

Highlights

Mechanical gripper to replace grout for installation of offshore wind turbine foundations

Saves time and money for developments

40% reduction on CO2 emissions

Recyclable at the end of life



Cedeco

Cedeco have developed an innovative method of securing offshore wind turbines during installation. This started when ScottishPower Renewables launched an innovation competition in 2018: they were looking for alternatives to grouted foundations for offshore wind turbines.

The use of grout to secure wind turbine bases at sea is expensive and time-consuming, and achieving a quality joint in-field is very difficult to do. The process is also responsible for significant CO₂ emissions.

Cedeco won the innovation competition with a design for a mechanical gripper aimed to replace grout in the installation of offshore wind turbine foundations. Since then they have secured additional funding from Innovate UK, the Offshore Wind Growth Partnership and BEIS Energy Entrepreneur Fund, while working alongside Atkins (now Kent plc), the Offshore Renewable Energy Catapult, The National Composite Centre, University of Strathclyde and the industry standards body DNV. Their commercial lead, Jaqueline Morrison, won an IUK Women in Innovation award for her role in leading the project.

A lifecycle analysis completed by the NCC showed their technology delivering an up to 40% reduction in CO₂ emissions. The NCC also calculated a reduction in installation time of 50 days for a 100-turbine farm. OREC calculated that the innovation would reduce the cost of energy by £0.25MWh. By reducing installation times, fewer people and vessels are required at sea, making installation safer. The device is designed to be fully reversible and available for recycling, at the end of life.

The technology is within the capability of Scottish fabricators; it will be light and transportable, facilitating export to a global market. By working hand in hand with the Scottish and UK supply chain, Cedeco can contribute to offshore wind's part in the green recovery.

The next step for Cedeco is to develop a full-scale prototype, find a test site and conduct sea trials. An industry partnership will then be required to develop the product for the market. Once proven, the technology will be licenced to operators across the target markets of Ireland, Europe and the USA. With further offshore wind energy projects planned for Scotland, this technology can play a part in Scotland's journey to net zero.



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