Type of news: Basque Government project

Themes: individual metering, individual billing, heat cost allocators, heat meters, energy management, energy policies, legislation, residential buildings, domestic hot water, heating, energy efficiency technologies and materials, Building operation, monitoring, energy management.

Target Group: Local/regional/national authorities and facilitators, Building professionals, Building occupants

Tag Cloud: energy efficiency/ case studies/ Basque Country/ Spain

**Effect of heat cost allocators or heat meters installation and deployment of hot water and heating cost management plan.**

*Background*

Central heating with individual metering combines many of the benefits of central heating -greater efficiency- and the individual heating - flexibility- because it has individual meters that record the consumption of each resident and is billed on the basis of that consumption. As a general rule, a fixed monthly payment directed to maintenance of central heating system is done and the variable rest according to the consumption. Installation of allocators increases the motivation of inhabitants to regulate indoor temperatures and thereby reduce heat consumption. Individual metering allows the resident to lower the temperature in the apartment, and then, pay less than if the tenant chooses to have a higher temperature. In addition, individual metering compensates for the risk that the resident opens windows to lower the temperature.

Directive 2012/27/EU of the European Parliament and of the Council on energy efficiency (’Energy Efficiency Directive’) imposes a requirement for the individual metering and billing of heating in apartments. Although the Directive establishes the 31 December 2016 deadline for installing heat cost allocators or heat meters in existing buildings with central heating, undoubtedly until the complete transposition of the Directive in Spain, that requirement will not be mandatory.

It is estimated that the individual measurement of consumption will affect approximately 1.7 million residents in Spain with a centralised heating system. It is estimated that there are no more of half a million apartments with individual metering installed equipment, so the challenge to fully transpose the Directive, would be a demanding task. In Spain it is estimated that 8 million heat cost allocators and about 5 million thermostatic valves would be installed.

In the last years, efforts to maximise energy efficiency in buildings have focused on improving the elements of the envelope -walls, windows, roofs- and on improving installations -heating, ventilation, cooling and lighting. As these energy saving measures are increased, the influence of user behaviour on energy consumption is higher. Individual metering and billing for heating costs is one of the most effective solutions to intervene in such behaviour. Installation of individual metering of heating is not in itself an improvement of energy efficiency of the installation, but it is a measure that promotes energy savings because it changes the way it is used the heating system and allows more efficient use of the systems. For example, the thermostatic valves on the radiators in the rooms that are not used regularly can be closed.

*Project objectives*

This project aims to:

1. The assessment of cost savings for a centralised heating system tenants who will pay according to their real consumption of heat, through the installation of heat cost allocators or individual heat meters;

2. The development of a cost management plan for individual metering and billing of heating and hot water costs.

*Case study*

The demonstration project will be carried out in Panera houses in Bilbao (Basque Country, Spain), formed by 4 different blocks with 566 neighbours. A great investment was made in reforming and upgrading the heating and sanitary hot water in 2015. Winter season 2015-2016 consumption data are available. Heat cost allocators are going to be placed during this summer of 2016. Therefore, data from the 2016-2017 campaign will be compared with those of the 2015-2016 to measure the influence of individual metering and billing. The evolution over the time of hot water and heating cost management plan continues even to the equipment installed in the Panera houses: First, a distribution based on consumption estimation according to m2 of each apartment; currently, cost allocation by block consumption due to the new heating and domestic hot water installation; and last, a future individualised allocation by apartment, according to their actual consumption when heat cost allocators or heat meters will be installed.

*Methodology*

To analyse the behaviour of residents, the consumption reduction attributable solely to the change in behaviour due to the fact of having information on their individual consumption and how it affects their thermal comfort should be identified. That consumption must be differentiated from other different factors that affect consumption, such as, weather conditions, building characteristics, changes in the control of the heating system and others.

This analysis will be done through a detailed analysis software model of the buildings, which can filter out the effect on the consumption of other various factors involved. This will allow knowing precisely the energy savings that can be achieved and which are due exclusively to the installation of heat cost allocators or heat meters

*Results*

Final results of the project will be available in summer of 2017. These results will be disseminated through The European Portal for Energy Efficiency in Buildings, BUILD UP, and through Saincal web page <http://www.saincal.com/>

*Participants and Acknowledgments*

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* SAINCAL, <http://www.saincal.com/>, specialised in air conditioning systems; and
* ENEDI Research Group <http://www.ehu.eus/enedi/index.php?i=i&seccion=1> (Energy in Buildings) of the University of the Basque Country UPV/EHU. ENEDI collaborates with the Department of Employment and Social Policy of the Basque Government in managing of the Thermal Area of the Laboratory for the Quality Control in Buildings, http://www.garraioak.ejgv.euskadi.eus/r41-19381/es /.

For further information please contact SAINCAL or ENEDI web pages in the aforementioned links.