RevHydro

Revolutionary refurbishment for an efficient and eco-friendly hydropower

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Horizon Europe, REVHYDRO

European-funded project committed to revolutionise hydropower refurbishment by developing innovative equipment for increased efficiency and resilience at low cost.

RevHYDRO is dedicated to advancing sustainable hydropower technologies and contributing to the modernization of energy production in Europe.

AI synergy!

European Commission

REVHYDRO

Work Package 1: Runner Flow Control

Description: Develops high-fidelity models and control systems to extend turbine operation and reduce fatigue on the Francis turbine runner.

Objectives: Develop a numerical model to quantify runner fatigue and validate a Runner Flow Control (RFC) system to extend turbine lifespan.

Leading Partner: GE HYDRO FRANCE

Work Package 2: Draft Tube Flow Control

Description: Designs and implements a flow control system in the draft tube to stabilize pressure pulsations and improve turbine performance.

Objectives: Develop a reduced-order model for fatigue quantification, design a Draft Tube Flow Control (DFC) system, and validate through testing to reduce runner fatigue.

Leading Partner: LULEA TEKNISKA UNIVERSITET

Work Package 3: Intelligent Fish Barrier

Description: Develops an intelligent fish barrier (I-Fish) to minimize impact on aquatic life by redirecting fish safely away from turbines.

Objectives: Create and validate an experimental setup for I-Fish testing, develop behavior-based deterrents, and assess fish welfare in the presence of the barrier.

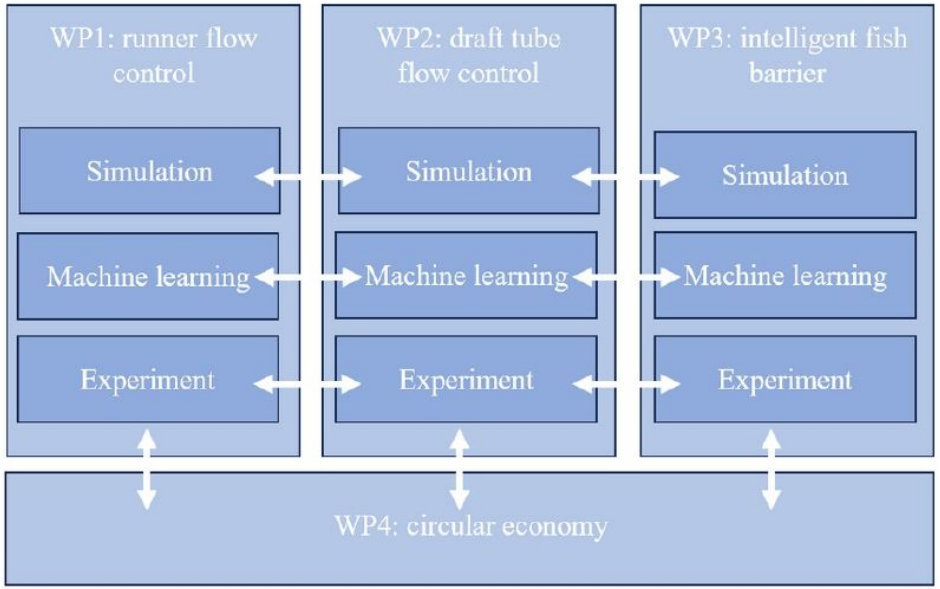
Leading Partner: INSTITUTULUI NATIONAL DE CERCETARE DEZVOLTARE PENTRU INGINERIE ELECTRICA

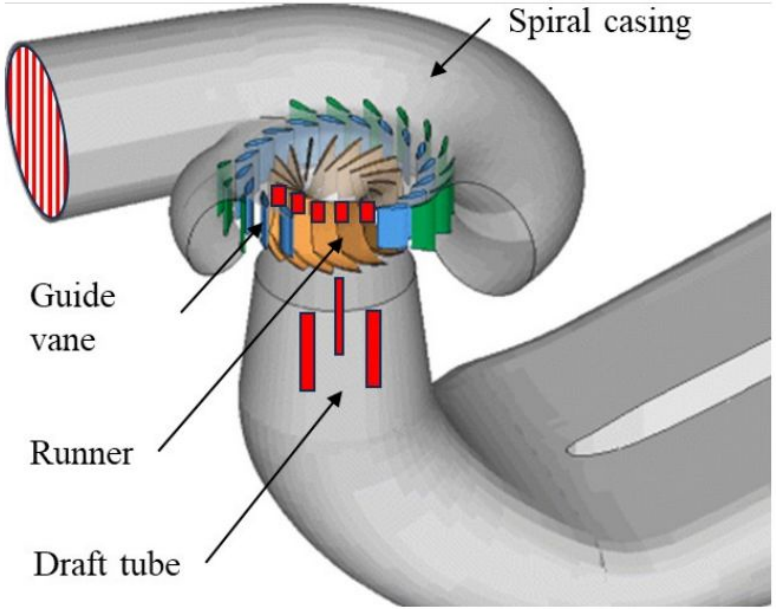
Work Package 4: Circular Economy

Description: Establishes sustainable refurbishment methods for hydropower equipment, integrating life cycle analysis and innovative materials.

Objectives: Develop refurbishment methods, conduct LCA/LCI/LCC studies, and implement circular models to enhance sustainability.

Leading Partner: INSTITUTE OF RESEARCH IN CIRCULAR ECONOMY AND ENVIRONMENT “ERNEST LUPAN”


WP1: runner flow control
WP2: draft tube flow control
WP3: intelligent fish barrier
Simulation
Simulation
Simulation
Machine learning
Machine learning
Machine learning
Experiment
Experiment
Experiment
WP4: circular economy


Spiral casing
Guide vane
Runner
Draft tube

ai forum UTCN

Thank you for your time.
We are open to research collaborations!

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