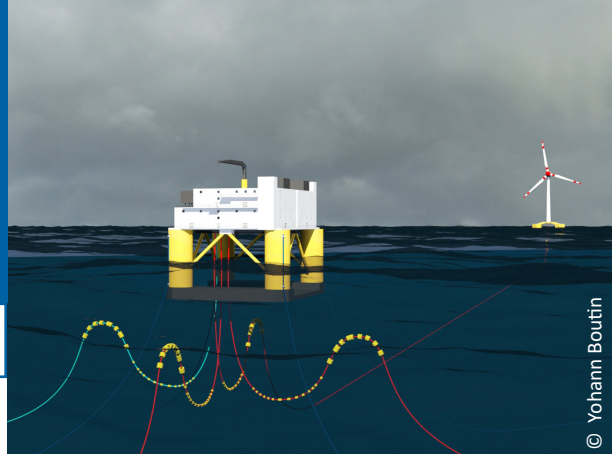
MOSISS

Monitoring Strategies for Innovative Substations

DURATION: 29 months (2020-2023) | **BUDGET:** €892K



CONTEXT

Floating wind is set to develop offshore, where winds are more intense and regular and interactions with other activities are more limited. The next French calls for tenders will concern areas that are relatively far from the coast, which will make offshore electricity substations on piles difficult to envisage from an economic point of view. **It is therefore essential to accelerate the development of floating substations, in particular with in-service monitoring of electrical and mechanical components in order to optimise the costs associated with the operation and maintenance phases.**

OBJECTIVES

To develop and demonstrate a comprehensive methodology for in-service electrical and mechanical monitoring of floating offshore electrical substations

MAIN ACHIEVEMENTS

- Gathering feedback on the operation and maintenance of electrical substations with and without in-service monitoring, defining specific requirements for optimising OPEX
- Identification of the risks of failure of offshore substations and the degradation processes of certain components, then development of a global methodology for optimised electrical and mechanical maintenance
- Demonstration of this methodology at system level on the basis of 5 case studies (inspection and/or in-service monitoring at various frequencies and degrees) including different scenarios, on 3 different sites (North Pacific, North Atlantic and Mediterranean)

CONCLUSION

MOSISS developed robust tools for defining an optimised maintenance strategy for any complex system, based on a combination of inspections and in-service monitoring.

TECHNOLOGIES

STAGES OF THE VALUE CHAIN

Design | Fabrication | O&M

OUTPUT RESOURCES

- **Robust methodology and calculation script** to define an optimised maintenance strategy for a floating offshore substation, based on a combination of inspections and in-service monitoring
- **Recommendations** for implementing this methodology: equipment to be deployed, sensor manufacturer data and information collected during inspections to be standardised
- **Database** for calculating reliability

PARTNERS

Nantes Université | France Energies Marines | Rte Le réseau de transport d'électricité | Atlantique Offshore Energy | Innosea An ABL Group Company | EDF

This project benefited from €239K French State funding managed by the National Research Agency under the France 2030 investment plan. It also benefited from the financial support from EDF Renouvelables and the Pays de la Loire Region

© France Energies Marines, 2023