EQ-Piling helps to achieve noise-compliant monopile installation. (Courtesy: IQIP)

CONSTRUCTION

IQIP's new piling techique, EQ-Piling, now in action

EQ-Piling, a newly developed piling technique, is now in action. This development showcases the success of the investment in this technology. Thanks to IQIP's EQ-Piling, noise-compliant installation of even the largest monopiles is now achievable.

Conventional impact piling has long been a proven and unparalleled method for installing large monopile foundations at the required depths. However, it comes with a significant drawback: The noise generated during the process can be harmful to marine life. The challenge was to deliver the necessary force to overcome soil resistance while significantly reducing noise levels.

EQ-Piling employs a technique featuring a substantially prolonged impact force characteristic. This method uses the impact of a falling mass, in this case, contained water, over an extended period, resulting in a smooth energy transfer to the pile. Unlike conventional methods that rely on impact force, EQ-Piling generates a pushing force.

This technology ensures that developers, governments, and contractors can now work in full compliance with environmental regulations. EQ-Piling offers advantages including noise reduction without the need for additional mitigation measures, lower project costs, decreased carbon emissions, and enhanced efficiency.

MORE INFO www.iqip.com

CONSTRUCTION

Sarens aids in construction of U.K.'s Sofia Wind Farm

Sarens has been actively involved in the construction of the Sofia Offshore Wind plant by successfully carrying out the Sofia OCP Jacket and Topside Weighing and Loadout project. The plant — owned by RWE and on Dogger Bank in the North Sea, 195 kilometers off the coast of the U.K. — will have

The Sarens project Asia team. (Courtesy: Sarens)

100 turbines and a power generation capacity of 1.4 GW reaching the coast through an extensive inter-array cable network. It will provide green electricity to 1.2 million homes in the U.K. The turbines will be mounted on monopiles, reaching heights of 252 meters.

Sarens provided a complete package of services, including manpower, engineering, mooring winches, weighing equipment, and 524 axles with 18 PPU self-propelled modular transporters (SPMTs) for the weighing and loadout.

Sarens, a global leader and reference in crane rental services, heavy lifting, and engineered transport, has been actively involved in the construction of the plant, successfully completing the Sofia OCP jacket and topside weighing and loadout project. This work, carried out in collaboration with RWE & GE and managed by Seatrium, took place at Seatrium's shipyard in Batam, Indonesia, from May 25, 2024 to June 15, 2024.

The project involved the offshore converter platform (OCP), a crucial element for the HVDC electrical system of the offshore wind farm. This tool is responsible for converting the energy into direct current (DC) and then transmitting it to land. Thanks to this system, the electricity generated by the rotation of the wind turbines is converted from 66kV alternating current to 320kV direct current. Two seven-kilometer-long cables carry the electricity to the Lazenby converter station.

The main part of the project consisted of transporting and loading the gigantic OCP topside, which weighs 14,000 tons and is 57 meters high, as well as the OCP Jacket, weighing 5,250 tons and 51 meters high. This complex job marks the heaviest topside move in Southeast Asia, and historically, one of the heaviest ever undertaken in the world.

Although the weight and size of the parts posed a major challenge, Sarens'

Combilift achieved two wins at the UK Engineering and Manufacturing Awards. (Courtesy: Combilift)

logistics team ensured punctual delivery and maintenance of the OCP units. To make this possible, Sarens provided a complete package of services, including manpower, engineering, mooring winches, weighing equipment, and 524 axles with 18 PPU Self-Propelled Modular Transporters (SPMTs) for the weighing and loadout. At the peak of the work, there were 28 Sarens members who had to deal with adverse conditions, including the impact of the rainy season on site preparation.

The Sofia offshore wind plant will be commissioned in 2026, at which time it will begin generating clean energy that will reach hundreds of thousands of homes in the United Kingdom by making use of a network of approximately 360 kilometers of inter-array cables from the turbines to the platform.

Sarens has extensive international experience in the assembly and maintenance of wind farms. It has participated in various installations around the world and particularly in Europe, as in France (Saint Nazaire and Saint Brieuc) and the U.K., where its last project is now successfully completed. Recently, Sarens worked in the marshaling of 62 of the monopiles, each weighing 2,000 metric tons, the largest and heaviest XXL monopiles ever to be handled in the U.K., and now the 882 MW Moray West offshore wind farm, is well on its way to contribute to the Scottish renewable energy network.

MORE INFO www.sarens.com

CONSTRUCTION

Combilift wins two engineering, manufacturing awards

Combilift, a global innovator in material handling solutions, has achieved dual recognition at the 2024 UK Engineering & Manufacturing Awards 2024, securing two prestigious awards.

The Design Team of the Year award was presented to Combilift's Heavy Equipment Team for their work on the 12-Wheel "Combi-LC Blade." This machine has been engineered to handle offshore wind turbine blades, which can reach up to 115 meters in length and weigh as much as 70 tons. The design significantly enhances the ability to transport these large, non-uniform loads safely and efficiently from manufacturing sites to storage and deployment locations.

This innovative solution addresses the growing needs of the renewable energy sector, where the demand for efficient logistics systems is increasing as the size and scale of offshore wind turbines continue to grow.

Combilift's Heavy Equipment Design Team drew upon their extensive experience in engineering complex transport systems, previously creating the renowned Combi-SC Straddle Carrier and Combi-MG Mobile Gantry ranges.

Combilift's co-founder and CEO, Martin McVicar, received the Industry Leader Award, sponsored by Menzies. This accolade honored McVicar's leadership and commitment to innovation, which have played a pivotal role in transforming Combilift from a small Irish manufacturer into a leader in the material handling sector.

Beyond business success, McVicar is deeply committed to fostering a strong corporate culture. Combilift's headquarters, the largest factory under one roof in Ireland, serves as a manufacturing hub and as an ambassador for corporate social responsibility. The company regularly hosts apprenticeship schemes, charity events, family days, and educational visits, further solidifying its role within the local community.

Combilift also sponsors the local Ladies GAA team, demonstrating McVicar's commitment to supporting gender equality in sports.

MORE INFO www.combilift.com

Northern Offshore Services has unveiled the new I-Class Crew Transfer Vessel powered by the first commercial application of Volvo Penta's IPS Professional Platform. (Courtesy: Volvo Penta)

INNOVATION

Volvo Penta powers Northern Offshore vessel

Northern Offshore Services recently unveiled the new I-Class Crew Transfer Vessel powered by the first commercial application of Volvo Penta's IPS Professional Platform. The vessel began operating in a U.K. wind farm September 1, 2024. N-O-S and Volvo Penta collaborated for almost two decades on ongoing efforts to decarbonize the marine industry and reach zero emissions by 2050. To help achieve these goals, N-O-S designed the future-proof CTV that will adapt to and accommodate new technologies and energy solutions while it is in service over the next 25 years and more.

Volvo Penta's IPS Professional Platform brings efficiency, maneuverability, and versatility that will enable the I-Class vessel to transform over its life cycle. This is made possible through propulsion conversions that allow the vessel to adapt to hybrid, fully electric, and renewable or future alternative fuel solutions without having to rebuild. The I-Class vessel is also equipped with a remote diagnostics package, which will capture more than 6,000 hours of data that will be incorporated into optimization and future Volvo Penta propulsion design.

"Northern Offshore Services and Volvo Penta share an innovative spirit that drives us both. Today that resulted in the first vessel powered by Volvo Penta's IPS Professional Platform entering real-world commercial operations," said Johan Inden, president of Volvo Penta Marine. "N-O-S' deep experience in building vessels for some of the most demanding environments challenged us to develop new ways to improve our propulsion systems and adapt to emerging technologies. Together, we

From left, Konstantinos Papadakis from DNV, Eleanor Taylor and Baiqian Jiang from Anemoi Marine Technologies, Rasmus Stute and Hasso Hoffmeister from DNV. (Courtesy: Anemoi)

are showing the industry what the incredible maneuverability, ease of use and precision of the Volvo Penta IPS Professional Platform can accomplish in combination with the expertise of a partner like N-O-S."

In addition to the Volvo Penta IPS Professional Platform's flexibility to adapt to future technologies and energy solutions, it is designed for outstanding maneuverability. The enhanced maneuverability and thrust from the system make it ideal for the challenging conditions typically seen at offshore wind farms.

The I-Class vessel leverages four engines connected to two drives to meet specific needs at every stage of operation, providing dual power on demand. Eco Mode will automatically start or stop individual engines in each situation, optimizing fuel consumption and engine running hours.

Recognizing the challenging environment and long operations at sea, N-O-S designed the I-Class vessel with comfort in mind through high-quality interior outfitting and furnishing.

The Volvo Penta IPS Professional Platform unlocks efficiency gains with available Internal Combustion Engine solutions leveraging alternative or renewable fuel sources. Equipped I-Class vessel engines could potentially see up to 30 percent total fuel savings and emissions through the Eco Mode feature. These engines are approved to run hydrotreated vegetable oil (HVO) and have the potential to reduce emissions by up to 90 percent.

MORE INFO www.volvopenta.com/en-us

INNOVATION

Anemoi wins design approval for rotor sail

Anemoi Marine Technologies Ltd ("Anemoi"), a leader in wind-assisted propulsion systems, was awarded a Type Approval Design Certificate from classification society DNV for its Rotor Sail design measuring 5 meters in diameter and 35 meters in height.

"We are delighted to have received this important Type Approval from DNV, which is a testament to the rigorous design and engineering work undertaken by our team," said Kim Diederichsen, CEO of Anemoi. "This certification provides shipowners and

operators with the assurance they need to invest in our 5x35m Rotor Sail solution, which has already been selected for upcoming installations on several vessels."

Rotor Sails, also referred to as "Flettner Rotors," are vertical cylinders that, when driven to rotate, harness the renewable power of the wind to propel ships. These mechanical sails capitalize on the aerodynamic phenomenon known as the Magnus Effect to provide additional thrust to vessels. By leveraging wind energy, Berge Neblina will see increased efficiency by reducing the power required from the main engine while maintaining speed, therefore substantially reducing fuel consumption and resulting in less greenhouse gas emissions.

The type approval design certificate (TADC) was retrospectively presented to Anemoi during a special ceremony at SMM in Hamburg, Germany, September 5. The certificate validates that Anemoi's 5x35m Rotor Sail design complies with DNV's technical standard (ST-0511) for wind assisted propulsion systems (WAPS).

"We are very pleased to build on the excellent collaboration with Anemoi with the presentation of this certificate," said Hasso Hoffmeister, Senior Principal Engineer at DNV Maritime. "Together we are continuing to develop the technical standards and class notations that will enable the momentum behind WAPS to continue to build and enhance shipping's drive to greater sustainability."

The technology is being increasingly embraced by ship owners, primarily in the bulker and tanker sectors, who are aiming to achieve net-zero shipping emissions. Rotor sails have emerged as a preferred technology to augment and enhance the energy performance of vessels. Rotor sails are a compact technology, which offer a large thrust force to propel ships with minimal impact on visibility, stability, and port operations, helping them comply with pivotal international emission reduction benchmarks such as the Carbon Intensity Indicator (CII) and EEDI/EEXI.

MORE INFO anemoimarine.com

INNOVATION

Seaonics readies Ocean Charger for wind farms

Following successful in-port and offshore prototype testing, Norwegian lifting and handling specialist Seaonics is on track to commercialize its Ocean Charger solution for electric SOVs amid strong interest from wind farm developers.

High-voltage charging tests were conducted in port to charge the batteries on the Rem Offshore-owned diesel-electric hybrid CSOV (construction service operation vessel) REM Power as

Prototype testing of the Ocean Charger charging the CSOV newbuilding Rem Power from an offshore wind turbine. (Courtesy: Seaonics)

well as offshore from a charging point (cable reel, winch, and control system) mounted on a wind turbine.

"At 10 years old, the turbine is one of the smallest offshore but the prototype proved it is possible to install the Ocean Charger on an existing turbine and charge an SOV from Day 1, using 11 kilovolt (KV) current delivering 6 MW of charge," said Bjørnar Huse, Sales Manager, Offshore Energy at Seaonics. "Apart from a handful of improvement points to fix, the concept and control system are complete and the product is available for sale as is. We're first in the market and already in talks with wind farm owners."

Because power current varies between wind parks and wind turbines, the commercial version will have to be customized for each project, Huse said.

The ability to charge vessels offshore in a cost-effective way is a central enabler for shipbuilders to deliver zero-emission SOVs to the offshore wind industry.

"Connecting vessels to the power grid in the wind farm and charging batteries regularly is a big step toward increasing sustainable operations without using any additional energy sources," Huse said. "It saves the time and energy needed to return to port to charge, while the operating cost of electric SOVs versus diesel and alternative fuels is much lower, because both the energy is cheaper and you reduce engine maintenance demands. You still need diesels for back-up power, but quite a lot smaller than for a full diesel operation, with lower Capex."

A large, 60-person SOV consumes 20 to 25 MW hours per day, so at 6 MW, an operator can potentially charge for a full day's operation in three to four hours.

"But it's better for the lifetime of the battery pack to never be completely depleted nor fully charged – between 50 and 80 percent is best," Huse said. "You could charge for six hours at night, say, then do ad-hoc charging during the day."

The product can be fitted to any structure and vessel and the power integrated with the vessel switchboard and the chosen charging voltage.

Huse said it would take a few months to customize the configuration and get approvals for a specific wind park and vessel.

"For wind farms that will be installed in two to four years' time, there is ample time to do final integration design, fabrication, and installation on a new chartered SOV or retrofit an existing one," he said. "Fitting the charging points to turbines before they are installed also streamlines the operation."

MORE INFO www.seaonics.com

MAINTENANCE

Zelim launches remote-control water rescue vessel

Zelim, an Edinburgh-based sea survival innovator, recently launched an unmanned/manned remote-control rescue vessel for persons who have fallen into water.

Guardian, an 8.4-meter long, 2.5-meter wide aluminum-hulled Next Generation Fast Rescue Craft, was unveiled to the maritime industry at the SMM Trade Fair in Hamburg, Germany.

Guardian, an 8.4-meter long, 2.5-meter wide aluminum-hulled Next Generation Fast Rescue Craft, was unveiled to the international maritime industry at the SMM Trade Fair. (Courtesy: Zelim)

Designed for rapid deployment to recover both conscious and unconscious man-overboard casualties, the Guardian can operate in conditions that conventional solutions might find challenging or too dangerous.

As it nears the person in the water, the vessel heads toward the casualty, who is then recovered from the water by the rescue conveyor, which is designed to grip and recover immersed casualties, while minimizing the risk to casualties from the loss of hydrostatic pressure. The conveyor can pull two survivors to safety at the same time.

"Sea survival is hugely dependent on the time it takes to retrieve individuals from the water, but inclement weather can prohibit the launch of manned rescue craft and lives are needlessly lost," said Zelim founder and innovator Sam Mayall. "Ship crews have little time to carry out an effective rescue before maritime conditions prevent the casualty from assisting in their own rescue. When rescue vessels approach, many survivors simply don't have the strength to pull themselves to safety. This is even more difficult when they are unconscious or unresponsive. Guardian has been designed to ensure more people can be rescued in the harshest of weather conditions."

MORE INFO www.zelim.com

MAINTENANCE

Vestdavit: Offshore wind calls for more service boat solutions

Rapid expansion of offshore wind development worldwide is posing operation and maintenance challenges as turbines are installed in increasingly remote locations, harsh environments, and deeper waters. This demands Service Operation Vessels (SOVs) are equipped with flexible solutions for secure transfer of maintenance crews in difficult operating conditions, according to Vestdavit.

This requirement has resulted in an increasing level of orders for the Norwegian supplier of boat-handling systems on the strength of its capability to develop versatile davits for heavy-duty workboats able to safely transport personnel and equipment in variable sea states, with deliveries to the likes of Norwind Offshore, Esvagt, and Rem Offshore.

According to research firm Rystad Energy, investments in global offshore wind are set to more than double over this decade from $46 billion in 2021 to $102 billion by 2030.

Europe is leading the way as the largest offshore wind region with 8,500 turbines expected to be operational by 2030, based on projected investments of $53 billion by countries including the U.K., Spain, Norway, Denmark, and Poland. As well as an increase in project volume, offshore wind farms

Norwind Offshore, with its vessel Norwind Gale, and other wind support vessel operators are realizing the benefits of workboat davits for efficient wind farm maintenance. (Courtesy: Vestdavit)

are expanding both in scale and the size of turbines (15-22 MW).

This, combined with potential turbine reliability issues due to rapid technological evolution of new models every few years, raises the requirement for regular maintenance of multiple turbines across an extensive wind farm to ensure continued uptime.

At the same time, wind-farm owners need to minimize operation and maintenance costs and maximize turbine reliability and project revenue over a typical project lifetime of 20-25 years.

"Consequently, there is a requirement for SOV operators to be able to provide safe and efficient deployment of work crews and equipment to perform effective maintenance on several turbines simultaneously across a wide sea area within a tight operational window," said Vestdavit Managing Director Rolf Andreas Wigand.

An SOV can serve as a self-supporting mother vessel for many service engineers while being stationed over an extended period a long distance from shore, with some wind farms over 100 kilometers offshore.

This results in savings in cost and energy used for maintenance, a need for fewer SOVs, reduction of non-operational downtime, and increased turbine availability.

Vestdavit has bolstered its market position in offshore wind after both gaining new customers and winning repeat orders with existing customers, and its systems are now being used by about 80 percent of all offshore wind vessel operators.

MORE INFO www.vestdavit.com

MAINTENANCE

Drone provider Nearthlab teams with Axess Group

Nearthlab, a provider of autonomous drone solutions, recently signed a memorandum of understanding (MoU) with Axess Group.

Axess Group, which began as an inspection company for the Norwegian oil and gas industry, expanded into the renewable energy sector in 2018 and has since completed more than 150 projects for clients in this sector worldwide. The organization now serves the global wind market through its 28 offices in 22 countries and is on track to achieve its goal of generating 25 percent of its annual revenue from

renewables within the next five years.

Under the MoU, Axess Group will deploy Nearthlab's drones to conduct inspections across both onshore and offshore sites in Scandinavia and Africa, regions where Nearthlab has yet to expand.

The inspection data will be managed through Zoomable, Nearthlab's cloud-based analytics platform.

"Efficient inspections are crucial for maintaining wind turbines that endure significant fatigue loads," said Jay Choi, CEO and co-founder of Nearthlab. "Through this partnership, our drones will be able to help numerous wind farms operate at their peak efficiency."

This partnership broadens Nearthlab's market reach into Scandinavia and Africa as well as showcases its technology to a wider audience.

"Nearthlab and Axess Group share a common vision of contributing toward a sustainable future." said H vard Sletvold, Group Director - AIM at Axess Group. "We are confident that our collaboration will support many clean energy producers in progressing toward a sustainable future."

MORE INFO www.nearthlab.com

A partnership With Axess Group will broaden Nearthlab's market reach into Scandinavia and Africa. (Courtesy: Nearthlab)

MANUFACTURING

Vestas secures Equinor order for New York offshore

Vestas recently secured an 810 MW offshore order from Equinor to power New York's Empire Wind 1 offshore wind project. The order includes 54 V236-15.0 MW turbines and marks Vestas' first order in the U.S. for an offshore platform and its industry-leading, type-certified V236-15.0 MW turbine.

The order includes supply, delivery, and commissioning of the turbines, as well as a five-year comprehensive service agreement designed to ensure performance of the asset followed by a long-term service support agreement.

"We are privileged to partner with Equinor on this momentous U.S. project and provide them with our flagship offshore technology. Reaching this major milestone is a testament to the vigorous dedication of our entire team, who continuously strive to advance clean energy solutions and build the long-term future of the U.S. offshore market," said Laura Beane, President, Vestas North America.

"Offshore wind is set to play a pivotal role in expanding America's energy landscape, and with today's announcement, we are moving closer to building out a robust U.S. offshore market," said Josh Irwin, senior vice president of Offshore Sales, Vestas North America. "This is a significant moment for New York and the U.S. offshore industry, and we're excited to deliver a proven, reliable product to help New York achieve its ambitious offshore wind energy goals and provide resilient wind energy to its communities."

Vestas' flagship offshore wind turbine, the V236-15.0 MW, is built on proven technology and received its type certification last year ensuring safety and quality. Since its launch, Vestas has secured more than 13 GW of firm orders and preferred supplier agreements globally, proving its competitiveness across offshore markets.

"Delivering our commercially ready V236-15.0 MW for our first U.S. offshore project is a moment of huge pride for Vestas North America, and we're poised to continue leading the build-out of U.S. offshore wind with our industry-leading technology at the forefront of it," said John Eggers, chief technology officer, Vestas North America.

The Empire Wind 1 project also includes the continued transformation of the South Brooklyn Marine Terminal (SBMT) in Sunset Park, New York, which is set to become one of the nation's largest dedicated port facilities for offshore wind and a world-class offshore wind hub. The SBMT will provide the infrastructure to deploy the V236-15.0 MW offshore wind turbines, including the staging and pre-assembly activities such as load-in, load-out, and transportation of wind turbine components, tools, and containers before progressing toward offshore wind turbine

The South Brooklyn Marine Terminal (SBMT) in Sunset Park will be rebuilt using union labor and serve as the primary staging and assembly area for Empire Wind 1. (Courtesy: Vestas)

installation and commissioning.

Turbine delivery is expected to begin in 2026 with completion scheduled for 2027.

MORE INFO www.vestas.com

MANUFACTURING

Vestas gets 46-turbine order from CS Energy

Vestas has received an order for the supply and installation of 46 V162-6.2 MW wind turbines from Vestas' EnVentus platform for CS Energy's Lotus Creek Wind Farm, in Central Queensland. With a generation capacity of 285 MW, Vestas will also deliver a long-term Active Output Management 5000 (AOM 5000) service agreement, ensuring optimal energy production to the Australian grid.

Lotus Creek Wind Farm is the first project developed by Vestas Development in Australia to reach financial close and construction readiness.

"Together with CS Energy and Zenviron, Vestas is delighted to provide our best-in-class people, wind turbines, and capabilities for this landmark project," said Danny Nielsen, country head and senior vice president, Australia and New Zealand Vestas. "As the world's largest provider of wind energy, we have always been committed to Australia's sustainable future and we thank the Lotus Creek project partners for joining us in this world-changing mission."

Vestas' efforts to expand its presence in renewable energy development are highlighted through securing all key land access, planning and environmental approvals, grid connection, and delivering the overall wind-farm design. Included in this was collaborating with Lotus Creek Wind Farm landholders and the traditional owners Barada Barna and Barada Kabalbara Yetimarala people. Vestas also worked closely with Ark Energy in the project's early stage.

"Lotus Creek Wind Farm showcases Vestas Development Australia's ability to bring greenfield projects to commercial and planning maturity, hence accelerating the uptake of essential clean energy projects across Australia," said Evan Carless, vice president, Vestas Development Australia. "A key to this project's success has been nurturing valuable relationships with the traditional owners, landholders, the local community and our dedicated team of consultants."

"The Lotus Creek Wind Farm will be CS Energy's first 100-percent-owned wind asset and is a key part of our strategy to develop up to 700 MW of wind generation in Central Queensland," said Darren Busine, Chief Executive

Officer CS Energy. “This project will support the growing demand for renewable energy from our large commercial and industrial customers and demonstrates our ongoing commitment to the region.”

By developing new renewable energy projects, Vestas continues to advance the energy transition while bringing value and benefits to local communities. Delivery of Vestas’ wind turbines is expected to begin in the first quarter of 2026, with commissioning to commence in the fourth quarter of 2026.

During the peak of construction, Lotus Creek Wind Farm will involve an on-site workforce of up to 400 people and create 10 to 15 long-term regional service roles once operational.

The 285 MW generated by this wind farm will power the equivalent of 150,000 average Queensland homes.

MORE INFO www.vestas.com

Vestas has received an order for the supply and installation of 46 wind turbines for CS Energy’s Lotus Creek wind farm in Central Queensland. (Courtesy: Vestas)