

Maintenance drones and robots to enhance renewable energy systems in the Atlantic Area



DURABLE ID

Title

DURABLE - maintenance drones and robots to enhance renewable energy systems in the Atlantic area

Program

Interreg Atlantic Area

Duration

April 2019- March 2022

Main objective

To apply disruptive aerospace, robotic, non-destructive inspection and additive manufacturing technologies to evolve towards a better development in the operation and maintenance (O&M) of wind and solar energy parks.

Partner countries

France, Ireland, United Kingdom, Portugal, Spain

UPCOMING EVENTS

- 2nd, 8th & 22nd of April – Webinar: Introduction to Robotic & Aeronautic Technologies for Solar & Wind O&M + Online B2B meetings with partners..
- 22nd–25th September 2020 – Participation in Wind Energy Hamburg



EDITORIAL

Dear readers,

We are pleased to present you the first issue of DURABLE Newsletter from April 2020. Within this document you will receive the latest information about the Interreg project DURABLE and the development of its tasks. Further, we will keep you up to date about the project partners' activities and initiatives related to DURABLE and we will provide you with short summaries of the latest project events. At the end of the Newsletter, we offer you a short overview on upcoming events and initiatives related to the DURABLE topics.

We want to raise that DURABLE has already enter the "mapping" phase, where a roadmap of the technologies and the needs of the project is being made in order to identify, adapt and implement new prototypes

in pilot tests. Three webinars with stakeholders will be carried out in order to identify the solutions to be developed within the project.

For more information and news about DURABLE project, please visit our website: www.durableproject.eu

We hope you will enjoy reading this first issue of DURABLE Newsletter.

Your feedback and comments are always welcome!

Yours sincerely,
The consortium



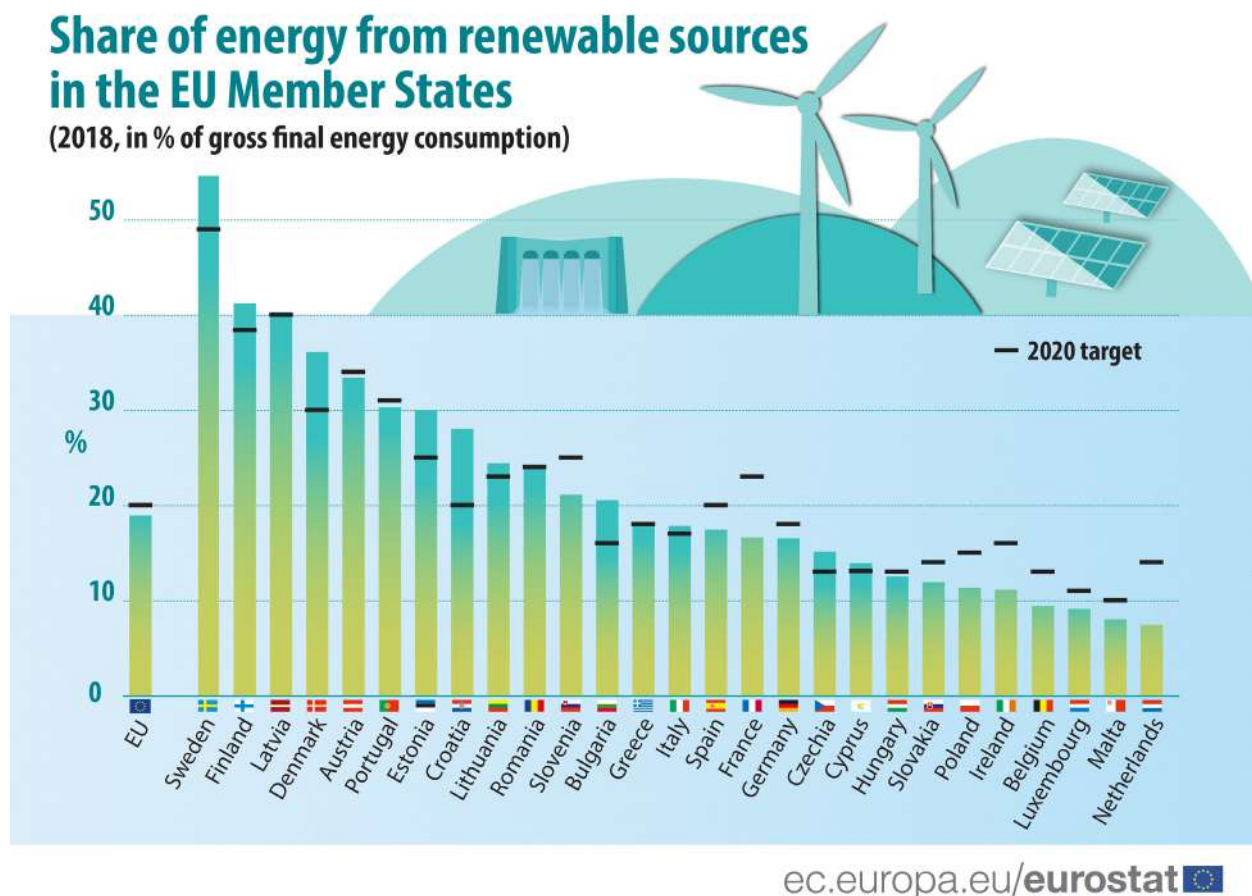
PROJECT PRESENTATION

MOTIVATION

In 2018, the share of energy from renewable sources in gross final energy consumption reached 18.0% in the European Union (EU), up from 17.5% in 2017 and more than double the share in 2004 (8.5%), the first year for which the data are available.

The increase in the share of renewables is essential to reach the EU climate and energy goals. The EU's target is to reach at least 32% of its energy from renewable sources by 2030.

We have to make more effort to reach the 2030 goals and the countries of the Atlantic zone are still behind:



The goal of DURABLE is to accelerate the performance of renewable energies through the validation and demonstration of aerospace technologies applied in robotics for operation and maintenance activities of wind and solar energy systems. The application of this technology will automate inspection and repair tasks, reducing costs and favouring production.

- Aerospace and robotic technologies together with composites and additive manufacturing are developing technologies that may help to produce full innovative solutions for more cost-efficient energy production.
- One of the main barriers for the acceleration of deployment of renewable energies is related to the costs of Operation & Maintenance activities, which are estimated to be around 20-25% of the Levelized Cost of Energy (LCoE).

DURABLE seeks to transfer previous developed aerospace technologies applied in robotics for operation and maintenance activities in wind and solar energy systems.



PROJECT PRESENTATION

DURABLE will identify technologies with potential application to O&M of solar PV and wind energy, adapt them both to navigation & surveillance and maintenance & repair purposes, to finally implement them in two pilot sites for their validation.



- Approaches for control and surveillance such as non-destructive testing (NDT) by robots (UAVs or UGVs), contact inspection (ultrasonic, thermographic), autonomous and intelligent navigation will be applied.



- Manufacturing technologies to enhance maintenance from the aerospace and manufacturing areas (water jet reparation, additive manufacturing, predictive algorithms, virtual and augmented reality).

The project will design pilot operations accounting for the final technologies used and tested and the characteristics of the host wind/solar installations.



DISSEMINATION MATERIAL

- DURABLE dissemination material available on the website: www.durableproject.eu
- Webpage and a twitter account (twitter.com/DURABLEPROJECT),
- VIDEOS**, **BROCHURES** and a **ROLL-UP** have been created so far.



PROJECT NEWS

11th April 2019 | BIDART: DURABLE, a European Interreg Atlantic Area project that will promote the development of renewable energy in the Atlantic region has been officially launched

The project, coordinated by ESTIA, started on the 11th of April 2019. For 3 years, 13 partners will cooperate to identify and gather the most suitable technologies for the improvement of the production of solar and wind energy, adapting them to tasks that reduce operational and maintenance costs.



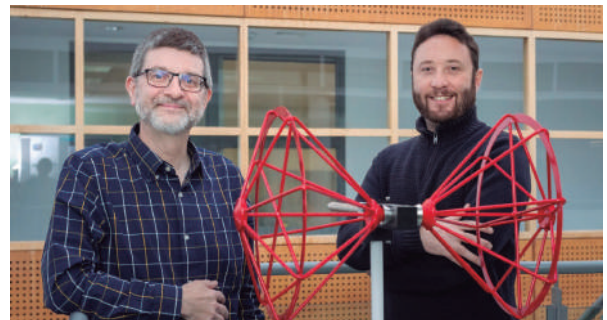
16th October 2019 | ORDIZIA: First progress meeting

After few months of initial project work, First progress meeting of DURABLE was held from the 16th to the 17th of October at LORTEK premises in Ordizia (Spain). Representatives of 11 project partners participated in the plenary meeting, which took two full days and gave rise to fruitful discussions for the development of the project. LORTEK was an excellent host, organising a site visit to its premises to better understand their daily labours and their contribution to the project.



13th February 2020 | Article about DCU published by Irish Tech News

"DCU research aims to solve challenges in the operation and maintenance of wind and solar energy parks" is the header of the article published in Irish Tech News (an award-winning online publication in Ireland) which gives an overview of the project objectives and the role of DCU.



26th-28th November, 2019 | COPENHAGE: Offshore Wind Europe

DURABLE project raises interest at the Wind Europe offshore, being exposed in the booth E-D30 in the Basque Country pavilion.



5th-6th March 2020 | Seville (Spain): second progress meeting

All partners met again for collaborative planning and tasks updating. Progress on selection of robotic and aerospace technologies as well as technical sessions to discuss adaptation of these technologies for maintenance and repair were the main tasks of the meeting.



This Project is co-financed by the Interreg Atlantic Area Programme through the European Regional Development Fund under grant agreement EAPA_986/2018

CONTACT

ESTIA institute of technology
Patxi Berard (Project Coordinator)
Email: p.berard@estia.fr

UPCOMING EVENTS

2nd, 8th, 22nd April 2020 | Webinars with Stakeholders

Three webinars with stakeholders will be carried out to identify the most suitable robotic and aerospace technologies with application to O&M in solar and on/offshore wind energy production. The identified solutions will be developed in the short-term, therefore this stage is the basis for the correct development of the next steps of the project.

22nd–25th September 2020 | Hamburg: WIND ENERGY EUROPE

The 3rd progress meeting of DURABLE will take place within the Wind Energy Hamburg event, the global gathering of the wind industry. For the first time, it presents a revised conference concept with a more focused high-level programme and a new part open for all visitors under the theme #climatefirst: there will be three stages set-up for keynotes and panel discussions featuring international experts in the middle of the exhibition halls.

The DURABLE meeting will serve as an opportunity to get an overview of the progress so far and to plan further steps and tasks of the project. Additionally, in the Basque Energy Cluster stand, the project will be visible in the wall and through the roll-up, the video will be continuously displayed and brochures will be distributed to anyone that raises interest in the project.



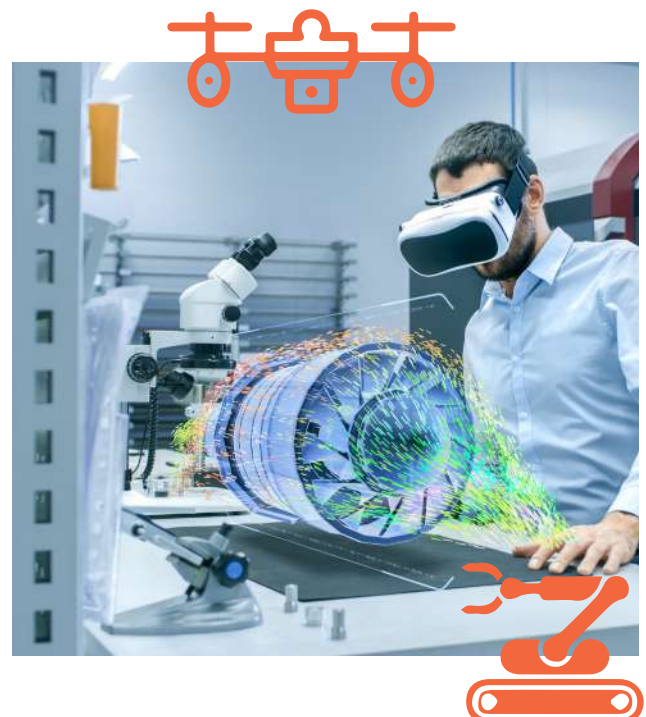
Check these and more DURABLE stories in

www.durableproject.eu



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PROJECT PARTNERS

- o ESTIA
- o ALERION
- o BEC
- o CTA
- o DCU
- o EDP
- o FADA-CATEC
- o INGTEAM
- o IST
- o LORTEK
- o US
- o UWE Bristol
- o VALEMO



INTRODUCTION TO PARTNERS

ESTIA

ESTIA has been providing education and training for 20 years in the area of industrial technologies and is the coordinator of DURABLE. It will participate in the adaptation of technologies for navigation and surveillance, by leading a task focused on defining a virtual and augmented reality cockpit to control a UAV or a robot; and it will lead the activity related to adaptation of technologies for maintenance and repair.

ALERION

Alerion comprises engineers with research and industry experience in developing high performance drones for extreme environments, in high-performance computational software and in computer vision. In DURABLE, Alerion will participate in the adaptation of technologies for maintenance repair and in the demo cases, since its UAVs will be used in the case studies.

BEC

The Basque Energy Cluster leads companies of the Basque energy sector, R&D organisations and public administration bodies involved in the energy field, with a special focus on solar and wind energy. In this project, it will be responsible for the implementation of the project's Communication Strategy, designed to make the best use of the project's results by assuring that its outputs are available to and used by the target audience.

CTA

Technological Corporation of Andalusia is focused on aerospace-productive processes and energy-environment industrial sectors, among other ones. CTA will participate in DURABLE by creating a joint mapping of technologies and expected needs for operation and maintenance in solar and wind energy production. The aim is to identify and match necessities and the most innovative solutions available for sectorial transfer in this area.

DCU

Dublin City University has experience in testing the feasibility of the use of Radio Emission Spectroscopy techniques combined with radio uplinks to drones. It has initial trials on commercial off-the-shelf units to be followed by custom design and build of low-power consumption systems. In DURABLE, DCU will participate in the adaptation of technologies for navigation and surveillance.

PROJECT PRESENTATION

EDP

EDP has transformed from Portugal's incumbent electricity company to a major multinational energy company (electricity and gas). Currently is the world's fourth largest wind energy operator. In DURABLE, EDP will perform project management activities and contribute to the definition of the future needs in O&M in wind and solar plants. It will provide access to a PV plant facility and revise the conclusions from the field tests, contributing to the implementation of novel O&M solutions.

FADA - CATEC

Center for Advanced Aerospace Technologies has a large experience developing technological solutions and applications with UAS and aerial robotics, together with high expertise in NDT for inspection in multiple sectors. In DURABLE, FADA-CATEC will lead tasks devoted to the adaptation of technologies for navigation and surveillance solutions to be implemented in operations and maintenance inspections, among other responsibilities.

INGETEAM

Ingeteam manages O&M projects in 15 GW mainly in onshore and offshore wind farms and photovoltaic solar plants all over the world, employing more than 1.400 professionals. In DURABLE project, the Service Division of Ingeteam will work in several aspects of the project offering the partners their extensive experience.

IST

The Instituto Superior Técnico, as part of the University of Lisbon, is the largest and most reputed school of engineering R&T in Portugal. In DURABLE, IST will contribute on navigation and task planning for autonomous ground robots, as well as on cooperative systems, including fleets of heterogeneous unmanned vehicles. Active participant on transfer to commercial applications surveillance, inspection and cleaning of wind and solar farm plants.

LORTEK

Lortek is a research center highly specialized in metal additive manufacturing processes through SLM, LMD and WAAM technologies. LORTEK is also an expert in non-destructive testing (NDT) techniques based on thermography and acoustics to verify the integrity of the products and processes. It will participate in the study of the implementation of metal additive manufacturing, as well as the adaptation of technologies for surveillance.

US

The research team at the University of Seville has long experience in research projects related to aerial robotics, and it shows a great expertise in drone technology, including inspection and maintenance applications. Even if it is mainly focused in the PV Plant inspections, it also offers expertise in safe navigation and compliant aerial manipulators in contact inspection of wind turbines. In this project, US will participate in the aerial drone applications for inspection tasks.

UWE Bristol

Bristol Robotics Laboratory is the most comprehensive academic centre for multi-disciplinary robotics research in the UK. It is a collaborative partnership between the University of the West of England and the University of Bristol. UWE Bristol will participate in the aerial drone applications for inspection tasks. Their main role will concern the design, construction and deployment of bespoke UAV airframes and associated avionics and ground support equipment.

VALEMO

VALEMO, a wind farm operator and service provider in the frame of renewable energy generation, manages a portfolio of over 1000 MW of wind, photovoltaic and hydropower. In DURABLE, this partner will participate by creating a joint mapping of technologies and expected needs for O&M in solar and wind energy production with a more specific focus on wind farms. VALEMO will also participate leading the evaluation of solutions on pilot sites.

We hope that you enjoyed the DURABLE Newsletter and already look forward to the next editions.

Sincerely,

The DURABLE consortium



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