

CASE STUDY CHP Boilers

Combined heat and power plants offer great potential for energy savings. British Gas teamed up with Ceres Power, a small UK company, to produce a domestic fuel cell CHP boiler that essentially turns your home into a power plant.

Rather than burn the gas, the boiler passes it through a fuel cell that simultaneously creates electricity and heat (and thus hot water). Any surplus electricity produced can be sold back to the power company. The boiler could cut gas and electricity bills by up to a quarter and reduce carbon emissions by 2.5 tonnes per household every year, British Gas says.

Poor energy efficiency costs UK businesses an estimated £2bn annually (Source: Carbon Trust)

Most UK businesses could reduce their total direct energy consumption by up to 40% (Source: Energy Saving Trust)

This Tesco eco-store in Wick, northern Scotland uses wind turbines to power tills and save energy generally



Less can be more

The quest for new energy sources continues. But just using a lot less in the first place might be more effective, writes Mike Scott

For a long time, energy efficiency was the forgotten weapon in the battle to cut carbon emissions. But now, says Michael Liebreich, CEO of analysts New Energy Finance, “policy-makers and investors worldwide are cottoning on to the arithmetical reality that if you want to reduce fossil fuel use, it is easier to do it by increasing the efficiency of the 98 per cent of energy generation that is non-renewable, than by adding to the 2 per cent that is renewable”.

The International Energy Agency says \$2.4 trillion should be spent on energy efficiency by 2030, but that this would save an impressive \$8.1 trillion in energy bills and another \$3 trillion from not having to build new power stations.

With energy prices soaring and a big increase in regulation, the case for

using energy more efficiently will only get stronger, says John Huddleston, knowledge leader at AEA Technology.

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Energy efficiency covers a wide variety of areas and the solutions will differ depending on the type of business or home you are looking at, says Clare Shuttleworth, head of the Sustainability Bureau at consultants White Young Green. “The easiest improvements are

often behavioural – simply getting people to switch off the lights and their computers at the end of the day, or encouraging more people to cycle by installing secure cycle storage and shower facilities.”

Regulation covers most energy users, from the heaviest industrial groups (the EU Emissions Trading Scheme) to domestic users (the Carbon Emissions Reduction Target, which requires utilities to encourage customers to use less energy), says Mr Huddleston. Large non-energy intensive groups will be subject to a cap and trade scheme, the Carbon Reduction Commitment, from 2010. “There is still a lot of low-hanging fruit in industry and because there will increasingly be a carbon cost associated with this, companies will have to think about the carbon implications of their operations,” he adds.

Technology

The spread of technological solutions to energy problems is becoming ever more sophisticated. “The first step is to establish a baseline,” says Ms Shuttleworth – “you need to know how much energy you are using and which areas offer the most potential for savings.” This is where smart metering comes in – the devices cut consumption by about 5-10 per cent just by making people more aware of the energy they are using and of what appliances consume the most power. Professor Martin Fry, from the Energy Institute, says this information is vital for businesses and homeowners alike: “This will enable them to understand their patterns of use and take steps to reduce wastage. There is little opportunity to make savings without that basic information.”

When the UK arm of T-Mobile installed smart meters, it led to a 31

per cent cut in its energy use, says Hugh Jones, Director of Solutions at the Carbon Trust.

The growing array of options and obligations is providing a boost for environmental consultancies such as Semplice Energy, which has developed a range of industry-specific solutions ranging from the eco-bakery to an eco-farm.

The company advises clients such as McDonald’s, the National Trust and the London Fire Brigade on the different efficiency technologies available, renewable energy options, the legal obligations they will face and the various grants that are available, says CEO Mark Trusswell. “There are very few companies in this field that can provide the whole package from cutting consumption through to installation of on-site wind turbines.”



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