



Co-funded by the European Union

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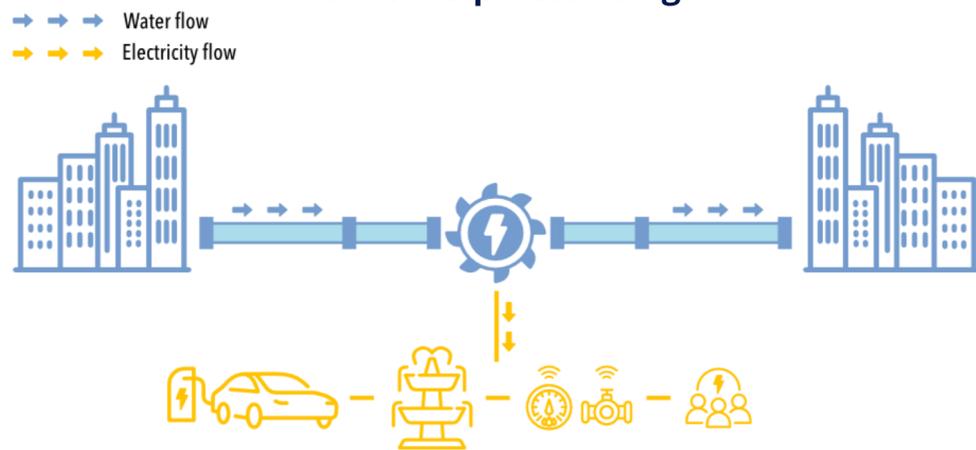
End date: 31/03/2027



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



TURBINES process diagram



What does the LIFE TURBINES project propose?

The LIFE TURBINES project aims to integrate hydropower technology into urban drinking water systems to generate renewable electricity from excess pressure in the water supply networks. This initiative seeks to promote decarbonization, enhance energy efficiency, and reduce greenhouse gas emissions. By leveraging existing water infrastructure, the project will demonstrate the feasibility and benefits of using hydropower technology to create sustainable and smart renewable cities.

Environmental: Significant reduction in greenhouse gas emissions and enhanced sustainability of urban water supply systems. **Economic:** Energy cost savings for municipalities and increased use of renewable energy sources. **Social:** Improved reliability and efficiency of water supply services, promoting sustainable urban living. **Technological:** Advancement in the integration of hydropower technology in urban infrastructures, providing a model for replication in other cities.

What are the benefits of LIFE TURBINES?

- Renewable Energy Generation: 995,486.4 kWh/year
- Energy Savings: 0.972 GWh/year from the electricity grid
- GHG Emission Reduction: 257.81 tonnes of CO2 equivalent/year
- Increased efficiency: Improving the efficiency of drinking water supply networks by reducing leaks and electrical consumption, as well as optimizing network management.
- Electric Vehicle Use: Installation of electric vehicle recharging points

Which are the KPIs derived from LIFE TURBINES?

FACTS



80% of the world's energy comes from fossil fuels, and the EU accounts for 10% of global greenhouse gas emissions.



Water supply and distribution, a universal right, is one of the most energy-intensive urban activities.



Water distribution systems consume 7% of the world's total energy.



Directive (EU) 2018/2001 promotes renewable energy use to achieve energy efficiency and the Green Deal targets for 2050.



The EU's renewable energy use increased from 9.6% in 2004 to 21.8% in 2021, significantly improving energy efficiency.



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



The Smart City Concept integrates energy efficiency with holistic urban development, covering economy, governance, mobility, people, life, and environment.



The LIFE TURBINES project innovates by harnessing urban water supply networks for renewable energy, aiding decarbonization and sustainable urban development.

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. The turbine site will be able to generate enough electricity to power, for example, an ornamental fountain and its LED lighting and a source of filtered and cooled drinking water.

VALENCIA

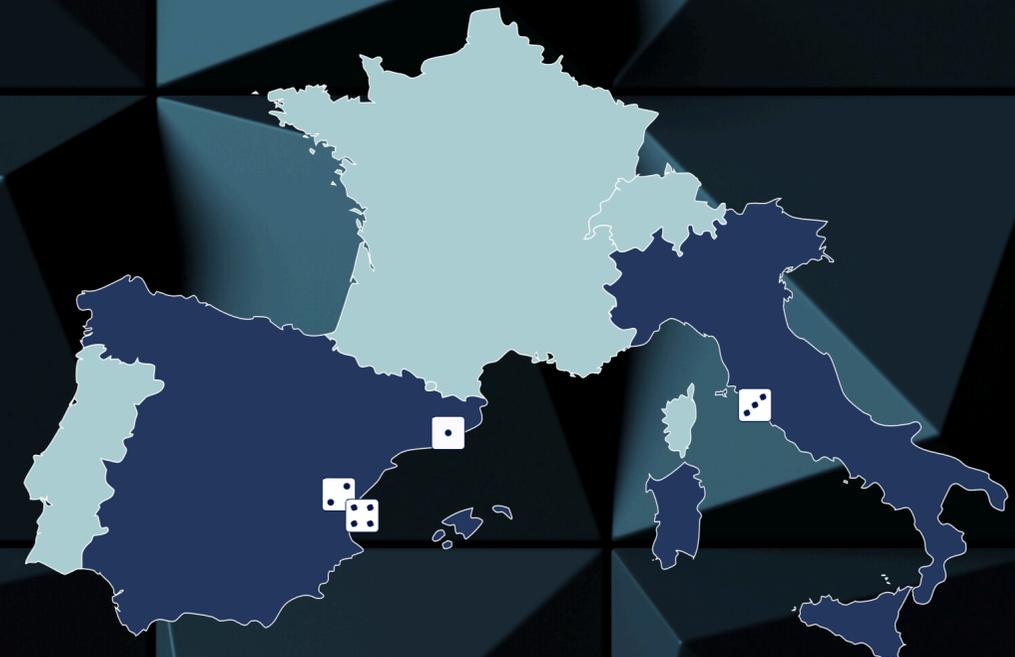
The energy produced will improve the city's public services, providing filtered and cooled water fountains and charging stations for electronic devices. In addition, there will be points where the energy will be used for self-consumption from the grid.

SCANSANO

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

VALENCIA METROPOLITAN AREA

The Valencia Metropolitan Area is made up of 48 municipalities. In the vicinity of the Valencia International Trade Fair there is the possibility of generating enough energy to install electric vehicle charging points to meet the high demand of visitors to the fair.



For more information, visit TURBINES' website, and its social media sites.