Building Management Systems (BMS) Optimisation

Background

Building Management Systems (BMS) manage how and when building services, such as heating and ventilation, operate. They are often controlled by temperature and CO₂ set points and timers. Typically a building will run from 8am to 6pm, but the University runs a range of facilities that require specialised operation. For example, the libraries and museums may require specialised humidity control and laboratories will require specific air pressures for safety.

Optimising the way in which these systems are controlled offers the University an opportunity to reduce its carbon emissions and operating costs with a relatively low investment outlay.

Project Delivered

Buildings within the University estate have been ranked by their absolute carbon emissions and carbon emissions per square metre. This diagram will be available shortly on the estates website. Alternatively, please contact the Environmental Sustainability team for a copy.

The BMS optimisation programme was launched in 2015 and will focus on the buildings with the largest emissions as identified above.

Optimising the BMS identifies not only where timeclocks and set points can be changed but also where systems require maintenance or upgrades. The carbon management fund is then able to support upgrades to systems in order to release further carbon savings.

Each building will go through a 12 month process involving a phase of increased metering of its activity, a phase of analysis, implementation of changes and then a phase of monitoring and validating to assess the impact and success of the changes made. Optimisation of over 20 buildings is planned and the programme will run from 2015 to 2020.

Outcomes

The learning from each building is different so a case study on each one will be written upon completion, to assist with lessons learned and best practice sharing. Settings in Earth Sciences and Swindon Bodleian Book Store Facility were optimised in 2014. Detailed case studies on these can be found on the case studies page.

During the process the need for BMS user training was identified. This will now feature regularly as part of the Environmental Sustainability training programme and will ensure that lessons learned are embedded and optimisation of the systems is maintained.

Conclusions

Over the coming years work will continue, to support optimisation of building systems and investment in upgrading the systems, in order to contribute to the University’s Carbon Reduction target of 33% by 2020.

A Chartered Institution of Building Services Engineers (CIBSE) article on the BMS programme can be found here.

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