

# User awareness key to effective energy monitoring

May 24 2013, by Jean-François Haït

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A new project makes the user interface for intelligent buildings monitor energy supply and consumption more easily accessible to everybody, from geeks to computer-illiterates.

[Energy efficiency](#) has become a key objective in the current context of increasing [energy demand](#), decreasing resources and global warming. Key to efficient energy savings, however, are users' awareness and behaviour. The EU-funded project [Fiemser](#) aims to tackle the issue of increasing users' voluntary engagement in energy saving. "We wanted to design the most energy-efficient building, while [challenging] users

[perception] that they should give up comfort and make huge efforts to be sustainable," explains project manager Juan Perez Sainz de Rozas of private research centre Tecnalia, based in Derio, located in the Basque Country, Spain.

The project has developed a Building Energy Management Systems, referred to as BEMS, consisting of several wireless sensors spread installed over the building. They measure both [energy consumption](#) and generation, taking into account the fact that more and more buildings—whether they are refurbished or new—are fitted with solar panels. The advantage of the software developed under the project's umbrella is that it can balance electricity from the grid with that drawn from a domestic source. Its innovative control algorithms allow precise adjustment of the building's energy use. For example, it can detect an increase in temperature when several people are in a room. As a result, the heating in that room will momentarily be turned off, while leaving the rest of the building unchanged. It will also take into account the weather forecast.

More importantly, the user interface is designed to be accessible on laptops, smartphones... and TV sets. "TV remains the main interface in many houses, and is the most user-friendly, particularly for elderly people, who often do not have computer skills," says Perez Sainz de Rozas. For example, a sunny [weather forecast](#) is likely to yield extra electricity generation from solar panels. Therefore, system chooses the best moment to run the washing machine during the day, balancing the user's needs with the availability of energy from solar panels.

Experts welcome the use of such an easy-to-use control system. "A user-friendly interface is a key factor of success for this kind of project," notes Jean-Jacques Roux, a researcher at the thermal study centre CETHIL, based in Lyons, France, and coordinator of the high energy efficiency buildings laboratory. "In past examples of intelligent

buildings, users needed to be engineers if they wanted to program their devices," he tells youris.com.

However, given that BEMS are now becoming more widespread, others think that the prototype has some limitations, now that technology progress has made such systems more sophisticated. "It should look at all the built environmental factors used in sensory design, not just thermal comfort and energy consumption," comments Derek Clements-Croome, an emeritus professor at the University of Reading, UK, and a consultant in intelligent buildings. "Such systems need to address well-being as a whole and monitor sound, smell via indoor air quality measurements, visual comfort, air movement....," he tells youris.com.

Yet, according to its proponents, the prototype's assets lie in its simplicity and rather moderate estimated cost. It will be around 5,000 euros for a single family home and 1,700 euros for an apartment in a residential building. Two prototypes are currently being tested, at Tecnalia and at the Fraunhofer Institute for building physics in Holzkirchen near Munich, Germany. From mid-2013 on, its data will be analysed. "It is too early to speculate about the energy saving that will be achieved," notes Perez Sainz de Rozas, adding: "but if [energy](#) prices rise, Fiemser will make a difference."

Provided by Youris.com

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