratory operations, production, and distribution will continue on site.

“As the third-generation leader of a family-owned company with a strong legacy, it was important for us to find new ownership that would seamlessly embrace our values and preserve the core of what we have built over the past 125 years,” said Benz Oil CEO Dixon Benz II. “I truly believe that AMSOIL, another family-owned, Wisconsin company, with a highly capable team, will embrace the values of our organization and accelerate its trajectory. It’s exciting to know that AMSOIL embraces our foundation and is committed to growing the company in meaningful ways. This is a tremendous opportunity for our customers and employees.”

MORE INFO www.amsoilindustrial.com

MANUFACTURING

New LUTZE cable catalog released

LUTZE Inc. is releasing a new Cable Solutions for Industrial Automation North America catalog to support the fast-growing customer base in North America. LUTZE’s flexible and continuous motion cables such as SILFLEX®, SUPERFLEX®, MOTIONFLEX® and DRIVEFLEX® VFD cables are designed for harsh industrial environments and carry multiple approvals for code compliance.

LUTZE designs and manufactures control products for industrial automation and specializes in flexible industrial control and power cables, including control cables, electronic cables, Ethernet and BUS cables, motor supply, VFD, Servo, and Feedback cables; wire and cable management, and network connectivity.”

The catalog is user-friendly and includes 30-plus pages of technical overview on various cable and connectivity related topics to help customers find the right cabling for their applications. Cable gland and fittings selection charts take the guessing out of the equation when choosing the appropriate plastic, metal, or hygienic fitting in NPT, PG, or metric thread to suit specific cable applications. Wire and cable management components such as CABLEFIX® X and CABLEFIX® One



LUTZE's new catalog has been released. (Courtesy: LUTZE)

cable entry systems complement the offering for industrial automation.

In addition to printed copies, the new catalog is available in two easy-to-use formats: a downloadable PDF and an interactive, easy-to-navigate, digital catalog for online browsing.

MORE INFO www.lutze.com

MANUFACTURING

R&D Test Systems gets test bench order from ZF Wind Power

R&D Test Systems, a Danish wind turbine test system supplier, recently received a follow-up order from ZF Wind Power to develop and deliver a new end-of-line test bench needed to verify the system functionality on manufactured powertrains, including the gearbox, generator, and main bearing arrangement, prior to shipping to the OEMs. The test rig, which features R&D Test Systems' automated concept

based on link-arm coupling, reduces mounting time by up to 90 percent, thus allowing two powertrain units to be tested per day.

The end-of-line test rig will be delivered to ZF Wind Power's production plant at Lommel, Belgium, in fall 2023. R&D Test Systems also was selected early in 2022 to supply a 30-MW validation test bench for ZF Wind Power's Test & Prototype Center at the same site.

"We are very pleased to be awarded this additional contract and to partner with ZF Wind Power on two of the most powerful test benches," said Peter Ulrikkeholm, CEO, R&D Test Systems. "This is a recognition of our competences in developing test systems for testing high-power offshore wind turbines both at the production and the prototype level."

Performing the final tests before the powertrain leaves the factory, end-of-line tests ensure the quality and performance of the final product.

"An end-of-line test cycle will check the function of the system under load, testing hydraulics, sensor connections, as well as contact patterns for the gears,

in addition to checking lubrication, temperature, pressure, and noise and vibration levels," said Martin Knops, chief technology officer of ZF Wind Power. A final flushing of the gearbox makes it ready to run from day one.

The gearbox is one of the most complex parts in a wind turbine due to the many dynamic interacting sub-systems. The whole powertrain therefore requires a series of final, high-load tests before going into the field.

"We believe once this test rig is up and running, it will be the most powerful end-of-line test rig in the wind-power industry," said Peter Winther, key account manager at R&D Test Systems.

The test rig for ZF Wind Power conducts load tests, powered by the more than 15 MW motor, providing 18 MNm of torque to test the unit at high load levels.

"This final test ensures that the powertrain with all its connections works as it should, even when exposed to 5,000 times the torque of Formula 1 cars," Winther said.

Capable of lifting up to 300 tons, the crane selected for the test bench



The first steel structure for the new end-of-line test bench has been made. (Courtesy: R&D Test Systems)

will both lift and precisely place the offshore powertrains in the test bench, which, at the highest point, is six meters above ground. Three automated hydraulic systems then clamp the powertrain in place with the link-arm-coupling thereby connecting the test motor to the powertrain.

“Mounting of a powertrain this size is time-consuming as there are literally hundreds of connections that need to be made, both mechanical and high and low power electrical,” Winther said. “Our design includes a complete high-voltage drive system with an automated connection solution that will optimize the process of installing the powertrain. Dismounting and disconnecting the verified unit will similarly benefit from the automated process. This saves manual work and is a major advantage for end-of-line testing when production flow is of high importance. The concept allows us to test two units a day.” R&D Test System will be using its automated link arm concept designed to connect the 15 MW motor and the powertrain unit, which must be robust enough to cope with the huge loads while still being sufficiently flexible to allow quick changeovers.

The engineering team consisting of software, mechanical, low-voltage, high-voltage, civil, and hydraulic specialists has already started the development of the end-of-line test bench at R&D Test Systems’ headquarters in

Hinnerup near Aarhus in Denmark. The company will be applying its test bench expertise in high-power drive-train testing of offshore wind turbines.

MORE INFO www.rd-as.com

■ MANUFACTURING

Vestas gets offshore turbine order in Japan

Vestas recently secured a 238 MW order from Hibiki Wind Energy for the Kitakyushu-Hibikinada Offshore Wind Farm Project off the coast of Kitakyushu city, Fukuoka prefecture, Japan.

The order includes supply and installation of 25 V174-9.5 MW wind turbines as well as long-term Active Output Management 5000 (AOM 5000) service agreement for the wind farm.

Commissioning is planned for 2025. Once installed, the project will feature the most powerful wind turbines operating in Japan.

With this project, Vestas will strengthen its position as a leader in offshore wind energy in Japan, leveraging its experience and expertise established through the number of offshore wind energy projects in global markets as well as in Asia Pacific.

“We are delighted to be partner-



Hibiki Wind Energy selected Vestas Offshore Wind V174-9.5MW as the wind turbine for the project. (Courtesy: Vestas)

ing with Hibiki Wind Energy and provide our V174-9.5 MW turbines for this important project in Japan’s offshore wind-energy development,” said Purvin Patel, Vestas Asia Pacific president. “We remain committed to contribute to Japan’s carbon neutrality goal, through our leading wind-energy solutions and strong partnership with our customers.”

“We selected Vestas because of the high reliability of its wind turbines, which have been in operation for many years around the world, and also because of the expectation for local contribution,” said Yutaka Mizumachi, representative director and president of Hibiki Wind Energy. “We hope that the service and maintenance provided by Vestas will be a catalyst for the revitalization of the local economy.”

MORE INFO www.vestas.com