



AUSTRALIAN COMPUTER SOCIETY

The ACS (Australian Computer Society) Submission on the Whole-of-Government Information and Communication Technology (ICT) Sustainability Plan, Department of the Environment, Water, Heritage and the Arts (DEWHA)

THE ACS

The ACS is the representative body for Information & Communications Technology (ICT) professionals, attracting a large and active membership from all levels of the ICT industry. As a member of the Australian Council of Professions, the ACS is the public voice of the ICT profession and the guardian of professional ethics and standards in the ICT industry, with a commitment to the wider community to ensure the beneficial use of ICT and to support and develop the local ICT sector.

BACKGROUND

The ACS is actively involved in green ICT initiatives and in 2007, released the first assessment and emissions audit on the amount of greenhouse gas being generated by Australian business use of ICT use along with a series of easily implemented activities to help businesses reduce their carbon footprint. The ACS Green ICT policy is available at:

<http://www.acs.org.au/index.cfm?action=show&conID=200708161502035944>

In July 2009, the ACS released an addendum to its Green ICT Policy which has, as a key recommendation, the extension of the Star Energy Rating system to cover all domestic and commercial ICT goods. The policy also recommends a compulsory manufacturer take back policy for ICT equipment when new equipment is purchased or upgraded.

<http://www.acs.org.au/index.cfm?action=show&conID=200907301005197222>

GENERAL COMMENTS

The ACS supports the approach being proposed by the Australian Government in the Whole-of-Government ICT Sustainability Plan Discussion Paper (September 2009) of setting measurable targets around the four key areas in identifying:

1. Mandatory environmental standards for government ICT procurement;
2. Whole-of-government ICT energy usage standards and/or usage targets;
3. A whole-of-government ICT energy consumption target and reporting arrangements; and
4. A carbon pollution reduction scheme for the government's use of ICT and other sustainability initiatives.

The ACS is also very supportive of DEWHA's proposal to coordinate and assist all government agencies to develop ICT management plans by March 2010. The ACS, as a major ICT sector stakeholder, is prepared for its role in supporting the Australian Government in the implementation of these plans.

The ACS believes there could be value in the Government developing an awareness campaign in collaboration with the ICT sector, (including manufacturers and distributors of ICT products),

to raise awareness of the use of ICT as a key element in the solution to decrease energy use and increase energy efficiency across all sectors of the economy.

ICT is already helping to reduce energy use and streamline processes in many fields, for example, through e-banking, e-government and e-health. Furthermore, advances in videoconferencing technologies and the impending introduction of high speed broadband services across Australia via the National Broadband Network will provide many opportunities to reduce greenhouse gas emissions.

As the single largest purchaser of ICT goods and services in Australia, the Government is in a strong position to use its purchasing power by ensuring its ICT procurement guidelines give preference to those goods and services that adopt minimum energy performance standards and energy rating schemes.

New ICT supply contracts and new policies that will be implemented as a result of the Gershon review into the use of ICT in the federal public sector provide a perfect opportunity to put these procurement policies into action.

ADDRESSING THE PRIORITY ISSUES

Criteria for selecting standards and eco – labels

The ACS agrees with the following methods proposed in the Whole-of-Government ICT Sustainability Plan Discussion Paper (September 2009):

- the ICT equipment and consumables to treat for significant impacts (Table 2: pp 15);
- the proposed Green ICT Procurement Kit derived from the Gershon recommendations;
- the further analysis, monitoring and reporting to be undertaken by DEWHA; and
- additional environmental impacts, risks and benefits to be considered in life cycle analysis.

ICT equipment standards and eco – labels

The ACS strongly supports the introduction of minimum energy performance standards as outlined in the proposed legislation by DEWHA to provide a nationally consistent policy framework covering Minimum Energy Performance Standards (MEPS) and energy labelling.

The ACS believes that extending the energy star rating program for all ICT products will allow businesses to compare the energy consumption of ICT products and make the best choices in terms of reducing energy use and costs for both businesses and households.

This would enable the whole-of-government ICT energy consumption target and reporting arrangements to be benchmarked when setting energy intensity measures.

Energy intensity measures

The planned introduction of such technologies as Web 2.0 systems across all tiers of government, (as proposed in the Australian Government Information Management Office - Towards Government 2.0: An Issues Paper), will catalyse change in current public sector workforce practices, including the way government departments interact with each other and with stakeholders and citizens.

With the introduction of participatory and interactive technologies via Web 2.0, the sharing of data between sites has become an essential requirement, which means websites must be able to generate output in machine-readable formats. When a site's data is available in one of these formats, another website can use it to link to and integrate some of that site's functionality into itself. When this design pattern is implemented, data becomes easier to find and more thoroughly categorised, which is a hallmark of the Web 2.0 philosophy. The resulting faster data access speeds will save on download times and energy use.

To ensure these benefits are achieved, government agencies should start making changes now by re-educating current employees to adopt new ways of executing tasks through online engagement. This could mean introducing work-from-home practices, mobile work platforms and making use of teleconferencing technologies to decrease business travel. All these measures will have a significant impact on the intensity of energy use and reduce greenhouse gas emissions from government agency activities, particularly when they are rigorously applied on a whole-of-government basis.

Using ICT to sustain sustainability

The ACS believes that sustainable computing practices will increasingly become an integral part of the professional duties of all ICT professionals. These responsibilities will assist in reducing costs across agencies through reduced energy consumption, the introduction of appropriate product stewardship and e-waste programs, and raised awareness for the mitigation of carbon emissions by using the latest and most energy efficient technologies.

One of the steps Government can take to optimise the ICT energy consumption is to reduce the number of servers in an agency's data centre by adopting cloud computing and virtualisation technologies.

Data centres are emerging as major power users and data storage demands are driving a substantial increase in data centre construction. The powerful servers that are housed in today's data centres often require as much cooling power as the electricity needed to run them.

Data centres often have wastage through redundant hardware, memory, network devices and power supplies. Maturing ICT assets, coupled with the need to rein-in energy use, mean that organisations are now being forced to adopt innovative strategies to reduce their data centre operational costs.

The ACS believes that cloud computing and virtualisation can help to significantly improve sustainability performance for public sector agencies.

Cloud computing is a new mode of sourcing and delivering ICT services via the internet on a pay-as-you-go basis. It provides a viable alternative to on-premise ICT infrastructure and applications for some workloads.

Furthermore, the combination of cloud computing and virtualisation can reduce the need to expand an agency's electronic storage requirements.

The power requirements needed to run and cool data centres now account for almost a quarter of global ICT carbon dioxide emissions¹. Server virtualisation reduces power use by allowing

¹ http://news.cnet.com/Gartner-urges-action-on-data-center-emissions/2100-1022_3-6212965.html?tag=mncol

firms to run multiple 'virtual' machines on a single physical server. Different virtual machines can run different operating systems and multiple applications on the same physical computer, eliminating the current problem of under use of storage space in data centres (and so improving data centre efficiency).

Skills & Training - Green ICT training for government ICT staff

To help ICT professionals make more energy efficient choices for their firms and to improve their knowledge of green ICT initiatives, the ACS has established a national GreenIT Taskforce as well as Green ICT Special Interest Groups in three states. The GreenIT Task force is a collaborative initiative across the ICT sector that provides a forum for sharing information to increase awareness and knowledge amongst its membership of ICT professionals as well as the wider business community.

As part of its commitment to improve the green ICT knowledge and credentials of its members, the ACS has established a Green ICT course as part of the ACS Computer Professional Education Program (CPEP). This unit is internationally accredited and is also part of the Masters Curriculum for Information Technology at the Australia National University.

The ACS CPEP Green ICT Sustainability course is the first global initiative to educate ICT professionals in organisational sustainability issues. This training includes requirements to: write ICT procurement documents; identify new and emerging technologies to save energy and re-use materials; recommend alternative solutions which reduce environmental impact; and, assess the conformity of systems to environmental standards.

Set target measures for the APS to reduce its greenhouse gas emissions

The ACS believes ICT professionals can have a significant impact on developing solutions that optimise resource use and improving energy efficiency through the deployment of new and innovative technologies.

The ACS encourages ICT professionals to consider the following measures as part of their professional duties:

- reduce power consumption when upgrading ICT hardware;
- deploy newer operating systems which allow computers and other hardware to be put into sleep mode during periods of inactivity;
- investigate carbon offset programs to offset ICT carbon emissions;
- implement server virtualisation;
- implement desktop virtualisation using ultra small and thin clients on the desktop which will reduce power consumption, cut PC maintenance costs, increase security and enable new workgroups to be set up quickly; and
- deploy integrated telephony by replacing standalone handsets with soft phone clients on computer workstations.

Adopt green ICT standards in the procurement of ICT technologies

As the largest single purchaser of ICT goods and services in Australia, the Federal Government is in a commanding position to lead by example in tackling the growing e-waste

problem. One approach is to ensure that its ICT procurement guidelines and programs contain a take back clause for all agency ICT equipment suppliers. This might be similar to the clause specified by the European Waste Electrical and Electronic Equipment and Restriction of Hazardous Substances in Electrical and Electronic Equipment directives, which requires ICT manufacturers to take back old ICT hardware when new hardware is purchased or upgraded.

New ICT supply contracts and new policies to be implemented out of the Government's acceptance of all the Gershon Review recommendations provide a perfect opportunity to put this policy into action.

Require e-literacy training for all APS staff

Initiatives to increase online working and workplace mobility practices will help reduce carbon dioxide emissions. A joint Griffith University – Queensland University of Technology study (<http://www.tils.qut.edu.au/initiatives/msp>) on 'Mobile Staff Productivity' in June 2009 found that implementing mobile technology platforms increases workplace productivity as well as increasing energy efficiency.

Global leadership and building Australia's sustainability business

The Federal Government can not only influence the sustainability agenda locally through its purchasing power, but can also grow exportable business through its pre-eminence and leadership in sustainability within our economic region.

Increasingly, South East Asian nations look to the Australian services sector, not just for product and services, but also for regulatory and operational strategies and methods that we apply to industry sectors or significant areas of business practice.

There are various organisations, including the ACS, that could assist the Federal Government to lead the way in ICT sustainability. However, investment by Australian organisations in this area is not viable without regulatory backing. The current ICT sustainability market is spawning numerous uncoordinated responses, from consulting through to education and onward to labelling, that ultimately leads to efforts being fragmented.

Australia, through the Federal Government, has a further opportunity to be a global ICT sustainability services leader, by creating the legal construct to enforce national certification and professional standards. These would improve coordination and consolidate efforts in this fast expanding business domain.

RECOMMENDATIONS

The ACS believes that encouraging innovation in ICT will not only make a significant decrease in the ICT sector's carbon footprint, but will also play a significant part in reducing emissions across all sectors of the economy. ICT based solutions will be a key factor in reducing emissions and increasing Australia's international competitiveness and could generate global opportunities for Australian ICT professionals and Australian businesses.

The ACS wishes to put forward the following recommendations, which we believe will significantly reduce ICT-related energy use within government agencies and end users across the whole-of-government.

1. Contractors and consultants seeking to sell their green credentials and services should be required to be registered and meet standards enforced by the Federal Government.

2. Companies selling their green credentials and services should also be registered and meet standards enforced by the Federal Government.
3. Individuals and companies that do not conduct their business to an agreed standard should be deregistered and prevented from practice.
4. ICT sustainable education programs should be registered in the first instance and subsequently certified.
5. Registered individuals, companies and certified training providers should be assisted in promoting their services to the global market.
6. Government agencies should be required to set target carbon emission reduction measures as a mandatory business practice. This can be achieved by establishing effective benchmarking criteria that can easily be adopted in the short-term. The Government should consider piloting innovative technologies that will play a major role in long term emission reductions.
7. The ACS recommends that manufacturers and ICT service providers have carbon - clauses included in procurement contracts that include product stewardship requirements addressing e-waste management issues for the lifecycle of the hardware.
8. The ACS believes that educating staff about the use on online collaboration technologies and changing current work practices to improve flexibility, encourage working from home and introducing mobile workstations will have a worthwhile impact by reducing energy use across government departments.
9. The ACS supports the planned introduction of such technologies as Web 2.0 systems across all tiers of government as a vital step in reducing energy use.
10. The ACS believes the Government should develop an awareness campaign in collaboration with the ICT sector, (including ICT manufacturers and distributors) to raise awareness of the use of ICT as a key element in the solution to decrease energy use and increase energy efficiency across all sectors of the economy.

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