PROJECT

SHERPA

NEW SOLUTIONS FOR HYDROPOWER PLANTS TO ENHANCE OPERATIONAL RANGE, PERFORMANCE AND IMPROVE ENVIRONMENTAL IMPACT

SHERPA aims to develop and validate innovative technologies for refurbishing current HPPs. The project will expand and/or adapt the operational range of the HPP to include lower flows, without this harming their lifetime, economic viability, and environmental and social impact.

This project has received funding from the European Union's Horizon Europe under Grant Agreement Nº101172849.

7	4	€3.8M	42
PARTNERS	COUNTRIES	TOTAL BUDGET	MONTHS

SHERPA

IN ONE CLICK

Coordinator	Programme	Period
IBERDROLA GENERACIÓN S.A.	HORIZON RIA	2024-2028
	Sector	**Web**
	HYDROPOWER	https://sherpahydro.eu/

01 Challenge

Hydropower is crucial for clean energy, but hydraulic turbines often face efficiency and damage issues due to fluctuating demands and environmental flow constraints. Operating outside their optimal range increases maintenance costs and risks component damage. SHERPA addresses these challenges by focusing on improving turbine performance, durability, and water quality, while also positively impacting biodiversity through advanced design, modeling, and sensor tools to optimize operations across various flow conditions.

02 Solution

SHERPA aims to develop technologies to refurbish hydropower plants, including: 1) AM metallic patches for damage reduction, 2) adaptive rotational speed strategies, 3) air injection systems for improved water quality, and 4) new runner designs for E-flows. Through modeling, simulation, and monitoring, SHERPA will assess these solutions for energy output, flexibility, cost-effectiveness, and biodiversity impact, aiming to expand operational capacity without compromising plant lifespan, economic viability, or environmental and social impact.

03 Impacts

The project results will stive to maintain the availability of the existing hydropower fleet as a flexible power supplier in future markets, boost Europe's leadership and competitiveness in hydropower technology, reduce costs while improving the efficiency of refurbished installations, and enhance sustainability by balancing circular economy, social, economic, and environmental factors. This aligns with the European Green Deal priorities, addressing energy, climate targets, and biodiversity concerns.