CIBSE BUILDING PERFORMANCE AWARDS 2012
SHORTLISTED ENTRANT
Engineering for a low carbon built environment

Copy of ABS' entry for the CIBSE 2012 Client Energy Management Award

ABS consulting nominates Climate Change Capital (CCC) for the "Client Energy Management Award" for reducing 2010 energy consumption of its 5 St Philips Place office building by 26%. The strategy implemented at this pilot site included investment in energy efficient technologies, expert insight and awareness and training. It is now being rolled out to 2 more office buildings in the CCC portfolio and similar savings are expected.

The Project:
CCC implemented a carbon and energy management strategy upon purchasing the building in Feb 2009. The timeline below shows the different initiatives that were undertaken:

2009	2010	2011
▪ Building bought by CCC ▪ Energy Surveys ▪ Quick wins	ConCom - Introduced ▪ Awareness Training ▪ BMS upgrade ▪ Lighting upgrade ▪ HVAC upgrade ▪ Improved housekeeping ▪ Renewables review ▪ EMOTR Installation	▪ EMOTR reporting ▪ ComCom – On-going ▪ Improved Housekeeping /no & low cost measures

The bulk of the savings achieved between 1 July 2010 and 30 June 2011 came from training and mentoring for the in-house FM and maintenance team, new energy efficient lighting and controls, BMS and HVAC upgrades

The component of the project that enabled these savings to be measured and improved was the development and implementation the service product; Energy Monitoring, Optimising, Targeting and Reporting (EMOTR). EMOTR was developed by ABS consulting as an enhancement to the Continuous Commissioning process to meet CCC's rigours approach to delivering, improving and sustaining cost effective carbon reduction across its office portfolio. Tim Mockett's, cofounder of CCC, brief to ABS is outlined below:

"We need an affordable real-time M&T solution that will provide:

- *CCC and building managers with information on which informed decisions on capital investment and management strategies can be made*
- *Information for occupants that will help them make a contribution to energy and carbon performance*
- *Detailed information that will enable maintenance and operation teams to eliminate avoidable waste"*

The result was EMOTR which became operational at 5 St Phillip's Place in December 2010 and as a result of its success it was installed in two other CCC properties in early 2011. It provides a holistic approach to energy monitoring and targeting by combining energy management software with expert insight to help clients gain a clear understanding of their current performance and desired next steps.

EMOTR has enabled CCC to address its main challenge: understanding the energy cost and consumption of specific plant or services BEFORE and AFTER intervention. This enables informed decisions to be taken, accelerating the implementation of energy efficiency. Using EMOTR, the client was able to collect timely and accurate data at a press of a button, review it over the web and, with the assistance of ABS, implement operating strategies for dynamic controllable loads such as chillers and air handling units. CCC is also able to increase occupant awareness by demonstrating live and historic energy consumption on a foyer display screen.

EMOTR also enabled CCC to reveal that even after investment was made in more efficient equipment, the plant was active when not required; electricity, gas and water were being used over weekends and bank holidays and the building's base load was unnecessarily high resulting in increased costs and carbon emissions.

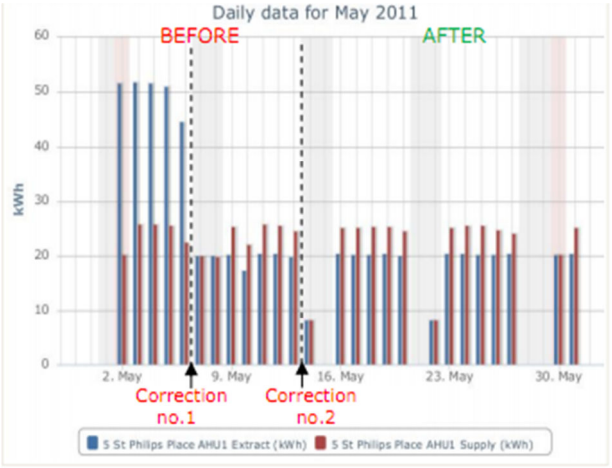


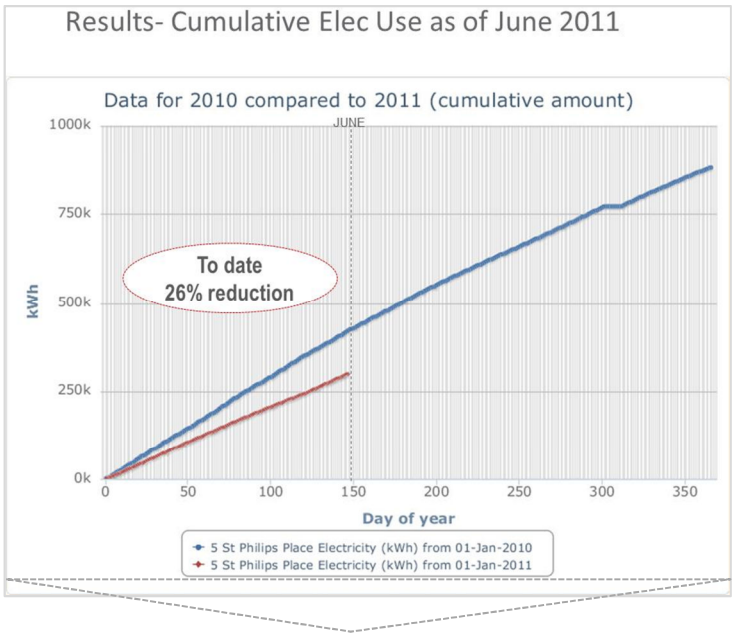
Figure 1- EMOTR identified faulty operation of the AHU:

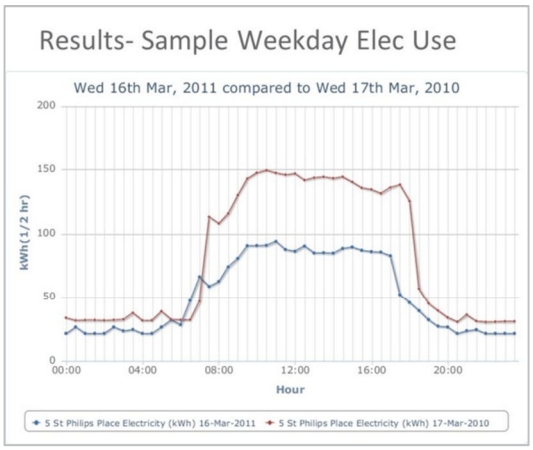
1) Extract fan consuming more than twice that of the supply fan. Action- Control fault corrected on May 7 reducing consumption by some 60% while improving air quality in the office

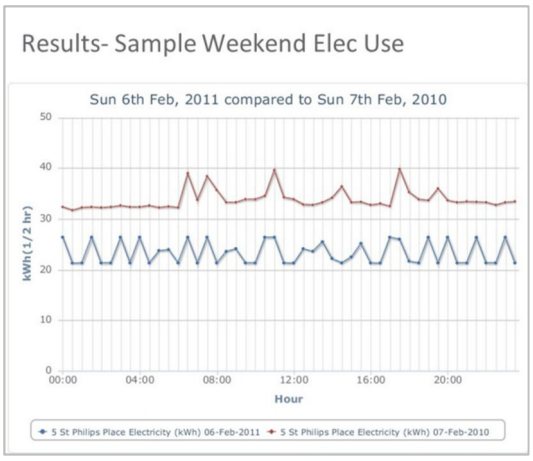
2) System operating at weekends. Action - Controls repaired and reset avoiding weekend operation by 16 May

Savings:

Since installing EMOTR electricity cost savings of 26% have been recorded. A combination of no cost, low cost and investment measures have contributed to this success including adjusted time schedules, plant optimisation and increased staff awareness from training and dashboard displays. The figures below show a graphical representation of the savings post EMOTR:

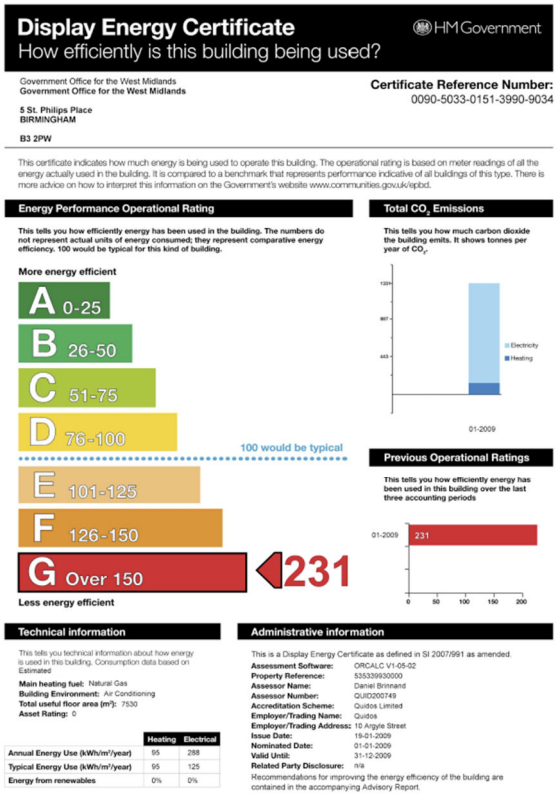


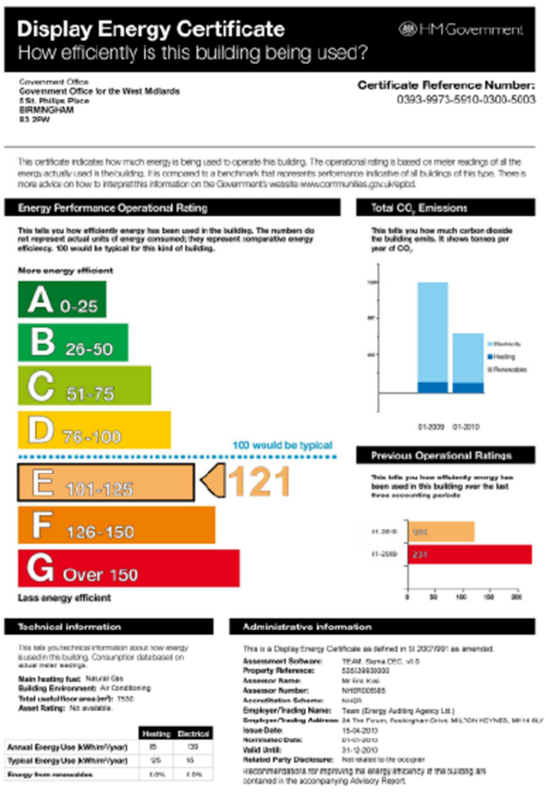




month	2010 Elec (kWh)	2011 Elec (kWh)	Reduction (%)
Jan	87,000	62,000	29%
Feb	80,000	59,000	26%
Mar	95,000	64,000	33%
Apr	87,000	56,000	36%
May	80,000	65,000	19%
Jun	76,000	66,000	13%
TOTAL	**505,000**	**372,000**	**26%**

2009 DEC vs. 2011 DEC





Publicity- Extract from the Birmingham Post 9 June 2011:

A TV monitor is giving the building's 400 employees up to the minute information on water, gas and electricity usage in a ground breaking green initiative.

Tim Mocket co-founder of Climate Change Capital says: "[EMOTR] is a fantastic example of landlord and tenant collaboration. Staff in the building, working with us, is able to see the energy usage. Its all about using less water, less electricity less gas. This is the first time we have come across a live energy display in Europe in an office reception. We all have to do our bit to reduce carbon and the monitor is key. People walk in the building see the half hourly display and ask what they can do."

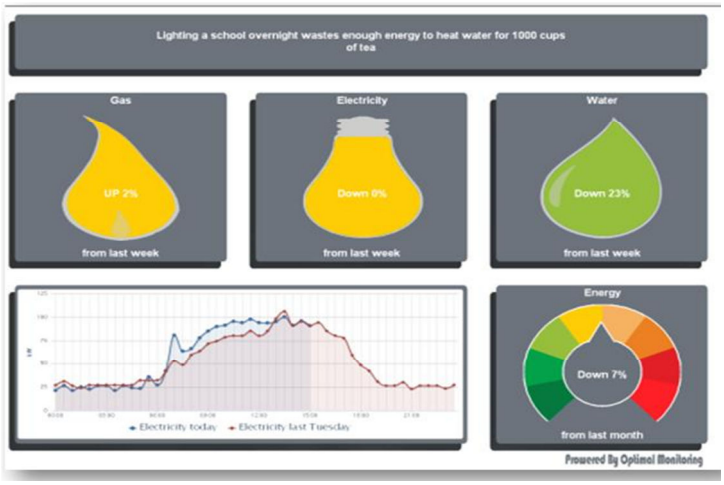


Figure above: Sample dashboard display; Building occupants are fed real time usage data via the dashboard displays, keeping them informed and involved in the carbon reduction program and encouraging participation through the carbon reduction initiative.

Conclusion:
CCC acknowledged that investment in energy efficient technology alone is unlikely to maximise and sustain savings. Therefore, motivational workshops and communication of performance via dashboards were used to engage occupants and those involved with building management in energy efficiency.

The work at St Philip's place has demonstrated that substantial carbon reduction can be achieved where a Landlord takes the initiative and works in partnership with the tenant. By adopting EMOTR, CCC has a reliable and robust carbon and energy management strategy which enables them to achieve, communicate and sustain savings by:

- Knowing real time & historic consumption
- Setting benchmarks & targets
- Getting automatic bespoke reports- Monthly performance and incidental exceptions/anomaly alerts
- Getting expert analysis of consumption and recommendations on energy management
- Raising awareness through dashboard displays

All achieved with without compromising and often improving occupant comfort.

Supplementary information:

- About CCC - CCC is an environmental investment organisation purchasing commercial buildings with the aim of making them more energy efficient - reducing costs and lowering carbon footprints, making them more attractive to occupiers and increasing their value.
- About ABS - ABS was formed in 1987 to provide strategic consultancy services to owners, managers and occupiers of buildings and estates and has been working with Climate Change Capital since December 2010 when via the implementation of EMOTR it helped CCC prove energy savings of 26% from the previous year and highlight areas for further improvement.