

ROMEO project: reducing cost for offshore wind farm operators and boosting the renewables industry in Europe

- Key players from the offshore wind industry benefit from €10m EU funding via this Horizon2020 flagship project. ROMEO will contribute to accomplish Europe's climate change and energy transition commitments

A new flagship European project funded by the Horizon 2020 programme under the topic LCE-13-2016, ROMEO (Reliable O&M decision tools and strategies for high LCoE reduction on Offshore wind), is seeking to reduce offshore O&M costs through the development of advanced monitoring systems and strategies, aiming to move from corrective and calendar based maintenance to a condition based maintenance, through analysing the real behaviour of the main components of wind turbines (WTGs).

This project is awarded by the European Commission with a Horizon2020 Programme Grant of €10 million and a total budget of approximately €16 million running for 5 years.

Although wind energy installed capacity has grown substantially across the EU over the past years, covering around 10.4% of the EU electricity consumption in 2016 (1), there is still a way to go in order to meet the 2030 target of having at least 27% of the EU's energy consumption (2) coming from renewable energy sources. To reach this objective, it is estimated that wind energy will contribute with at least 21% of the electricity generated (3). Offshore wind energy has seen an impressive development in the last few years, including significant cost reduction, but more efforts are required to reduce the Levelized Cost of Energy (LCoE).

The main objective of ROMEO project is to reduce O&M costs through the development and demonstration of an O&M information management and analytics platform, capable of improving decision making processes by offshore wind farm (WF) operators whilst allowing a transition from corrective maintenance to condition-based maintenance strategies. At the same time, renewable energy technology will be improved, thus contributing to meet the European Union's climate objectives and foster the energy transition (cleaner, safer and more efficient energy).

A flexible and interoperable Cloud and Internet of Things (IoT) platform will provide an advanced analytics ecosystem for failure diagnosis and prognosis models to better understand the real time behaviour of the main components of WTGs under operational conditions; maximizing their life span and minimizing O&M costs. Additionally, the project will develop third-generation condition monitoring systems for some WTG components and low-cost structural condition monitoring systems.

The innovations developed within the R&D work packages will be tested in three use cases managed by the wind farm operators of the following projects: Teeside (United Kingdom), Wikinger (Germany) and East Anglia 1 (United Kingdom). This way, the benefits achieved will be demonstrated, and the future replication of the project in other wind farms will be ensured.

ROMEO is an industry based consortium made up of 12 recognised and experienced key players from 6 different EU member states and 1 associated country led by IBERDROLA RENOVABLES ENERGÍA. The consortium includes large companies (Electricité De France, ADWEN offshore, SIEMENS Wind Power, RAMBOLL IMS, IBM Research, INDRA Sistemas, BACHMANN Monitoring,), SMEs (LAULAGUN Bearings, UPTIME Engineering and ZABALA Innovation Consulting) and a prestigious university (CRANFIELD University), and will work jointly to benefit decision making processes of offshore WF operators.

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