EU project, iAMP-Hydro, will improve EU hydropower sustainability with potential to save €1 billion per year

National University of Science and Technology POLITEHNICA Bucharest, together with nine partners from across Europe is conducting a €4.1 million Horizon Europe project to develop digital solutions that improve the efficiency, flexibility and sustainability of the existing EU hydropower fleet. The project has the potential to make a huge impact on energy sustainability in the EU, where 50% of the current hydro fleet may require upgrading by 2030 and *will reduce CO_2 emissions by 1,260 tonnes, create 10,000 future-proof jobs, and enable environmentally sustainable flow regulation using digital solutions.*

The project – iAMP-Hydro, Intelligent asset Management Platform for Hydropower operation & maintenance, is coordinated by Professor Aonghus McNabola from School of Engineering, Trinity College Dublin, Ireland, and the project partnership includes also Easy Hydro Ltd, Ireland; Cuerva Energia, Spain; Suite 5 Data Intelligence Solutions Ltd, Cyprus; CARTIF, Spain; PPC, Greece; PPC Renewables, Greece; WIP, Germany, Norce, Norway; and National University of Science and Technology POLITEHNICA Bucharest, Romania.

The research team from National University of Science and Technology POLITEHNICA Bucharest, Faculty of Energy Engineering, Department of Hydraulics, Hydraulic Machinery and Environmental Engineering, is led by professor Bogdan Popa and includes the following members: Associated professors Liana Ioana Vuta and Gabriela Elena Dumitran and the lectors Angela Neagoe and Eliza Isabela Tica.

Researchers from National University of Science and Technology POLITEHNICA Bucharest, along with their partners, will improve the digital operation of existing plants through the development of new digital sensors and services which will collectively form iAMP – a novel intelligent Asset Management Platform encompassing secure open and transparent data-sharing protocols and three novel digital solutions. These include condition monitoring and predictive maintenance for hydropower turbines; ecological status monitoring for sustainable water resources management; and improved weather and flow forecasting.

The project will increase the technology competitiveness of existing hydropower by reducing operation and maintenance costs by 5-10%, improving generation and revenues, and increasing flexibility and data-driven decision making in hydropower operations. It will also increase the market penetration of renewables in the grid by 8.4 TWh – helping us get closer to the EU 2030 Climate and Energy targets.

Current estimations show that the digitalisation of the world's 1,225 GW of existing hydro could increase annual production by 42 TWh, which amounts to $5 billion US in annual operational savings and significant reductions of greenhouse gas emissions.

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