



O&M Tools Integrating Accurate Structural Health in Offshore Energy

Welcome



Dr. Ainhoa Cortés
WATEREYE Project
Coordinator

Dear reader,

In this newsletter, you will find information about the most relevant activities regarding the expected outcomes of the WATEREYE project. Hence, you will be able to know more about our technical purposes and challenges, which will be essential for the offshore wind industry. We take advantage of this opportunity to speak about the WATEREYE solution that is in its initial stage but with the aim of getting significant results by the end of this year. Last but not least, CEIT will attend Wind Europe 2020 event to show you the capabilities of our corrosion monitoring prototype based on ultrasounds at laboratory scale. Please see all the details inside!!!!

Enjoy!!!



About WATEREYE

The WATEREYE integral solution will allow Wind Farm Operators to accurately predict the need for future operations & maintenance (O&M) to reduce its costs, which can represent up to 30% of the Levelised Cost of Energy (LCOE) (an estimated LCOE of 70€/MWh in 2030), and to increase the annual energy production from offshore wind thanks to an accurate structural health monitoring and control of the Offshore Wind Farms.

For this purpose:

1. WATEREYE aims to develop high-accuracy, fast-response and non-invasive ultrasound smart sensors to detect and estimate corrosion levels by analysing wall thickness, which will be integrated in a high-precision indoor “drone-based mobile platform” inspection system capable of monitoring the entire critical area.
2. Design a robust wireless communication system and a custom protocol that will prevent data losses or corruption even in harsh environment.
3. Collect, store, and provide efficient access layers for the wind turbine data in order to ensure optimal understanding of structural health.
4. Develop accurate mathematical corrosion models for offshore wind turbines structures to characterize the corrosion phenomena in the wind turbine tower.
5. Develop condition-based maintenance tools for fault diagnosis; corrosion prognosis algorithms; decision support to define predictive O&M; and fault tolerant control of offshore wind structures.
6. Develop control algorithms for adaptive O&M strategies of individual wind turbine and the overall plant. The WATEREYE monitoring system will determine the condition of the structures. This information, together with O&M tasks, will minimise the need for human inspection, vessel transfer and optimising onshore logistics.

Visit us at www.watereye-project.eu to extend this information

Download [here](#) our leaflet to get more details about WATEREYE concept and methodology



Meet the WATEREYE Team



*Click on logos to access the partner's webpage



Follow us and share it



We would like to encourage you to follow us on our [website](#), [Twitter](#) or [LinkedIn](#) as well as to tag @watereyeproject in your tweets to circulate news, publications or events on our Twitter feed. In the same way, we encourage you to use @WATEREYE PROJECT in your LinkedIn public actions regarded to WATEREYE.

WATEREYE News

Kick Off Meeting – Brussels 18th November 2019

Brussels was selected to host the first project meeting for launching this three-year project funded by the Horizon 2020 research and innovation programme of the European Commission.

More than 15 researchers representing all the 9 partners of the Consortium gathered in this “Kick off Meeting” to draw up the project and to establish the major lines of action for the following three years of research.



First Engineering Workshop – Gran Canaria 3rd and 4th February 2020

The WATEREYE solution will be integrated and validated in real sea conditions using the offshore test-bench facilities of PLOCAN in Gran Canaria.

During these two days, developers, and the rest of the WATEREYE partners had the opportunity to get a first-hand look of the scenario where WATEREYE will be integrated and validated in a relevant environment.

This project meeting also served to study the progress of the project as well as partners’ needs and interactions between them.



Riviera Maritime Media Magazine published an interview with our Project Coordinator Dr. Ainhoa Cortés

The interview was published on the [Riviera website](#) on the 14th of May 2020 and offering an overall view of the project

Dr. Cortés explained how the WATEREYE Consortium offers a holistic approach through their partners’ expertise and she introduced the main objectives of the project and the



innovations which will be made available to the Offshore Wind Sector.

Full text available [HERE](#)



WaterEye will use drones developed by Delft Dynamics (photo: Delft Dynamics)

Smart corrosion concept will monitor wind turbines remotely

14 May 2020 by David Foxwell

Partners from five countries plan to use low cost ultrasound sensors, drones, wireless communications and a sophisticated control system to monitor the structural integrity of offshore wind turbines

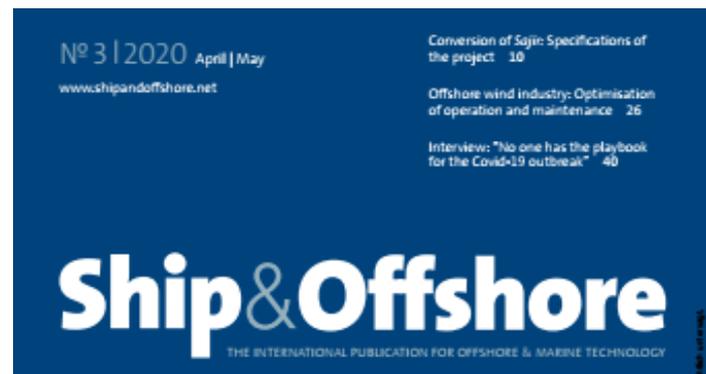


Ship&Offshore magazine 3/2020 highlighted WATEREYE project as a promising initiative to drive down offshore wind cost

An estimated LCOE of 70 €/MWh in 2030, this is the horizon of the WATEREYE project, which would be a considerable reduction of the actual LCOE, up to 30%.

The article is focused on those solutions which aims to face one of the major contribution to the cost of an offshore wind turbine, namely the operation and maintenance (O&M) costs.

Full text available [HERE](#)





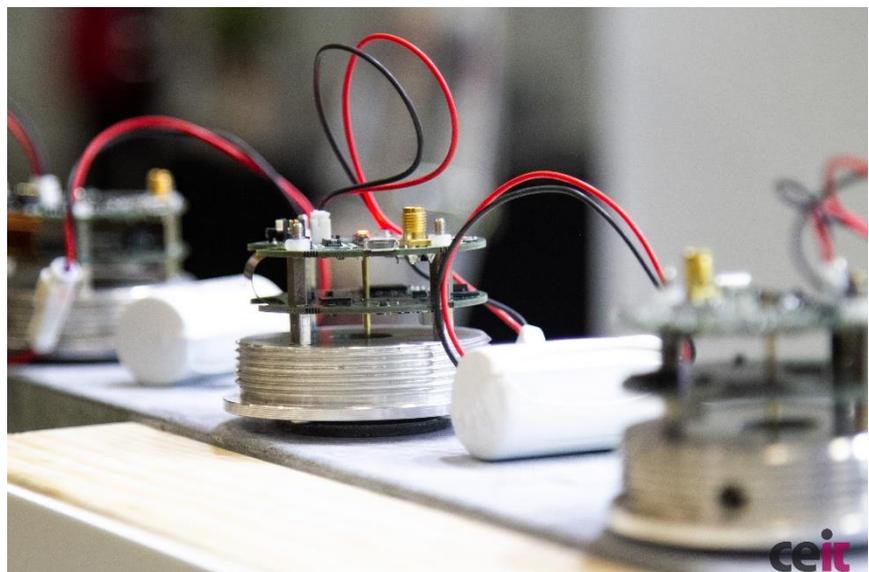
Events

Wind Energy Hamburg - 1-4 December 2020



Wind Energy Hamburg, the global on & offshore wind event, has been finally postponed to 1-4 December 2020 in response to the Covid-19 pandemic. Wind Energy Hamburg combines a high-level conference, where the main topic is related to the challenges and opportunities arising from the transition to a climate neutral economy, with an expo area.

CEIT will take part at this event with a stand, as part of a delegation organized by the [Basque Energy Cluster](#). Save the dates and visit our representatives, who will show how smart sensors are capable to estimate the corrosion level based on the thickness change and how measurements are managed remotely.



More info about the event [HERE](#) 

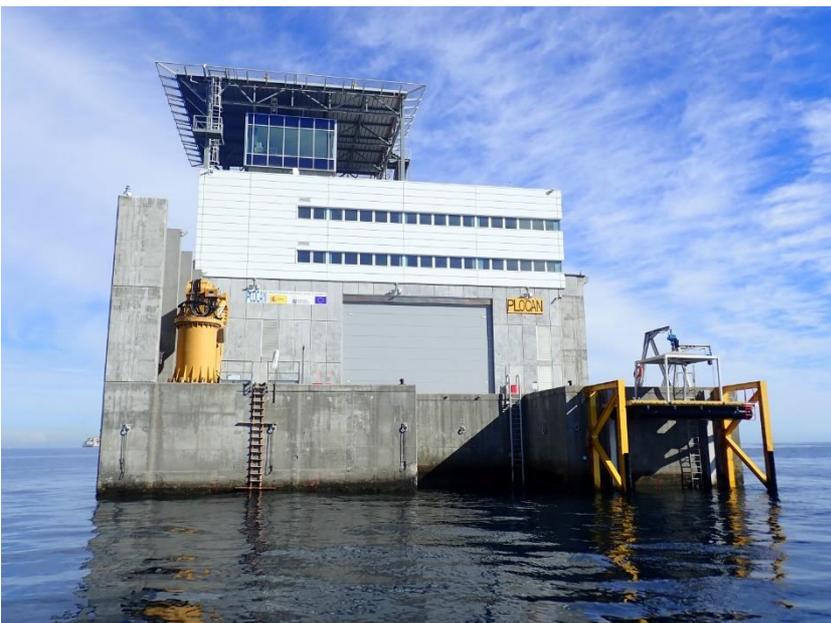


Partner's corner

PLOCAN, catalysing change for the global energy system through the ocean

PLOCAN's mission is to provide a cost-effective combination of services, including housing, operations, data, and access to the offshore multi-use platform, observatories, and test site facilities, that meets the upcoming scientific challenges of the oceans and socioeconomic needs.

The vision is to become a world-class infrastructure contributing to the improvement of marine conservation and the sustainable use of the ocean by offering great value services and attracting excellent science and technology users at national and international level, responding to the R&D&I challenges of the marine and maritime sector, and contribute significantly to underpinning Spain and the EU at the forefront of this sector.



The vision remains with a distinctive and practical approach, to promote the better use and management of the ocean, accelerating the generation of science of excellence and its conversion into social and economic value.

PLOCAN has extensive experience in the fields of Ocean and Wind Energy research and development activities. Among others, PLOCAN contributes with the hosting of equipment, devices and marine technologies, for testing, validation and demonstration activities in its marine test site, whose accessibility is practically

assured throughout the year due to the favourable weather conditions.

The WATEREYE project represents a unique opportunity to offer the offshore testing facilities to the developers to validate their innovations in a relevant environment. Those innovations and the WATEREYE solution as a whole will face one of the most relevant open issues in the offshore energy sector, the high costs of the operation and maintenance tasks due to the difficult accessibility to the wind turbines and the environmental conditions. This will be done ensuring a sustainable use of the ocean's resources, thus aligning with the PLOCAN's vision.