

CASE STUDIES

TORTOSA

A pressure reducing valve will be replaced by a microgeneration system. A participatory process will be carried out in schools to decide on the use of the energy generated. At the location where the turbine will be installed, it will be possible to generate enough electricity to power, e.g., an ornamental fountain and its LED lighting and a source of filtered and refrigerated drinking water fountains.

SCANSANO

A pressure maintenance control valve will be replaced by a turbine located in a rural area surrounded by country estates, farms and wineries. The energy generated by this turbine will be used to consolidate an energy community that will power rural establishments and agrotourism businesses in the surrounding area.

VALÈNCIA

The energy produced will improve the city's public services, providing filtered and refrigerated water fountains and charging stations for electronic devices. In addition, there will be points where the energy will be used for self-consumption from the supply network.

VALÈNCIA MET. AREA

The Valencia Metropolitan Area is composed by 48 municipalities. Near the Valencia International Trade Fair, there's an opportunity to generate enough energy to install electric vehicle charging points, catering to the high-demand trade fair visitors.

Total budget: 2.518.001 €
Co-funding: 1.510.799 €
Start date: 01/10/2023
End date: 31/03/2027

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EMPOWERING SMART RENEWABLE CITIES THROUGH HYDROPOWER TECHNOLOGY IN URBAN DRINKING WATER SUPPLY SYSTEMS

LIFE22-CCM-ES-LIFE TURBINES/101113749



Co-funded by
the European Union





LIFE is the European Union's funding programme for the environment and climate action. It is the only programme under the 2021-2027 multi-annual financial framework fully dedicated to environmental and climate action, including sustainable energy. LIFE is a cornerstone in the EU environmental and climate policies and legislation.

FIGURES



Global Energy and Climate Impact, 80% of global energy comes from fossil fuels, with EU accounting for 10% of GHG emissions.



One of the most energy-intensive activities in a city is the water cycle. However, water supply and distribution are basic services that should be provided on a compulsory basis to the entire population, as it is a universal right.



The energy consumption of water distribution systems represents 7% of the world's total energy consumption.



Directive (EU) 2018/2001 promotes renewable energy use, targeting energy efficiency and Green Deal goals by 2050.



Significant improvement in energy efficiency in the EU; renewable energy usage increased from 9,6% in 2004 to 21,8% in 2021.



Despite increasing awareness, renewable energy still faces political and administrative hurdles, accounting for 38% of Europe's energy consumption.



The Smart City concept focuses on integrating energy efficiency with holistic urban development, encompassing smart economy, governance, mobility, people living and environment.

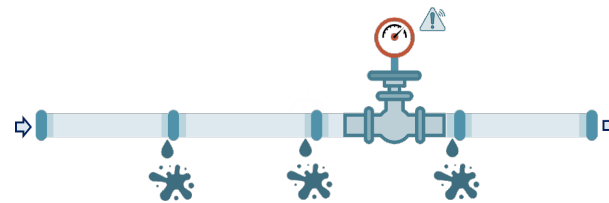


LIFE TURBINES innovates in integrating water and energy management, harnessing urban water supply networks for renewable energy, contributing to decarbonisation and sustainable urban development.

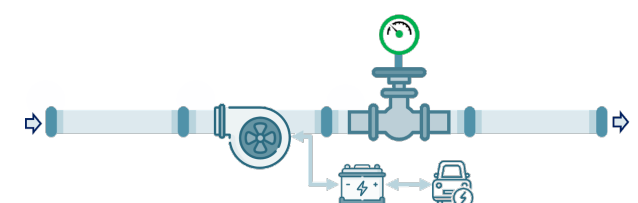
THE APPROACH

An innovative and effective tool for supporting the selection and exploitation of hydropower technologies (mini-turbines) in drinking water supply networks will be developed. Such a tool will be designed to support the managers or promoters of these technologies in both the selection of the most suitable commercial hydroelectric power system to install and in the definition of the most profitable exploitation model.

CURRENT SITUATION



PROPOSED SOLUTION



MAIN OBJECTIVE

The main objective of the project is to contribute to the decarbonisation of drinking water supplies, benefiting society by offering energy and drinking water services to all citizens through the implementation of an energy recovery system in the urban drinking water supply network through the use of turbine systems.

SPECIFIC OBJECTIVES



Maximise energy efficiency of drinking water supply networks.



Sustainable consumption, clean mobility and reduce emissions.



Free services, support energy communities and combat energy poverty.



Digital tools for turbine and PAT selection in water supply networks.

KEY FIGURES

Total energy: 995.486 kWh/year

Reduction of emissions: 258 tn CO₂ eq/year

9.373,2

kWh/year
Tortosa

43.099,2

kWh/year
València

287.328

kWh/year
Scansano

655.686

kWh/year
València Met. Area