



# 22 04 2024 FOWTEC

Floating Offshore Wind Technical Symposium  
Venue: Terminal de cruceros de Getxo 3



## Agenda

**10.00 – 10.10** Opening Speeches – Saitec and Tecnalía

**10.10 – 10.40** Keynote Speech

• **Jason Jonkman, NREL**

*Engineering Modeling to Advance Floating Wind Technology*

- The development of innovative and optimized floating offshore wind turbine technology is not possible without accurate, validated, physics-based engineering design competence and tools. This presentation will summarize the work at the National Renewable Energy Laboratory (NREL) to develop, verify, validate, and apply physics-based engineering tools—OpenFAST for individual turbines and FAST.Farm for full wind farms—that enable the wind energy community to design advanced wind technology that will lower wind cost of energy.

**10.40 – 11.40** Session 1 – *Innovations in FCA and Implementation of Control Strategies in Floating Offshore Wind:*

• **Javier López-Queija/Research Scientist in the Offshore Renewable Energy department/Tecnalia**

*Simulation framework for control and system design optimisation*

- *Control and system design simulation framework*
- *Control- and system design optimisation-oriented models*
- *Control co-design methodology*

• **Josu Jugo/Assistant Professor in the Electricity and Electronics department/UPV**

*Testing control algorithms oriented to Control Co Design for FOWT*

- *State of the test of different control algorithms, as PID or NMPC*
- *Use of optimisation techniques for CCD of FOWT*
- *Description of Future research direction, testing new control schemes, adapting new sensor information as LIDAR*

• **Adrien Hirvoas/Research Engineer/France Energies Marines**

*Analysis of the Zephyros Floating Wind Turbine Based on a Fully Coupled Model and In-Situ Data*

- *Aero-servo-hydro-elastic model development based on limited data*
- *Calibration and validation of the model*
- *Comparison between simulation results and in-situ data*
- *Development of machine learning approaches*

**11.40 – 12.00** *Coffee Break*



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**12.00 – 13.00** *Session 2 – Advanced methods for Wave Tank Testing proof of concepts*

- **Miren Sanchez Lara/Senior Researcher in Marine Renewable Energy/Tecnalia**

*Challenges around the experimental tank testing of FOWTs*

- *Why tank testing is necessary.*
- *Main challenges:*
  - *Challenge 1: Scaling Issues-Conflict of laws*
  - *Challenge 2: Modelling Issues-Coupled aero-hydrodynamic loads, Mooring system, etc.*
  - *Challenge 3: Experimental Facilities and Calibration Methods.*
- *Conclusions*

- **Raúl Guanche/Civil engineer/ IH Cantabria**

- **Julio Oria Escuredo/R+D+i Technician/CEHIPAR**

*Some physical modeling tools for FOWT testing*

- *Hexapod capabilities and opportunities*
- *Simulation of towing to installation site operations*
- *Forced oscillation / forced excitation tests for hydrodynamic characterization.*
- *Drag tests for current coefficients.*

- **Mareike Leimeister/Research Associate at Fraunhofer Institute for Wind Energy Systems IWES/Fraunhofer IWES**

*Relevance of considering structural flexibility in model tests of FOWT systems*

- *With growing size of wind turbines, the inclusion of flexibility effects becomes more and more important.*
- *It would be challenging to consider aero-elasticity in model tests of FOWT systems.*
- *Simulation-based sensitivity study for assessing if and to which degree structural flexibility needs to be considered.*

**13.00 – 13.30** Case Study – DemoSATH, from numerical models to operational offshore prototype – Saitec Offshore

**13.30 – 13.45** Industry talk

- **José I. Hormaeche**

*Basque Supply Chain capabilities and key projects within Floating Wind*

- *Strengths of the floating wind value chain in the Basque Country.*
- *Floating Wind Basque Country" technological development strategy.*
- *Main pilot and demonstration projects underway.*

**13.45 – 14.00** Closing Speech –Saitec

**14.00 – 15.00** *Networking Lunch*

**15.00 – 18.00** Offshore visit to BIMEP (incl. transits)



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# BIMEP visit

VENUE: Terminal de cruceros de Getxo 3  
TIME: 15:00 PM - 18:00 PM

## DemoSATH project details:

- 1st grid-connected FOWT in Spain
- Turbine: 2 MW wind turbine
- Base of the structure: 30 m. x 64 m.
- Installation: 2 miles off the coast in BIMEP
- Sea deep: 85 m.
- Mooring: Hybrid mooring lines (chains and fibre)
- Commissioning: Q3 2023

**RWE**

 Kansai Electric Power  
power with heart



Green energy

Location:



**saitec**  offshore technologies

**tecnal:a**  
MEMBER OF BASQUE RESEARCH  
& TECHNOLOGY ALLIANCE



# BIMEP visit

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## HarshLab project details:

HarshLab is a unique floating laboratory for testing developments for the offshore industry in a real environment and under controlled conditions.

Equipment, new materials and coating can be evaluated in a wide variety of conditions ranging from atmospheric to seabed.

**Location:**

