

# **White Paper**

**Greening Government ICT:  
“Cutting carbon emissions”**

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## **Introduction**

***A new report sets out 18 steps government departments must take to reduce carbon output from IT and communications technology. Yet, to have a real impact, organisations must adopt a more holistic environmental strategy that extends far beyond reducing power consumption***

Organisations no longer have a choice about becoming 'greener' in the way they operate and in the equipment they use. In the commercial world, failure to shape up environmentally can damage a brand and turn off customers; in the public sector, reducing carbon emissions is quite simply mandatory.

The latest clampdown came in July, when a new Cabinet Office report set out 18 clear steps government departments should now take to reduce the carbon output of their IT and communications (ICT) systems.

Recognising that everything from the power used and heat generated by computers and servers, to the toner consumption and paper wastage associated with over-zealous printing, the Government is striving to put its own house in order so that it can meet its own targets and set a good example to businesses.

So how can government departments make sure they meet and exceed their targets?

This white paper discusses the implications of the Greening report, and the additional steps public sector organisations need to take to ensure a consistent, efficient environmental strategy which delivers across other key Government targets.

## **The Greening Government ICT report**

The *Greening Government ICT* report seeks to drive down the energy consumption of government ICT so that this is carbon-neutral within four years. Set in the context of the 2006 targets for 'Sustainable Operations in Government Estate'(SOGE), the paper notes that ICT accounts for up to 20% of all carbon emissions generated by government offices (some 460,000 tonnes each year).

Eighteen measures to address this have been proposed. These include:

- Automatically switching off desktop computers outside working hours (which could save as much as 117,500 tonnes of CO<sub>2</sub> each year)
- Reusing computer equipment wherever possible
- Assessing data centres and the use of servers to ensure maximum efficiency
- Favouring low-power CPUs and high-efficiency power-supply units
- Embracing thin-client technology
- Reducing the number of printers used

While the Cabinet Office has committed to adopting the plans immediately, other departments are expected to base their environmental action plans around the steps – and to report on their progress for the Transformational Government Annual Report. Longer term, central government ICT will need to be carbon-neutral right across the lifetime of each product - from manufacture to disposal - by the year 2020.

Yet, in addition to focusing solely on power consumption through simple measures like switching off their PCs at night, a holistic and effective environmental policy must embrace broader measures to reduce carbon

emissions. Users should be encouraged to think twice about printing unnecessarily, favouring the electronic generation, storage and distribution of content – substantially reducing the need for toner, paper, postage, transport and space-consuming filing cabinets.

While such measures fall outside of the Greening report, analysts emphasise the importance of an end-to-end view when trying to derive the maximum impact from a carbon-reduction initiative.

## **The 18 steps**

The 18 recommendations set out in the Government report are broken down into three sections:

### **PCs & laptops:**

1. Remove active screensavers
2. Switch monitors to standby after 5 minutes of inactivity
3. Shut down PCs after office hours
4. Enable active power management on desktops – i.e. standby/hibernate after a defined period of inactivity
5. Ensure re-use of equipment that is no longer required but is still serviceable. If re-use is not possible, recycle or ensure green disposal (the majority of energy in the life of a PC or laptop is consumed in its manufacture, delivery and disposal)
6. Specify low-power consumption CPUs and high-efficiency power-supply units (80% conversion or better)
7. Apply thin-client technology

**Other office ICT equipment:**

8. Apply timer switches to non-networked technology and printers
9. Set default green printing including duplex and grey scale
10. Optimise power-saving sleep mode on printers
11. Printer consolidation (reducing the number of printers and replacing those left with networked multi-function devices)
12. Device consolidation
  - Reducing the number of separate electronic devices an individual has

**Data centres:**

13. Server optimisation (including storage virtualisation, and implementing a multi-tiered storage solution, to reduce old data taking up spinning disks)
14. Reduce cooling in the data centre to appropriate levels and increase the ambient room temperature (over 50% of the power associated with the data centre is used for cooling the ICT equipment)
15. Identify servers and data disks in the data centre that are running but not providing any services and decommission
16. Specify low-power consumption, low-voltage servers with high-efficiency power supply units (80% conversion or better)
17. Ensure re-use of equipment that is no longer required but is still serviceable
18. Data centre audit (to identify the mismatch between the current physical layout and the layout that would maximise the effectiveness of cooling from air-conditioning units)

## **Extending the impact**

Focusing on directly reducing power consumption and heat generation is clearly a high-impact strategy for reducing carbon emissions. Yet, changing the way departments work can accelerate the realisation of benefits.

Take electronic document handling and storage. This can have a substantial impact on carbon emissions, by eliminating the need to print out content on paper simply so that it can be distributed or stored. By cutting down on paper, organisations – whatever their type or size - can substantially reduce their use of toner and their use of power-consuming, heat-generating printers, not to mention the need for carbon-generating transport as documents are sent out by post or courier.

The benefit of looking beyond pure power consumption in the pursuit of lower carbon emissions is that this gives the organisation additional opportunities to address other Government targets, such as those based on efficiency, cost-consciousness and regulatory compliance.

Departments that automate their document management activities find that they can not only reduce their environmental impact, but also reduce physical storage requirements associated with filing cabinets, while substantially driving up productivity through faster and easier access to important content, efficiency of document sharing, forwarding and version control, support for flexible working via remote access, and so on. Finally, by creating, capturing, storing and managing documents electronically, the scope to lose or damage documents is reduced, and regulators are appeased because a full audit trail is maintained and electronic documents can be security-protected and backed up in resilient data centres.

## **Gartner's analysis**

Responding to the publication of the July 2008 Greening paper, respected analyst firm Gartner notes that individual departments will need more guidance, sooner rather than later, on how to 'properly deal with IT as both a liability and an asset for the environment'.

Addressing the fact that the Greening report looks solely at how to reduce the carbon impact of IT operations, Gartner warns: "While this guidance on IT operations is useful, the document fails to mention lifecycle aspects that other countries, such as Canada and the US, are addressing. Further, it does not emphasise how IT should be used to help achieve them, although it touches on the role of IT in addressing the SOGE targets (including reduction of carbon emissions from offices and vehicles, energy efficiency and recycling.)"

To derive the fullest possible benefits, Gartner concurs that Government departments must look more broadly at the way they approach their business processes. With this in mind, Gartner recommends additional reading from its own archives:

- *Green IT Strategies: Caveats for Government Organizations* - By Andrea Di Maio
- *The European Commission Responds to Gartner on Green IT* - By Andrea Di Maio

## **The paperless office: now a reality**

One of the key technologies businesses of all sizes can implement now in order to cut carbon emissions is document management software, or 'paperless office' technology. This technology, which aims to replace paper-based processes with electronic procedures, eliminates the printing, posting and manual filing of paper documents. Directly from a company's accounting/ERP system, and with just a few clicks of the mouse, such solutions enable documents that are still commonly printed out - such as invoices and statements - to be automatically created, delivered, archived and retrieved electronically, saving time and producing a whole host of other efficiency and productivity benefits, as well as cutting down on carbon emissions.

The environmental benefits of reducing paper use are well known. Even when sustainable tree-planting are put in place to ensure, for example, that a sapling is planted each time a tree is cut down, this is not as environmentally responsible as allowing trees to grow to full maturity. Each tree locks in approximately one tonne of carbon during its lifetime, so by saving more trees, greater amounts of carbon are being naturally eliminated from the atmosphere.

Meanwhile, as has already been discussed, using less paper has an impact right across the supply chain, where carbon is emitted during the manufacture of stationery, by vans/lorries during paper transportation and as resulting documents are printed and distributed.

## **Environmental benefits become true business benefits**

Embracing the paperless office, 'paperless office' technology not only makes good environmental sense, it also makes good business sense, forming a convincing proposition for any type of organisation. Some of the key benefits include improved cash flow, cost and time savings and enhanced customer service. And, as has already been noted, the secure storage of documents in an electronic archive also means that invoices, statements and debtor's letters and the like cannot be lost or misfiled.

Document management cuts an organisation's operating costs, improves business-wide efficiency, frees-up document storage space and aids regulatory compliance.

Public sector organisations already feeling the business benefits of document management include Leeds Teaching Hospitals NHS Trust which is saving tens of thousands of pounds every year by handling key documents electronically.

Creating, handling and storing documents electronically is the only practical alternative to printing and managing hard-copy documents, so if government organisations are to take the Greening Government ICT strategy seriously, it is likely that there will be a dramatic increase in the implementation of document management systems within the next few years if they want to attain carbon neutrality by 2012.

## **Conclusion**

Despite all that is promised and written about environmental initiatives and targets, wasteful practices, from careless printing to unnecessary business travel, continue to cost UK organisations dearly. A recent report from sustainability advisory service Envirowise found that inefficient use of resources still drains at least £15 billion from UK industry each year.

As both businesses and the general public attention to rein in their own spending, and government spending continues to come under close scrutiny in the media, public sector departments must be seen to be bringing their own wasteful practices under control.

Those that take early action will earn positive PR as well as internal business benefits - provided they are guided by a clear environmental strategy that dovetails with the organisation's broader transformational goals.

## **Next steps**

In setting a carbon reduction strategy that will secure the broadest possible impact, organisations will need to look at the challenge holistically:

### **Know the scale of the problem – and think big**

The starting point must to be better informed about where the organisation may be wasting resources unnecessarily. The organisation's analysis should include everything from where power is being wasted, to whether it might be more efficient to let some staff hot-desk or work from home.

## **Green procurement**

Regaining control of spending and cutting back on waste requires greater visibility of what is being bought and who from.

From a green perspective, you may well be seeking to introduce a preference for environmentally-friendly suppliers and products (such as low-emission IT hardware), or multi-function devices that enable you to reduce the number of heat-emitting machines in the building.

Again, knowledge is power, so organisations need to pay closer attention to their procurement activities and monitor these for sustainability-increasing opportunities.

## **Avoid printing**

Most organisations now automatically include environmental statements at the end of each email they send out, urging the recipient not to print out the message or its attachments unless absolutely necessary. Yet how many practise what they preach? Office workers may be more conscious of printing out emails unnecessarily, but what about handling invoices, purchase orders and so on? Many organisations continue to generate too much paper, holding back their environmental achievements and incurring unnecessary costs in both time and money by defaulting to hard-copy paper representations of documents, when creating, sending and storing these electronically is so much more efficient in almost every way imaginable.

For maximum environmental and financial benefits, electronic information management and workflow must cross the company as a whole - for example,

issuing and processing payslips, holiday forms and review reports, in addition to Word documents, invoices and so on.

The benefit of being able to readily access centrally stored electronic documents cannot be underestimated. This offers great potential for individuals to serve themselves when they need to access information, reducing the demands on accounts departments, HR departments, and so on.

### **Greener travel**

Carbon footprints are instinctively associated with travel. Technology is now so advanced, and communications so cheap and fast, that the imperative to meet face to face is dwindling rapidly. The roads are clogged, the trains unreliable and costly, while people are busier than ever, so it makes much more sense to meet 'virtually' wherever possible - especially now that businesses have a greater environmental conscience. Conferencing (web-conferencing, teleconferencing and videoconferencing), document-sharing and collaboration technologies remove the need to get in the car or on a plane, and are very affordable now. If your documents are stored and managed electronically, it's much easier to share them remotely with colleagues, suppliers and customers.

## Sources of help

To view the full 'Greening Government ICT' strategy document, visit:  
[http://www.cabinetoffice.gov.uk/~media/assets/www.cabinetoffice.gov.uk/publications/reports/greening\\_government/greening\\_government\\_ict%20pdf.ashx](http://www.cabinetoffice.gov.uk/~media/assets/www.cabinetoffice.gov.uk/publications/reports/greening_government/greening_government_ict%20pdf.ashx)

Envirowise, which specialises in helping organisations find more practical ways to be sustainable and achieve cost, materials or time savings in the process, recently launched a useful online tool at [www.envirowise.gov.uk/change](http://www.envirowise.gov.uk/change). This is designed to help organisations assess the way they use resources and determine how they can make their activities both more eco-friendly and cost-efficient.

Meanwhile, Business Link offers a similar 'getting started' tool at <http://www.businesslink.gov.uk/bdotg/action/layer?topicId=1079446510>.

The White Paper is sponsored by Version One Limited

### **About Version One Ltd**

Version One Ltd. is the author of intelligent electronic document delivery and imaging software. This software enables the electronic storage, retrieval, management, enhancement and delivery of business documents such as invoices, purchase orders and statements. Version One's 'paperless office' technology is seamlessly integrated into all major finance and ERP systems. With a typical ROI of less than six months, Version One's solutions are enabling thousands of organisations to save dramatic amounts of time and money.

Version One is a Member of BASDA (Business Application Software Developers Association) and ESA (European Software Association).

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