WHAT IS THE FUTURE OF ENERGY GENERATION FOR RETAILERS?

Whether it's using food waste to power supermarkets, installing wind turbines on roofs or hosting solar panels for local communities, retailers are taking increasingly innovative approaches to energy generation, as **Nick Hughes** finds out

Sainsbury's uses LED lighting in its Leek store

For businesses generally there has never been a better time to invest in green energy. With the price of conventional fossil fuels perpetually rising and big polluters facing penalties under the Government's CRC Energy Efficiency Scheme, the business case for renewables, which was once hard to make, has now become hard to ignore.

But with so many green solutions now available, navigating the market and finding the right solution for your business can be a challenge.

"There is a wide range of technologies that are cost-effective and can have a sizeable impact on emissions that relate directly to each store," says Giles Bristow, director of programmes at sustainability adviser Forum for the Future. "At a store level, you can look at generating your own power through solar PV, installing small to medium-sized wind turbines or using ground-source heat pumps."

WEIGHING UP THE OPTIONS

B&Q is just one example of a retailer using a suite of these options to green its operations. The retailer's store in New Malden, southwest London, which opened in 2009, uses wind turbines and solar panels on the roof as an energy source, and the building is heated and cooled through a ground-source heat pump that takes energy from the earth from 108 bore holes, situated 100 metres underground.

Bristow also cites anaerobic digestion (AD) as an increasingly attractive option for retailers, in particular grocery retailers, which can turn food waste into fuel. Sainsbury's Cannock store in the West Midlands is powered entirely by its own food waste, generated by the nearby Biffa AD facility (see box on page 6).

"We send absolutely no waste to landfill and are always looking for new ways to reuse and recycle, so we're delighted to make use of this linkup technology, allowing our Cannock store to be powered entirely by our food waste," says Paul Crewe, head of sustainability at Sainsbury's.

While AD is an innovative approach, it may not be suitable for every retailer. "A lot depends on where you are sited and what you can do with the digestive material you produce," says Nia Owen, principal consultant at energy and environmental consultancy Ricardo-AEA. "You

need to be somewhere close to land where the waste product can be applied as a fertiliser."

Owen believes solar PV may have more mainstream appeal than AD as retailers tend to have large roof spaces where the panels will have little visual impact. "However, solar PV won't suit everyone as you will need a sloping roof," she adds.

ONE SIZE DOESN'T FIT ALL

Both Owen and Bristow agree that there is no one-size-fits-all approach to green energy generation. "Retailers will need a suite of solutions for their estate based on the attributes of individual stores," says Owen. "They should start by doing a desk-based study of what is suitable for each store and go from there."

Often decisions will come down to what the capital cost of any investment is. "For some retailers, the payback periods need to be very competitive for schemes to stack up," says Owen. "Others take a longer-term view."

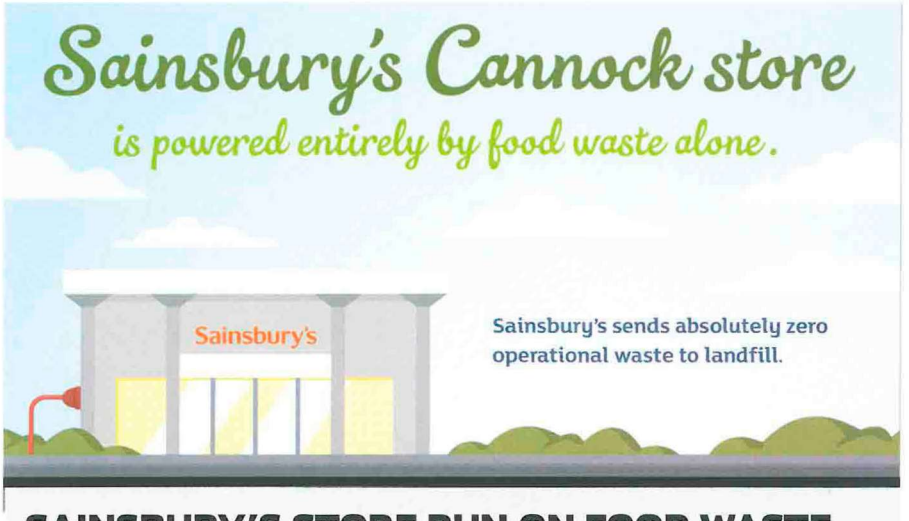
Bristow points out that renewable energy generation technologies are rapidly reaching cost parity with conventional fossil-fuel-based sources. "The cost of using solar PV will equate to the cost of purchasing fossil-fuel-based sources in a few years' time," he says. "The cost is reducing rapidly and will continue to do so."

Often the cost benefit is stronger on new builds than it is when retrofitting old buildings and hence, for older premises, many retailers tend to favour energy-efficiency initiatives rather than green energy generation.

GREEN MAKES SENSE

Aside from cost there are other incentives for retailers to green their energy supplies. Last year, energy regulator Ofgem said Britain's store of spare electricity capacity could slump to as low as 2% in 2015. With the spectre of blackouts looming large, having your own energy supply is a great hedging strategy, according to Bristow.

There is also a positive corporate social responsibility story to be told from investing in green energy. Increasingly, retailers are tying in green energy investment with their activities to support local communities. The Marks & Spencer store in Muswell Hill, north London, for example, hosts 100 solar panels on its roof, which provide enough electricity to power a number of local houses.



SAINSBURY'S STORE RUN ON FOOD WASTE

Sainsbury's already had a commitment to send zero operational waste to landfill, so when the opportunity arose to run its Cannock store in the West Midlands on power generated solely from the supermarket's own food waste, it was too good an opportunity to pass up.

Food waste collected from Sainsbury's is turned into bio-methane gas at the nearby Biffa Anaerobic Digestion plant, which then uses it to generate renewable electricity.

Power for the Cannock store is directly supplied by Biffa to the supermarket via a newly constructed 1.5km cable, which allows the site to come off the National Grid for day-to-day electricity consumption.

Sainsbury's says this use of anaerobic digestion is cost-effective, with the amount saved on energy bills running into six figures. And, because Sainsbury's is diverting its waste to Biffa, the retailer also saves the £100 per tonne cost of sending it to landfill.

Sainsbury's has started with Cannock because of the convenient distance to the Biffa site and believes the store will act as a template for how such a closed-loop system can be incorporated into other shops.

Last December, John Lewis signed a new energy supply deal that will support renewable generation projects owned by communities, farmers and small businesses across the UK. The agreement will see Smartest Energy, which buys electricity from independent generation projects, supply more than 380 Waitrose and John Lewis sites with renewable energy.

One issue of concern for businesses, though, is the relatively limited supply of green energy in the UK. Renewables account for just 4% of the UK's total energy consumption, placing it third from bottom in a European league table, and for all the private sector interest in green energy generation, there are doubts as to whether this ambition is matched by that of the Government.

A recent report from Ernst & Young (EY) concluded that the UK's appeal as a destination for renewable energy investment is now at its lowest level for almost five years as a result of a combination of domestic and international factors.

Ben Warren, environmental finance leader at EY, says there is "a perfect storm" of reasons for a fall in the appeal of the UK's renewables market. Internationally, competition is intensifying, and emerging markets such as Brazil and South Africa are threatening the UK's ability to attract investors. Domestically, meanwhile, the sector is weighing the impact of a recent consultation on solar subsidies that will see the Government withdraw renewables obligation support for solar projects above 5MW two years earlier than planned.

Wind power is also under attack from outside forces, with trade body RenewableUK publicly criticising the communities secretary Eric Pickles for refusing all but two of 50 planning applications for wind farms since being awarded powers to personally make decisions on applications last year.

While the Government pontificates on the merits of renewables, it will be left to businesses – and retailers in particular – to lead the charge to go green.

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Giles Bristow, Forum for the Future