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Offshore Wind - France Energies Marines launches four new research and innovation projects to support the acceleration of the sector



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On July 10, the Board of Directors of France Energies Marines approved four new research and innovation projects, with a total budget of €9.5 million. The topics were defined jointly with the Institute's industrial members and aim to address the technological, environmental, and societal challenges identified by the offshore wind sector. These projects, all of which will be launched by the end of the year, will cover the following topics: dimensioning of wind turbines and extreme waves, reliability and maintainability of floating farms, interactions between fish populations and farms, and better assessment of the vulnerability of fishing activities to the development of offshore wind. The renewed confidence of the sector's stakeholders demonstrates France Energies Marines' ability to conduct R&D work that meets the challenges of offshore wind through innovation.

On July 10, the Board of Directors of France Energies Marines approved the launch, in the fall of 2024, of a program of four new R&D projects bringing together an ecosystem of 38 private and public partners. The total investment amounts to €9.5 million, of which just over €6 million is directly managed by the Institute. This significant investment confirms the strong support of France Energies Marines' members, the French state, and local authorities for a collaborative approach to research, innovation, and risk-sharing in support of the sector's development. The Institute's locations, close to the various maritime façades, allow local authorities to fully participate in this dynamic.

The topics associated with these four new projects result from the programming work carried out with the industrial members of France Energies Marines. The selected subjects are fully connected to the current challenges of the offshore wind sector in France and are detailed below.

- **DIMPACT+** aims to better account for extreme and breaking waves in the design of offshore wind turbines. The goal is to improve estimates of loads caused by nonlinear waves in shallow waters in coupled numerical models while evolving international standards. DIMPACT+ follows two previous projects: DIME (2017-2021) and DIMPACT (2020-2023).
- **STORM** aims to develop a tool for evaluating the reliability and optimising the maintainability of a floating wind farm, which will then be tested on real case studies. This project builds on the results of MOSISS (2020-2023), which developed a methodology for evaluating the reliability of a floating electrical substation. It will also rely on results from FLOWTOM (2021-2024) regarding the evaluation of the operability of major component replacement solutions at sea.
- **FISHOWF+** will characterize the effect of offshore wind farms on fish by tracking the movements of several species within and between the farms using acoustic telemetry. It will use the acoustic telemetry network deployed as part of the FISHOWF project (2021-2024), which demonstrated the relevance of this tool for filling key knowledge gaps on fish occupancy patterns in an offshore wind context.
- **FISHOREMAN** aims to improve the representation of fisheries in models used to represent the ecosystem and simulate the cumulative impacts associated with offshore wind farms. By integrating socio-economic and cultural dimensions, the project will better assess the vulnerability of all fishing fleets to the development of offshore wind and simulate cumulative impacts under different scenarios of maritime space co-use.

A fifth project, named **FARWAKES**, is currently in preparation. It will address the characterization of long-distance wakes of offshore wind turbines and interactions between farms: a first for the Institute on this topic.



Jean-François Filipot, Scientific Director of France Energies Marines

The R&D projects launched this year reflect the priorities of the offshore wind sector: designing machines capable of withstanding extreme sea conditions in the context of climate change. These systems must also produce competitive electricity, notably by optimising the costs resulting from the maintenance of offshore wind systems. France Energies Marines and its members also seek to improve the integration of offshore wind farms into the marine environment, considering the constraints of other maritime space users, such as fishermen. All these efforts are essential to ensure the large-scale deployment of offshore wind, both fixed and floating, accelerate the energy transition, and contribute to France's energy sovereignty. These ambitious projects will be carried out through close collaboration between the engineering and research teams of France Energies Marines and its industrial and academic members.

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