

Healthy savings

Paul Suff on how an NHS trust is pioneering energy performance contracts

Energy performance contracts are often described as too good to be true, but they are a low-risk way of reducing consumption and costs. An EPC is a partnership between a customer and a utility company or equipment supplier to improve the energy efficiency of its buildings and facilities. The energy savings are guaranteed, typically until the project costs have been covered, with the customer accruing the ongoing savings. The Energy Efficiency (Encouragement, Assessment and Information) Regulations 2014 define an EPC as an arrangement under which energy efficiency measures are:

- provided, verified and monitored during the whole term of the contract: and
- paid for by reference to a contractually agreed level of energy efficiency improvement or other agreed criteria such as financial savings.

EPCs are popular in the US public sector. BRE reported in 2013 that the EPC market there had grown from \$2.6 billion to \$6.2 billion over the previous 10 years. EPCs are less common outside the US. But Alexandra Hammond, associate director for sustainability at Essentia, is hoping that more public sector organisations in the UK will agree EPCs: “The NHS alone has the potential to cut energy costs by up to 20% and reduce its carbon footprint by up to 25%. Savings across the whole NHS of around 14% would total more than £100 million, enough to employ nearly 3,000 nurses. EPCs can blend the ‘quick wins’ with those that add value but perhaps do not have the necessary defined paybacks, helping public bodies achieve a programme of investment that delivers lasting value.”

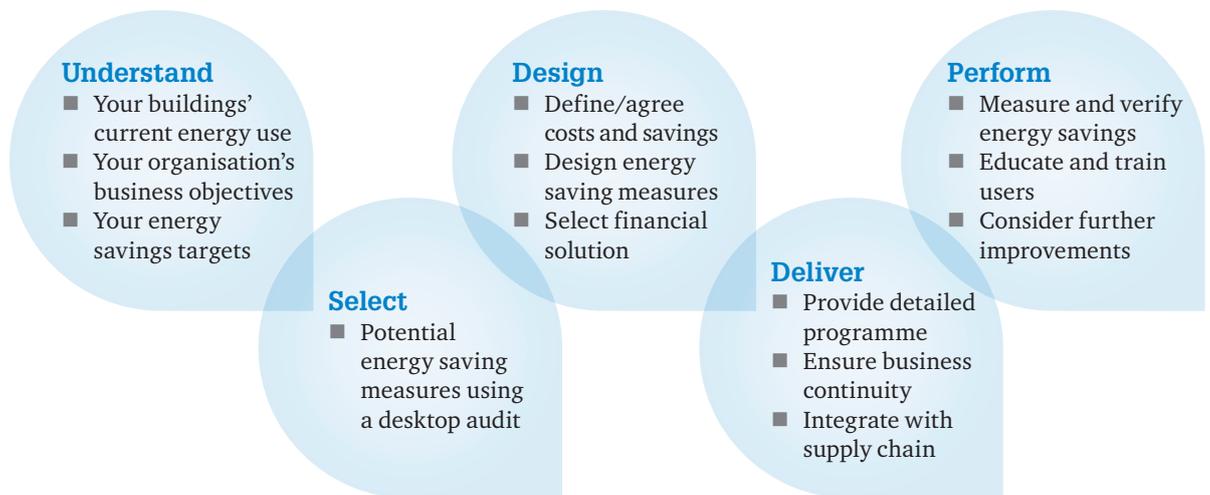
With energy prices expected to rise over the long-term, Hammond outlines the potential for savings in financial terms. “An organisation spending around £4 million a year on energy can expect the cost to increase to £9.9 million over the next 10 years, and to £15.5 million by 2030,” she says.

A framework agreement

Essentia, which is the commercial arm of Guy’s and St Thomas’ NHS Foundation Trust and provides sustainability services to other public sector organisations, recently signed an EPC with British Gas. It will save the trust at least £1.3 million a year on energy costs and cut annual carbon emissions by 7,500 tonnes. The cost of the energy-saving measures is £10.3 million and is funded entirely by

Recladding the façade of the 148.6m tall tower at Guy’s Hospital – the world’s tallest hospital building – will help cut annual energy consumption by 18%

Essentia's five-stage EPC model



the trust. "The numbers are really compelling. These are guaranteed but, because we are tendering for all the work, I am confident we can generate even higher savings at lower cost," says Hammond, who has spent the past two years developing the trust's EPC framework.

Essentia says this can provide a model for other NHS bodies, local authorities and universities to guide them through the process, speed up the project and save money. It consists of five stages (see above), from understanding an organisation's energy use and its business objectives to measuring and verifying energy savings, and educating and training users. "The framework includes standard terms and conditions and pre-written contracts, saving money on legal fees," says Hammond.

Also included is technical support, independent measurement and verification, assessment of the technical and commercial risks, assistance with financial modelling and legal support.

Essentia has also "pre-procured" eight energy companies, including British Gas, enabling organisations to go straight to a provider without having to engage in the lengthy, official public sector procurement process. Pre-procurement of suppliers by Essentia involves checking their financial viability, insurance arrangements and experience, for example, saving other public sector organisations time.

Hammond says energy firms must also uphold core values of collaboration. She stresses that suppliers' ability to work collaboratively with clients is at the heart of the process: "The framework is not just about getting the paperwork right, dotting the 'i's and crossing the 't's. It places a responsibility on the energy firms to work with their clients to deliver best value and innovative solutions."

British Gas says the key to a successful EPC is to develop close working relationships between the parties. It says an EPC typically has four phases:

- agreement on project criteria and key outputs;
- an investment audit to establish a baseline of energy use and quantify potential savings;
- design and implementation of agreed solutions to deliver the energy and carbon improvements; and
- performance management or the measurement and verification phase.

The eight energy firms involved in the Essentia framework vary in size, but Hammond says all recognise the importance of continually engaging the clients, even the people who are not directly involved in energy matters. "They know when to talk to the medical director or the finance director," she says.

Hammond reports that 12 NHS trusts, including Barts and St George's as well as her own, have gone through the process (see panel, p.24).

Securing savings

Guy's and St Thomas' has a record of investing in technologies and upgrading facilities to reduce energy consumption. The trust installed combined heat and power (CHP) units in 2009 at its two main hospital sites in south London. The 3.2MW units provide around half of the trust's annual electricity requirements, while the waste heat generated is reused for each hospital's heating and hot water supplies. They also cut annual emissions by about 11,300 tonnes and save the trust almost £2 million a year, which is reinvested.

Hammond says there was concern that such initiatives would limit the opportunities to further save energy through the EPC. "We wondered before the British Gas assessment whether the installation of the CHP units in 2009 would mean there wasn't much more we could do to save energy," she recalls. "But it turned out that we had the most compelling payback of any EPC British Gas had ever assessed."

The audit, which took place over six months and involved experts from British Gas and energy services business Breathe Energy, identified 32 technologies to install, including new boilers, automated heating systems and solar panels. "Breathe was responsible for the technical audits and British Gas for how to implement the technologies," says Hammond. "The biggest single saving, more than £1 million, will come from lighting." The trust has been gradually replacing conventional lighting with LEDs for years in 24-hour areas such as corridors, but the detailed lighting design produced by British Gas targets areas such as wards, which are harder to access. "Initially we will be replacing light fittings with LEDs, but the contract also includes designing


 A photograph of a white sign for Guy's & St Thomas' Hospital Trust. The text 'Guy's & St Thomas'' is in a large, blue, serif font, with 'HOSPITAL TRUST' in a smaller, blue, sans-serif font below it. To the right of the sign is a large, blue NHS logo.


 The NHS logo, consisting of the letters 'NHS' in a bold, white, sans-serif font inside a blue square.

Essentia's work at Barts and St George's

Barts Health NHS Trust

Barts Health NHS Trust procured its EPC with Skanska through Essentia's framework. Agreed in January 2014, the EPC aims to reduce annual energy consumption by 21% and carbon emissions by 34% at three of the trust's sites – Newham and Whipps Cross university hospitals, and Mile End hospital.

Under the contract, Skanska guarantees that the energy-saving measures put in place will generate enough savings to pay for the project, lasting 12 years. Skanska says the project will help reduce the hospitals' running costs, and the technologies and initiatives will help to improve the internal and local environments at the sites.

St George's NHS Healthcare Trust

In summer 2014, St George's NHS Healthcare Trust in south London agreed an EPC with British Gas and Breathe Energy. Over the 15-year contract, the Tooting hospital's total annual energy costs should reduce by 25% and more than 6,000 tonnes of carbon emissions will be saved each year. Financial savings to the trust are estimated at more than £1 million a year during the lifetime of the contract, which was delivered through Essentia's EPC procurement framework.

The £12 million cost of the project is being funded by a loan from the London energy efficiency fund. The money will be spent on a range of energy-saving measures, including the installation of combined heat and power boilers, absorption chillers and solar photovoltaics, as well as changes to the steam, and ventilation and air-conditioning systems.

"Working alongside the trust, we have reviewed its estate and put in place a bespoke plan to help dramatically reduce energy costs and carbon emissions," says Mike Chessum, head of energy construction services at British Gas. "These savings are guaranteed by the contract and means the trust can make a positive return on its investment."

systems to light a space more intelligently," Hammond says. "Research suggests that clever use of lighting, particularly systems mimicking daylight, can aid the healing process. If we can use lighting to improve health outcomes and discharge patients earlier that will have huge benefits for our organisation."

Hammond says the rollout of the different technologies under the EPC will link with the £1 billion capital investment being made by the trust over the next five years. "We need the two programmes to work in parallel," she says. "In the past, we have been guilty, like most organisations, of taking a piecemeal approach: projects were done with the best intentions, but would conflict with other priorities and result in systems that did not work well together." To ensure coordination, the capital development team must consider energy management in every project and work across projects to rationalise equipment and make sure the trust estate can adapt to future service needs.

Installing the technologies will take around 20 months, starting with equipment that will soon need

replacing. "We have put together a new project register," says Hammond. She is keen to point out that the in-house engineering teams have been involved in the process. "We knew where most of the big opportunities to save energy were. Breathe and British Gas didn't identify many things that we were not already aware of," she says. "The difference with the EPC is that we are guaranteed the savings. If British Gas does not meet the targets, it has to write us a cheque." The other advantage from using an outside supplier is that there is a greater impetus to quickly secure potential savings. "In the past, equipment would be replaced when necessary and only then would we enjoy the savings. It was more of an accidental benefit," she says.

The contract has enough flexibility to allow emerging technologies to be installed. "Innovation is moving apace and if something better comes along it can be installed when equipment needs replacing or as a separate piece of work," says Hammond.

Getting it right

She has several tips for organisations considering an EPC. Communication is crucial, she says, because EPCs are often misunderstood: "The key message is that you do not have to give away your savings. It is important that senior management understands that EPCs are not about the energy supplier taking all the savings. Guy's and St Thomas' will save money on its energy bills – at least 10% a year is promised and it will retain any savings above the guaranteed level."

Communicating the potential benefits across the organisation is also important. "It's important that everyone understands why the EPC has been agreed. At Guy's and St Thomas' I didn't want anyone to be surprised when we presented the plan to the board," says Hammond. Moreover, the message must be relevant to the recipient: "Some parts of our estate are very old and the plant is working hard to maintain the right temperature and sufficient air changes. So when the contract was explained to the chief nurse we focused on how it would improve the environment; how more efficient equipment would make our facilities better places in which to treat patients and for staff to work. Similarly, the medical director is not particularly interested in how the contract will result in less planned preventive maintenance. But if I tell him it is likely to reduce the duration of someone's hospital stay, he gets that."

She advises public sector organisations to investigate EPCs and take advantage of the relatively cheap finance that is available. She lists as potential sources of finance Salix, which since 2004 has funded almost 13,000 projects, the Green Investment Bank, the London energy efficiency fund and similar regional sources. "There are a lot of things public sector organisations could do to save money on their energy bills and plenty of sources of finance. They need to make it a priority," says Hammond.

The balance between new and now ideas

How Technology Show Success on person best practices and projects, says Director Steve Chastain

While embracing new ideas in the built environment has long been a goal of many organizations, the challenge is to do so in a way that is both effective and efficient. This is where technology can play a significant role.

As a leader in the industry, it's important to stay on top of the latest trends and technologies. This means investing in the right tools and training for your team. It also means being open to new ideas and ways of thinking.

At the end of the day, the goal is to create a culture of innovation and continuous improvement. This means encouraging your team to think outside the box and to embrace change.

Technology can help you do this in a number of ways. For example, it can help you streamline your processes and improve your productivity. It can also help you collaborate more effectively and make better decisions. By embracing technology, you can stay ahead of the competition and create a more successful organization.

As a leader, it's your responsibility to ensure that your team has the resources and support they need to succeed. This means providing training and development opportunities, as well as creating a supportive work environment. By doing this, you can help your team reach their full potential and drive the success of your organization.

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