Optimising Building Management Systems using Demand Logic

Background
Estates Services have two Building Management System (BMS) experts in-house that look to maintain and optimise the BMS systems of over 100 buildings. The team manages a range of BMS contractors who carry out maintenance on the systems and John Matthews and John Atkins regularly come in to trouble shoot and fix issues when things go wrong. To support their work the BMS optimisation programme was launched. This looks to take a 6 month snapshot of how the system is working and then optimise it with fixes which should, unless modified, last at least the year. However, this is not always the case. Systems tend to get modified, altered and stray from their original design and set up meaning that optimisation is an iterative and repetitive process.

John Matthews said: “We decided to trial Demand Logic to assess the value of the services they provide. Their system constantly retrieves data from the BMS; it then independently analyses the data and produces reports on any abnormalities in real time, i.e. plant running outside occupation, plant not reaching set point, zones being too hot or too cold, loss of outstation communications etc. In so doing it allows us to focus on the problem areas. I must say I have been very impressed; the only thing to bear to mind is, that to get the maximum benefit, you do need to have the resource to carry out the investigations.

Project Delivered
To combat the degradation of optimisation efforts the system Demand Logic was installed on three buildings; Tinsley, Weston Library and Pitt Rivers Museum. The system provides a user friendly interface with the BMS and provides a detailed analysis of where the building system is straying from set points and time clocks. This allows John to investigate how the system is operating and modify the set up to correct it.

The system was opened up to the contractors so that comments could be made on the performance, these comments and relevant discussion are then turned into actions, allowing John to manage it all from the comfort of his desk. A useful thing when there are 100 systems to manage.

Outcomes
The Demand Logic portal has been running for several months now and has already identified areas where we can save energy. The necessary changes have been made and annual savings in excess of £13,000 are predicted, just under 65 tonnes of carbon. Some of the modifications included:

- Reducing the run hours of the Fan Cool Unit (FCU)
- Reducing the speed of the Air Handling Unit (AHU) Fans
- Reducing the run hours of the Chilled Water Service (ChWS) from 24 hours

Conclusions
The trial of the system will continue for a year at which point the savings and benefits will be analysed to see if other buildings would benefit from the installation of the software.

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Environmental Sustainability team August 2016