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The Energy Efficiency Scheme promises to reduce carbon profiles, but what will be the specific impact on enterprise IT departments? James Hayes reports.

THE LAUNCH next month of the UK's Carbon Reduction Commitment (CRC) Energy Efficiency Scheme - EES - will mark a major change in how organisations control and pay for the energy they consume, and in the extent to which they accept a responsibility for shaping their overall emissions profile. It is a legislative push that has divided industry opinion like no other regulation in recent years.

The CRC EES is the UK's incoming mandatory energysaving policy, central to the plan to improve the nation's energy efficiency and reduce CO₂ emissions, as set out in the Climate Change Act 2008. It is designed to raise awareness in around 20,000 large public- and ≩ private-sector or games.
₹ which – according to the private-sector organisations,

Department of Energy and Climate Change (DECC) - are responsible for about 10 per cent of the UK's emissions. It operates as a 'cap and trade' mechanism, providing financial incentives to reduce energy use by pricing carbon emissions derived from energy use. EES works by getting organisations to buy allowances equal to their annual emissions.

The overall emissions reduction target is achieved by placing a 'cap' on the total allowances available to each group of EES participants. Within that overall limit, individual organisations can determine the most cost-effective way to reduce their emissions. This could be through buying extra allowances, or in investing in methods to decrease the number of allowances needed. Revenue

raised through allowances is recycled back to participants, according to their performance. The scheme includes an annual performance league table that ranks participants on how well they manage energy efficiency.

Organisations are eligible for EES if they have at least one half-hourly electricity meter settled on the half-hourly market. They also qualify if their total half-hourly electricity consumption exceeded 6,000MWh during 2008. DECC estimates that around 5,000 organisations qualify, including banks, retailers, water suppliers, local authorities, and all central government departments. Qualifying organisations will have to comply legally with the scheme, or face penalties. Detailed information and advisories about the EES are

freely available from the DECC and other agencies; what is lesswell specified is how the legislation will affect departments with a reputation for having more pronounced emissions profiles. Although the scheme applies across all aspects of a company's operations, it is highly likely that IT departments will find themselves in the firing line as the legislation bites.

IT has been framed as the prime consumer of enterprise energy; it has also distinguished itself with 'green' IT initiatives, and associated awareness campaigns. These have been further distinguished by the fact that they have come from vendors, many of whom have shown willing in making equipment more energy-efficient (whether via processing techniques, materials or software design), and have scrutinised the way IT is deployed and managed on site.

Many prominent IT heads have proved to be leaders of carbon-management programmes within their organisations and beyond. There is a financial incentive in reducing energy bills, of course; but IT departments do not always benefit directly from this, as consumption is not charged back on a per-usage basis.

EES REACTION

Reaction to EES among the IT community has been mixed. Its ramifications create both upsides and downsides, commentators claim. Some have been implacable in their criticism of the scheme. Dr Joe Polastre, for instance, CTO of data-centre energy-management firm Sentilla Corporation, insists that "EES [will have] a negative impact on IT". He continues: "Transitioning old processes to automated systems shifts carbon to IT, but puts $tremendous\,conflicting\,pressure$ on IT managers to take on new applications without adding a gram of carbon to their operations". Polastre thinks that EES is "penalising companies that have already embraced IT to run operations

KEY STEPS FOR EES MANAGEMENT

Chris Smith, marketing director at IT infrastructure specialist on 365, recommends three key actions to help IT professionals deal with burdensome aspects of EES compliance.

Show me the bill Data centre and facility management professionals are often failing to share information to simplify energy efficiency measures. Put in a dashboard Set up a dashboard of data centre performance. Use software tools that enable management of energy consumption in the data centre –

even down to individual servers' energy use or power needed for specific tasks. This 'dashboard' approach will enable IT managers that are reconfiguring or virtualising data centres to plan outcomes before key IT infrastructure changes are made. Asset management The information is out there. IT managers are under pressure from their CEOs

to cut costs; help is at hand with the EU Code of conduct on datacentre efficiency. This contains energy-efficiency resources such as balanced scorecards. It also includes practical advice for helping datacentre managers to optimise existing IT investments' performance without embarking on more capital outlay.

efficiently. They are taxed for climate-friendly economic growth, and [for] socially responsible operations – even though they're employing IT best-practices: automation, modernisation, and consolidation."

But EES was not designed specifically for the requirements of IT. and anomalies are bound to occur. For example, some organisations that now maintain in-house IT functions may decide to sidestep the legislation by outsoucing their IT requirements - and therefore the CO₂ that goes with them - to a third-party service provider. and/or a data centre. Although this looks like a cynical attempt to shirk environmental responsibility, such a trend may, in the longer term, turn out to be beneficial, as it goes some way to concentrating emissions generation in centralised densities. It also means that the issue will at least be handled by data centre operators who, by and large, are more likely to take EES more seriously.

CARBON LAUNDERING

All of this represents welcome additional business for the UK data centre industry - assuming, that is, it stays in the UK. Some EES critics have suggested that the new tax will cause UK data centre operators themselves to consider offshore relocation to avoid their obligations. EES does risk encouraging "a new carbon laundering industry", according to Sentilla Corporation's Joe Polastre: "UK companies can reduce their carbon impact by moving IT operations to a hosted facility in Europe, bypassing CRC regulations".

There is logic to his prediction. The UK data-centre industry is currently engaged in consolidation, and intent on proving to government that it is a responsible industry, fully capable of self-regulation; the last thing it wants now in the face on a government initiative it to be exposed to accusations that some of its number are sidestepping the legislation in an attempt to avoid financial impingements. It is likely that the industry's more responsible members will take a dim view of such operators, and they could find themselves excluded from advantageous partnerships; also, their customers will find them a bad bet when it comes to buffing up their corporate social responsibility policies.

Another factor is that, although there is certainly a huge installed base of retirement-age IT equipment that is consuming more power than would be desirable under the edicts of EES, alongside it is much IT that could be modified or fine-tuned to perform more

efficiently. These statistics paint a scary picture for any organisation. especially a local authority or government department that has limited resources," observes Simon Pamplin, systems engineering manager at storage specialist Brocade. "A lot it is simply about reviewing one's IT environment, and looking at ways to create greater efficiencies. There are solutions on the market that provide organisations with a way to evolve their IT infrastructures for maximum performance, flexibility, and investment protection, while enabling operational success."

In its initial stages EES represents an unknown and unquantifiable cost overhead that could upset financial planning at a time of fiscal volatility. How organisations react to this depends very much on their change culture, and the disposition of their finance directors.

WHOSE RESPONSIBILITY?

In many cases the 'carbon payload' will land squarely in the lap of data-centre operators. which presents another dilemma. Some commentators point to the fact that the EES places the reductions onus on the organisation that pays the electricity bill, and not on endusers; responsible organisations complain that they cannot pass the carbon down the supply chain, and thus encourage our customers to reduce their usage. "The EES as it stands will encourage 'carbon laundering'

with the outsourcing (or even off-shoring) of data centre operations to avoid brand value damage, will inhibit the growth of one of the UK's most important business sectors, and will encourage end-users to use the least-efficient providers.' protests managing director of hosting and server specialist Memset, Kate Craig-Wood. "The EES creates the incentive to launder, rather than reduce, carbon emissions: [it] rewards organisations good at playing the 'carbon game', not those who are most energy-efficient."

Other antipathy toward the EES stems from its consultative period, suggests Brian Murray, principal consultant at international IT services company Morse. He is finding that IT clients are still relatively unaware of the EES; as with much incoming legislation, awareness is growing exponentially as its introduction looms.

"EES has not been on the radar screen of many ICT professionals, and there is a feeling that they haven't had enough time to think about how it may affect them," Murray reports. "There is also the issue of the fact that many IT directors still do not see the electricity bills, and have no way of gaining an accurate idea of their share of the energy cost."

He adds: "IT can, to an extent, calculate how much energy it consumes by measuring the power consumption of devices. but to then estimate what proportion of the overall energy bill this constitutes can only be achieved if they can validate it against the total utility hill And in most instances this is not the case." The so-called 'turf wars' between IT departments and facilities management have been well reported; the reason why IT directors want to see the energy bill should be selfevident: the reason(s) why facilities management (FM) directors are reluctant to let them do so are perhaps more mysterious. Morse's Brian Murray argues that EES is actually just what IT departments have been looking for: a legal expectation that endorses their reasons for

viewpoint



According to Memset's MD Kate Craig-Wood (pictured) EES is already changing business behaviours in negative ways. "We - as a managed hosting provider were planning to invest in a leading, semi-experimental, 'super-green' data centre, which would incorporate latest innovations in efficient datacentre design, and push the boundaries of the technologies further. However, because the EES penalises companies that pay the electricity bill, it no longer makes sense for us to own and operate a data centre - instead we can just rent space and power from an existing data centre, and let its brand get hit by the league tables."

Craig-Wood adds: "This is especially frustrating, as we already have the capability to account to our customers for their carbon usage, so we could easily pass the carbon levy /credits along to our customers. That in turn would further incentivise them to minimise their indirect energy usage through us."

As the carbon control legislation stands it will make managed hosting providers with UK-based data centre operations less competitive to those not under the jurisdiction of the EES, Craig-Wood argues, regardless of how well-managed, and how efficient, they are.

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'Smart meters will make energy usage visible, enabling carbon reduction targets based on realistic metrics, not best-guesses' Rajesh Sinha, NG Bailey

 wanting to have sight of the figures, and overcomes any objections that FM colleagues may put up to deter such scrutiny.

It all comes down to whether enterprises decide that EES is an onerous piece of legislation introducing additional tax and should be avoided, or that they want to make to make it part of their existing carbon-control programme – or a starting point for a hitherto non-existent one. Another point to work to is that this 'first cut' of EES is likely to change and be revised with time, and those companies who have registered for it are best placed to influence its future direction.

EES SUPPORTERS

Meanwhile, opposite EES's critics, the legislation does have supporters who feel that the legislation will have a positive impact on IT departments; an impact that is in danger of being overlooked in froth of preemptive ire. The EES will cause each organisation to make a serious appraisal of its IT estate, and ensure that its IT asset registry is up to date.

"It's well known that the IT function has a reputation for being a major consumer of electricity, whether within the enterprise, or within an external data centre," says Alan Waller, carbon consultant at **Greenstone** Carbon Management. "What's less well known is the fact that the IT function often leads the way in terms of carbon-efficient energy-management techniques. However, with the EES scheme, energy savings made by a registered organisation as a whole will be registered against the whole organisation, not just ICT." Waller suspects that this imbalance will spur the 'IT crowd' into helping other departments to emulate their energy efficiencies.

REINVESTMENT

Greenstone's Alan Waller believes that the pressure to meet the requirements of EES will helpfully inform new proposals for increased budgetary expenditure by the IT department. Over the last two years the economic downturn has meant that IT projects have been shelved, and scheduled upgrade cycles have been halted. he observes. If new, more energy-efficient computer equipment, or virtualisation, say, are going to contribute to getting EES under better control, then that lends support to the new expenditure proposals in the eyes of finance directors. Waller believes.

So from this perspective, an energy efficiency scheme is good news for cash-strapped IT departments that have been struggling to make the business case for extra funding when business conditions are at best flat: "The EES helps IT strategists form a business case for investment," Waller argues. One other argument for the favourable repercussions of EES is that driving IT operations out of the enterprise and into the managed service provider will create income and employment for the data-centres industry. This will not sound like good news for many techies who prefer to work in-house for a proprietary employer, rather than for a data centre provider. Memset's Kate Craig-Wood

thinks that this outcome has been overstated because, while organisations are migrating their IT requirement to data centres either wholly or piecemeal, the demand for qualified ICT professionals is likely to remain constant as more functions become IP-enabled – another reason why it's important that IT professionals do not shun an understanding of EES.

Greenstone's Waller foresees a time when energy will be allocated across the IT infrastructure in a way similar to how bandwidth is currently assigned. At the desktop level, the issue facing IT managers is that PCs and fixed laptops and printers are sharing the same power circuit as other electronic office equipment like photocopiers, fax devices, and shredders.

SMART METERS

This issue touches on another area where EES could have an impact: it could prompt the start of local metering that will capture data about energy usage at a by-department, or even by-workgroup level. If this occurs, it will represent a major step toward truly green IT. believes Rajesh Sinha, technical director at ICT services provider NG Bailey. The new generation of smart meters are IP-manageable, so they will almost certainly be managed across the enterprise datacommunications network, Sinha says: "This will bring real visibility to energy usage, and enable carbon reduction targets to be set that are based on realistic metrics, and not bestguess estimate". This is a major opportunity for IT directors to show the business how IT can

contribute to empowering the business that takes it beyond the scope of 'pure IT', Sinha suggests: "As IP become ubiquitous. [and used for applications beyond network device management], it becomes inevitable that the IT department will get involved in operations that are not strictly 'traditional IT'," he predicts. "It could be IP-compliant security such as CCTV or door entry systems - or energy monitors such as smart meters." In time, compact smart meters will be monitoring almost every aspect of an organisation's energy usage, from lighting to kettles.

However, Sinha adds a cautionary note: "This broadening portfolio of the IT department might aggravate turf wards between IT and FM where they already exist," he suspects. "In some respects it is a return to the friction between the data and voice functions when voiceover-IP systems first appeared."

The extent to which EES will succeed depends to an extent on who decided to 'own' the commitment within the organisation. Typically matters pertaining to regulatory requirements are handled by legal representatives via the managing director; however, because of its wide-reaching remit, Greenstone's Alan Waller suggests that an effective way of ensuring EES is properly applied would be to form a 'star chamber' project team, formed from representative members from constituent departments. The representatives need not be directors, nor even senior managers, but colleagues who hold an interest in environmental concerns, who have direct contact with energy consumption, such as maintenance staff, or in the case of IT, support personnel. Such a 'cross-party' model will also help to contain any trenchant cynicism toward the scheme's aims, by demonstrating that everyone is included in its aims. 🗖

Further information <u>http://kn.theiet.org/magazine/</u> issues/1004/weblinks.cfm

