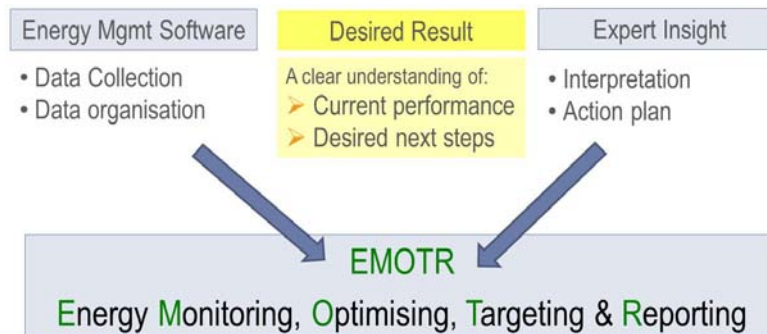


## Copy of ABS' entry for the CIBSE 2012 Passive (Energy related) Product Award

ABS consulting is nominating its new service product EMOTR for the "Passive (Energy Related) Product" award.

### About EMOTR

EMOTR (Energy Monitoring Optimising Targeting and Reporting) is an offering that ABS has been developing over the past 3 years. It reached its latest form in December 2010 when it was introduced to Climate Change Capital (CCC) as a pilot at its 5 St Philips Place office building. 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.



Energy monitoring and targeting (M&T) systems have been around for quite some time but what makes EMOTR special is not just its ability to provide real time consumption information but also its focus on empowering those who use it to deliver, quantify and sustain energy savings. In designing EMOTR ABS drew from its experience that technology alone does not deliver best results. It needs to be combined with training and mentoring to do so.

The purpose of EMOTR is to enable those responsible for energy efficiency to have real-time information that provides a detailed understanding of consumption and where savings can be made and measured. It delivers Energy-

- **Monitoring:** Electronic display of real-time consumption, carbon and cost (kWh, tCO<sub>2</sub>, £) via the internet
- **Optimising:** Limiting consumption to that needed for the occupier to meet its business plan
- **Targeting:** Benchmark performance & set challenging but achievable targets
- **Reporting:** Regular reports on consumption, carbon and cost trends with exception reports of deviations from targets plus motivational information on display dashboards for building occupants.

### How does EMOTR work?

We survey the site to identify and prioritise the dynamic controllable loads for which cost effective energy savings from real-time monitoring can be realised. These are often HVAC system components such as pumps, fans, chillers etc. The installation and operating specification are then agreed with the client prior to implementation. With the hardware installed ABS will provide reports with recommendations for energy efficiency and/or improved operation. Monthly reports are supported by exception reports for unusual trend changes to enable the cause of the change to be investigated. ABS also trains and mentors those nominated by the client in using the system and translating the information it provides.

### About the technology

A major barrier to remote monitoring is the cost of installation. To minimise this cost our platform uses Battery operated Licence exempt Low power radio probes to collect data every 5 minutes and transmit it back to an on-site collection device. A logging device located at each site collates and relays the 5-minute data back to our management platform where it is processed and presented via a secure web interface. Once at the data logger, data is automatically transferred to a hosted data centre for processing. Data transfer is via a local connection to the Internet, typically provided using the mobile GPRS data network, so as to avoid any reliance on local infrastructure.

### EMOTR in action at Climate Change Capital (CCC)

CCC started implementing a carbon and energy management strategy in 5 St Philips Place since it bought the office building back in Feb 2009. It successfully reduced 2010 energy consumption by 26%. 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 of EMOTR which became operational at CCC's 5 St Phillip's Place office building in December 2010 and as a result of its success it was installed in two other CCC properties in early 2011. EMOTR was developed by ABS 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, co-founder of CCC, brief to ABS was the following:

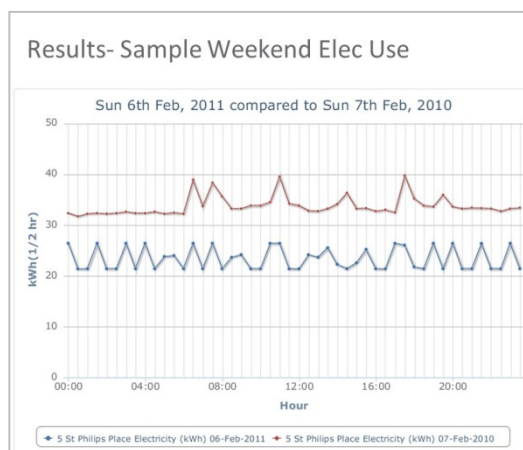
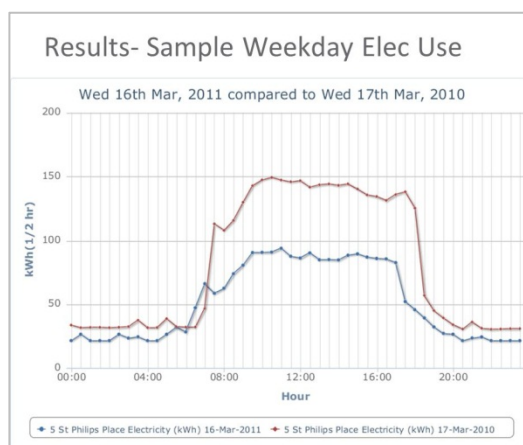
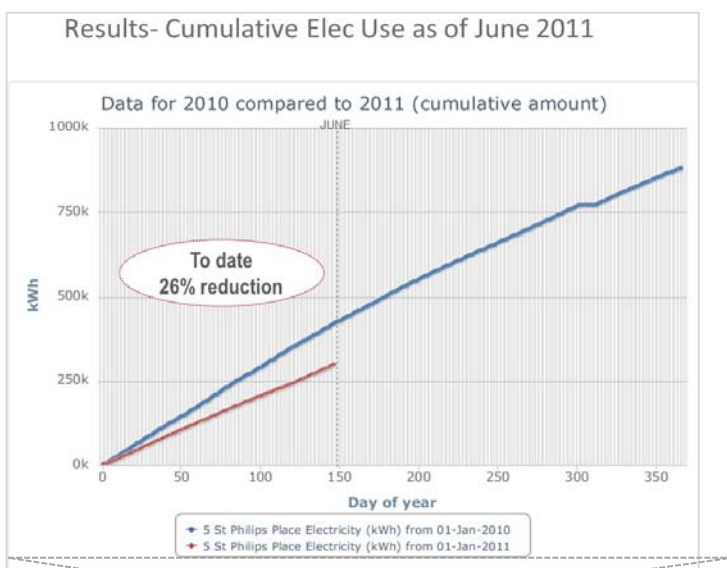
*"We need an affordable real-time M&T solution that will provide:*

- *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"*

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 was also able to increase 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.

EMOTR became operational at St Phillip's Place in December 2010 and as a result of its success it was installed in two other CCC properties and in a major NHS Trust and a University in 2011. Since CCC installed the EMOTR system at 5 St Philip's Place we have been able to prove electricity cost savings of 26% when compared to 2010. A combination of no cost, low cost and investment activities have contributed to this success including adjusted time schedules, plant optimisation and increased staff awareness coming 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%
<b>TOTAL</b>	<b>505,000</b>	<b>372,000</b>	<b>26%</b>

## EMOTR raising energy management awareness

Tim Mocket co-founder of CCC says: “[EMOTR] is a fantastic example of landlord and tenant collaboration; Staff in the building working with us are able to see the energy usage. It’s 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 and see the half hourly display and ask what they can do.”

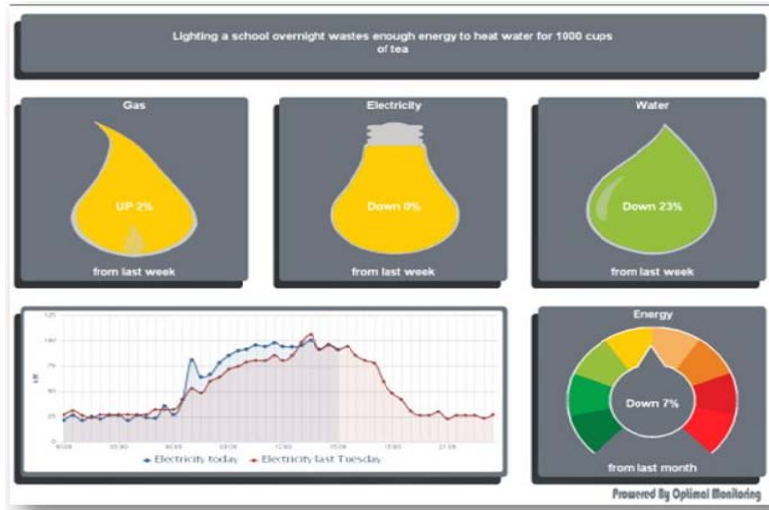


Figure above: Sample dashboard display; Building occupants are fed real time usage data via the dashboard displays, keeping them informed and involved in the carbon reduction program and encouraging participation through the carbon reduction initiative.

### Conclusion:

ABS has been able to enhance its award winning Continuous Commissioning service by using EMOTR at the beginning and the end of a project. It is now able to identify avoidable waste and validate and showcase savings achieved. The ability to see and understand the building’s performance before and after an energy efficiency project increased the motivation and reach of both building managers and occupiers.

EMOTR elevates M&T to a new level by enable those involved with energy efficiency to make 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 without compromising and often improving occupant comfort.