Concrete Monopile Company Advances Alternative Foundation Concept for Next-Generation Offshore Wind

As offshore wind turbines grow larger and installation environments become more demanding, the search for alternative foundation materials is gaining momentum. The Concrete Monopile Company (CMC), a Danish startup operating under the brand CIIIC, is developing a reinforced concrete monopile concept that retains the widely used cylindrical form factor of conventional steel monopiles while substantially changing the material base and manufacturing process.

The company's approach centres on ultra-high-performance concrete (UHPC), a material that offers the structural strength needed for large foundation structures while reducing reliance on steel, which is subject to global supply constraints and price volatility. According to CMC and its project consortium, UHPC monopiles could reduce lifecycle carbon emissions by up to two thirds compared with steel equivalents and open the door to localised manufacturing, allowing foundations to be produced closer to where they are needed rather than transported from a small number of large steel fabrication yards.

The concept has been developed with compatibility in mind. The design is intended to work with existing offshore transport vessels, pile driving hammers and installation procedures, which lowers the barrier to adoption for developers and contractors already committed to established project execution frameworks. In 2024, the project received a grant of DKK 19.8 million from Denmark's Energy Technology Development and Demonstration Programme (EUDP), against a total project budget of DKK 34.5 million. The consortium includes CMC as lead, KI Consulting Engineers for design validation against DNV standards, GBM Works for installation system design, Optum CE for structural analysis software and Vattenfall as the offshore wind industry partner.

As projects continue to scale toward larger turbines and deeper water locations, solutions that reduce material dependency without compromising structural performance or installation compatibility are attracting growing attention from developers and supply chain players across the sector.

Jan De Nul Deploys 400,000 Juvenile Oysters on Belgian North Sea Seabed in BLUE CONNECT Campaign

Jan De Nul Group completed a marine habitat restoration operation in the Belgian North Sea in late May 2026, placing around 2,000 natural stones on the seabed of a protected offshore zone as part of the European research project BLUE CONNECT. Each stone had been seeded with juvenile flat oysters before deployment, with approximately 400,000 young oysters cultivated in total using a purpose-built mobile hatchery unit designed and constructed by the company.

The stones were placed on the Dageraad wreck site, a marine area with historical gravel beds and hydrodynamic conditions

that limit sediment burial, and one that benefits from natural protection against beam trawling. These characteristics make it well suited for long-term reef establishment. The modular, container-based hatchery system allowed oyster larvae to be grown to a deployable stage within a matter of weeks and is designed to be replicable at sites around the world.

The BLUE CONNECT operation was carried out in collaboration with Ghent University, the Royal Belgian Institute of Natural Sciences, the Flanders Marine Institute (VLIZ) and the Federal Public Service for Health, Food Chain Safety and Environment. It builds on earlier work by Jan De Nul through the BELREEFS and Reefcovery projects, during which the company developed foundational knowledge about suitable reef substrates, seabed mapping techniques and ecological monitoring in offshore environments.

Oyster reefs are considered among the most ecologically productive marine habitats, supporting biodiversity, enhancing water quality and improving the structural resilience of coastal ecosystems. The growing body of work in this area reflects a broader trend in the offshore engineering sector, where companies are increasingly combining their marine construction capabilities with ecological restoration goals, particularly as regulatory frameworks around biodiversity net gain continue to evolve.

Spain Launches First Floating Offshore Solar Platform Under the RENOVAR Project in Vigo

The first floating offshore photovoltaic platform developed under Spain's RENOVAR project was launched at the Astilleros San Enrique shipyard in Vigo in late May 2026, marking the first tangible result of a pioneering offshore solar programme backed by Spain's Ministry of Industry and Tourism. The platform, one of two 500 kW units planned under the project, forms part of a 1 MW floating offshore solar system designed to operate in open-water conditions using high-capacity floating technology tailored for the marine environment.

RENOVAR is led by Astilleros San Enrique, a Galician shipyard owned by the Marina Meridional Group, and Tenerife-based engineering consultancy BlueNewables, with SOERMAR (the Society for the Study of Maritime Resources) participating as a technical collaborator. The project's ambition goes beyond the production of a single prototype. By applying serial manufacturing principles adapted from industrial production to the fabrication of floating solar structures, the consortium is seeking to demonstrate that offshore photovoltaic platforms can be produced at scale, cost-competitively and in a modular format suited for rapid deployment.

With the first platform now launched, the project is advancing into the next phase of validation, which includes system commissioning, grid connection, real-time performance monitoring and operational testing at sea. The second 500 kW platform unit is planned to follow. Once both units are in place and generating power, the combined 1 MW system will provide operational data to support the development of larger commercial offshore solar installations.

The broader addressable market for the technology is estimated at more than 450,000 MW globally, with particular relevance in the Mediterranean, the Middle East, Southeast Asia, island territories and coastal industrial zones where land availability is limited and grid infrastructure is constrained. Co-location with offshore wind farms, sharing existing grid connection infrastructure, is also seen as a key deployment pathway for the technology.

France Launches RHODE Project to Develop Floating HVDC Substations for Deep-Water Offshore Wind

Seven French industrial and research partners launched the RHODE project on 19 May 2026, a collaborative research and development initiative focused on developing the floating high-voltage direct current (HVDC) electrical connections that will be needed to connect large-scale offshore wind farms in water depths greater than 100 metres to the shore grid. The full project name, Raccordement HVDC Offshore Distant Electrique, reflects its technical scope, and it received a grant of EUR 16 million from the French State under the France 2030 programme operated by ADEME.

As floating offshore wind moves toward commercial-scale deployment at greater distances from shore, the technical and economic limitations of conventional fixed-bottom substations become more pronounced. At very deep sites and long cable routes, alternative approaches to power collection and transmission are required. The RHODE project is designed to address this gap by developing and testing the key technological building blocks of a floating HVDC connection system, including transformers, gas-insulated substations, offshore AC/DC converter stations and dynamic HVDC cables. The project will deliver two floating substation designs rated at 320 kV and 525 kV respectively, aligned with the voltage levels expected to be needed for commercial floating wind projects from 2040 onwards.

The consortium brings together seven partners with complementary expertise across the full value chain: Chantiers de l'Atlantique leads the maritime and structural engineering work; France Energies Marines contributes marine renewable energy research; Fondation OPEN-C brings offshore testing expertise; GE Vernova covers AC/DC substation and transformer design; Nexans provides dynamic HVDC cable design, testing and manufacturing know-how; RTE contributes transmission network development and operations experience; and SuperGrid Institute specialises in SF6-free insulation solutions and HVDC substation components.

The project is structured across several work packages covering the full development cycle, from technical specification and use-case definition through numerical modelling, laboratory testing, hydrodynamic basin trials on scale models and ultimately offshore trials to validate installation, maintenance and decommissioning concepts. Beyond the technical objectives, RHODE also aims to support the emergence of a competitive French industrial sector specialising in high-power floating offshore electrical connections for both domestic projects and export markets.

Heerema's Thialf Installs First 23 Foundations at Poland's Baltyk 2 and 3 Offshore Wind Farms

Heerema Marine Contractors' semi-submersible crane vessel Thialf installed the first offshore wind foundations at the Baltyk 2 and Baltyk 3 projects in the Polish Baltic Sea in late May 2026, marking the start of the active offshore construction phase for one of the largest offshore wind developments in Polish history. The milestone was confirmed by project developers Equinor and Polenergia on 25 May 2026, with the first 23 monopile and transition piece sets already safely in place at the site.

Thialf, measuring more than 200 metres in length and 88 metres in width and equipped with two cranes each rated at 7,100 tonnes, lifts the monopiles from heavy transport vessels positioned alongside. Each monopile measures approximately 50 to 70 metres in length and is raised from a horizontal to a vertical position before being driven into the seabed using a specialised motion-compensated gripper frame that maintains precision and stability throughout the lifting and driving sequence. The bright yellow transition pieces, approximately 17 metres tall, are then mounted on top of each installed monopile, forming the base structure for the wind turbines that will follow.

Thialf's scope covers a total of 100 monopile and transition piece sets across both wind farms, as well as the later installation of two offshore substations. The monopiles and transition pieces are being manufactured by a consortium of Sif and Smulders. Environmental mitigation measures in place during the piling campaign include marine mammal monitoring, soft-start piling procedures and bubble curtains to reduce underwater noise propagation. More than 20 vessels were engaged in the broader construction campaign across 2026, and offshore substation jacket installation is scheduled for later in the year.

Baltyk 2 and Baltyk 3 are located in the Polish exclusive economic zone of the Baltic Sea, approximately 37 and 22 kilometres from shore near Ustka and Leba respectively, and will together feature 100 Siemens Gamesa SG 14-236 DD turbines for a combined installed capacity of 1.44 GW. Turbine installation is planned for 2027, with the projects forming a central part of Poland's offshore wind expansion programme and contributing to the country's long-term energy security goals.

Boskalis Orders New 24,000-Tonne Cable Lay Vessel to Meet Growing HVDC Demand

Royal Boskalis announced on 18 May 2026 that it had taken the decision to invest in a new high-capacity cable lay vessel (CLV) with a total cable carrying capacity of 24,000 tonnes, adding to a fleet that currently comprises three CLVs, a trenching support vessel and a range of specialist trenching equipment. The new vessel, which is expected to enter service in 2029, is designed to support the growing market for long-distance subsea cable installation, with a particular focus on high-voltage direct current (HVDC) cables used in offshore wind transmission systems and cross-border electricity interconnectors.

The vessel will be equipped with two 12,000-tonne cable carousels, including a concentric carousel configuration that enables the installation of longer continuous cable sections in a single uninterrupted operation. By reducing the number of offshore cable joints required during a project, this approach lowers both cost and the risk of long-term system failures, improving overall cable integrity across projects that may involve hundreds of kilometres of subsea route.

The investment reflects a broad industry shift driven by the rapid expansion of offshore wind and the growing political and economic priority placed on energy independence across Europe and beyond. As wind farms are built further from shore and at larger scales, the cables required to connect them to national grids are increasing in length and voltage level, putting pressure on the existing CLV market to expand capacity. Boskalis has been active in subsea cable installation for more than 15 years and has delivered work on more than 140 cable-related projects to date.

The new CLV will join a fleet that Boskalis has been steadily investing in across its offshore energy business. In 2025, the company reported strong financial performance, with EBITDA of EUR 1.3 billion and net profit of EUR 775 million. The addition of the new vessel is in line with Boskalis' stated strategy of building long-term capability in offshore energy infrastructure, where the pipeline of projects across cable installation, dredging and heavy lift is expected to remain substantial through the next decade.

Lamprell Begins Fabricating Transition Pieces for RWE's Norfolk Vanguard West and East Offshore Wind Farms

Fabrication of transition pieces for RWE's Norfolk Vanguard West and East offshore wind farms got underway at Lamprell's Hamriyah yard in the UAE in late 2025 and early 2026, following steel cutting for the Vanguard West structures in December 2025. Manufacturing is currently progressing through Lamprell's serial production line, and the first completed transition pieces are expected to be ready for load-out in the second half of 2026. Steel cutting for the Vanguard East transition pieces is planned to begin in the third quarter of 2026.

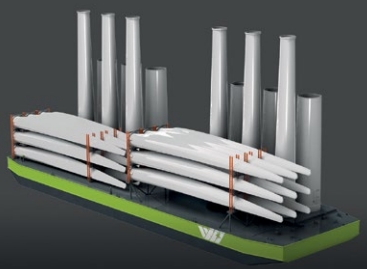
Lamprell signed the contract with RWE in 2024 to manufacture and supply a total of 184 transition pieces, 92 for each of the two wind farms, and to transport them to RWE's designated marshalling port in the UK. Both Norfolk Vanguard projects form part of the wider Norfolk Offshore Wind Zone and each has a planned installed capacity of 1,380 MW, placing them among the largest offshore wind developments in the UK. The two wind farms were originally developed by Vattenfall, which sold the projects to RWE between 2023 and 2024.

In January 2026, RWE secured Contracts for Difference for both Vanguard West and Vanguard East under the UK government's seventh allocation round. Following that award, RWE announced a partnership with global investor KKR, which will acquire a 50 percent stake in each project. A final investment decision is expected in the summer of 2026. Firm turbine orders were placed with Vestas in February and March 2026, with 92 V236-15.0 MW turbines ordered for each wind farm. A pre-installation survey campaign at the Vanguard West site was also announced in May 2026, and Haizea Wind Group confirmed it had started manufacturing monopile foundations for Vanguard West at its Bilbao facility in June 2026.

Vanguard West is targeted for commissioning in 2029, with Vanguard East to follow in 2030. Lamprell's serial production line, which was commissioned in 2023, supports a streamlined factory-style workflow from plate preparation through to assembly, coating and final outfitting, enabling consistent, high-volume output of large offshore wind foundation structures at the scale required by projects of this size.

GRS OFFSHORE RENEWABLES

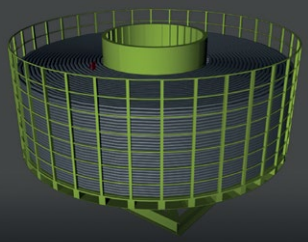
OFFSHORE EQUIPMENT



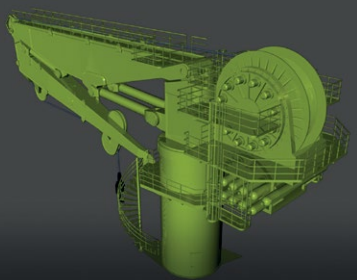
BARGE / PONTOON

ACCOMMODATION MODULE

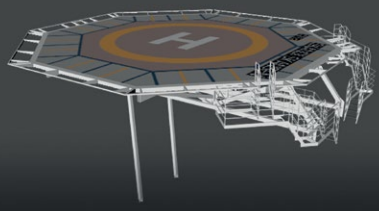
TRANSFER SYSTEM / GANGWAY



CABLE CAROUSEL / TURNTABLE



CRANE

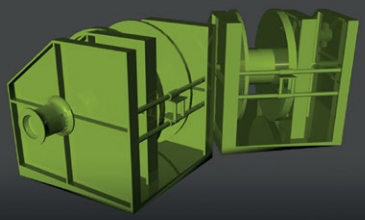


HELICOPTER DECK

OFFSHORE CONTAINER

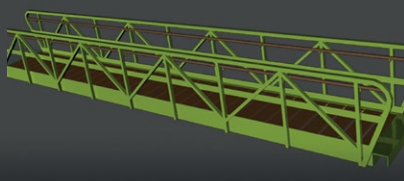
CABLE INSTALLATION EQUIPMENT

REMOTE OPERATING VEHICLE (ROV)



MOORING SYSTEM / WINCH

A-FRAME



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