



leanwind

Logistic Efficiencies and Naval architecture for Wind Installations with Novel Developments

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Executive Summary

This report describes the development and testing of a remote presence system for use in operation and maintenance of wind turbines. The system is intended to be a decision support tool by providing wind turbine operators the ability to have a presence on a turbine without sending personnel there. Visits to turbines can be time consuming and expensive, especially for offshore turbines. A lower number of manned maintenance visits will be an effective method of reducing the cost of energy for offshore wind.

The remote presence system consists of two parts: a sensor platform, and a rail for moving the sensor platform inside the nacelle of a wind turbine. The development of two generations of the sensor platform and the design and production of the rail in extruded aluminium is described here.

The pilot prototype of the sensor platform has already been installed in a wind turbine, and evaluated as part of the Leanwind project.

The high fidelity prototype of the sensor platform has the look, feel and capabilities similar to what is expected by a final product. With some adjustments, it will also be suitable for high volume production. One of the three produced prototypes with this design is intended to be installed in a wind turbine for further evaluation.

The rail is produced in extruded aluminium, which is suitable for high volume production. A custom profile has been designed, to have certain properties for secure and precise attachment of sensor platform. The shape of the profile also has to tolerate bending, to make turns without distorting it. The rail is intended to be produced in segments with different lengths and turns, making it possible to customize the rail design for each turbine type.

The work presented in this report has been a necessary and important step for taking the remote presence project from early prototype stage to close to a final product.