
Energy efficiency

Getting down to business

Harnessing energy efficiency on the path to net-zero

The urgency of acting on climate change has never been greater. The business community has backed the UK's net-zero target to help shape our response to this global crisis. But there is much we can do at home and improving energy efficiency across the economy is a vital next step.

In response to this challenge, the UK Government accepted advice from the Committee on Climate Change and legislated for a net-zero greenhouse gas emissions target for 2050, becoming the first advanced country in the G20 to do so.

The business community is in full support of this target and is ready to play its role in delivering the new technologies and services that will make this a reality. But time is short, and the reality of meeting net-zero emissions in thirty years means that the next decade will be crucial if we are to remain on track.

Improving energy efficiency is a fundamental priority if we are to achieve net-zero emissions. The UK faces many challenges in this regard, including the retrofit of people's homes, which means that improving the energy efficiency of our business and industrial premises is even more urgent.

The UK's energy efficiency policy framework has not always helped businesses looking to invest. However, recent developments suggest a step change is coming as it appears that government is renewing its focus on cracking the problem. In its 2018 Budget, the Government announced that the savings from the ECA would go towards a new

Industrial Energy Transformation Fund (IETF), with the Government committing up to £315m over five years to this Fund with the aim of transforming the way businesses use their energy. The new government indicated ahead of the election its intention to spend big on energy efficiency, and in a year with two Budgets, a spending review, and COP26, there will be ample opportunities for policy makers to layout their plans.

In addition, business has welcomed the government's ambition for all non-domestic privately rented buildings to achieve a Minimum Energy Efficiency Standard level of EPC B by 2030, provided the measure or package of measures required to reach an EPC B prove cost effective.

The upcoming Energy White Paper also provides an opportunity for the Government to set a path for business and industry to help deliver the government's vision through major investment and innovation during the 2020s.

Although we have seen businesses of all sizes take action on energy efficiency, reoccurring barriers still exist, mainly around a lack of a clear policy direction, a lack of business prioritisation of the benefits of energy efficiency across all sectors and a limited set of financial incentives.



The benefits of improved energy efficiency cannot be overstated. A 20% improvement on energy efficiency by 2030 could deliver up to £6bn in cost savings for the UK economy, use freeing up further capital and creating health benefits. In addition to this, the energy efficiency market already employs around 141,000 and has a turnover of over £20bn. Energy efficiency pays off.

One immediate action the government could do, is designate energy efficiency as a national infrastructure priority. Treating energy efficiency as such would change the way in which it is approached by the government allowing the issue to be prioritised as other public investments such as public buildings and transport infrastructure. This could lead to further and long-lasting investment in energy efficiency.

In addition, more action targeting energy efficiency of SMEs needs to be increased. Our members recognise there is not a one-size-fits-all approach in addressing the barriers in the adoption of energy efficiency in SMEs. However, in order for there to be improvements in energy efficiency amongst SMEs, key issues such as information; expertise and capacity building, access to finance and a clear and long-term policy framework must be addressed.

Any policy scheme adopted by the government to improve energy efficiency amongst SMEs would be impacted by the current business rates system. Currently, the system applies charges to business owners who want to improve their office or energy supply with energy efficiency measures such as energy efficient lightbulbs. Whether a large capital investment, or several smaller upgrades to existing property, any real efforts to invest will see business owners' business rates rise.

As the UK embarks on its journey to a net-zero future, the business community and government need to work together to transform our economy and create a sustainable future. We can and should start with energy efficiency.

James Diggle,
Head of Energy and Climate Change, CBI



Energy efficiency the time is now

UK businesses are going green. And if they're not already, they will soon have to. The UK must decarbonise and businesses - responsible for 18% of the country's carbon emissions - must play their part¹.

In one sense, this is nothing new. We've heard it all before and we've heard all the arguments. It was true five years ago and it will be true in another five. So what makes now special? What makes the same message different this time? And why - for the nervous business owner anxious over costs - is this actually a good thing?

Day by day it's clearer that these aren't the same arguments rehashed and reheated, only to go cool again when the news cycle shifts. Only recently, Extinction Rebellion brought city centres around the UK to a standstill, including much of London; David Attenborough made climate change real and immediate in the comfort of our living rooms; and IPCC reports grow ever graver. The Committee on Climate Change (CCC) warned in no uncertain terms that the UK must be net zero by 2050: not a 50 per cent reduction, not 80 per cent, but total. And the government listened, signing it into law.

At the same time, consumer sentiment has shifted under business' feet. Nearly one third of Britons claimed they either stopped or reduced their consumption of meat², and more than half would be happy to have a meat free meal³. Appetite for electric vehicles is also rapidly rising - in 2017 25 per cent of Britons said they'd consider buying an electric car, rising to 30 per cent just a year later⁴. From sustainable fashion to reducing single-use plastics, similar patterns can be seen across the board.

This time, things seem different. Policy requirements and consumer pressure will only ratchet upwards on the green scale. Even businesses that aren't directly consumer facing will find these values reverberate throughout the supply chain.

Businesses are made by people. And most people in the UK believe in the urgency of tackling climate change. Sixty-seven per cent believe longer and hotter heatwaves are caused by climate change⁵, and 60 per cent said that chief executives of corporations should lead the fight against it⁶. But what about the anxious CFO with their heart set on environmental responsibility but their head rooted in financial responsibility - what are they to do?

Truthfully, it's a false choice. Today, there are a wealth of proven, established energy technologies with a rock-solid investment case that pay for themselves. Energy efficiency is the no-regrets, no-brainer place to start, but the same increasingly goes for onsite energy generation and storage technologies too.

¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/790626/2018-provisional-emissions-statistics-report.pdf

²<https://www.bl.uk/collection-items/are-we-eating-less-meat-a-british-social-attitudes-report>

³<https://yougov.co.uk/topics/politics/articles-reports/2017/04/06/over-half-happy-have-meat-free-meals>

⁴<https://www.baringa.com/BaringaWebsite/media/BaringaMedia/PDF/Is-the-UK-ready-for-Electric-Cars-FINAL-WEB.pdf>

⁵<https://www.documents.clientearth.org/wp-content/uploads/library/2018-08-20-clientearths-climate-snapshot-coll-en.pdf>

⁶<https://www.edie.net/news/9/Chapter-Zero--New-executive-level-forum-launched-to-place-climate-change-in-the-boardroom/>

The real question for UK businesses looking to go green isn't: how can we afford to? It's: how can we afford not to?

It's time to act now.

Why now?

For any business looking to invest in energy efficiency, generation or storage technology, the business case must be rock-solid. Fortunately, there are a variety of push and pull factors that can add to the case.

Push factors

The triple pressure point

There is increasing pressure on UK businesses to green their operations. For example, according to the Ethical Consumer Markets Report 2018⁷, more UK consumers than ever are trying to improve the sustainability of their purchases - annual ethical spend per household increased from £542 in 2007 to £1238 ten years later. With younger generations more sustainably driven than older generations, we can expect this trend to increase as these generations hit peak spending power⁸.

However, it isn't only direct consumer pressure that gives businesses a green nudge. The same effect is felt throughout the supply-chain. The HSBC Global Navigator survey 2017 found that almost one third of global businesses are "looking to make changes to their supply chains related to sustainability"⁹. In fact, the same bank has partnered with Walmart to offer discounted financing rates to its suppliers based on sustainability performance¹⁰.

It's not only customers businesses need to be mindful of from a green perspective though - investors are looking for environmental performance too. Investors of all stripes are increasingly looking at environmental, social and governance (ESG) criteria as part of their strategy, with the UK as one of the leading lights in this respect. In 2018, 86.5 per cent of British issuers and 84.9 per cent of British investors have an ESG strategy¹¹. Between investors, end-consumers and supply chain partners, there is a triple pressure point pushing UK businesses to go green.

The policy ratchet

On 2nd May 2019, the Committee on Climate Change recommended the government adopt a net zero carbon target by 2050. By 11th June, outgoing prime minister Theresa May committed to enshrining it in law, making the UK the first major economy to do so¹². If anyone was in any doubt about the direction of policy, this should have made things clear.

On the topic of energy efficiency, UK business has already had ESOS to contend with - though this regulation only mandated measurement and reporting, stopping short of prescribing upgrades.

That's not to mention the swathe of various environmental permitting, waste, air pollution and other environmental rules firms must adhere to.

However, there will likely be more to come. The government's recent Green Finance Strategy is the latest step, which looks at "determining the steps necessary for landlords and businesses to understand and potentially disclose operational energy use."¹³

Businesses should expect more energy efficiency measures, as well as broader policies that will touch on this area such as carbon taxes and accounting. It's difficult to say what new rules will come with certainty, but businesses will need to adapt. In fact, it's essential that UK businesses are shown a clear policy framework on energy efficiency sooner rather than later, in order to pave the way to net-zero with minimal disruption. In absence of such guidance, the best-prepared businesses will be the most energy efficient.

Pull factors

It's not all external pressure pushing UK business down a green road, though. There are just as many - if not more - pull factors, enticing firms by convincing them that this is green is the sensible option.

Reputational benefits

The flip side of customer expectations growing greener is that those businesses that do move quickly to be sustainable can enjoy enhanced reputations, possibly leading to sales and brand loyalty. Even in the business to business arena, a customer looking to green its supply chain will be looking out for firms that can demonstrate their environmental commitment. However, this is subject to diminishing returns.

Go green before the rest of the market and you look like a leader; do it when everyone else is firmly on the bandwagon and you are one among many. Even worse: be the last to the party among your competition and you look old-fashioned and flat-footed. Reputational benefits can be substantial, but only for early movers.

Reduce exposure to volatile energy prices

UK businesses face some of the highest energy prices of advanced economies. Of the 28 current EU member states, the UK ranks 24th for electricity prices for small businesses, with only Cyprus, Germany, Ireland and Italy higher. For medium and large sized businesses, only Cyprus is higher¹⁴.

Energy prices can also be extremely volatile. A bad storm in winter can send both gas and electricity prices rocketing at a time of year when businesses have increased need for both. Many businesses also rightly fear the National Grid Electricity System Operator's Triad scheme, which retroactively bills businesses at a premium for drawing heavy power loads during the three periods of peak winter demand.

All of which is to say that exposure to volatile and expensive energy markets introduces a significant element of risk to a business' bottom line. There are many ways to boost resilience and reduce risk, but one of the surest ways to do so is to reduce total energy demand.

⁷<https://www.ethicalconsumer.org/retailers/uk-ethical-market>

⁸<https://www.morganstanley.com/ideas/ethical-retailing-consumers-survey>

⁹<https://www.business.hsbc.com/navigator/sustainability>

¹⁰<https://www.business.hsbc.com/sustainability/hsbc-and-walmart-partner-to-drive-sustainability-of-businesses>

¹¹<https://www.gbm.hsbc.com/-/media/gbm/reports/insights/sustainable-financing-and-esg-investing-report-download.pdf>

¹²<https://www.theguardian.com/environment/2019/jun/11/theresa-may-commits-to-net-zero-uk-carbon-emissions-by-2050>

¹³https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/813656/190701_BEIS_Green_Finance_Strategy_Accessible_PDF_FINAL.pdf

¹⁴https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/812323/table_541.xlsx

Bonus benefits

No one wants to work in a murky office. Not only can replacing halogen bulbs with LED lighting save between 65 and 85 per cent, it can improve the quality of lighting, with knock-on effects on employee mood, productivity and health¹⁵.

Similarly, many companies waste money on inefficient, old-fashioned heating and cooling systems. Not only does this raise bills, it can also dent productivity. Eighty-nine per cent of UK office workers claim to lose productivity when the temperature isn't right, with only 16 per cent satisfied with their office temperature¹⁶. Worryingly, 17 per cent admitted to having brought in a personal heater to the office - yielding the collective potential for a significant drain on bills.

Obsolete thinking on energy assumes more is better. More energy means more light and heat and therefore comfort and productivity. Modern, smart energy efficiency programmes often demonstrate the opposite in practice: less can be more.

The bottom line

Ultimately though, for most businesses it comes down to cold hard cash. Fortunately, energy efficiency technologies are investments that typically pay for themselves - often in relatively short timeframes - through lower bills. In a difficult business environment with many headwinds beyond an individual business' control, it pays to focus on where a business can make a difference.

NHS trusts in energy savings

For an NHS trust, every penny not spent on providing patient care must be justified - yet the NHS also accounts for roughly 5.4% of UK carbon emissions. Any way to provide cheaper, greener energy bills is welcome.

That's why East Cheshire NHS Trust embarked on a major energy-saving project in 2014. Focused on two hospitals, the scheme set out to reduce the trust's carbon footprint by 30 per cent and save on energy bills by as much as £2.5 million over 15 years. The centrepiece was a 540 kWe gas-powered CHP generator, installed by Centrica. This was

complemented by updating ageing air chillers, electric radiators and pumps, plus new pipe and valve insulation, 3250 LED bulb and a fine-tuned building energy management system.

The project was calculated to save more than 2,049 tonnes of carbon per year - equivalent to planting 1,680 acres of forest or removing 683 cars from the road. What's more, the investment was structured so that no upfront payment was required. Instead, the entire project is paid for out of energy savings. Any extra savings - and all savings after the 15-year period - are retained by the trust.

¹⁵<https://anesco.co.uk/improve-workplace-lighting-reduce-energy-consumption/>

¹⁶<http://hrnews.co.uk/feeling-the-chill-nine-out-of-ten-uk-office-workers-lose-productivity-due-to-unsatisfying-office-temperatures/>



Making energy add up

We all know a greener economy is important. But for the beleaguered CFO or MD focused on the bottom-line, how can energy investments add up? With their own and others' livelihoods dependent on a profitable business, environmental responsibility can't be pursued without concern for financial responsibility.

Fortunately, many energy investments pay for themselves. Different options have different upfront costs, return on investment (ROI) timescales and risk profiles, so different technologies will suit different businesses. However, the vast majority of businesses could stand to benefit from some sort of energy improvement.

The sensible place to start is energy efficiency. Upfront investments are often lower, as are ROI periods. Risks are also often more manageable - energy efficiency technologies tend to be mature and established, plus they are less exposed to political risk via changes to subsidy regimes. Investing in generation and storage can also be powerful, but it makes sense to start with the low-hanging fruit.

For SMEs, DECC (now BEIS) estimated that business can achieve savings of 18-25% by implementing energy efficiency measures, with an average payback of less than 1.5 years. With such quick pay-offs available and such a variety of technologies to suit any business, the first step toward a sustainable-business future is clear: reduce.

In other spheres, businesses have not hesitated to invest in new technology to improve the bottom line and have reaped the benefits. So much so that these technologies now often seem old-hat. But remember, the first iPhone only kickstarted the smartphone boom in 2007 and communications software Slack only arrived in 2013.

By contrast, LEDs have been commercially attractive since at least 2008, when the Sentry Equipment Corporation in Wisconsin, USA opted for LEDs for their new factory over traditional bulbs. The company spent \$12,000 more than the \$6,000 it would have otherwise cost, but saved \$7,000 per year in energy bills, recouped its investment in less than two years and shouldn't need to replace bulbs for 20²³.

Proven technologies

Technology	Replaces	Savings
LED Lighting 	Traditional lamps	Up to 90% more efficient and last up to 3x longer, reducing maintenance and energy costs ¹⁷
Combined Heat and Power 	Isolated heat and power systems, where all heat requirements are met by a boiler	Users of CHP typically save around 20% of their energy costs ¹⁸
Efficient Boilers 	Older, non-condensing boiler with limited control	10-30% efficiency saving ¹⁹
Building energy management systems 	Un-linked & non-intelligently monitored building systems such as lighting, cooling, heating & ventilation	Well used, a building energy management system can deliver 10% energy cost reductions ²⁰
HVAC (heating, ventilation and air conditioning) 	Un-zoned HVAC systems with no close-control functionality	Up to 20% efficiency saving ²¹
Variable speed drives 	Fixed speed drives for motors such as centrifugal pumps or fans	Energy consumption can be reduced by as much as 60% - for a 90 kW motor used [Aspectus5] continuously, this can save over £9,000 per year
Pumping systems 	Older, inefficient pumping systems	Pumping system improvements can deliver up to 40% energy cost reductions ²²

¹⁷https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/417410/DECC_advice_guide.pdf

¹⁸https://www.carbontrust.com/media/19529/ctv044_introducing_combined_heat_and_power.pdf

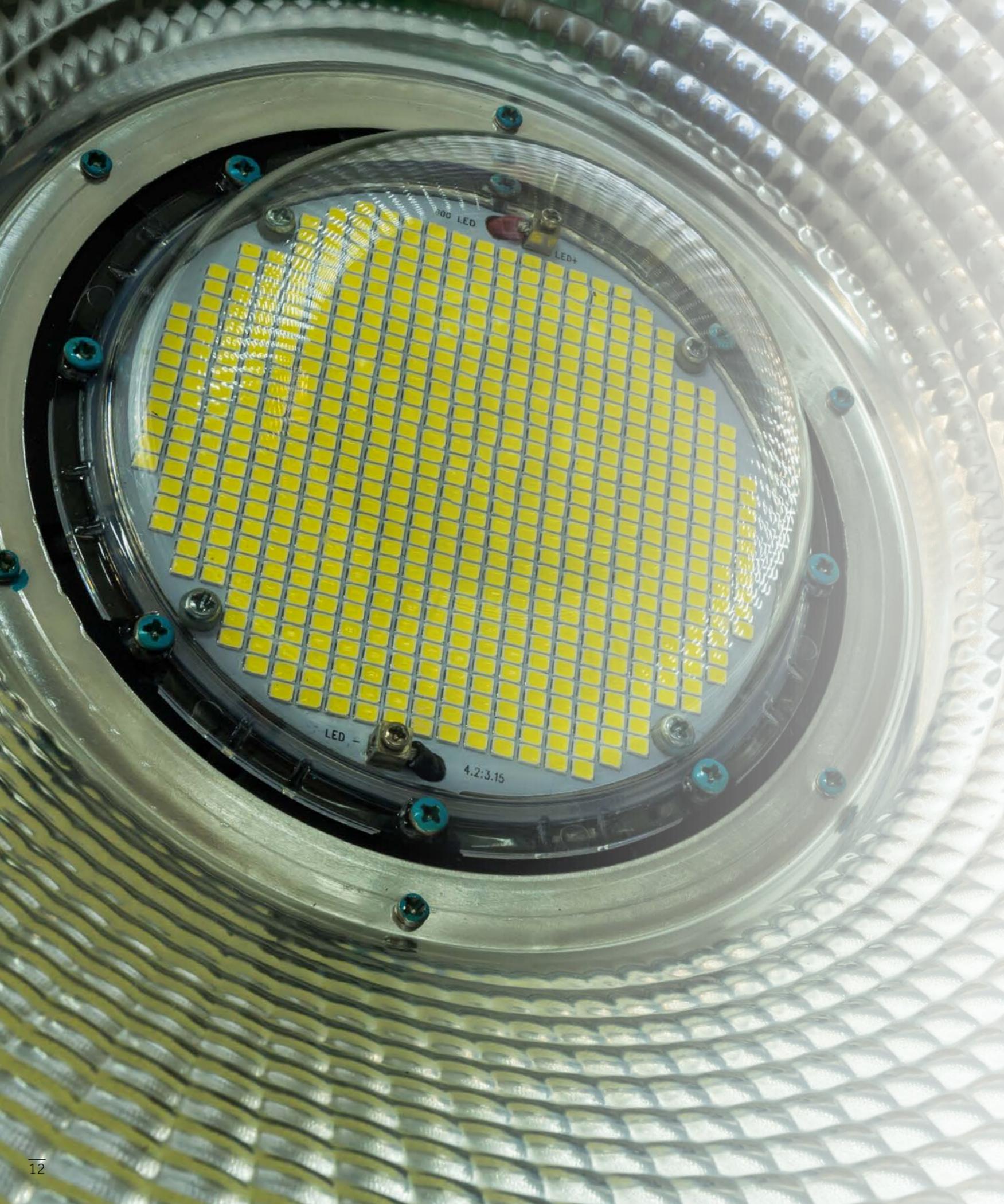
¹⁹https://www.carbontrust.com/media/147107/j7743_ct1143_condensing_boilers_aw.pdf

²⁰<https://www.carbontrust.com/resources/guides/energy-efficiency/heating-ventilation-and-air-conditioning-hvac/>

²¹https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733929/HVAC_Technology_Information_Leaflet_August_2018.pdf

²²<https://engineering-update.co.uk/2015/07/23/the-energy-savings-opportunity-scheme-esos-and-pump-system-audits/>

²³<https://www.nytimes.com/2008/07/28/technology/28led.html>



LEDs in action

RCM Products is a true British small manufacturing success story. Established in 1948, its 32 employees create standard and bespoke grilles, louvres and diffusers for air conditioning and heating systems. With a reputation built on quality and attention to fine-detail, it was essential to provide employees with plenty of light to see their work.

However, traditional lighting wasn't cutting it. Not only were bills high, but it was increasingly clear that the lamps just weren't providing enough light for the intricate work.

RCM decided to take action, and contacted GEWISS to conduct an energy audit and recommend a modern lighting system for its Bedfordshire factory. A complete LED retrofit followed, including 65 smart high bay lights and 31 smart watertight IP69 luminaires for lower ceilings above packing and pressing areas. The new system delivered cost savings, better light quality and even boosted employee moods.

But did the investment add up? GEWISS partnered with DLL to provide a smart financing solution. With annual energy savings calculated at £5,006, DLL offered a four-year hire purchase with annual payments of £5,437.45. This meant that their annual lighting bill increased by just £431.45pa for four years, but once the hire purchase was paid, RCM will benefit from the full £5,006 each year.

Instant benefits to the local and broader environment through better lights and reduced energy use, all for an almost cashflow-neutral investment before giving way to substantial annual savings.

There are clear business benefits to investments in energy efficiency, but it can be difficult to know where to start. However, business leaders can set off on the right track by asking themselves a few key questions.

Where is the low-hanging fruit?

If a business wants to get everything at once, that's great - all the more energy (and therefore cost and carbon) savings. For most though, that's an expensive and risky proposition. So consider where the most savings can be made from the least investment. LED lighting is a good place to start for businesses that haven't made the switch - it's a low-cost technology that delivers large savings and requires minimal works or downtime. Companies can grade potential energy investments according to cost, savings and impact on operations and work down the list.

What benefits are you aiming for?

Cutting costs and emissions are the two core pillars of any energy efficiency investment. However, they're not the only benefits, and the right direction for the business might be influenced by some of the secondary benefits available.

For example, if a business is keen to improve worker satisfaction and productivity, LED lighting has been shown to be a winner. Smarter, properly zoned heating controls could also be a good bet, keeping employees more comfortable while not wasting energy heating unused parts of the building. Other businesses may be in need of a reputation boost and find that something more 'big ticket' and visible such as a CHP generator or a solar panel array might be attractive.

What do your customers want?

Many consumer-facing businesses are under pressure to green their supply chains as well as their own operations. For a business in such a supply chain, this might affect energy investment decisions. Perhaps that company

has a commitment to using renewable energy throughout its supply chain, in which case a heat pump or solar system could help distinguish the company from the competition as well as save money. Or perhaps only certain production lines are relevant to the buyer, in which case these can be prioritised for upgrades.

How to finance?

Some businesses may have the luxury of paying for energy investments upfront, but most will want to take a more strategic approach to financing energy investments. Even for those with cash reserves available, it may be best to keep these in reserve rather than outlay too much at once. Fortunately, intelligent approaches to finance can help businesses by paying for investments out of energy savings, creating a cash-neutral or even cash-positive structure.

What's your timeframe?

The sooner a business can begin to benefit from energy bill and carbon savings the better, but that's not to say decisions or projects should be rushed. When planning ahead, companies should consider whether any items of energy equipment are approaching end of life, such as a boiler. It may have implications for other planned investments. Equally, consider the impact on operations. LEDs may be easy to install, but if an energy upgrade requires production downtime, can it be scheduled for quieter periods or holidays?

Hot water in the tank, savings in the bank

Rodmere Farm in Somerset faced a familiar challenge for dairy farms: creating enough hot water to clean their equipment against a backdrop of ever-increasing hygiene expectations and ever-decreasing bactoscan tolerances. Rodmere Farm operates a 24:24 parlour, and uses plant with an autowash function that uses an amount of hot water every cycle, rather than a standard hot wash. Then, there is also the bulk tank daily cycle. This amounts to huge quantities of water, all of which must be heated to at least 80°C. Previously, this had been achieved using two gas-fired water heaters, which were prone to leaking heat.

Fortunately, the owners met Arkaya Energy at a trade show. Arkaya designed and delivered a 12.5Kw solar assisted heat pump system that delivered constant hot water supply, 365 days a year, while saving roughly 80 per cent on avoided gas bill - delivering an environmental saving too.

Arkaya was able to call on DLL as an established partner to design a finance structure to suit the customer. The result was a three-year hire purchase agreement that effectively matched monthly payments with energy savings - offering immediate benefits without the need for an upfront lump sum.

Conclusion

The scientists are clear. The protestors are clear. The direction of travel for regulation is clear: UK business must become greener and more energy efficient.

But the numbers are also clear: clear that energy efficiency can be a help rather than a hindrance for companies. Energy is a cost-centre, and like any cost, it must be controlled. However, this particular cost is more plastic than many have given it credit for. There is such a wealth of technologies to choose from that there will be very few businesses that can't usefully invest in energy efficiency.

The burden of justification has shifted. Whereas once a business might ask why it should invest in energy efficiency, the harder question now is why it shouldn't.

DLL is a global financial solutions partner working in Agriculture, Food, Healthcare, Clean Technology, Automotive, Transportation, Construction, Industrial Equipment and Office Technology. We collaborate with equipment manufacturers, dealers and distributors to enable businesses to obtain and use the assets they need to contribute meaningfully to the world. DLL delivers original, integrated financial solutions to support the asset life cycle from leasing, vendor and commercial finance to remarketing. In addition, we offer mobility solutions, factoring and consumer finance. DLL's 5,500 members support its partners in more than 35 countries. The company is a fully owned subsidiary of Rabobank Group.

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Publication date

March 2020

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