The implementation of legislation and processes in EU Member States allowing the use of operational energy use data as a route to compliance with various European Directives

A follow-on project to iSERVcmb

By

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Main website: www.cf.ac.uk/archi/people/knight.php

Involvement sought from EU Higher Education Sector:

The project is looking for the participation of an end user base which has properties all over the UK and the EU. The UK and EU Higher Education sector would be ideal Partners for this, particularly as many HE's and FE's already have extensive metering that they could use to trial this approach. Only one or two buildings are sought from each University to enable a representative cross-section of feedback and savings to be established, as well as minimising the time demands on each establishment.

Three of the main advantages for the HE sector from involvement in the project will be the ability to help shape the potential process legislation details; to provide operational data crucial to a mature debate about the definition of what an operational 'low energy HE sector building' actually is in time for 2019; and to get an insight into comparable performance across various Estates of value to operating an Estate at this period in time.

Research background:

Understanding how, when and where Energy is used in buildings and their services at a large scale is a key component to understanding how to design, construct and manage buildings for OPERATIONAL energy efficiency. This is a key difference to COMPLIANCE energy efficiency, and will be crucial for a potentially resource-limited future.

This project builds on 3 previous European Projects and other UK research over the last 12 years which have culminated in showing how the use of a framework based primarily on physical properties of buildings and services can lead to significant operational energy reductions in buildings across the EU, often at low or no cost. The HARMONAC project (www.harmonac.info) helped rewrite the recast EPBD to allow this type of approach to be used.

The project builds on the iSERVcmb process (www.iservcmb.info) which helped achieve savings of up to 30% in total electrical energy in some buildings, often for little or no investment.

The following actors have indicated their intention to participate based on the outline proposal:

CIBSE: Looking to use the approach and findings from iSERVcmb and this project in new guidance

DECC: Looking to support the project approach as a means of reducing red-tape when meeting numerous EU regulations, as well as engaging the end user in the process of improving energy use

REHVA: Federation of European Heating and Ventilation Associations. Umbrella body for CIBSE's equivalent in all EU MS

Along with a number of EU Universities, Cardiff University, and some SME's from the UK and Europe.

Aims:

The main aims of the proposal are:

- To trial and implement legislation in several EU Member States, which is based on the use of sub-hourly data from meters, Building Technical Systems and other processes, to reduce the operational energy use of buildings,
- To enable all end users to contribute to setting the standards against which they are assessed, and to showcase their actual energy reduction achievements through a process which is based on physical entities and measurements.

This new trial legislation would run in parallel as an alternative to already implemented processes, such as AC Inspections, which transpose the original EPBD requirements into Member State legislation.

The proposal has the following additional aims:

- To address the need to understand operational energy use in buildings in good time BEFORE the implementation of the nZEB regulations on 1st January 2019 in EU Public Sector Buildings
- To use this information in designing appropriate legislation with the input of Legislators, which achieves the aim of producing operationally low energy buildings at an economical cost
- To address most requirements of Article 8 of the recast EPBD in one contained process
- To enable the operational performance of HVAC components in buildings to be optimised for service, energy efficiency and Indoor Environmental Quality (IEQ or IAQ)
- To provide a further use for existing or planned data collection capabilities for HVAC components by individual manufacturers.
- To provide the design information needed for new build and refurbishment projects in the EU to predict the likely operational energy and power demand performance to be achieved.
- To enable Member State legislators to have a process to be able to refer to where they wish to implement an electronic monitoring and control route to compliance with the recast EPBD
- To enable manufacturers, who wish to establish a reputation for products with low operational energy efficiency, to have an independent platform to refer customers to when seeking to back up their claims. This is becoming of crucial importance for designers and Facilities Managers, who are increasingly being asked to guarantee operational performance of buildings
- To enable good practice to be physically identified wherever it happens for anyone using this approach. This enables all actors with good buildings to gain recognition simply from participation.
- To allow Professional Bodies to accredit operation of buildings in this manner, and to gain up-to-date guidance for their members on achieving good energy performance in operational buildings.
- To test the process with End Users of the data to ensure their needs are met, and that they have helped shape the process and its outputs to their needs.