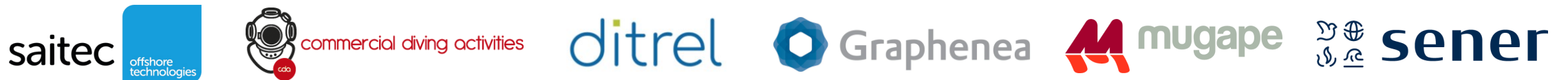


# FLOWIND

Research on new O&M solutions in floating wind for critical components and optimised advanced management strategies

May 2025

## Project partners



Fondo Europeo de Desarrollo Regional (FEDER)  
"Una manera de hacer Europa"  
Eskualde Garapenerako Europar Funtsa (EGEF)  
"Europa egiteko modu bat"

Proyecto subvencionado por el Departamento de Industria, Transición Energética y Sostenibilidad del Gobierno Vasco (Programa HAZITEK 2024) y el Fondo Europeo de Desarrollo Regional (FEDER 2021 – 2027)  
Eusko Jaurlaritzaren Industria, Trantsizio Energetiko eta Jasangarritasun Saila (HAZITEK 2024 Programa) eta Eskualde Garapenerako Europar Funtsak diruz lagundutako proiektua (EGEF 2021 – 2027)  
Project funded by the Department of Industry, Energy Transition and Sustainability of the Basque Government (HAZITEK 2024 Programme) and the European Regional Development Fund (ERDF 2021 – 2027)



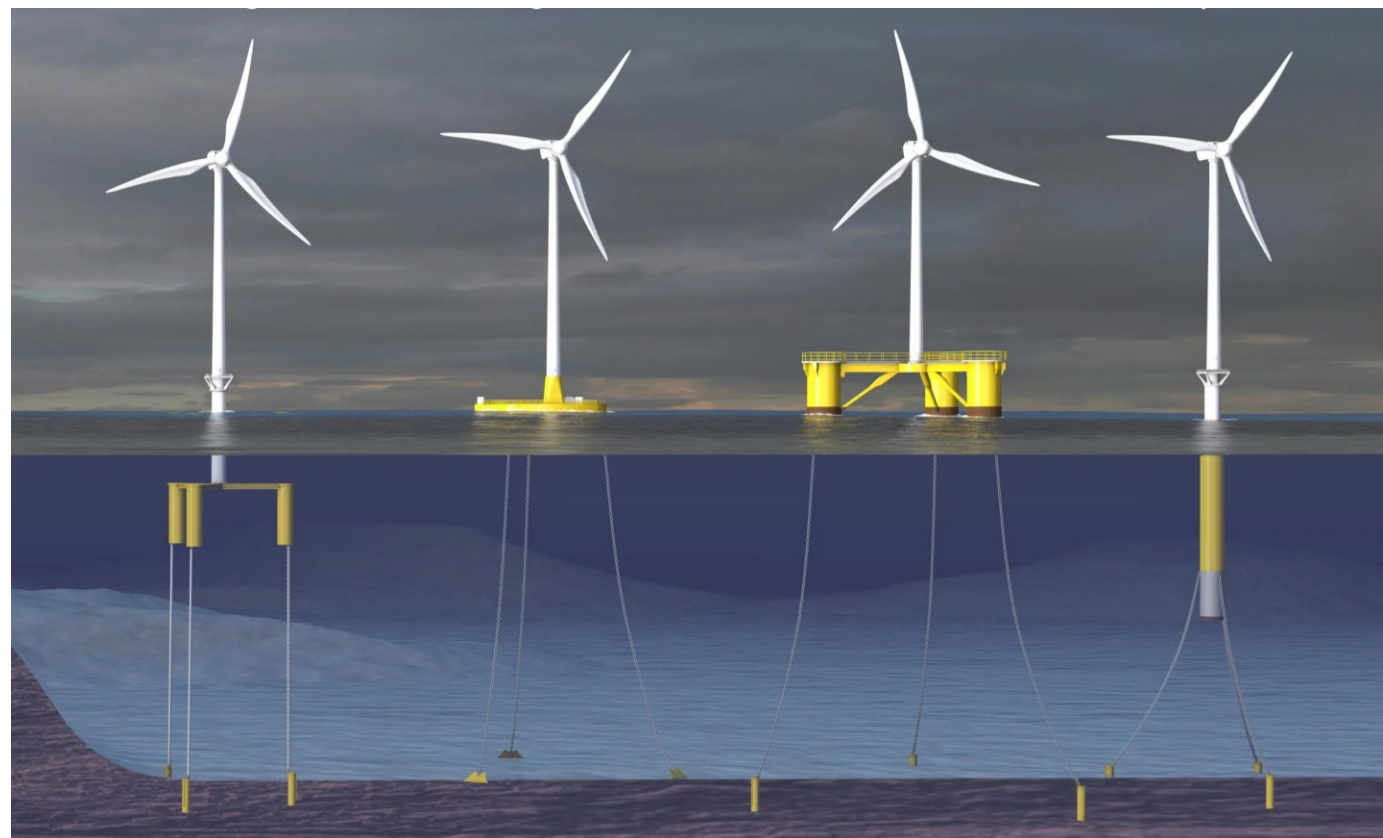
# Context



European offshore wind resource at depths greater than 50 meters



In Europe, 250 GW of floating wind by 2050 (investment of €800 billion) → O&M accounts for 30–50% of the LCOE



# O&M Challenges in Floating Wind

Access to offshore turbines is complex and costly due to harsh weather conditions and the distance from the coast.



Constant exposure to harsh marine environments increases the likelihood of corrosion and wear on key wind turbine components.



# O&M Challenges in Floating Wind

## Critical components

Their failure or malfunction can have a significant impact on the system's performance, safety, and overall functionality.



## How to reduce costs in floating wind

Planning of predictive and/or preventive maintenance and the execution of associated operations.

- Remote monitoring and proper planning of operations through sophisticated management tools at the windfarm level.

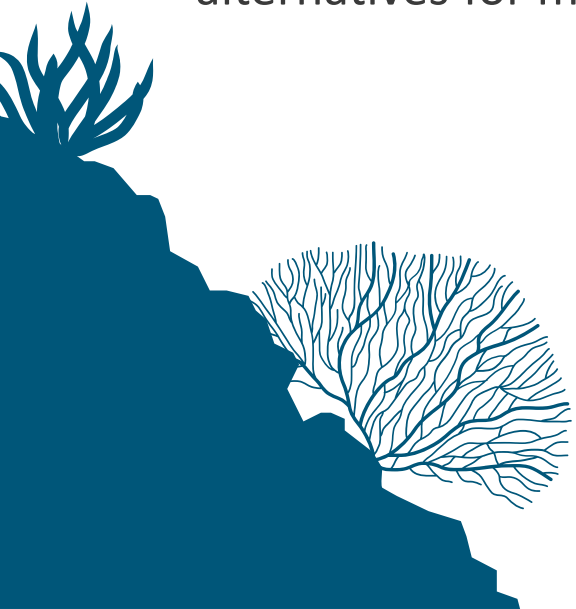


# FLOWIND's objective

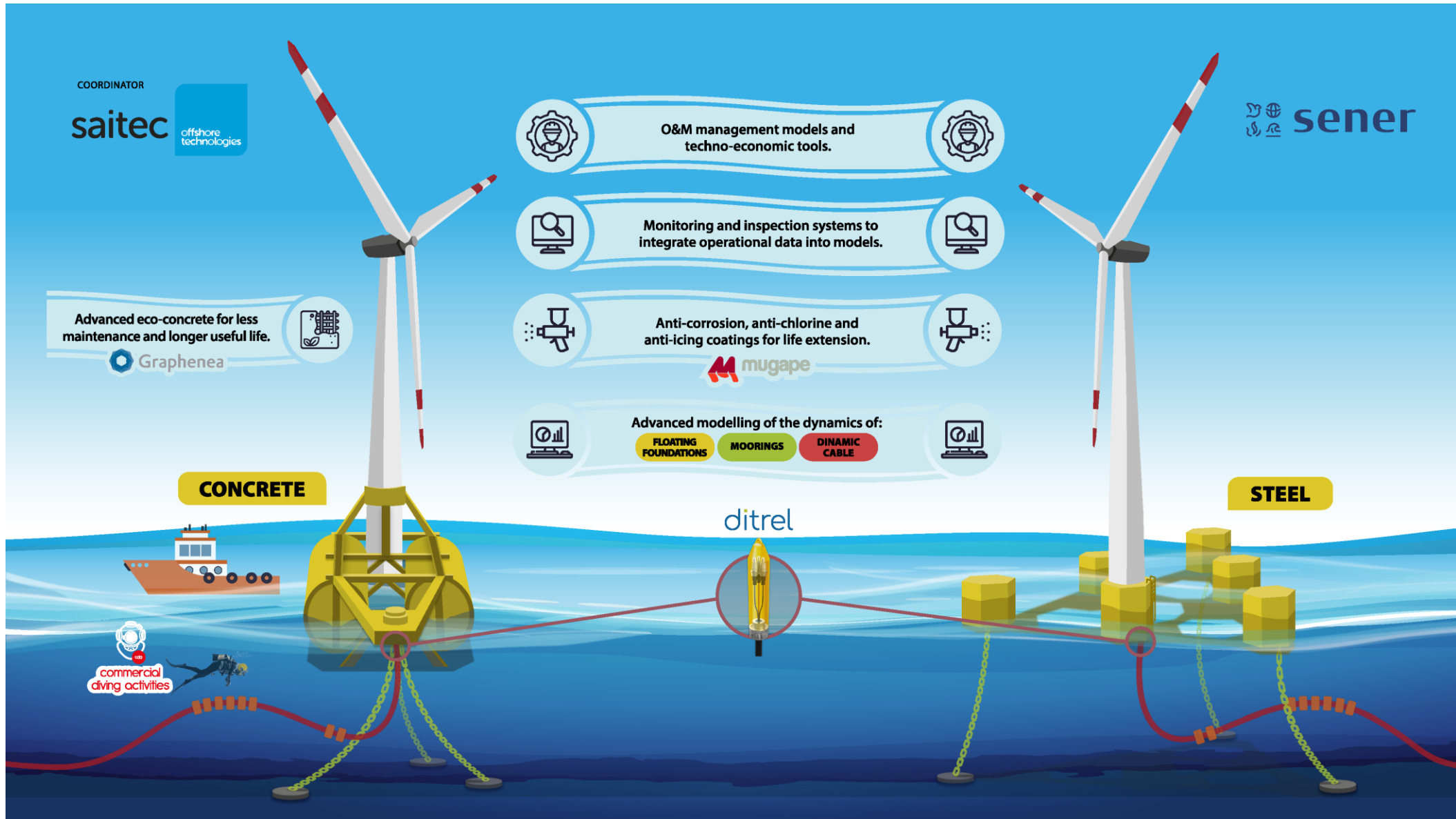
Research on **new O&M solutions** for floating wind, focusing on critical components:

- Floating foundation, both in steel and concrete
- Dynamic cable
- Mooring lines

Research on **techno-economic tools** for evaluating alternatives for maintenance strategies



# Key Pillars of the Project



Research on new O&M solutions in floating wind for critical components and optimised advanced management strategies

# Research lines

1

Detailed characterisation of O&M activities through development of an **advanced model**.

**Techno-economic assessment** over the entire service life integrating the holistic model, holistic O&M.

Preliminary **validation** of the tool using real-world data.

2

**Monitoring systems** on **dynamic cables** → HarshLab

**Monitoring systems** in **moorings** → DemoSATH Lab

**Development and functional validation** of a guided cavitation system.

3

**Characterisation of the dynamics** of the floating foundation, mooring systems and dynamic cables improving their accuracy, as well as the computational cost.



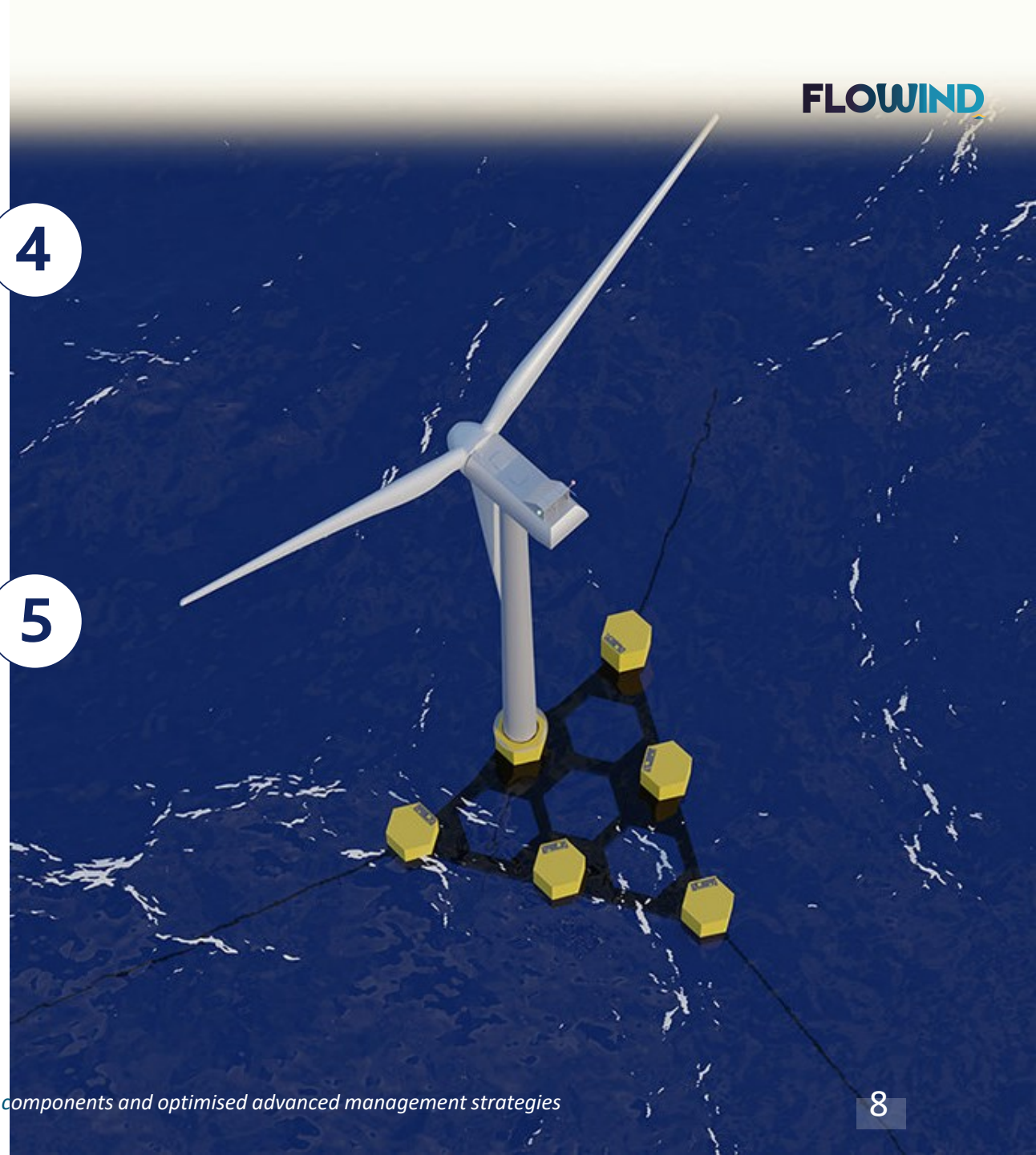
## Research lines

Research into the **physical and chemical characteristics** influencing the reactivity of eco-concrete. Mix design (particle size distribution, superplasticisers, additives, etc.) and the incorporation of graphene oxide nanomaterial.

Research on new **anti-corrosion and wear-resistant coatings**, incorporating graphene fillers and comprehensive characterisation.

4

5





# Project partners

## Coordinator



## In collaboration with:



# FLOWIND

Thank you!



Carlos Garrido



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[@FLOWIND Project](#)

## Project partners



commercial diving activities

ditrel



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