White Paper's energy efficiency advice

A new White Paper from Spirax Sarco is designed to 'show how hospitals and healthcare institutions can improve the energy efficiency of their steam systems, reduce risk, and cut emissions in order to help meet NHS targets'.

The company said: "Using steam to provide hot water for space heating and domestic duties such as handwashing and cleaning, and sterilisation, is a significant contributor to the overall UK healthcare sector's overall energy bill. Yet there is huge potential to save thousands of tonnes of emissions annually by applying existing and innovative steam system technologies. The investments needed are relatively low; even small-scale projects can reap surprisingly high returns."

The White Paper outlines the options available, and gives examples of the potential savings. Examples include replacing conventional hot water calorifiers with the latest compact steam-to-hot-water on demand systems, and improving systems to maximise the return of condensate to the boiler feedtank. Included are several case studies which reveal the energy and cost savings UK hospitals have achieved by investing in new technologies.

To download the Healthcare Steam Systems White Paper, visit www.spiraxsarco.com/uk/resources/White-Papers.asp.

Identifying faults fast to reduce costs

Medical facilities are under increased pressure to ensure availability of critical systems, and protect their electrical infrastructure, while simultaneously reducing energy consumption. According to Bender UK, 'the impact of complex system interactions such as flicker, transients, and harmonic components, is felt in the form of faults, failures and, in the worst case, irreparable damage to equipment and systems'.

The company says its LINETRAXX power quality monitoring (PQM) units equip clinical facilities to substantially reduce costs by identifying faults before they become a problem. The PQM devices also act as energy meters while checking the system quality, determining the energy consumption per cost centre.

Bender said: "For example, LINETRAXX can show the effects of faulty network components or interaction and interference on the efficiency of the network. PQM units also safeguard the quality of electricity supply by tracking and recording fluctuations in current. Power quality monitoring is particularly effective when combined with residual current monitoring and advanced on-line earth fault location systems to monitor power systems."

Bender says employing its COMTRAXX CP700 Condition Monitor with LINETRAXX (see photo) enables FM teams to see actual and potential 'hotspots' in a system; for example identifying lights, heaters, and computers that have been left switched on.

Directive to take effect in September

The Ecodesign and Energy Labelling Directives for water heaters and hot water storage tanks come into force on September 26 this year, and will ensure that only the most efficient water heaters are being manufactured, specified, sold, and installed, says Jonathan Tedstone, category manager for Andrews Water Heaters (pictured).

He explained: "From 26 September 2015 water heaters and storage tanks with an output of up to 400 kW and storage volume of 2,000 litres will need to meet minimum energy performance criteria, and those with outputs of up to 70 kW and storage volumes of 500 litres will require an energy label. This is in line with the EU Directive 2009/125/EC."

The company added: "The energy efficiency bands will initially range from A to G, but will eventually extend to A+++. Conventional water heaters will have an A-G classification, while A+, A++ and A+++ will be reserved for products that use renewable energy. Additional performance and efficiency parameters will need to be conveyed via a 'technical fiche' included in the product installation manual, and available in product literature and on company websites."

Better data, quicker fault-finding

A Trend 963 Supervisor graphical user interface that brings together information from any one of the Trust's 32 locations is helping London's Guy's and St Thomas' NHS Foundation Trust quickly identify and qualify any problems before dispatching an engineer – via the ability to monitor, in real time, the operation of building engineering services plant.

Traditionally, each building had been operated as a separate entity, with no cohesive, central management. Trend said: "The resulting lack of visibility made it very difficult to maintain a high quality patient care and working environment. In the event of a problem, the time spent travelling to sites to rectify it was an issue, with multiple visits often required."

The Trend 963 Supervisor system was initially trialled over four sites.

Standby power upgrade for Guy's

Finning Power Systems (Finning) is to deliver the new 11 kV emergency electrical services standby generator system for Guy's Hospital in London.

The hospital is upgrading its old standby generator system. Finning is providing three Cat C175-20 generator sets, each with an output of 3,200 ekW, reportedly the highest available from a single high-speed generator set in the UK.

Guy's Hospital is building a new Cancer Centre, and is increasing its electrical standby power capacity. Working with Eta Projects, the Trust's specialist power engineering consultants, Finning is supplying a generator system that will provide 100% of the standby power requirement to the Cancer Centre in the event of mains power failure, and 80% of the entire hospital's standby power.

David Porter, the Trust's head of Compliance, said: "The C175-20's small footprint means the new units can be housed within the existing generator rooms without major building modifications."

LED lighting is expected to save over £525,000 in a decade

Recognising the need to reduce its lighting energy spend and maintain good illumination in its external car parking areas, Spire Healthcare invited Future Energy Solutions (FES) to undertake a comprehensive feasibility study to scope the objectives and determine the optimal LED lighting and commercial solution.

FES created a full project scope for the supply and installation of LED lighting, and a fully comprehensive rollout plan began in June 2014.

Now *in situ*, the luminaires have achieved over 70 per cent energy savings from a simple point-for-point replacement, and 25 per cent better light output. They also offer an enhanced rated life '3-20 times' that of the old luminaires.

The new lighting should save Spire Healthcare over £525,000 over a 10-year period – including over £385,000 in energy savings, over £110,000 in maintenance

costs, and £27,000 in environmental tax savings related to its inclusion in the CRC Energy Efficiency Scheme.

FES added: "With an overall energy usage reduction of over 266,000 kWh, the environmental impact will also be significant, with CO_2, mono-nitrogen oxide, and sulphur dioxide (SO_2) emissions all drastically lowered. Alongside the financial savings, the lit environment has been significantly improved." (see photo).

A 'fresh approach' to BEMS maintenance

ABEC says its new Focus Energy 'package' takes a fresh approach to standard BEMS planned maintenance 'using a combination of remote and on-site control of building management systems'.

The company explained: 'The package swaps around 20% of a company's building maintenance services from onsite to remote support, creating both time and cost savings. These savings are then used to introduce ABEC's dedicated energy-based support tasks, carried out weekly or monthly." Focus Energy reportedly 'costs the same' as a standard BEMS maintenance contract.

ABEC added: "Savings of 7-10% on energy bills can be expected, and will often amount to more than the cost of the BEMS maintenance."

Daniel Kittow, MD, explained: "BEMS systems can control up to 84% of the energy consumption of commercial buildings."

Cheltenham General opens £3.1 m energy centre

A recently opened, 'newly revamped' £3.1 m energy centre at Cheltenham General Hospital designed and installed by Vital Energi, which will operate and maintain it under a guaranteed Energy Performance Contract for the next 18 years, will save Gloucestershire Hospitals NHS Foundation Trust over £10 million, and reduce carbon emissions by over 32,000 tonnes over the contact term.

At the opening, Trust Chair, Professor Clair Chilvers (pictured with Ashley Malin, project development director, Vital Energi), said: "We had two specific ambitions – to significantly reduce the amount of money we spent on heating to allow us to reinvest savings into frontline services and patient care, and to reduce our carbon emissions. I'm delighted to say

this project will deliver both. It's a big success story for our Trust, for Vital Energi, and for the Carbon & Energy Fund, whose framework meant the project went from contract signature to practical completion in under nine months."

Vital Energi says the project will deliver a 30% financial reduction on the Trust's energy bills, and cut carbon emissions by 1,789 tonnes annually – a 40% reduction.

Both the Department of Health and Aviva contributed towards the CEF-procured scheme.

Saving energy on hot water and heating

Hamworthy Heating has developed a new CIBSE-accredited CPD presentation examining how to save energy in commercial heating and hot water projects, and 'the best way to quantify those savings from the whole-life perspective'.

The seminar looks at equipment selection priorities, using practical examples to 'highlight the benefits to the bottom line' of improvements such as using higher efficiency and close load matching modular condensing boiler systems in place of traditional atmospheric and steel shell boilers.

Guide to how variable-speed drives can save energy

A guide to using variable-speed drives and motors in healthcare premises to help reduce energy consumption and carbon footprint is now available from ABB.

The company says that by investing in energy-efficient variable-speed drives (VSDs) and high-efficiency electric motors to control HVAC systems, hospitals can potentially lower their energy use 'by 20 to 60 per cent'.

Titled 'A guide to using variable-speed drives and motors in hospitals and healthcare centres', the new guide explains how using VSDs to control HVAC pump and fan systems 'increases system efficiency by adjusting the motor speed to the correct operation point'. ABB says applying a VSD to a 75 kW motor in continuous duty can save nearly £15,000 annually on one single application, while significantly reducing a site's carbon footprint.

It added: "There are many pumps and fans that could benefit from VSD control, resulting in significant savings, greater comfort, lower noise levels, and reduced maintenance costs."