

# OPHARM

## Hydrogen and offshore wind: decision-support tools

**DURATION: 24 months (2021-2023) | BUDGET: €544K**

### CONTEXT

Hydrogen is attracting growing interest as a complementary energy carrier for industrial and mobility applications. Hydrogen storage offers an alternative to batteries and a response to the intermittent nature of renewable energies. **Hydrogen production technologies could be transferable to offshore wind energy, but they will require particular attention to the constraints inherent in the marine environment.**

### OBJECTIVE

To produce decision-support tools for hydrogen production coupled with offshore wind energy

### MAIN ACHIEVEMENTS

- State of the art of existing hydrogen production, storage and transport technologies
- European mapping of hydrogen projects, infrastructures and users coupled with wind resources
- Analysis of market potential in Europe
- Organisation of a series of 8 technical and regional workshops to build realistic scenarios
- Development of a tool for the assessment of hydrogen production configurations coupled with offshore wind, and preparation of associated documentation
- Use of the tool for 4 regional case studies
- Review of safety and environmental risks, including associated standards and regulations
- Roadmap for the offshore wind energy sector concerning R&D actions to be carried out in metropolitan France

### CONCLUSION

The project has led to the development and use of the OPHARM digital tool, which can be used to assess the various configurations for hydrogen production coupled with offshore wind energy in a given area. The tool is a decision-making aid, providing data on costs and environmental aspects. At the same time, priority R&D actions have been summarised in a roadmap for the French offshore wind sector.



#### TECHNOLOGIES



#### STAGES OF THE VALUE CHAIN



Preliminary studies

### OUTPUT RESOURCES

- **OPHARM numerical tool** for evaluating hydrogen production configurations coupled with offshore wind energy: costs per brick in the value chain, LCOE, LCOH, life cycle analysis
- **Hydrogen R&D roadmap** for the French offshore wind energy sector

### PARTNERS



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