FLOATECH

FLOATECH - The future of floating wind turbines

PROJECT FACTSHEET

About the project

FLOATECH is a Horizon 2020 project funded under the European Union's H2020 Energy programme (LC-SC3-RES-31-2020 - Offshore wind basic science and balance of plant). The consortium is coordinated by TU Berlin and is implemented by 9 partners from 4 EU countries. The project runs from January 2021 to December 2023 and has received a budget of 4 million EUR from the European Commission over these 3 years.

FLOATECH aims at increasing the technical maturity and the cost competitiveness of floating offshore wind energy. This will be achieved by two types of actions:

- The development, implementation, and validation of a user-friendly and efficient design engineering tool (named QBlade-Ocean) performing simulations of floating offshore wind turbines with unseen aerodynamic and hydrodynamic fidelity. The more advanced modelling theories will lead to a reduction of the uncertainties in the design process and an increase of turbine efficiency.
- The development of two innovative control techniques (i.e., Active Wave-based feed-forward Control and the Active Wake Mixing) for Floating Wind Turbines and floaters, combining wave prediction and anticipation of induced platform motions. This is expected to reduce the wake effects in floating wind farms, leading to a net increase in the annual energy production of the farm.

CONSORTIUM	DURATION	START-END DATE	BUDGET	TECHNOLOGY
9 partners 4 countries	3 years	01.01.2021 31.12.2023	4 M€	Floating Offshore Wind (FOW)

Objectives

The expected outcome of FLOATECH will contribute to:

- An essential advancement of the knowledge of basic FOW (Floating Offshore Wind) science,
- The improvement of high-fidelity engineering tools for the design of floating wind turbines, the optimization of floating wind parks and two innovative technologies which are needed to improve the cost competitiveness of FOW.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101007142

To this end, FLOATECH has set 5 specific Research and Innovation objectives:

1. Get a better insight on the physical phenomena taking place in a floating turbine, both in terms of aerodynamics and hydrodynamics,
2. Model and reduce the uncertainties in the design process by means of proposed simulation approach,
3. Facilitate the assessment of new technological concepts, techniques and systems by high-computing resources and dedicated experiments,
4. Increase the future market value of offshore wind energy,
5. Reduce the LCOE[1] by means of: a performance increase of new machines thanks to the more advanced and predictive simulation tools; and innovative control techniques able to maximize the performance during the floating motion.

Expected impact

Thanks to the set of technological improvements, FLOATECH aims at increasing the cost competitiveness of FOW and to foster a reduction of LCOE (in the order of 15% in comparison to present average values) compared to fixed-bottom wind energy and to increase its market value.

In addition to the technological and economic impact, the project is expected to have several impacts at the societal, environmental and political levels, such as:

- Public acceptance, due to no noise and visibility issues of FOWT;
- Less impact on biodiversity and wildlife habitat in comparison to fixed-bottom wind turbines because no piles are needed be to be installed into the seabed;
- The use of less material and space thanks to an environmentally friendly design;
- The promotion of the installation of FOW in transitional water depths (30-50 meters), as the costs for FOW at those locations will become more competitive compared to the fixed bottom foundations.

Contact:

FLOATECH Coordinator
Christian Nayeri
christian.nayeri@tu-berlin.de
Tel: +49 (0)30 314 24660

Follow us online

Website: https://www.floatech-project.com/
LinkedIn: FLOATECH H2020 Offshore Wind Project
Twitter: @FLOATECH_H2020

[1] Levelized cost of energy

FLOATECH

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101007142