MAIDSTONE BOROUGH COUNCIL

CORPORATE SERVICES OVERVIEW AND SCRUTINY

5TH OCTOBER 2010

DISCUSSION PAPER

Prepared by: Dave Lindsay,
Head of IT Services

1. DISCUSSION PAPER: GREEN ICT POLICY

1.1 Issue for Decision/Consideration

1.1.1 No decision required this paper is for discussion only.

1.2 Background

1.2.1 Corporate Services OSC have requested a paper on Green ICT to consider the Council's strategic approach to this issue.

1.3 The national agenda

1.3.1 The UK government has set a target for the central government estate to achieve carbon neutrality by 2012. The UK has an overarching target to reduce greenhouse gases by 26% or more by 2020, and at least 60% by 2050.

1.3.2 The government recently introduced a new KPI 185 "Percentage CO2 reduction from local authority operations".

1.4 The local agenda

1.4.1 Technology is a major factor in worldwide carbon emissions;

1.4.2 Turning off a single PC overnight can save 185kg of CO2 in a year; doing the same for 500 PCs would be the equivalent of taking 36 cars off the road.

1.4.3 The Council uses technology extensively, and many poor business practices in its use result in unnecessary costs and carbon emissions.

1.5 Impact on Corporate Objectives

1.5.1 The Council's Strategic Plan 2009 – 12 has a number of key objectives, including:

- to reduce the Council's carbon emissions through, amongst other activities, the introduction of Environmental Management Systems and carbon reduction targets;
- The Council's carbon emissions will reduce by 3% per year.

1.6 The Green ICT Strategy

There are a number of threads which might be included in the formulation of a more strategic approach to green ICT. The Council already has fairly mature green ICT measures in place (as evidenced in **Appendix 1**) but these have tended to grow out of individual initiatives, rather than as the result of a coherent strategic approach. These measures need to be formalised and woven into existing corporate strategies, rather than creating a new raft of policy documents.

1.6.1 Procurement.
- Ensure green issues and carbon reduction measures feature prominently in the procurement process;
- Measure and monitor carbon emissions in the Council's supply chain.

1.6.2 Operation.
- Use of low energy technologies;
- Paper and consumable consumption;
- Consider travel and plant issues;
- Usage procedures.

1.6.3 Change.
- the Green ICT agenda is not just about energy efficient IT, it can also be used to generate environmental benefits elsewhere in council operations and the wider commercial world. It is a key enabler for most business improvement programmes, providing better and more efficient services and bringing those services to the public rather than making the public come to us;
- Coupled with the cultural change and more energy efficient working practices, the use of ICT can reduce both building occupancy and travel.

1.6.4 Disposal.
- Manage equipment lifecycle;
- Recycle redundant kit to extend its lifecycle;
- Ensure disposal is in accordance with Waste Electrical, and Electronic Equipment directive (WEEE).

1.6.5 Future technologies
- Cloud computing;
- Electronic Document and records Management (EDRMS);
- Video conferencing;
- Processor technology;

- Thin client technology.

1.7 Benefits

- Reduced transport costs;
- Reduced, or more cost effective use of office space;
- Carbon reduction;
- Extended lifecycle of kit.

1.8 What are we already doing ?

In January 2010 the Government published a "Greening Government ICT" strategy which outlines a number of suggested approaches to reducing carbon emissions as a result of government operation, they are outlines (with the Council's status) in **Appendix 1**.

Appendix 1:

Actions	Rationale	**MBC status**
PCs & Laptops		
1. Remove active screensavers	• A monitor left running with an active screen saver uses the same amount of energy as when the screen is in full use. • The PC may also be consuming needless power in sustaining the screensaver	**Under discussion**
2. Switch monitors to standby after 5 minutes of inactivity (no active screensaver)	• Prevents a longer period of wasted power • May be possible to use the PC standby trigger to automatically switch the monitor to standby at the same time.	**Done**
3. Shut down PCs after office hours	• For the default working day of 8 hours the overnight period lasts 16 hours, so could be wasting up to twice as much energy as consumed during the working day	**Under discussion**
4. Enable active power management on desktops (standby / hibernate after a defined period of inactivity)	• Having active power management enabled will more closely match the consumption of energy with use, reducing wasted energy • There are products that will enable active power management for all networked devices that have such power management facilities	**Done**
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. • Extending its use or seeking its re-use elsewhere will save energy and materials (manufacturing stage) as well as purchase and disposal costs. • Ensuring necessary security procedures are carried out prior	**Done, new policy 2010**

	to re-use, recycling or disposal.	
6. Specify low-power consumption CPUs and high-efficiency Power Supply Units (80% conversion or better)	• Do not over specify system requirements. The richer the functionality on a device the more mains power is drawn – a high powered machine suitable for high graphic gaming is not needed in a central government office. • Power supply units convert mains AC power to the DC power needed by computers. More efficient units minimise the loss of energy from this conversion in the form of heat.	**Done**
7. Apply Thin Client technology	• A Thin client is less complex than a PC and contains fewer components, increasing its life over that of a normal PC and reducing maintenance and support costs and thus energy consumption. • However additional energy is required to support the greater bandwidth necessary for connection to its server as well as to run the server and its supporting air-conditioning equipment.	**Researched but not implemented**
8. Apply timer switches to non-networked technology and printers	• Not all ICT equipment can be networked and/or automatically shut down or put into standby mode – typically fax machines, printers and even legacy computers aren't networked. Neither do all such devices have automatic facilities to switch to a standby mode after a re-set time. • Timer switches can be used to turn off such equipment automatically outside office hours saving up to 2/3rds of its daily energy consumption if currently left on 24hours a day.	**Possible**
9. Set default green printing including duplex and grey scale	• By reducing the amount you print you will save paper and energy. • Further savings can be made by presetting duplex, booklet	**Done**

	and greyscale defaults and using a “Print on collect” facility if provided.	
10. Optimise power-saving sleep mode on printers	• Printers are only active for 263 hours/yr or 12 calendar days; so if on permanently they waste energy 97% of the time. • If power saving is already in place – reduce the amount of time before sleep activated.	**Done**
11. Printer consolidation	• Reducing the number of printers and replacing those left with networked multi-function devices (MFDs) e.g. combined printers/copiers, can significantly reduce energy consumption. • Fewer printers may also lower maintenance and management costs.	**Done**
12. Device consolidation	• Reducing the number of electronic devices an individual has will reduce in-direct energy requirements e.g. less support and maintenance. • Move from using PC to laptop or Thin Client and remote access services on a home or other non-work device connected to the internet to access email. • Rather than a mobile phone and a PDA(e.g. Blackberry), use a single integrated device and “follow-me“ services • Rather than having separate video conferencing equipment consolidating it into desktop devices may reduce energy consumption	**Done**
13. Server Optimisation		**Done**
a. Implement storage virtualisation & capacity management	• Assists in identifying unused servers and disks	
b. Convert existing physical servers to “virtual servers” – partition servers that run in parallel on	• Air-conditioning/cooling equipment typically requires at least the same power as the servers they cool, so reducing	

the same hardware without any interference	servers may save twice the power required to run them.	
c. Turn off servers outside their service level agreement, subject to a phase loading and chiller unit risk assessment d. When designing & provisioning new services, create “virtual servers” instead of procuring physical new servers. e. Implement a multi tiered storage solution, much of the data spinning on disks today is seldom accessed	• Industry practice has been to run a server using only 20% of its capacity. • A server which is switched on but idle still requires 50-70% of the power it uses when it is running under maximum load, therefore a single server running at 80% load uses considerably less energy than 4 servers each running at 20% load. • Configure several ‘virtual’ servers onto a single server to increase capacity used. Using a single device in this way not only reduces the hardware and support costs but also decreases the energy requirement.	
14. Reduce cooling in the data centre to appropriate levels and increase the ambient room temperature	• Research has shown that increasing temperatures in data centres does not lead to a higher failure rate as was previously thought14. • Over 50% of the power associated with the data centre is used for cooling the ICT equipment15. 15. Identify servers and data disks in the data centre that are running but not providing any services and decommission • A server which is switched on but idle still uses 50-70% of the power used when running at maximum load.16	**Done**
16. Specify low-power consumption, low voltage servers high-efficiency Power Supply Units (80% conversion or better)	• Do not over specify system requirements. The higher the specification the more mains power is drawn. • Power Supply Units convert mains AC power to the DC power needed by computers. More efficient units minimise	**Done**

	the loss of energy from this conversion in the form of heat.	
17. Ensure re-use of equipment that is no longer required but is still serviceable	• Energy is required to manufacture, distribute and recycle equipment as well as to use it • Extending its use or seeking its re-use elsewhere will save energy as well as purchase and disposal costs.	**Done, new policy 2010**
18. Data centre audit	• Identifies mismatches between the current physical layout and the layout that would maximise the effectiveness of cooling from air conditioning units • Up to a 20%	**Possible**