

Title of the proposed paper

Demonstration of the smart energy district management system in the E+ project.

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3 keywords

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Text abstract (max. 300 words)

The E+ project, part of the European R&D 7th Framework Programme, started in November 2012.

The E+ project aims to develop, implement and demonstrate a new energy management operation and business model based on ICTs, able to increase the energy efficiency at neighbourhood level. The new control system (E+) will be prepared to manage and control energy sources, stationary storage devices, street lighting, electric vehicles charging infrastructure, buildings loads, etc. Both, electrical and thermal (including geothermal) energy sources and consumption are considered in E+.

Two demonstration sites are committed with E+: Málaga, in the South of Spain, and Mons, in Belgium. The results and conclusions coming from the demonstration activities will provide the basis for the elaboration of recommendations for energy positive neighbourhoods urban planning.

The basis for the E+ project, and subject of this paper, is the new control system and business model (the E+ model). This is the subject of the main scientific report of the project in 2013. In this document, the preliminary E+ business model is presented and described, which is a starting point for the further development of the E+ energy management system in the project. The business model will be updated during the whole E+ project, leading to the final version of the E+ business model at the end of the project. One of the aims of the E+ project is to develop an integrated business model for electric and thermal energy management at district level.

In the E+ model three operational purposes are considered: an energy infrastructure optimization (short term scenario), a yearly zero energy balance at neighbourhood level (mid-term), and a real-time instantaneous zero energy balance at neighbourhood level (long term).

The main objectives of the E+ business model are:

- Optimize the use of distributed energy generation
- To reduce the energy consumption and the CO2 emissions
- To produce a set of recommendations for neighbourhood urban planning and refurbishment
- To improve the energy efficiency
- To reduce the energy tariffs to end users
- To enable the citizens to participate as prosumers
- To integrate grid constraints and market requirements

In the project the E+ energy management software will be developed. To support the development of the E+ management system, a software tool is developed to model all the energy elements to be managed in E+. This way the E+ management software will be tested on the community energy system model, before it is tested in the demo sites Málaga and Mons.