

Energy efficiency of HVAC systems – up to 25% electricity savings through participation in the European Commission funded iSERVcmb project

January 2013 – While it is becoming common to analyse the energy consumption in a building and invest in energy efficient technologies, Heating, Ventilating and Air Conditioning (HVAC) systems are lagging behind. Their energy consumption disappears in the general electricity bill with separate meters seldom installed. The iSERVcmb Project is designed to shine more light onto this subject, as well as to encourage monitoring and establish energy benchmarks for HVAC systems. Now, half way through the project, interim findings from a UK building show total building electrical energy savings of around 25 % have been achieved as a result of focussing on the HVAC system control and operation.

It is estimated that HVAC systems consumed about 11% of all the electrical energy used in Europe in 2007. However, an investigation into more detailed figures or benchmarks for energy consumption of certain types of HVAC systems or components reveals very limited information. The Energy Performance of Buildings Directive (EPBD) requires physical inspections, or equivalent measures, to decrease energy consumption. Some of these potential savings can only be identified and quantified through long term monitoring. This is where iSERVcmb comes into play.

By collecting sub-hourly energy use data from around 1600 HVAC systems in EU Member States the project's aim is to develop a range of activity-based benchmarks for good, average and below average HVAC system energy use. Poor systems are not only identified, but also the benefits from adopting a more energy efficient system can be demonstrated with the help of iSERV's online application named HERO. The availability of their own HVAC data, presented in an easy to understand fashion, encourages owners to take action while at the same time it helps to make legally required inspections more efficient. It is hoped that one impact of the project will be that HVAC systems showing energy performance above a certain threshold should be able to avoid inspection, and thus get a reward for good HVAC design, maintenance and control.

Currently, 81 buildings, 288 HVAC systems and 1482 HVAC components have been loaded into HERO. This will shortly allow system owners to generate bespoke benchmarks and meaningful reports for their systems. In the upcoming months, HERO's capabilities are going to be extended by introducing targeted ECOs (Energy Conservation Opportunities) in the reports back to the HVAC system owners. Tailored to the specific energy performance of an HVAC system or its components, users will be informed about quantified potential energy and cost savings they could realise by implementing energy efficiency measures. First achievements in a UK-building show that these savings are significant: in this case, a reduction of 25% of the total building electrical energy consumption, worth around EUR 90,000 per year, has been realised as a result of using the iSERV methodology.

In order to deliver high-quality reports for end-users, the project team is still looking for system owners, facilities managers and HVAC system/component manufacturers who would like to contribute to the project. Appropriate systems should already have monitoring equipment in place – or their owners should be willing to install monitoring equipment– and be able to contribute monitoring data to the project. In return they will be able to use HERO to learn more about possible improvements to their system(s) and contribute to the development of benchmarks relevant to their systems. Interested end users are invited to contact the iSERVcmb project partners for more information on benefits. Contact details are available on the website www.iservcmb.info.

Further enquiries:

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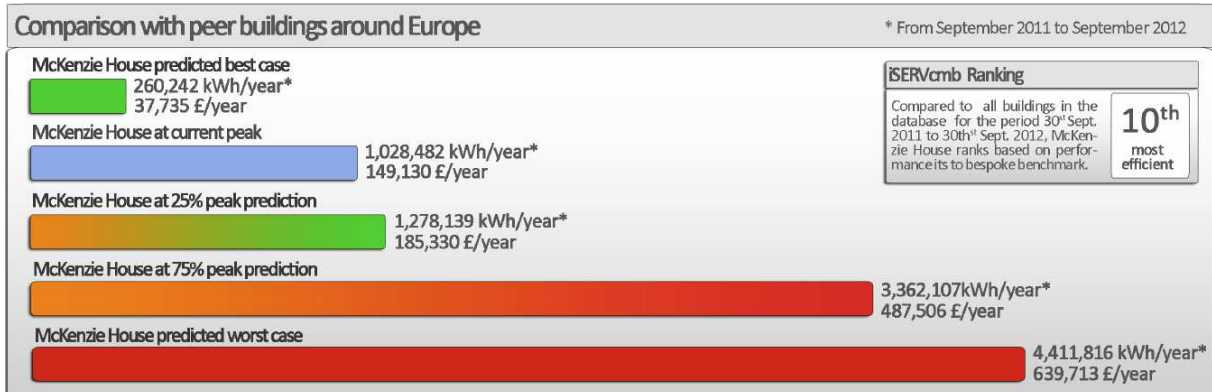
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Screenshots from HERO:

Benchmarking your HVAC system with peers in Europe:



Example for a well-performing HVAC system:

