



ROMEO

Reducing the cost of offshore  
wind farms and boosting the  
renewables industry in Europe

[www.romeoproject.eu](http://www.romeoproject.eu)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 745625.

## REDUCING COSTS TO FOSTER COMPETITIVENESS IN OFFSHORE WIND ENERGY

With a total installed capacity of 178.8 GW in the EU, wind energy remains the second largest form of power generation capacity in the EU-28 covered 14% of the EU's electricity demand (Wind Europe, 2018).

However, this figure is still far from reaching the 21% expected (European Commission, 2013) to be covered by wind energy in order to meet the EU 2030 target: of at least 32% of EU's energy consumption coming from renewable energy sources.

In this context, offshore wind power emerges as one of the sources of energy that presents greater growth potential. However, cost of energy of offshore wind energy is a critical factor hindering it to become a competitive alternative to other energy sources.

O&M cost associated with offshore wind power facilities is currently estimated to be between 15% and 25% of the total generation cost. Thus, O&M costs reduction is required to reduce the Levelized Cost of Energy (LCoE).

EU is committed to initiatives that improve the maintenance of offshore power generation facilities and extended the life time of plants and turbines.



**SMART SOLUTIONS TO OPTIMISE  
THE MAINTENANCE OF WIND POWER  
FACILITIES, EXTEND THE LIFE TIME OF  
TURBINES AND REDUCE THE COST OF  
POWER GENERATION**

# SMART TECHNOLOGY TO OPTIMISE THE OPERATIONS AND MAINTENANCE IN WIND FARMS



The ROMEO project is an initiative backed by the EU through its Horizon 2020 programme, under the call topic Low Carbon Energy LCE-13-2016, which aims to develop advanced technological solutions that enable the operation and maintenance costs of offshore wind power facilities to be reduced.



The project commenced on 1st June 2017 and will be developed until May 2022. It is supported by the latest advances in information and communication technologies, and by the implementation of Condition Monitoring Systems (CMS) and Diagnosis and Prognosis Models, to develop an advanced analytics framework based on a flexible and interoperable Internet of Things (IoT) ecosystem. Thus, it will be able to provide efficient and reliable condition-based predictive maintenance and monitoring, as well as decision support by early fault detection of components failures.



The objective is to develop a platform for the analysis and management of the data obtained from the offshore wind farms during their operation and use the data collected in the design of strategies that enable the operation and maintenance of the plants to be improved.



The ROMEO project has a total budget of 16.4 million euros, of which 10 million will be financed by the EU. SERI (Swiss State Secretariat for Education, Research and Innovation) contributes to ROMEO funding by financing the Swiss partners.



## GREATER RELIABILITY, LESS REPAIRS, MORE SAFETY

The ROMEO project seeks the fulfilment of the following objectives:



Increase wind farm reliability and decrease the number of failures leading to downtime.

Improve monitoring strategies enabling reliability centered maintenance on turbine and structure.



Increase the life time of key turbine components.

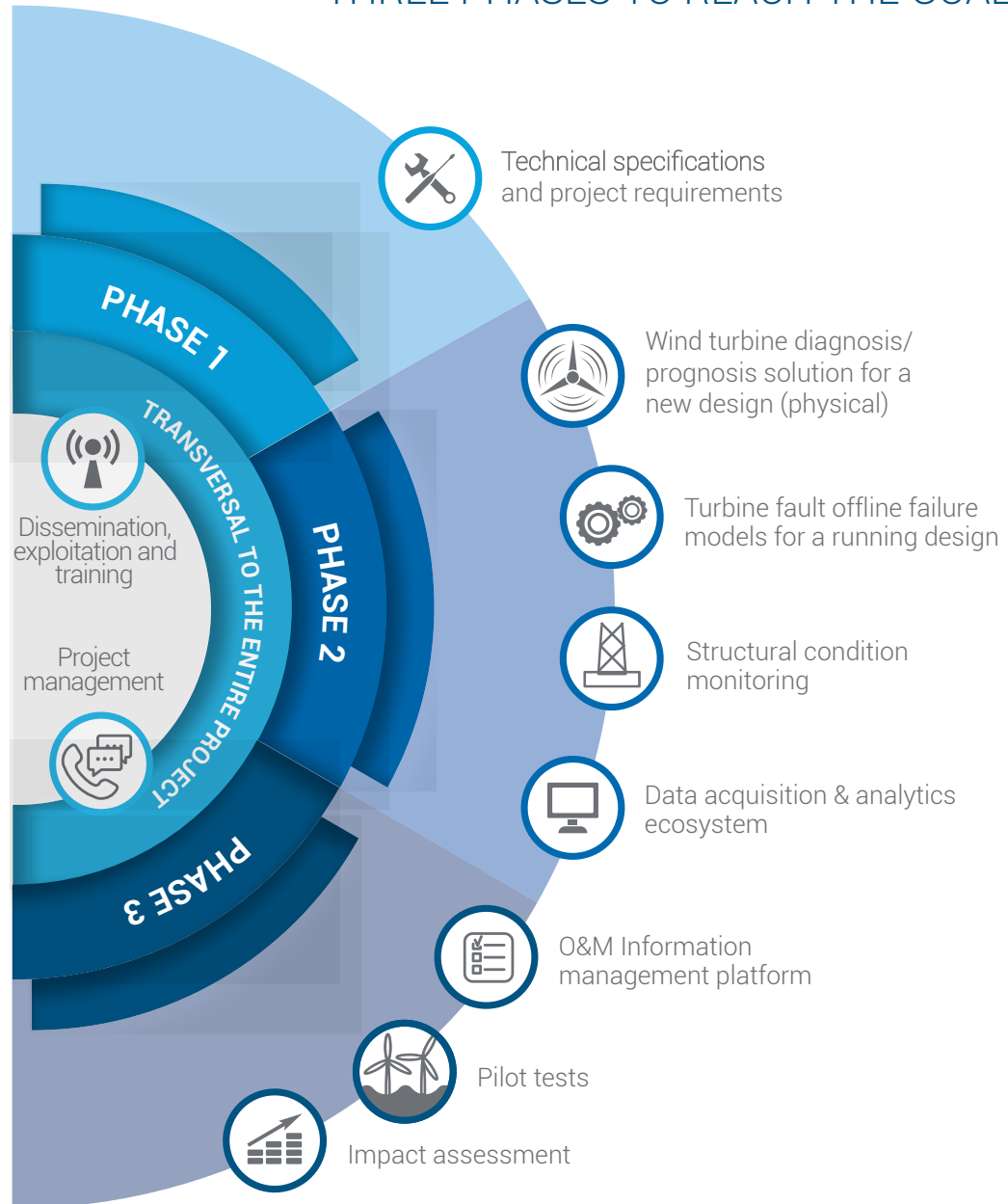


Reduce the WT O&M costs.



Reduce the O&M costs associated to foundation.

## THREE PHASES TO REACH THE GOAL







## 12 PARTNERS, ONE MISSION

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, Siemens Gamesa, RAMBOLL, IBM Research - Zurich, INDRA, BACHMANN Monitoring), SMEs (LAULAGUN Bearings, UPTIME Engineering and ZABALA Innovation Consulting) and a prestigious university (University of Strathclyde, Glasgow).

## DIFFERENT LOCATIONS TO ENSURE QUALITY OF RESULTS AND REPLICABILITY

Many of technological breakthroughs within the framework of the project will be tested in three different locations to check its validity.

Teesside (United Kingdom)

East Anglia (United Kingdom)

Wikingen (Germany)



Wikingen  
Wind Farm

East Anglia  
Wind Farm

Teesside  
Wind Farm

**SIEMENS Gamesa**  
RENEWABLE ENERGY

University of  
**Strathclyde**  
Glasgow

 **EDF**

 **LAULAGUN**  
bearings

**Adwen**

minsait  
An Indra company

**zabala**  
INNOVATION

 **IBERDROLA**

**IBM Research** | Zurich

**RAMBOLL**

 **UPTIME**  
ENGINEERING

**bachmann.**

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Find out more at:  
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stakeholders' opinion!

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