

# AVALER+ – Assessment of Energy Efficiency and Sustainability in Urban Water Systems

## Summary

Avaler+ aimed at developing a clear, comprehensive and straightforward application framework for assessing energy performance in drinking water supply systems, wastewater, and rainwater systems. This framework supported participating utilities in diagnosis, decision-making and monitoring the impact of energy efficiency measures (Figure 1).

The application of the framework in diagnosis, decision-making and monitoring the impact of energy efficiency measures was tested in 13 Portuguese drinking water and wastewater utilities. These 13 utilities are responsible for 17% of energy consumption for the operation of urban water systems in Portugal in 2017.

The proposed framework helped to empower water utilities in self-assessment of energy efficiency and monitoring progress through a comparable and standardized assessment

system. As a result, urban water utilities improved the return on energy efficiency measures and economic sustainability. The project results also contributed to the fulfilment of energy efficiency and renewable energies and climate goals.

The project was organized in seven tasks: 1) Establishment of the sector Baseline and the involvement in the Project of water service management entities; 2) Development of the evaluation system including four levels of analysis, from the global to the particular; 3) Design and testing of the action plan to improve energy efficiency – Part I: diagnosis; 4) Design and testing of the action plan to improve energy efficiency – Part II: selection of alternatives; 5) Design and testing of the action plan to improve energy efficiency – Part III: support in implementation and monitoring; 6) Training and dissemination and 7) Project Management.



### Project Reference

1018P.05542

### Leading Institution

LNEC – National Laboratory for Civil Engineering (Portugal)

### Partners

IST-ID – Associação do Instituto Superior Técnico para a Investigação e Desenvolvimento (Portugal)

### CERIS Principal Investigator

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### CERIS Research Team

Marta Cabral

### Funding

FAI – Fundo de Apoio à Inovação

### Period

2018-2021

### Total

283 916.00€

### CERIS

25 615.00€

### Project Website

[avaler.lnec.pt](http://avaler.lnec.pt)

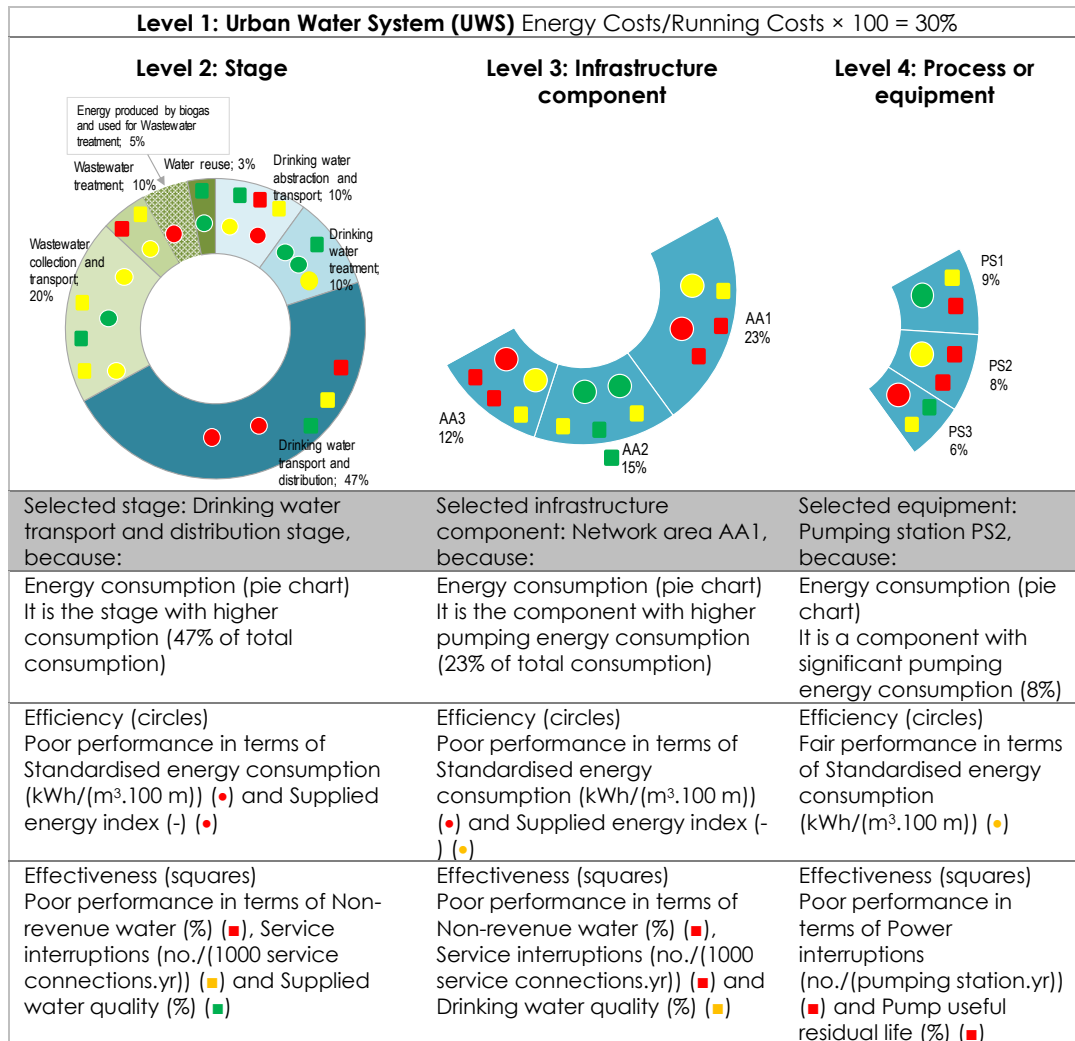


Figure 1. Example of application of the framework at each level of analysis (the pie charts represent the energy consumption, the circles the energy efficiency performance indicators (PIs) and the squares the effectiveness PIs).