Energy and low carbon:

More haste, less waste



Electricity is likely to be your second highest cost after labour. And yet, your organisation is wasting money every time a computer is switched on or the IT systems come online. With the uncertain economy not yet out of the woods, it's time to stop the waste.

Personnel, space planning and facilities usage data, as well as active energy monitoring, will all play a part in the measurement and analysis underpinning an evolving energy-management strategy.

We're all under pressure to ramp up productivity and cut costs

following the recent global financial crisis, but managers in the public sector are really feeling the heat. They need to prepare for a profound shift in strategy at the highest level. The UK's new government has spelled out an ambitious new efficiency drive as it seeks to shore up the embattled economy and sow seeds for strong, sustainable and diverse growth in the future.

The government's plan is to encourage a more collaborative spirit in public services, reduce red tape for specialists and enterprise, and ultimately cut public spending by £81bn over four years. This means waging a war on "waste" wherever it occurs.

However, recruitment and salary restrictions, alongside growing uncertainty about employment overall, mean that leaner teams will be bearing a much heavier load when it comes to their changing responsibilities. It is a fierce, sometimes controversial formula; and one that could well require some radical changes to corporate structure and basic behaviours alike.

If essential front-line services are to be protected, these productivity gains will need to derive from the supporting operational systems and infrastructure. All departments and teams will need to try to do more with less, perhaps finding new ways of working if necessary. But before committing to new investment, the first priority must be to pick off the so-called low-hanging fruit; securing those substantial savings that may already be there, and ripe for the taking.

The modern world's story is one of waste across many aspects of life, but nowhere is it more striking than in attitudes to energy efficiency – whether in buildings, work or the underlying technology. For any $\mathfrak L1$ spent on electricity in an organisation, almost a third – 32p – is wasted. 2 This kind of waste is unacceptable in a world striving for an economy based on low carbon and high productivity.

What can an organisation do to combat waste? You must be able to find it, monitor it and measure it. IBM recommends implementing an organisation-wide assessment of energy use and carbon impact to find the exact source of the waste and to formulate a long-term and affordable strategy to stop it.

ENERGISING ACTION

The extent of the human contribution to climate change is growing clearer by the day. And yet, despite the urgent need for action, few organisations have addressed the situation.

There's no time to lose. Increasing regulations to address energy use in business make the case for committed action even more apparent. The UK's new Carbon Reduction Commitment (CRC) scheme includes both financial incentives and severe penalties to persuade people to take the subject seriously, not least the risk to reputation (through publication in an official league table) of failing to engage.

However, while sustainability has long been on the agenda in some form, the approach to energy management all too often remains piecemeal, inconsistent and ultimately unaccountable. We are largely still paying lip service to the problems. Merely appointing "green teams" or an "eco-champion" for each office are no guarantee of change. People need to be empowered to act forcefully in leading and training others in the organisation. Delivering energy savings demands clear lines of responsibility, strategic decision-making, ongoing measurement and meaningful collaboration across all departments.

Public sector bodies need to turn energy efficiency – including its monitoring and measurement – into a priority. The targets and deadlines involved should be as stringent as they would be if your organisation was providing a new service or processing vital paperwork.

UNDERSTANDING IT

It has often been said that you can only manage what you can measure. Therefore, the first priority must be to construct an accurate energy profile, or inventory, which can be analysed and easily updated as circumstances change. However, even if they have easy access to measurements, surprisingly few managers have any such "big picture" details of their environmental impact.

An energy profile should measure changes in the temperature of all equipment over the course of an operational week, to verify its efficiency. The assessment should also calculate total energy use and break it down as far as possible according to different factors. The final report should highlight and analyse any problem areas as well as offering ways to improve them.

For example, some 40 per cent of an average business's total energy bill is eaten up by IT and information systems equipment.³ Changing the underlying configuration and design of key devices could lead to substantial savings.

The various data centres usually consume approximately 40 per cent of IT energy, but a surprising 60 per cent is divided up in the distributed environment

(see Figure 1). The latter covers everything from fax machines and photocopiers to mobile working equipment and voice communications, with voice alone consuming over 25 per cent! IBM calculates the cost of this portion of the IT energy footprint could easily be cut by 20 per cent, with an increase in data centre efficiency doing the same again.

Specific policy changes might then include replacing desktops with more energy-efficient laptops or reducing the total number of printers available. Multifunctional devices (MFDs), allowing printing, copying and faxing from a single source, are also more energy efficient than having multiple machines, which consume energy as they warm up for operation as well as through the act of printing itself.

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These are the easier targets for change of course.

Ultimately, the biggest potential game changer lies in modifying the operational and functional architecture that underpins all the business's systems. Challenging current designs is complicated, but this will be crucial as energy bills rise in future to help fund the migration to more renewables in the energy mix. This area needs serious investigation to achieve an entirely new level of efficiency.

However, any changes can only be made in an intelligent way if your organisation first begins to understand how much energy is used and where it is wasted on a daily basis.

BETTER BEHAVIOUR

Having established the extent of waste, one of the biggest challenges is then encouraging and enforcing new employee behaviours, gradually building granular detail into a positive culture of ongoing energy awareness and policy compliance. Turning the lights off might seem straightforward, for example, but a large amount of electricity is still being wasted even when devices are switched off.

Behaviours need to be monitored if new, improved habits are to be mastered and made the norms. It is important to consider very carefully how you will incentivise the right ones. Some options include explicitly linking energy responsibility to reward packages, introducing more automatic control of the working environment, or including relevant performance indicators in team and individual appraisals.

Organisations will differ as to what they consider appropriate and useful incentives. However, suitably engaging and creative internal communication can also play a part. Evidence of sustained success in energy efficiency should be widely celebrated, and persistent problems must be dealt with promptly and decisively.

With incentives, penalties and accountability, there must also come effective leadership. Organisations may have a dedicated sustainability manager to take charge of the subject, but energy strategy need not sit squarely within the remit of the IT department, nor be restricted to the replacement or optimisation of ageing equipment. Rather, working silos such as this should be systematically broken down to encourage a collaborative mentality in the development of practical solutions to reducing energy requirements that recognise a mix of best practice expertise.

Facilities managers and HR departments, for example, both have clear interests in considering less typical working arrangements. Could certain building-maintenance services be more cost effectively outsourced, and if so

can the facilities manager influence the provider's energy and environmental policies? Can office and desk space be used more flexibly and imaginatively through the adoption of shift working and hot-desking? Is there evidence of employee demand for more home working

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opportunities, and if so how will meetings and reporting lines be made to work? Can the IT team already accommodate such a move?

Flexible working still has its fair share of sceptics, but the far-sighted can already see a future where remote, freelance and virtual working is much more common. Rent and energy costs will both be reduced, and carbon footprints will be further improved through cutting any unnecessary travel to a fixed office. Indeed, it has been suggested that well-wired homes could become the default working location in time – the majority eventually

being equipped with studies for each working adult as standard.

Personnel, space planning and facilities usage data, as well as active energy monitoring, will all play a part in the measurement and analysis underpinning an evolving energy-management strategy. Technology specialists will need to work closely with facilities and HR managers to make sure that plan is fit for purpose and able to adapt to an organisation's growth. Together they have the potential to share knowledge that can shift the agenda to another level, while forming a critical mass of commitment to ensure actions are pursued with rigour.

The distributed environment: quietly ignored = big mistake

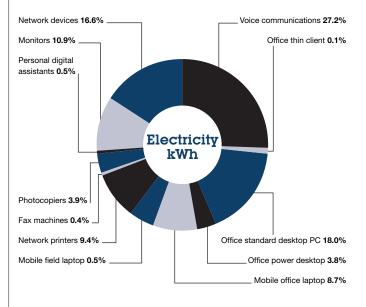


Figure 1: Devices that comprise the distributed energy environment in the public sector.

COMMITMENT IN FORCE

The Carbon Reduction Commitment is set to cover around a quarter of the UK's total workplace emissions: an estimated 5,000 bodies initially, including big name banks, supermarkets and government departments. It came into force in April 2010, but the compliance burden will only increase over the coming years. In addition to measuring and reporting energy performance, organisations over a certain size will soon also have to become accustomed to the mechanics of market-based carbon trading, buying carbon credits beyond a fixed cap and selling them if they have a surplus.

Decision-makers will want as full a picture of total energy demand and distribution as possible to quantify these annual carbon needs precisely – well in advance of specific deadlines. Carbon trading management will also need to take place in the context of many other investment and budgeting decisions.

IBM's experience in large-scale business analytics can help you plan, produce and act on this vital energy inventory. This includes a wide range of options for radically improving resource management. Following a detailed assessment of current energy use, infrastructure use and management and the maturity level of critical facilities within the organisation, IBM can produce a detailed action plan for making incremental improvements in practice and technology in your business.

For example, a series of guiding principles for IT can be generated following the assessment. This might involve improving electrical efficiency in the short term or upgrading the entire IT infrastructure in the long term, but for most organisations, this plan could translate into tangible and immediate savings.

These strategies could lead to long-term tactical change in any organisation. Scoped to fit an organisation's specific needs, the service can deal with data centres only or IT across the board, it can pinpoint cash-conserving "quick win" projects as well a robust roadmap to a permanently more energy-efficient future.

Crucially, however, IBM can offer an innovative risk/reward approach, which means the reduction services can be paid for out of the long-term energy savings available through the very energy management measures on offer.

The client signs a framework agreement for IBM to undertake a period of due diligence, investigating current energy expenditure and identifying a wide range of possible ways to save. However, there are no financial obligations on the client during this period of activity.

IBM then presents its recommendations as a work schedule and milestone payment plan for you, the client, to agree.

Fees are carefully balanced against cumulative savings through carbon cutting – a combination of monthly fixed fees for due diligence, gross potential savings and monthly net savings. Ultimately, clients only proceed with those projects where they are convinced this compelling offer will yield a clear return on the investment.

For organisations facing the growing demand for a low-carbon future, such steps are not optional – they are fast becoming essential.

Under the circumstances, there's simply no more time to waste.

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References

- 1. "Spending Review 2010: George Osborne wields the axe". BBC News. http://www.bbc.co.uk/news/ uk-politics-11579979
- 2. Quote from DEFRA following joint study with IBM, "Environmentally aware governance of the distributed IT infrastructure".
- 3. "Energy Efficiency". Presentation by Richard Lanyon-Hogg, IBM.

Recycled fibre content 50% post consumer waste, 25% pre consumer waste and 25% virgin fibre.