



Phase 1 of the Kennoxhead Wind Farm is now completed. (Courtesy: Collett)

## CONSTRUCTION

### Collett completes phase 1 of Scotland wind farm

Collett completed the delivery of 13 Nordex N133 turbines to Kennoxhead Wind Farm in South Lanarkshire, Scotland.

Located south of the A70 near the village of Glespin on the Douglas Estate, the site features Nordex N133 onshore wind turbines with an individual blade length of 64 meters and a tip height of no more than 180 meters.

Phase 1 of the Kennoxhead Wind Farm is now completed with the 133.2-meter diameter turbines featuring a 13,935-square-meter rotor sweep expected to enter commercial operation later in 2022.

Phase 2 of the project is still in development with 14 proposed additional turbines expected to enter commercial operation in 2024.

Beginning with a test drive of the 46-mile route from King George V Dock to South Lanarkshire, the Collett team simulated the 68-meter loaded vehicle to ensure that the 64-meter blades could safely traverse the route. Data gathered during the test drive, coupled with preliminary planning reports, allowed the team to determine the suitability of the route, identifying any modifications ahead of the commencement of deliveries. This included the removal of street furniture at King George V Dock and required civil work on site to prevent the loaded trailers grounding on the wind farm access roads.

Using King George V Dock's 32.6 hectares of storage, all components

were imported to the Glasgow facility for onward transport. The team used specialist wind-turbine trailers for deliveries, including clamp trailers for the base and middle-tower sections, six-axle step-frames for the top towers, nacelle, hubs and drive trains, and Faymonville quadruple extendable wing max trailers for the 64-meter blades.

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

## INNOVATION

### BladeBUG robot saves inspection time

A robot called BladeBUG can be deployed to inspect areas of concern on a turbine blade, about half the time it



The processes required to rig and operate the BladeBUG can be managed by operations technicians with basic GWD Working at Height training. (Courtesy: BladeBug)

would take to deploy a human rope-access technician.

Rope-access techs traditionally have the job of inspection and repair on wind-turbine blades. However, prep time for a team is more than an hour, and the costly teams must manage safety risks at great height and sometimes in harsh weather.

“We designed the BladeBUG to reduce costly turbine shutdowns for our wind-energy clients. As the U.K. focuses its energy supply on renewable sources such as wind farms, it is imperative these projects operate as efficiently as possible,” said Chris Cieslak, BladeBug director and founder. “Once our team has arrived on site, unloaded the BladeBUG, and carried

out our safety checks, the robot will be attached to a blade and carrying out inspections in a little over half an hour. While vacuumed onto a turbine blade, the BladeBUG is able to walk around to any areas of interest.”

For onshore turbines, a ground-up approach for deployment is used. The robot is attached at ground level to a rope lowered by a technician from the top of the turbine, then hoisted into place to inspect the blade. One end of the rope is attached to a power descender on the ground, then goes up to the top to a pulley and back down to the robot. A top-down approach to deployment works best for offshore turbines.

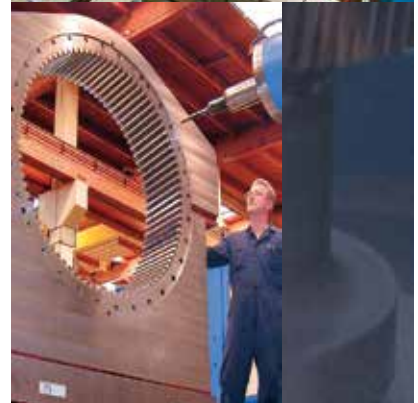
The processes required to rig and

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operate the BladeBUG can be managed by operations technicians with basic GWO Working at Height training. The technicians on the tag lines communicate via radios with those operating the power descender to hoist the robot to the correct part of the blade.

The latest round of testing was successfully carried out at the Offshore Renewable Energy (ORE) Catapult's National Renewable Energy Centre in Blyth.

"It has been a privilege to be a part of the BladeBUG journey and watch Chris and the team develop such a vital piece of technology for the industry," said Andrew Stormonth-Darling of ORE Catapult. "The BladeBUG continues to go from strength to strength, and this latest test in Blyth is another tick in the box for the future of innovative wind turbine inspections."

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

## INNOVATION

### EverWind to begin green H<sub>2</sub> production in Nova Scotia

EverWind Fuels LLC, a developer of green hydrogen and ammonia production, storage facilities, and transportation assets, will begin production of green hydrogen in 2025 in Point Tupper, Nova Scotia.

EverWind has acquired the NuStar storage terminal in Point Tupper and plans to expand and develop the Point Tupper site to be the location of a regional green hydrogen hub for eastern Canada, including new green hydrogen and ammonia production facilities. These facilities will create new clean-energy jobs and support Nova Scotia's carbon emissions reduction targets.

"As part of the clean-energy transition, we are proud to invest in Nova Scotia and support the province in unlocking the immense opportunity presented by green hydrogen," said Trent Vichie, CEO of EverWind Fuels.



With the Point Tupper Clean Energy Project, EverWind Fuels is embarking on a journey that will create Nova Scotia's first green hydrogen production facility and unlock the potential of Nova Scotia's green economy. (Courtesy: EverWind)

"The development of green hydrogen is an essential tool in the fight against climate change," Vichie said. "Expansion of the Point Tupper site will support significant economic development in the region that can attract billions of dollars in new investment, create new jobs, and help make Nova Scotia and Canada global leaders in this exciting industry."

By 2030, the project could reduce domestic and international carbon emissions by more than 4 million tons a year through the production of green hydrogen.

The Point Tupper site is positioned to produce green hydrogen as early as 2025, supported by existing in-place infrastructure. Point Tupper has an ice-free, deep-water port with 27-meter depth and two berths that can accommodate large vessels. The port is the deepest in Nova Scotia and the surrounding region.

The site has rail loading facilities and is adjacent to pipeline networks to support domestic and regional markets. Electricity transmission is available at the site as well as 7.7 million barrels of liquids storage and abun-

dant freshwater, which is adjacent to the site.

The site is operated by a 70-person team trained to protect the surrounding environment and deliver safe operations.

EverWind Fuels also intends to partner with offshore wind developers to expand production over time, which aligns with the joint announcement by the Canadian and Nova Scotia governments in April 2022 to expand the mandate of Nova Scotia's offshore energy regime to support the transition to a clean economy and to create sustainable jobs.

"Onshore facilities, like Point Tupper, will be key to unlocking this important industry, and we are excited to play our part," Vichie said. "We are confident that this is both the right place and the right time to pursue this development. Governments across Canada are embracing green hydrogen and green ammonia as key parts of Canada's clean-energy future and, with this investment, we are excited to support the development of a regional hydrogen hub in Eastern Canada."

EverWind Fuels is committed to en-



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ZX TM is a nacelle-mounted Lidar that uses continuous wave technology to measure the full shear and veer wind profile of a wind turbine. (Courtesy: NRG Systems)

agement with Indigenous and local communities, governments and local business, and planning organizations to ensure feedback is incorporated throughout the development of the project.

“We have been engaging with communities, businesses and local organizations, and governments at every level early on in this project because we know it is a critical part of the process,” Vichie said. “We are working with Indigenous-owned consulting firms to ensure our engagement with Mi’kmaq communities and organizations is done thoughtfully and in the spirit of listening. This engagement and consultation activities will increase in the coming months.”

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

### INNOVATION

## NRG adds ZX TM Lidar to remote sensing portfolio

NRG Systems Inc., a designer and manufacturer of smart technologies for a range of wind, solar, and meteorological applications, has added ZX Lidars’

ZX TM to its remote sensing portfolio. NRG Systems has been selling and supporting ZX Lidars’ industry-leading technology since 2019.

ZX TM is a nacelle-mounted Lidar that uses continuous wave technology to measure the full shear and veer wind profile across a turbine. The remote sensing device has been evaluated by DNV, a leading independent engineering firm, and UL, a global safety science leader, to support wind turbine power performance evaluations. This technology can also minimize measurement uncertainty via its availability and sampling rate. In addition to power performance testing, ZX TM is also suitable for nacelle transfer function calibration, including yaw alignment and wake detection. Working with DNV and UL, NRG Systems will provide ZX TM as part of a turn-key solution that includes installation, field support, and data management, with the option to calibrate using an IEC-compliant mast at UL’s test site in the United States or DNV’s test site in Janneby, Schleswig-Holstein, Germany.

“NRG Systems is always working to push the boundaries in wind technology,” said Gregory Erdmann, NRG Vice-President, Global Sales. “We have been doing it for 40 years, and we are very selective in which technology we



With achieving this first step in the certification process, DNV considers the BRUNEL concept feasible for further development. (Courtesy: Fred. Olsen 1848)

develop or partner with to offer the best possible solution. As the wind industry continues to evolve, that means providing cutting-edge technologies to optimize each stage of development and operation. We are excited to be broadening our relationship with ZX Lidars as well as building on our decade-long remote sensing experience by adding ZX TM to our turnkey wind measurement solutions.”

In addition to ZX TM, NRG Systems offers the ZX 300 onshore vertical profiler as well as ZX 300M for near-shore or platform-based offshore applications. The product portfolio is further supported by the ZX North American Service Center operated by NRG Systems.

“Our team installed the first nacelle-mounted Lidar in 2003,” said Ian Locker, ZX Lidars managing director. “Today, we support clients globally with operational wind-farm measurements, understanding what wind turbines actually see once constructed. Combining the unique measurements of ZX TM with the customer support, care, and attention from NRG Systems is a great partnership. Approved for use by DNV and UL, clients can be confident in their choice of Lidar and are in great hands, in-country, with NRG Systems.”

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

## ► INNOVATION

### DNV certifies floating turbine concept

DNV, the independent energy expert and assurance provider, has provided Fred. Olsen 1848 with a Statement of Feasibility (similar to an Approval in Principle) for the floating wind turbine concept, BRUNEL. By achieving this first step in the certification process, DNV considers the BRUNEL concept feasible for further development.

BRUNEL is a floating wind turbine support structure designed to support a 15-MW wind turbine. The substructure is a column-stabilized unit with three columns connected by submerged horizontal pontoons. The rotor-nacelle assembly (RNA) is supported by two inclined towers meeting at a distance below the nacelle interface. The structure will be a single point mooring through a turret in order to weather vane.

“We are happy to see the announcement by the Norwegian government on May 11, 2022, to develop 30 GW of offshore wind capacity by 2040,” said Kim Sandgaard-Mørk, executive vice president for Renewables Certification at DNV. “To achieve this growth in a

safe, reliable, and sustainable manner, Norwegian wind-energy projects need access to robust and trusted risk management measures such as certification. Mitigating risks via certification is particularly valuable for floating offshore wind projects in securing project finance and demonstrating operational application.”

“As countries seek to reduce their CO<sub>2</sub> emissions in the race to meet net-zero targets and decarbonize their energy systems, interest in floating wind projects is beginning to grow across the globe, and Norway continues to be a leader in this field as we expect further calls for tenders later this year,” said Silje Grjotheim, director and country manager Norway for Renewables Certification at DNV. “In Norway, DNV’s local certification team based in Hovik is expanding to support the country’s advances in offshore wind.”

“Achieving the Statement of Feasibility is an important first step for BRUNEL,” said Anne Lene Haukanes Hopstad, DNV’s project manager. “It was an interesting project to undertake, and we are looking forward to continued certification of BRUNEL in the next development phases. As designs and technologies develop, ensuring safety is paramount for floating offshore wind projects in securing

project finance and demonstrating operational applications.”

“The potential of floating offshore wind is immense,” said Sofie Olsen Jebsen, Fred. Olsen 1848 chief executive officer. “To drive the industry forward, it is critical to unlock sustainable solutions with commercial viability and technical excellence. BRUNEL responds to these challenges, and by achieving a Statement of Feasibility from DNV an important milestone has been accomplished in our efforts to do our part to reduce LCOE and enable floating wind at large scale.”

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

## MAINTENANCE

### Snap-on reaction arms improve torque access

Torque multipliers are essential when high torque is needed in heavy-duty applications including power generation, oil and natural gas, railroad, and other critical industries. Snap-on Industrial offers a wide range of reaction arms, a key component of successful torque multiplier application.

Reaction arms improve torque access for applications involving heavy duty fleet maintenance, structural bolting, flange bolting, wind-turbine erection, and general maintenance.

Reaction arms direct all torque forces back to the adjacent fasteners or structure, eliminating unintentional rotation of the torque multiplier during operation.

Popular styles of reaction arms include:

▼ **Straight reaction:** 11.8-inch length; light-weight reaction; reduces tool weight.

▼ **Straight reaction with peg :** 1.8-inch length, 3 offset inches; light-weight reaction; reduces tool weight.

▼ **Double-sided reaction fixture:** 7.9-inch length; light-weight reaction; reduces tool weight.



Snap-on Industrial offers a wide range of reaction arms, a key component of successful torque multiplier application. (Courtesy: Snap-on Industrial)

▼ **Short reaction foot:** 2.55-inch length, 3 offset inches; light-weight reaction; reduces tool weight.

▼ **Reaction adaptor:** Light-weight reaction; reduces tool weight.

Custom-built reaction arms and sets can also be designed for customers' exact torque application.

**MORE INFO** [b2b.snapon.com/reactionarms](http://b2b.snapon.com/reactionarms)

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PSI repairs wind-turbine equipment such as Ingeteam controllers. (Courtesy: PSI Repair Services)

## MAINTENANCE

### PSI Repair reaches 60,000 repaired parts milestone

PSI Repair Services, Inc., a subsidiary of Phillips Service Industries and an independent service provider to the wind-energy industry, recently announced that it surpassed 60,000 repaired wind-turbine parts for the wind-energy market.

“For over a decade, the largest wind farms in North America have relied on PSI to fix their critical turbine parts,” said Mike Fitzpatrick, general manager of PSI Repair Services, Inc. “Simply put, nobody can match PSI’s comprehensive repair and engineering services or our highly skilled technicians.”

PSI offers component repair and engineering services for GE, Vestas, Gamesa, Siemens, RePower, Acciona, Suzlon, Nordex, Mitsubishi, and Clipper wind turbines. PSI covers the critical electronic, hydraulic, and precision mechanical components that drive the turbines’ pitch and

yaw systems and down-tower electronics. Commonly repaired components include printed circuit boards, pitch drive systems, inverters, IGBTs, PLCs, VRCC units, AEBIs, proportional valves, hydraulic pumps, pitch and yaw motors, encoders, slip rings, transducers, yaw modules, 3-phase bridge rectifiers, blade bearing automatic grease dispensers, active crowbars, line reactors, oil level sensors, battery chargers, cold climate converters, anemometers, and more.

PSI’s engineering services include custom tests, root cause analysis, product upgrades, remanufacturing, and new product manufacturing services. The test program uses diagnostic equipment, allowing PSI to detect hard part failures, as well as parts degraded due to stress, right down to the microchip level. The root-cause analysis service allows PSI to get a view into a customer’s production environment to identify all the elements connected to recurring problems so the appropriate corrective actions eliminate the problem. The product upgrade service allows PSI to improve upon legacy design with newer, more

reliable technology. PSI’s remanufacturing services are available for obsolete and unsalvageable parts, such as circuit boards and power supplies. Finally, the new product manufacturing service is available for customers who need a cost-effective option to produce a small run of unique legacy parts or components.

**MORE INFO** [psi-repair.com](http://psi-repair.com)

## MAINTENANCE

### CrewSmart names new commercial director

CrewSmart, the end-to-end management system for maritime operations, recently hired Anna Saunders to support the global rollout of its software platform to maritime businesses. Saunders joins from offshore energy support vessel (OESV) operator Seacat Services, where she led the company’s crew management team.

“CrewSmart transformed Seacat’s

crew and fleet management into a highly efficient, simplified system, led by state-of-the-art cloud technology,” Saunders said. “It’s now time to build upon the company’s successes and deliver this product to the global market. Our senior team is ready to show maritime operators that keeping up with complex regulatory and certification requirements doesn’t have to be a burden.”

The new commercial director will work alongside CrewSmart’s founder and technical director Christian Adams as the company seeks to increase deployment of its proven software.

Providing integrated support for personnel, operational, commercial, and financial management requirements, CrewSmart is now an established platform across the European, U.S., and Asian markets chosen for its efficiency and technological simplicity. The system is now employed by operators across sectors, including maritime security, workboat, oil and



Anna Saunders is the new commercial director at CrewSmart. (Courtesy: CrewSmart)

gas, wind-farm support, subsea survey, and shipping.

Having spent time leading Seacat’s crew management team, where CrewSmart supports the team’s operations, Saunders understands the ef-

fect that cloud solutions can have on certification and maintenance compliance, work scheduling, and operational safety. CrewSmart’s senior team is now bolstered by in-house expertise that understands the complexity and requirements of managing modern maritime operations.

“Crew and fleet managers need to be on the top of their game to mitigate the growing compliance risks associated with modern maritime operations,” said Christian Adams, CrewSmart’s founder and technical director. “Over the past few years, we’ve refined CrewSmart into an effective and simple tool that’s successfully been deployed across different sectors and regulatory zones. With Anna onboard, we’re in a strong position to build on our successes and help a wider pool of global industry players up their game when it comes to compliant, effective maritime operations.”

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

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Richard Burgos will oversee sales of the complete wind portfolio from the Dellner Bubenzer and Dellner Hydratech catalogs. (Courtesy: Dellner Bubenzer)

## MANUFACTURING

### Dellner names U.S. wind sales manager

Heavy-duty brake manufacturer Dellner Bubenzer USA Inc. has named Richard Burgos head of sales — wind (Americas). Burgos is bilingual and will oversee sales of the complete wind portfolio from the Dellner Bubenzer and Dellner Hydratech catalogs. He brings 25 years of experience, having spent the last decade with a focus on business development in Latin markets for one of the world's biggest wind-turbine manufacturers.

"I want to become an expert at renewable energy and, eventually, take that experience to educate the next generation of sales professionals," Burgos said. "Sustainability is the way to go, and renewable energy is a fundamental foundation to using less fossil fuel. The wind industry is still in the infancy of implementation, and many countries are looking to either expand or implement renewable energy. This position allows me to pioneer ongoing adoption of these principles, supported by a world-class suite of products."

Burgos started in sales after completing a term in the U.S. Marine Corps. His first job was selling consumer electronics before transitioning into wireless platforms, Internet of Things, data

analytics, and eventually joining General Electric. There, he became global account director, managing the largest pump manufacturing company globally and was promoted to director of sales — Latin America for GE Power Conversion. Burgos will represent the whole Dellner Bubenzer (legacy Pintsch Bubenzer, JHS, Dellner) and Dellner Hydratech (legacy Hydratech Industries) ranges following ongoing group-level expansion.

"Few people acknowledge that, by country, we are behind only China right now for the most installed capacity," said Joel Cox, Dellner Bubenzer's managing director of sales and global sales director (Americas). "That means, as a manufacturer of high-performance disc and drum brakes for severe duty applications, we must position ourselves accordingly — and we're doing just that. We see our wind-energy business doubling in quick time, but we need the right leadership — like Richard — to realize that potential."

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

## MANUFACTURING

### B&K Vibro announces VCM-3 enhancements

Brüel & Kjær Vibro (B&K Vibro), an independent supplier of condition-mon-

itoring solutions for rotating machinery, has delivered a range of product enhancements for its VCM-3/Setpoint offerings to deliver a single, integrated Setpoint condition monitoring system (CMS) solution.

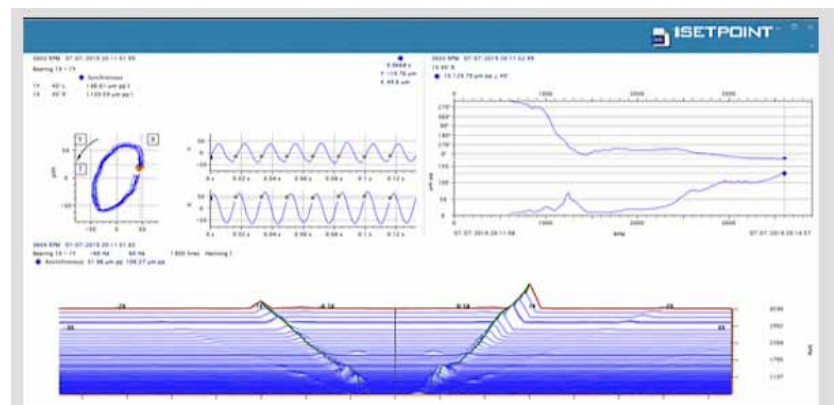
VCM-3 data can be integrated with VC-8000 data and fed directly into Setpoint CMS to create a plant-wide solution, encompassing machine protection and condition monitoring for both critical and Balance of Plant (BoP) machinery assets.

The new product enhancements will enable B&K Vibro to monitor every kind of asset, from critical (VC-8000) to BoP/auxiliary (VCM-3), integrating with Setpoint CMS and providing an improved diagnostic experience to sites in both hazardous and non-hazardous areas.

"B&K Vibro has listened and responded to our clients' needs for enhanced functionality and tighter integration across the range of solutions we offer," said Thomas Carvalho, commercial platform leader, Edge Devices.

"These improvements will provide additional value by allowing a single view of all asset types, delivering faster analysis, and diagnosis of impending issues, which means improved uptime for end users. We now have a complete range of asset monitoring solutions for both critical and auxiliary machinery." ↵

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



B&K Vibro has enhanced the functionality of Setpoint monitoring system. (Courtesy: B&K Vibro)