

AWC Technology Ltd

Articulated Wind Column Performance Demonstration Project

Project Lead: AWC Technology Ltd

NZIP Grant:

Partners:

£760,874



Innovation overview

The Articulated Wind Column (AWC) structure consists of two main elements; the compliant vertical column and the base located on the seabed. The two main elements are connected by an articulated joint, which allows rotation around both horizontal axes. The two main elements are constructed separately and joined together prior to marine transportation and installation.

The performance of the compliant column in being able to maintain a near vertical position is through the buoyancy of the column. The stability of the base unit on the seabed is achieved by the placement of a gravity-base anchor.

Potential benefit to the industry

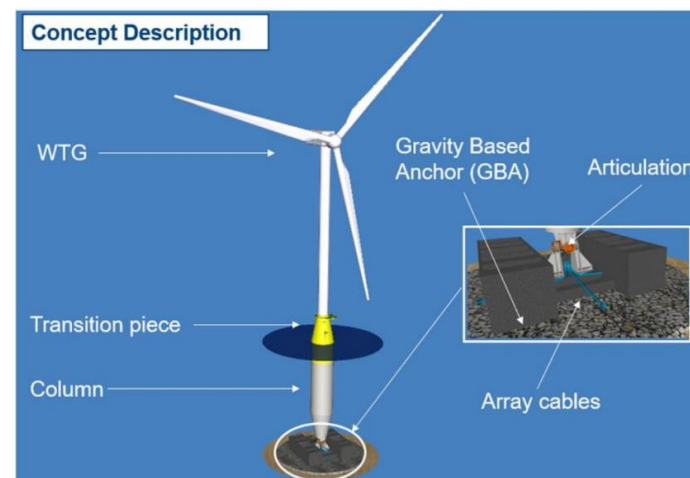
The AWC technology is developed to support a wind turbine generator in deeper water locations, where fixed foundation technologies cannot be used or are no longer cost efficient.

AWC intends to enable developers to gain access to higher yield wind farm locations in deeper water, and to avoid the disadvantages and cost involved with alternative floating foundation solutions, which are generally sub-optimal in the range 80-200m water depth.

“ The AWC Demonstration Project is an important step forward for the energy industry. With the UK Government aiming to produce 1GW of energy through floating wind by 2030 as part of its Ten Point Plan, the AWC allows accessibility to a wealth of locations for offshore wind farms and will provide a lower Levelised Cost of Energy than traditional fixed floating wind farms, powering growth in the industry. ”

Phil Smyth-Tyrrell

Design Package Manager at AWC Technology



Results / Findings

Results

- A scale model basin test (70th scale) was performed at the University of Plymouth Coastal laboratory facility November 2022.
- Analysis of the 8MW AWC model was performed to validate the CFD modelling against basin test results. A CFD analysis of a 15MW AWC base study case was performed based on validated 8MW modelling.
- Pre FEED and Initial 15MW FEED design work was completed. This included fabrication and T&I assessment, global structural and secondary structural design, dynamic cable analysis, and CAPEX cost modelling.



The Optimised solutions development stream of the Heat Pump Ready programme supports the development of innovative tools, technologies and processes to overcome specific barriers to heat pump deployment in the UK. This stream supports solutions aiming to reduce the life time cost and increase the performance of domestic heat pumps, minimise home disruption whilst providing high quality installations, develop and trial financial models to support heat pump deployment, improve the heat pump consumer journey and provide a smart and flexible home energy system.

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Funded by:



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