

TidalSenseDEMO - Demonstration of a condition monitoring system for tidal stream generators

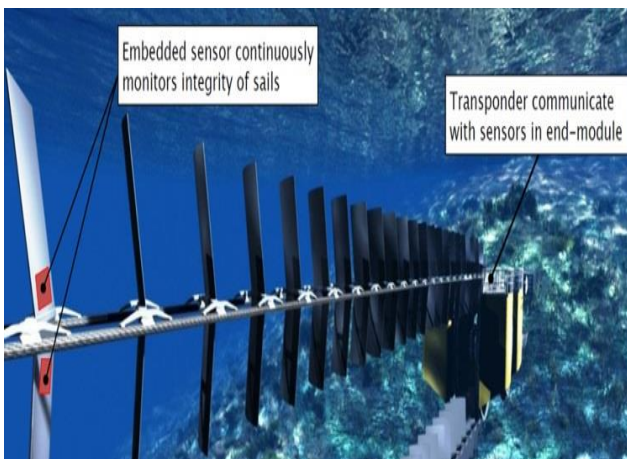
Tidal energy conversion presents a complex engineering challenge: to produce affordable, competitive energy in one of the most challenging natural environments on Earth.



In the highly energetic tidal currents, access for maintenance is expensive, high risk and so costly that it may be a showstopper for large-scale deployment of the many promising technologies currently being developed in Europe and elsewhere. The TidalSenseDEMO system being demonstrated in the project is addressing part of this challenge by using long range ultrasonic technology to provide remote structural health monitoring of tidal energy converter structures at realistic challenging conditions.

Project objective

The TidalSenseDEMO project aims to demonstrate a robust and efficient condition monitoring system for



the emerging tidal stream power industry.

In 2010-11, five small medium enterprises (SME's) participated in a preceding research project under the FP7 Capacities programme, TidalSense, which

proved the concept of such a monitoring system using long-range ultrasonics technology.

The TidalSense system actively interrogates the exposed structure element for the onset of incipient defects.

The encouraging results of the on-going TidalSense project led to the addition of a further two SMEs, with expertise in developing third-generation tidal power machines, to develop the valuable NDT system by demonstrating the technology on one or more of their pilot test machines, under realistic conditions. In this effort - which is the core of the TidalSense Demo project - the SME's are supported by five participating research centres and universities who are all front runners in their respective scientific fields. In total, engineers and scientists from six countries are collaborating in this ambitious SME demonstration project.

The work plan addresses key aspects of demonstrating the new monitoring system on the critical mooring components as well as on the tidal-energy-capturing structures (such as rotor blades), made of composite materials. However, when commercialised, the system is expected to ultimately be extended to monitor most significant parts of a tidal power machine.

For further information, please visit the project website at www.tidalsensedemo.eu.

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