

Offshore Wedge Connection Project Phase 1

Publieke samenvatting / Public summary

Background

Offshore foundations such as the monopile, are currently typically constructed using either bolted (ring flange) connections or grouted connections. A bolted or grouted connection is used to join the monopile and the transition piece. The connection between the foundation and the tower is always bolted. Bolts need a predefined level of pretension, to be maintained during the lifetime of the connection. Installing these bolts is a risky process for workers. The very high-grade bolts are sensitive to hydrogen embrittlement failure. Similar problems have occurred with grouted connections in the past. Grouting also limits the workability during installation and has resulted in very costly failures in the past years. Also, bolts cannot be used under water and the slip joint and double slip under investigation are difficult to produce and expensive due to the large amount of steel needed. In order to simplify the installation, while increasing speed and safety the industry is urgently looking for better solutions. Partners in the project have identified the recently researched wedge connection as the most promising solution.

Objective

The ultimate goal of the project partners is to develop a safer, faster, and cheaper connection method to enable cost savings by simplifying the installation process.

Short description of activities

In the OFWEC project Fistuca, Huisman and the TU Delft will investigate and acquire the knowledge for

Projectinformatie / Project information

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Subsidiebedrag / Grant amount

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Algemene informatie / General information

Penvoerder / Secretariat

Fistuca B.V.

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a new type of connection between Monopiles and Transition Pieces for offshore wind turbines. Goal of the OFWEC project is to investigate the technical and structural behaviour of the connection through segment testing, full scale segment tests and detailed design of the Fistuca Offshore Wedge connection. This connection is designed to increase workability and safety of the installation thereby reducing CAPEX and OPEX of the foundations.

Results

The end result of this project will be a full insight in nearly all technical aspects of the wedge connection. The major testing needed for certification is ready. At the end of work package 3 the design of the fullscale connection will be ready for direct manufacturing and testing as part of the next phase. The feasibility of using this connection on other locations in a wind turbine; blades, towers and jackets will be assessed. Major results will be published in papers and presented in conferences. A detailed report will be made for internal use.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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