

ICT and Environmental Sustainability

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ICT

Equipment type	Average power consumption while in use (watts)
PC (processor only)	74
PC monitor	100
Inkjet printer	17
Laser Printer	280
Fax machine	82
Photocopier	400

Figures from Carbon Trust

ICT

Equipment type	Average power consumption while in use (watts)	1 yr power if left on 24/7/365 (kilowatt hrs)
PC (processor only)	74	648
PC monitor	100	876
Inkjet printer	17	148
Laser Printer	280	2453
Fax machine	82	718
Photocopier	400	3504

ICT

Equipment type	Average power consumption while in use (watts)	1 yr if left on 24/7/365 (kilowatt hrs)	1 yr on 5 hrs Standby 3 hrs Off remainder 190 days	CO2 emissions per year (kg)	CO2 emissions per year using standby / off
PC (processor only)	74	648	90.8	341	48
PC monitor	100	876	99	462	52

Reducing the ICT carbon footprint

The Carbon Trust is a primary source of advice on energy conservation and efficiency.

While the purchasing of energy efficient equipment is a positive step, educating users to change their behaviour can make significant energy savings for very little financial outlay.

The kinds of energy efficiency which are recommended as a priority are those that are simple to implement but that have been shown to have a great impact in a school setting.

Reducing the ICT carbon footprint

Power management capability for your ICT equipment must be present and enabled so that computers hibernate at sensible times. The Oxford University Environmental Change Institute found this can save 480kWh (about £36) per desktop per year.

Remove all active screensavers. Screensavers do not save energy and some use significantly more (and even more if they prevent the machine from going into standby or hibernate mode). Also consider other agents that prevent systems from going into standby.

Reducing the ICT carbon footprint

The network technology can be a significant part of the energy use of the system, so review utilisation, including telephones, and avoid over-provision. Power management should include technical solutions such as 'Wake-on-LAN'. Also consider centralising processing power.

Maximise the effective use of servers, and include practices such as virtualisation to operate as few servers as possible, powering unused ones down when not needed. The server industry now provides buyers with the choice of energy efficiency in servers.



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BECTA

The second aspect of sustainability is reducing the impact of technology on the wider environment. Technology relies on electricity and the carbon-based resources used to generate it.

Becta will publish guidance on saving power and recycling components, and will work with the technology industry to develop more efficient technologies and components that can be more easily recycled.

Becta will work to fully support Government targets for environmental sustainability, including the ambition for all schools to be sustainable schools by 2020 and for all new school buildings to be zero carbon by 2016.

We will support the newly established taskforce on zero carbon schools.



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BECTA

Becta will develop approaches to technology infrastructure that encourage architectures which use less power and allow users to make better use of devices and technology which negate the need for energy consumption in other ways, such as remote working.

This work will require exploring many significant and challenging issues including the use of virtually managed technology devices, the opportunities and issues around recycling digital devices, moving to thin client approaches, and 'smart buildings' with heating, lighting and water systems controlled via ICT.

We will work with key partners such as Partnerships for Schools to ensure that our infrastructure strategy fully supports this agenda.



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The Council's proposals within the ICT Project, involving rising numbers of powered devices, could increase the amount of energy that is consumed within its schools. The Council will challenge our ICT Partner to deliver solutions that help to meet its carbon reduction commitment. In particular the Council is keen to develop innovative solutions that:-

- Recycle the heat output from ICT
- Make use of the continued trend of energy efficiency per device by, for example, utilising Energy Star 4.0 minimum compliant equipment and Advanced Configuration and Power Interfaces (ACPI)
- Ensure that the technology is not over-specified for its role



BSF, ICT and Environmental Sustainability

- Provide print solutions that use double-sided printing, quotas and print release and are fit for purpose
- Make increasing use of email, SMS, learning platform and other means of electronic communication with and from parents, within and between schools and with other partners leading to a reduction in the number of printed letters or communications
- Provide an electronic document storage and retrieval system to support the move towards paperless schools,
- Ensure that the learning platform and associated practice, support the completion, submission, collaboration, assessment, feedback and storage of work electronically



BSF, ICT and Environmental Sustainability

- Make planned use of refresh cycles for maximum use of the embedded energy represented in ICT equipment
- Provide equipment which reflects reduced usage of toxic components
- Ensure WEEE and RoHS compliant disposal of equipment at the end of its useful life
- Aggregate services to minimise replication of hardware and heat extraction requirements
- Provide networked tools to remotely manage and shutdown computers, projectors and other peripherals



BSF, ICT and Environmental Sustainability

The development of Campus Stockton-wide systems may also provide opportunities for the Council to reduce energy use as well as providing a lower Total Cost of Ownership.

The Council will work with the ICT partner to develop good practice in the use of ICT, educating staff and learners on how to minimise environmental impact from their ICT use, for example, through developing use of collaborative technologies such as virtual classrooms and video conferencing for CPD, meetings and direct teaching to reduce amounts of travel.



BSF, ICT and Environmental Sustainability

Maximising the amount of teaching resources, administrative and management information available via centralised systems, including the Learning Platform, that is accessible from any connected device, will also help reduce travel and paper consumption.

The utilisation of displays throughout each school, which provide data and feedback directly to learners and others will develop their understanding of sustainability and opportunities will be sought to exploit the use of this data within the curriculum.

The most effective changes are those made by individuals and the Council will expect the ICT supplier to work to enhance staff and learners' understanding of their individual role in sustainability.



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In Summary, there are 4 main components to reducing carbon emissions, relating to the ICT itself and the use of ICT to obtain our desired outcomes:-

- Planning and Procurement
- End of life
- Policy and Procedures
- Education

