

Boost a building's IQ to cut the energy bills

To control energy waste, you need to track it down, which is where building controls come in. They influence all aspects of a building's operation, including heating, lighting and ventilation, and measure all the energy.

Energy bills used to go relatively unnoticed in business. They were viewed rather as a fixed overhead and represented a tiny percentage of costs when compared with office rents or staff salaries. But the rising cost of energy is starting to change all that.

The Carbon Trust recently estimated that UK business is losing £7 million a day on wasted energy in office buildings. That kind of figure grabs the attention of managers.

To get energy waste under control, you have to be able to track how much is being used and where. Doug Robins, president of the UK's Building Controls Industry Association, says the best way is through an automated building energy management system:

"Building controls influence every aspect of a building's operation: heating and hot water; ventilation; cooling and air conditioning; lighting; windows and shading. Controls can monitor and measure every kilowatt of energy used in the building as well." Research by the Carbon Trust also shows that in premises with well-controlled heating systems, heating bills can be 15-34

per cent lower than in poorly controlled buildings.

A building energy management system (BEMS) is effectively an IT system for buildings. John Fallon of Cylon Controls explains: "Controls add intelligence to a building, and provide a way to monitor and control energy automatically, rather than relying on occupants to do everything."

Controls can perform the simplest tasks, such as automatically turning off lights in unoccupied offices; or the most complex, including tracking external temperatures and adjusting heating and cooling inside for optimal comfort and energy efficiency.

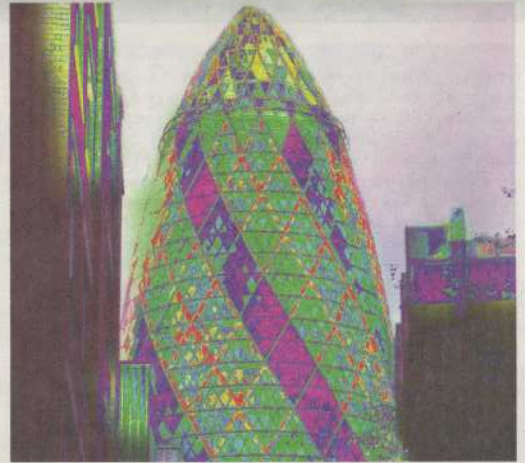
From an energy manager's point of view, a BEMS can put them firmly in control of energy use. Web-enabled controls technology means that energy use can be tracked remotely across many sites or outlets. In the retail sector this is invaluable. David Kitching of Siemens Building Technologies says: "It is straightforward to identify branches or outlets that are using more energy than the average. It is then much easier to find

the cause of the problem and correct it."

This is an important point. Collecting information on energy use automatically can result in huge amounts of data, which is useless unless it is acted upon. "You must complete the circle and use the information to stop energy waste," says Kitching.

Although building controls can automate the process of collecting energy data, the human factor has to be considered. Robins says: "Building controls are hidden energy savers, often not noticed by building occupants. The challenge for us as a sector is to ensure that end-users really understand what controls can do, and how to use them effectively."

A growing trend among controls manufacturers, therefore, is to make user-friendly control interfaces that engage building occupants and raise awareness about energy use at the same time. In the public sector, schools have been particularly keen to engage pupils in thinking about sustainability, and some have used the BEMS to encourage even the youngest occupants to think about



the energy used. At the Archbishop Ryan School in Dublin, Priva Building Intelligence designed an interface that makes understanding energy information easy.

Anders Norén, Priva managing director, says: "We use similar technology to the internet so that data is not just transferred, but also described in a way that makes monitoring easy. The recipient knows exactly what the data represents. This means that the school headmaster can access information in an easy-to-understand web-based format from the PC on his desk."

A wall-mounted screen has also been placed in the school's main circulation area for staff and students to access. Such technology is, of course, not limited in application to the public sector.

Wireless internet technology is also enabling retrofitting of controls to existing buildings. The UK's older

buildings account for 90 per cent of the stock, and this is where energy waste is at its peak. Fallon of Cylon adds: "Wireless sensors mean that we can place more sensors more easily in a wider range of places in a building. Data on energy use is, therefore, much more readily available."

Robins of the BCIA says that building controls are a cost-effective energy saving measure. "Our industry shares many of the features of the IT sector. In that sense the hardware produced by manufacturers is getting physically smaller, while offering more features. At the same time, prices have remained steady giving greater access to advanced controls to a wider range of buildings. Clients no longer have to be planning a high-spec city centre office to think about a BEMS."

For more information on building controls see www.bcia.co.uk