European Commission

SMARTCITIES

e-balance

Balancing energy production and consumption in energy efficient smart neighbourhoods

"To provide an open and modular ICT solution for decentralized energy management and control that takes the socio-economic aspects into account and supports a diversity of energy related technologies, like renewable energy sources and energy storage."

At a Glance

Project acronym:
e-balance stands for energy balance

Project type:
Specific Targeted Research Project (STREP)

Programme:
7th EU Framework Programme

Project coordinator:
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Project partners:
IHP microelectronics, Germany;
INESC INOVAÇÃO, Portugal;
EDP Distribuição - Energia, S.A., Portugal;
Universidad de Málaga, Spain;
CEMOSA – Centro de Estudios de Materiales y Control de Obra, S.A., Spain;
University of Twente, Netherlands;
Alliander N.V., Netherlands;
Interactive Technologies Laboratory of the Information Processing Institute, Poland;
Lesswire A.G., Germany;
Computer Science Department, University of Lodz, Poland;
Efacec Engenharia e Sistemas SA, Portugal

Start date: October 2013

End date: March 2017

Total cost: €5.18 million

EU funding: €3.38 million

Project website:
http://www.e-balance-project.eu

Motivation

Energy efficiency becomes crucial for rational consumption of the available resources and reduction of the CO2 production. But the reduction of energy consumption as the only remedy is only a partial solution. Similar, applying more environment-neutral or renewable energy sources without smart management systems may even cause failures in the energy grid. Thus, intelligent solutions that combine the control of energy production and consumption help to achieve the best efficiency. However a successful roll-out of such solutions faces problems due to human factors. The multidimensional problem space can be structured as a combination of social, economic and technical aspects.

Objective

The e-balance project aims at providing solutions to improve the energy efficiency of present and future neighbourhoods and smart cities considering both technical and non-technical aspects. The goal is to develop a system for people with people. The latter become very important for the challenging European energy agenda for 2050. The flexible technical implementation will be realized together with the analysis of socioeconomic aspects.
Means to estimate the expected savings and thus, increasing the applicability of the proposed platform, will be provided as well.

Description of Work

This project consists of 7 work packages.

WP1: Management
Activities that cover the overall management of the project.

WP2: Use cases and socio-economic aspects
This work package defines the use cases. Technical as well as socio-economic use cases and the user studies will be analysed in order to ensure proper definition of the overall architecture and features.

WP3: System specification
This work package is in charge of the definition of the overall system architecture.

WP4: Communication platform
The communication platform includes all system layers related to the data collection and exchange. This includes sensors, network protocols and middleware.

WP5: Energy management platform
This work package researches, develops/adapts and evaluates all the mechanisms that will be used for the energy control and management.

WP6: System integration and evaluation
In this work package we define the demonstrators, integrate them, validate and evaluate the results.

WP7: Dissemination and exploitation
This work package aims to promote the scientific research and technological advances from the e-balance project. It includes a guide book – manual for parties interested in applying e-balance results.

Expected results

An open and modular ICT solution for decentralized energy management and control that takes the socio-economic aspects into account and supports a diversity of energy related technologies, like renewable energy sources and energy storage.

For further information:

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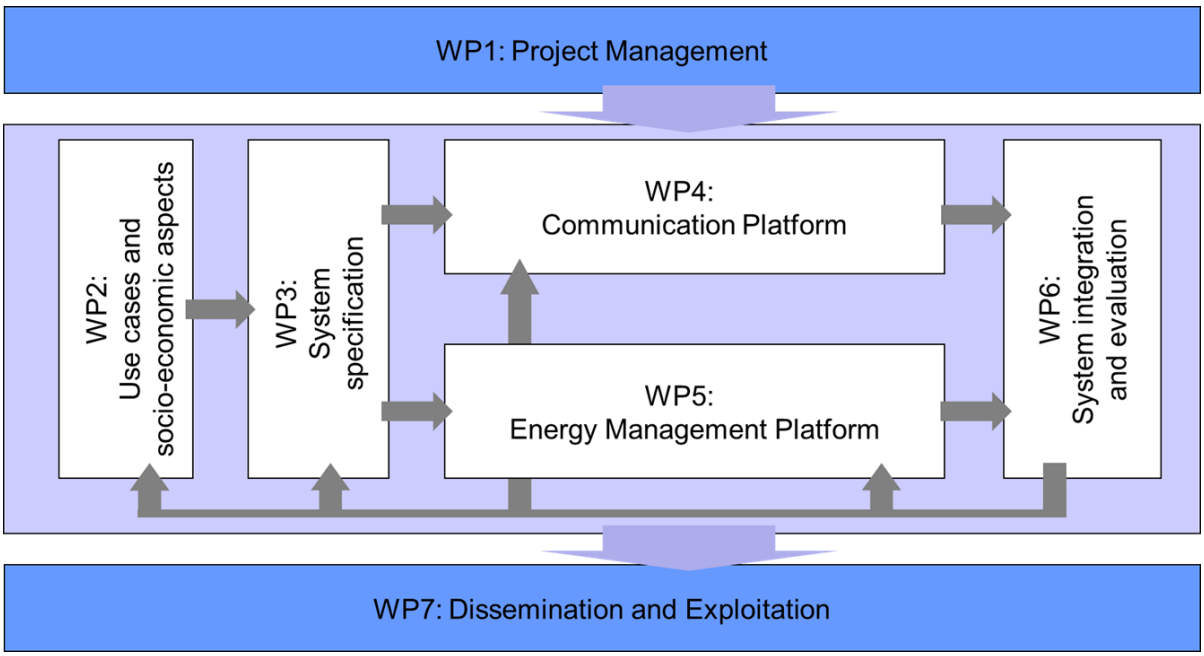

Figure 1 Work package breakdown

... Fact Sheet
Date: