

Energy efficiency in street lighting - Porto, Portugal

Key words

LED Lighting

Energy efficiency

Street lighting



Objectives

The City Council of Porto will, by the end of 2015, have requalified around 15% of its street lighting by implementation of LED technology (12%) and multilevel electronic ballasts (3%), thus putting into practice the defined strategy in the Sustainable Energy Action Plan, submitted under the Covenant of Mayors.

This action's objectives are to reduce energy use while also reducing operation costs and reducing the related CO₂ emissions.

Description

The "Porto.Luz+Eficiente" project was developed to address the City of Porto street lighting system that accounts for more than 30.000 lamps, representing around 60% of the total City Council's managed infrastructures electricity use.

The existing public lighting system was thoroughly analysed for the identification of potential energy efficiency measures. This analysis took into account street level lighting levels, luminous efficacy, equipment's age (i.e. in the end of expected life or not) and the choice of streets to intervene in order to have a coherent final result in terms of lighting and feasibility.

Performance monitoring of the implemented solution will be possible in real time due to having telemetry equipped energy meters and a dedicated web interface. The telemetry systems also allow for remote schedule adjustment. Default street lighting schedules are already set by an astronomical clock.

This project, of around 1,1 million euro, was submitted for co-financing under the Programa Operacional Temático Valorização do Território Program (POVT), having co-financing been granted.

The implementation phase is planned to happen from September through December 2015.

Achievements

After full implementation the City Council is expecting to reduce 1GWh/year of electricity use, representing around 125.000,00 € and less 500 tonCO₂ per year while creating a base case for continued energy efficiency measures implementation in street lighting.

Advice for replication

Detailed street lighting system should be conducted prior to energy efficiency measures implementation. As energy efficiency must preserve optimum service conditions, actual lighting levels should be measured and if necessary revised to meet the expected levels (which can at times mean lower lighting levels).

As a myriad of technologies arise to address public lighting, a case by case analysis should be conducted bearing in mind expected service levels, energy efficiency potential and economical feasibility.

Online information

<http://www.povt.gren.pt/>

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