



## WELCOME ADDRESS

**Welcome to the MAREWIND Newsletter.  
Ready for the next phase!**

As the first year of the MAREWIND project draws to a close, it's time to look back on where we stand, what we have accomplished and look forward to what's next.

During the first year of the project, **WP1 Definition of requirements** was completed and **WP2 Fabrication and testing elements individually** has drawn on 60%. **WP3 Structural Health Monitoring (SHM) tools and predictive modelling for preventive maintenance of wind energy**, started also its activities during first year of the project (25%).

Moreover, the **first milestone** of the project has been successfully achieved!

During Task 3.4 models have been run and the initial data has been obtained in order to check performance and iterations between input data and output data.



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## PROJECT PROGRESS SO FAR

### DEFINITION OF REQUIREMENTS

During the first four months of the project, exhaustive search, analysis and compilations of relevant information has been performed in order to define key aspects. Concretely, the **technical requirements of the new materials** to be developed, the requirements related to monitoring and modelling, a mapping of relevant standards, the **specifications of the demo sites** and the plan for technology risk mitigation.

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## FABRICATION AND TESTING ELEMENTS INDIVIDUALLY

During the first year of the project, different activities have been handle aiming at the fabrication and testing elements individually.

Lurederra, strongly supported for the coating manufacturer TECNAN, focused on the formulation, application and optimization at lab-scale coating for **anticorrosion on metallic materials** and **antifouling coatings** for metallic and plastic materials. In addition, TWI lead the **anti-erosion superhydrophobic paints** for leading edge protection.

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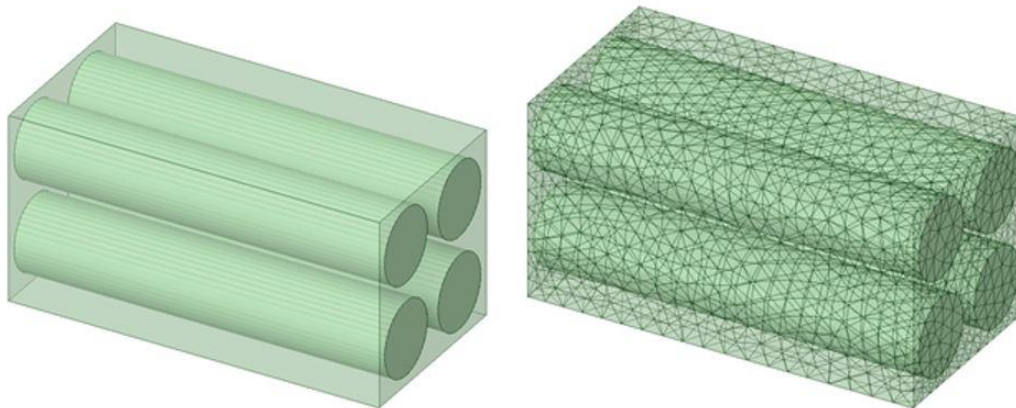
## STRUCTURAL HEALTH MONITORING TOOLS AND PREDICTIVE MODELLING FOR PREVENTIVE MAINTENANCE

Innovative structural health monitoring (SHM) systems for blades and foundation structures of offshore wind farms are being developed.

INEGI is developing a **non-destructive testing system** which will be a mock-up of the final blade SHM system to be implemented in the following work packages. INEGI is also responsible for the development and implementation of **embedded fibre optical (FO) sensors** for representative laboratory composite components, and the development of models to recreate the operational conditions of a Ground Based Structure (GBS).

In addition, RINA has continued the development of a **mathematical model of the composite blade materials** by developing the high-resolution finite element model for composite blades. And IDENER continued the **formulation of a corrosion mathematical model** that considers the protection of the metallic surface with an anticorrosion coating layer.

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## WHAT ELSE TO COME?

### TECHNICAL VALIDATION OF RESULTS LCA, LCCA & SLCA

Work package 6 started in month 13 and it will be carried out until month 48. **LCA, LCC and SLCA** will be performed in parallel and following the same framework and hypothesis in order to provide for each MAREWIND solution and overview of the sustainability of the three pillars – **environment, economic, social**. In addition, since the LCA, LCC and SLCA are iterative assessments and they can contribute to design solutions taking into account environmental, economic and social point of view, all analysis will be run since the early stages of the project.

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### UPCOMING EVENTS

#### **SICT - Surfaces, Interfaces and Coatings Technologies International Conference**

**When:** April 27-29, Barcelona.

**Partner:** INL will present 'Self-healing core-shell nanofibers for corrosion protective coatings' work.

**More information** [here](#).

#### **REOTech 2022 - International Conference on Renewable Energies and Ocean Technologies**

**When:** September 12-14, Porto.

**Partner:** INEGI is involved as participant and promotor of a symposium with the scope of Marewind.

**More information** [here](#).

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## MEET THE CONSORTIUM



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