CERIS : Civil Engineering Research and Innovation for Sustainability

HY4RES – Hybrid solutions for Renewable Energy Systems: achieving net-zero Atlantic area energy consumers & communities

Summary

HY4RES will develop new renewable energy technology and data management systems using sensors to enable a transition towards net-zero energy consumers and communities in the Atlantic Area (Figure1). The project tackles the joint challenge of increasing the penetration of renewable energy across the regions using innovative storage and management solutions. HY4RES will achieve this by advancing hybrid renewable energy systems, which balance the variable output of wind, solar and hydropower with energy storage.

The project will include low-cost and sustainable power systems. It will also include the development of an intelligent renewable energy management software combining low-cost sensors, analysis of big data, and artificial intelligence (AI) techniques, to improve management, forecasting and interoperability of differing renewable energies in a hybrid system. HY4RES will benefit domestic energy communities and industrial self-consumers such as the agriculture, aquaculture and ports sectors.

The overall objective is to increase the penetration of renewable energy in the Atlantic Area (AA) through development and demonstration of hybrid renewable energy systems that enable low-cost sustainable energy storage, and the balancing of the variable availability of wind, solar and hydropower (Figure 2). The project contributes to programme specific objective ROS2.1 by promoting energy efficiency and reducing greenhouse gas emissions from community energy, agriculture, aquaculture and port sectors.

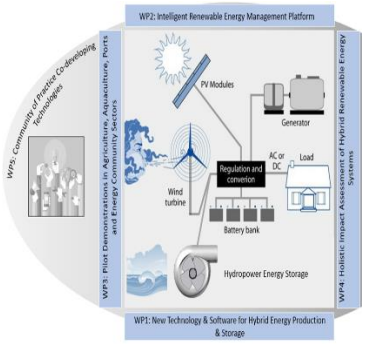

Figure 1. WPs of HY4RES.

Figure 2. Pilot demonstrations in the water sector.

Project Reference

EAPA_0001/2022

Leading Institution

Trinity College Dublin (Ireland)

Partners

Easy Hydro Ltd (Ireland), Universidad de Córdoba (Spain), Asociación Feragua de Comunidades de Regantes de Andalucía (Spain), IST – Instituto Superior Técnico (Portugal), Universidad de Oviedo (Spain), Association des Chambres d'Agriculture de l'Arc Atantique (France), Vertigo Lab (France), Ignac Gazur, Unipessoal, Lda. (Portugal), Comunidad de Regantes del Valle Inferior del Guadalquivir (Spain), Irish Fish Producers Organisation (Ireland), Autoridad Portuaria de Avilés (Spain), Munícipio de Castanheira de Pera (Portugal)

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EU Interreg Atlantic Area

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3 200 498.90€

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281 625.00€

Project Website

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