


Energy and Water Management in Municipal Buildings and Facilities – Vila Nova de Gaia, Portugal

Keywords	Energy Efficiency, Management System, Public Buildings and Facilities
Pictures	
Objectives	<p>An adequate management of consumptions of the several energy vectors used in a municipal building or facility allows the identification of energy waste and thus helps the energy manager to define measures for a consumption reduction. Additionally, it will allow optimising contracts, identifying the best contractual conditions, and as a result obtaining the best energy acquisition tariff. Therefore, the objective of the Energy Management System (EMS), is to reduce both, consumptions and costs, associated with the energetic consumption of municipal buildings or facilities. In the future the water consumption will also be included to have an integrated management of all resources used in each building or facility.</p>
Description	<p>ENERGAIA has been conducting several energetic and environmental diagnoses and studies of energy contracts optimisation and has been promoting the installation of high efficiency equipments, with the objective of decreasing the operating costs of municipal buildings and facilities.</p> <p>For an efficient management of municipal buildings and facilities, and as a way to control energy contracts and related consumptions, ENERGAIA has been developing a web based software solution, named the Energy Management System (EMS), which will allow to verify the energy consumption and evaluate energy acquisition contracts, and as a consequence its optimisation every time a more favourable solution is identified. The solution is online for municipal energy managers and at this first stage it only includes the electric energy contracts of Gaia Municipality. In the near future both energy and water will be integrated in the system as well as the contracts and consumptions from other municipal entities.</p> <p>In the future, the EMS will disaggregate water and energy consumption by final user, which will be the base to set-up a benchmark system and thus allowing the comparison of consumptions between similar buildings and to evaluate equipments and systems performance existing on every municipal building.</p>
Results / Achievements	<p>The system is currently being developed and for that reason, at the moment, it's only managing low and medium voltage contracts, which account for fifteen contracts. In four of them there was the need of altering the contract conditions in order for the costs to be reduced. An annual saving of approximately €3,000 was achieved due to the EMS without any investment cost involved.</p>
Friendly advice for replication	<p>The EMS is a tool to help in the decision making of Energy Managers. Its principle is of a continuous improvement of the energetic performance, and therefore is essential that a constant improvement of the system takes place.</p> <p>There are several systems being commercialised, though, due to each organisation, building, specificities, etc, a survey of the real needs of control and management is required in order to optimise the EMS.</p>
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