

ENCOURAGE

Embedded iNtelligent COntrols for bUildings with Renewable generAtion and storaGE



EXECUTIVE *summary*

The ENCOURAGE project aims to develop embedded intelligence and integration technologies that will directly optimise energy use in buildings and enable active participation in the future smart grid environment. The desired energy savings will be demonstrated and compared to baselines at three sites with different characteristics.

CONTRIBUTION *to SRA*

ENCOURAGE contributes to ASP 7 with

- > Energy efficiency at district level and integration into the future smart grid.
- > New energy efficient technologies for buildings, campuses and neighbourhoods.
- > At least 20% energy savings.
- > A variation of energy visualisation channels.

Doing this, ENCOURAGE contributes to the industrial priorities through a new reference architecture as well as seamless connectivity and middleware.

MARKET INNOVATION *& impact*

ENCOURAGE develops appliance-level monitoring and control to contribute ICT enabled solutions for energy efficiency and to support Europe's objective of 20% energy reduction by 2020. ENCOURAGE enables this monitoring on standard and non-compliant devices, with the possibility of energy consumption capabilities for neighbouring buildings and entities. This will develop the market for intelligent ICT based appliances as well as introduce a completely new market for energy trade based on forecasts, metering and energy offers.

RELEVANCE & CONTRIBUTIONS *to Call 2010/2011 Objectives*

Answering the Call 2010, ENCOURAGE contributes to

- > Eco-efficiency through a new architecture that offers flexibility in handling the collection, correlation and transformation of heterogeneous data from a myriad of devices, processing them into valuable, accessible and targeted knowledge 'events' that can inform and/or control aspects of sustainable urban living.
- > Eco-sufficiency through an architecture that allows for different types of interface including web browsers, wall-mounted

displays and LCD touch screens. Any GUI developed at the middleware layer will enable users throughout the system to access any device within the network.

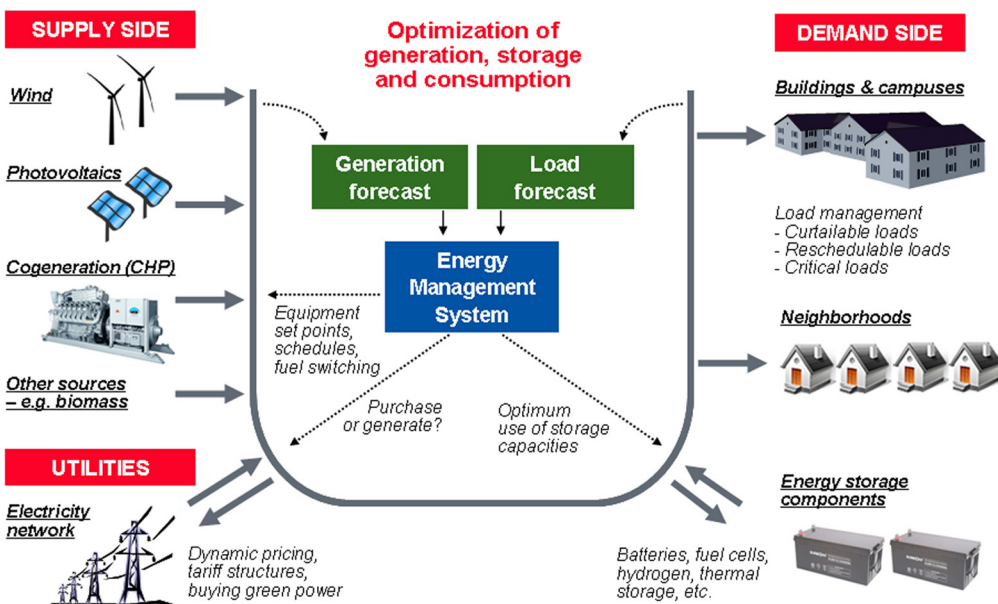
- > Comfort and security via the inclusion of additional information sources such as personal context-aware information i.e. ambient intelligence.

R&D INNOVATION *and technical excellence*

The ENCOURAGE project aims to develop technologies that will enable the energy optimisation of buildings at different levels: device, building and district. These energy optimisation objectives will be achieved in three complementary ways:

- > Developing supervisory control strategies that will be able to coordinate larger sub-systems (heating, ventilation, air conditioning, lighting, renewable energy generation, thermal storage, etc.) and orchestrate the operation of the numerous devices in such systems
- > Through the development of an intelligent gateway with embedded logic supporting inter-building energy exchange. This brokerage agent will communicate directly with other buildings and local producers to negotiate possible use of the electricity produced locally on their premises.
- > Developing novel virtual sub-metering technologies and event-based middleware applications that will support advanced monitoring and diagnostics concepts. Systematic performance monitoring will ensure the achieved savings are sustained over long period of time without being degraded by deteriorated performance of both mechanical equipment and the monitoring and control system itself.

PROJECT *partners*



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WEBSITE
<http://encourage-project.eu>

START
June 2011

DURATION
36 months

TOTAL INVESTMENT
€ 6.3 M

PARTICIPATING ORGANISATIONS
11

NUMBER OF COUNTRIES
5



www.artemis.eu