

WORK PACKAGES

WP1	Project coordination and management Planning, follow-up and progress monitoring; project and data management, and Gender Action Plan. LEADER: UPC
WP2	Techno-economic, regulatory, environmental, and social requirements for new pumped storage plants (PSP) equipment and tools Definition of common techno-economic, regulatory, environmental, and social requirements and business use cases for the demonstrators. LEADER: EDPN
WP3	Advanced monitoring solutions and cyber-physical platform for advanced decision support (CADS) Operational and simulation tools for control and maintenance through virtual sensors and a CADS with virtual models. LEADER: UPC
WP4	Innovative control and operational management of PSPs Real-time controllers to minimise component wear and tear and algorithms to optimise energy management. LEADER: HES-SO
WP5	Improved equipment for harsh operating fluids and saltwater environments Development and testing of specialised anticorrosion and antifouling coatings and tools. LEADER: SENER
WP6	Demonstration of innovative pumped storage equipment and digital tools linking the mechanical storage with innovative storage management systems Practical demonstration in real use cases, monitoring processes and data analysis. LEADER: EDF
WP7	Integrated sustainability Sustainability assessment of the sustainability of each demonstrator including environmental, economic, and social aspects. LEADER: UT
WP8	Market uptake and post-project exploitation roadmap Development of an exploitation plan, including marketing and the definition of future scenarios, and a post-project exploitation roadmap. LEADER: VGBE
WP9	Stakeholder engagement, dissemination and communication Design and implementation of a comprehensive strategy for the stakeholder engagement. Implementation of dissemination and communication strategies. LEADER: ZABALA

PARTNERS

The STOR-HY multidisciplinary consortium brings together 18 partners from 8 European countries, including some of the leading companies and research institutes in the European hydropower sector. The project is coordinated by the Universitat Politècnica de Catalunya.

 UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH	 GE VERNOVA		
			
			
			
			

STOR-HY

Stay in touch!
storhy.eu
 

 **Funded by the European Union**

Funded by the European Union under Grant Agreement No. 101172905. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the CINEA can be held responsible for them.



STOR-HY

Innovative storage technology and operations in hydropower

PROJECT

STOR-HY aims to reduce the capital (CAPEX) and operational (OPEX) expenditures of innovative pumped storage projects by increasing the durability and recyclability of pumped storage plant (PSP) components, while minimising environmental impacts throughout the life cycle and increasing social acceptance.

By detecting early signs of failure, STOR-HY will reduce unnecessary maintenance and increase system reliability. Using advanced digital tools, the project improves operational efficiency, supporting a more resilient EU energy grid.

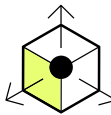
GOALS



The project focuses on **optimising plant availability**, increasing storage potential, peak shaving, fast response regulation, and ancillary services for grid resilience.



The strategic use of **digital operational management tools** is used to improve the efficiency, reliability, and availability of pumped storage plants.



A cyber-physical platform for **advanced decision support** enables realistic estimation of the degradation of critical components.



This information supports **informed decision-making** in PSP operation and assists in the design of innovative control strategies for challenging conditions.

CONTEXT

Pumped storage hydropower is a key contributor to **grid stability** due to its **high round trip efficiency and flexibility**. It dominates the mechanical energy storage market, accounting for over 95% of its total share. However, the growth of unpredictable renewable energy sources requires increased regulation to balance intermittent generation.

This increased demand places a strain on the mechanical components, which must withstand an increased number of start-stop cycles and rapid transitions from power generation to storage. This can result in increased operating costs, accelerated deterioration, and damage to critical PSP equipment.

NUMBERS

Months	Countries
48	8
Partners	Budget in M€
18	7.9

DEMONSTRATORS

