EQUIPMENT ENERGY EFFICIENCY PROGRAM

Consultation Regulatory Impact Statement

Proposed Minimum Energy Performance Standards for Computers and Computer Monitors

Issued by the Equipment Energy Efficiency Committee under the auspices of the Ministerial Council on Energy

A joint initiative of Australian, State and Territory and New Zealand Governments

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Regulatory Impact Statement for Computers and Computer Monitors

This is an Australian-only proposal at this stage but costs and benefits have been modelled for both Australia and New Zealand because New Zealand is a participant in the Equipment Energy Efficiency (E3) Program and because the Australian and New Zealand markets are predominantly supplied with the same models frpn the same overseas manufacturers.

Minimum Energy Performance Standards (MEPS) set performance requirements for an energy-using device that effectively limits the maximum amount of energy that may be consumed by a product in performing a specified task. The program prevents the sale of appliances and equipment that have a relatively poor energy efficiency performance. MEPS and labelling is a key element of Australia's and New Zealand's response to climate change and are used to achieve other energy related policy objectives. The MEPS program currently covers 15 appliances and equipment types and a further 29 products are being considered for addition to the program.

This regulatory impact statement (RIS) has been prepared in accordance with the Council of Australian Governments (COAG) best practice regulation requirements and is now being released for public comment. The Equipment Energy Efficiency (E3) Committee seeks feedback on the proposal to regulate information and communications technology (ICT) equipment (computers and computer monitors) under the MEPS program to improve existing levels of energy efficiency and performance. The proposed standard would apply to all computers and computer monitors used in all sectors of the market (residential, commercial and government) throughout Australia and New Zealand. The equipment covered includes:

- desktop, integrated and notebook/tablet type computers;
- small scale servers; and
- most types of computer monitors[1].

This RIS summarises the arguments and analysis for introducing nationally consistent energy efficiency regulations. More detailed analysis and further information is contained in supplementary information attached to this document.

Based on the analysis in this RIS, the E3 Committee proposes to recommend to the Ministerial Council on Energy (MCE) that it impose MEPS for all computers and MEPS and mandatory labelling of energy performance ratings for all computer monitors commencing not earlier than 30 June 2011. Through consultation with industry, it has been agreed that labelling of computers would be difficult and likely to be of little informative value due to the variety of component and feature options that can be configured in the same base model. Computer monitors however lend themselves to performance labelling similar to TVs to allow consumers to identify models better than those just complying with MEPS.

MEPS will only apply to new stock of computers and computer monitors manufactured or imported on or after the implementation date and will result in some current models of computers and computer monitors no longer being eligible for sale. It is difficult to quantify the exact number of computer and computer monitor models that manufacturers will remove from the market.

The proposed regulation aligns with an internationally accepted test method, ENERGY STAR®, developed by the United States Environmental Protection Agency (EPA). (Section 8.2 in the Supplementary Information)

The decision to use ENERGY STAR® V5.0, as the test method for computers, was decided on following advice from the industry.

The E3 Committee is seeking stakeholder views about the regulatory proposal and the analysis contained in this RIS, which E3 intends to put to the Ministerial Council on Energy in March 2011. At the end of this RIS there are specific questions E3 seeks comment and direction on from interested parties. Details of where to lodge comments and submissions are also provided at the end of this document.

[1] A more technical, engineering description of these products is available at: http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/computer/Version5.0_Computer_Spec.pdf

Why ENERGY STAR®?

The ENERGY STAR® Program is jointly managed by the United States Department of Energy and the United States Environmental Protection Agency. Since 1999 the Program has been successfully transforming the market for more efficient products in a wide variety of categories. It aims to identify the top 25% of products in terms of energy efficiency so specifications are regularly updated to keep pace with market developments. In the case of computers and computer monitors ENERGY STAR® has become the de-facto international energy efficiency standard for these products.

The US government has a procurement policy of only buying ENERGY STAR® compliant computers and computer monitors. As one of the largest purchasers of these products in the world this procurement policy has a profound effect on the market and typically, within the space of a year or two, the majority of products available in the US market place are compliant with the latest version of ENERGY STAR®.

Cost premiums for the more efficient models are kept to a minimum because of the huge market that exists for ENERGYSTAR® products.

The Australian market for computers and computer monitors is similar to that in the US and Europe and there is no reason why ENERGY STAR® compliant products could not be supplied here. However currently there is no driver to supply efficient products to the Australian market and research indicates that Australia may have become a dumping ground for inefficient computer products. This may change with the recent release of the 'Australian Government ICT Sustainability Plan 2010 - 2015' that requires all Australian Government agencies to purchase ICT equipment that complies with current versions of ENERGY STAR®

Regulating for minimum energy performance standards to an ENERGY STAR® specification, two years after its introduction in the US and Europe (at the point where historically it is being superseded), should have minimal impact on the global computer suppliers. All suppliers would need to do is change their supply chains and adequate time is available for them to institute such changes. Suppliers would even be able to redirect product that would no longer be purchased by US government agencies to Australia.

Special provisions are being proposed to enable small and specialist suppliers to provide compliant product by requiring a high efficiency power supply to be incorporated into the product while requiring the same, software enabled, power management systems to be used as with all other computers and monitors. Again, this is existing technology and all that needs to be modified is the supply chain.

Growth in computer use

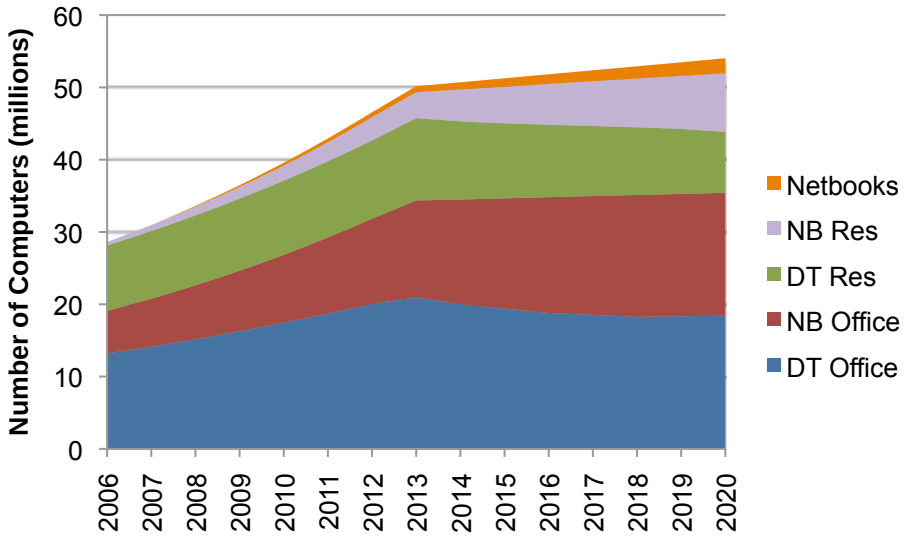
In 2006, there were an estimated 24 million computers in use in Australia[2], roughly equally divided between the three sectors: residential, commercial and government. Despite limited data being available for New Zealand the penetration of computers in New Zealand appears to be similar to Australia. In the absence of reliable information to the contrary, it is assumed that computer use in New Zealand is proportional to computer use in Australia.

Best available information suggests that by 2020 the number of computers will double to around 53.5 million in Australia and New Zealand (see
Figure 1) and the number of computer monitors will grow to 33 million (see Figure 2)

Market saturation is expected to occur around 2013. The forecasts presented indicate a trend towards an increasing use of notebooks (NB) and netbooks instead of desktop (DT) computers. This trend has positive efficiency and greenhouse outcomes for the wider community. Liquid crystal display (LCD) monitor technology is also replacing cathode ray tube (CRT) technology in virtually all but a few specialised applications, such as the medical sector. While LCD technology offers energy efficiency improvements the trend towards use of much larger screens and multiple screens more than offsets the efficiency gains. These trends have been taken into account when calculating Business as Usual (BAU) scenarios.

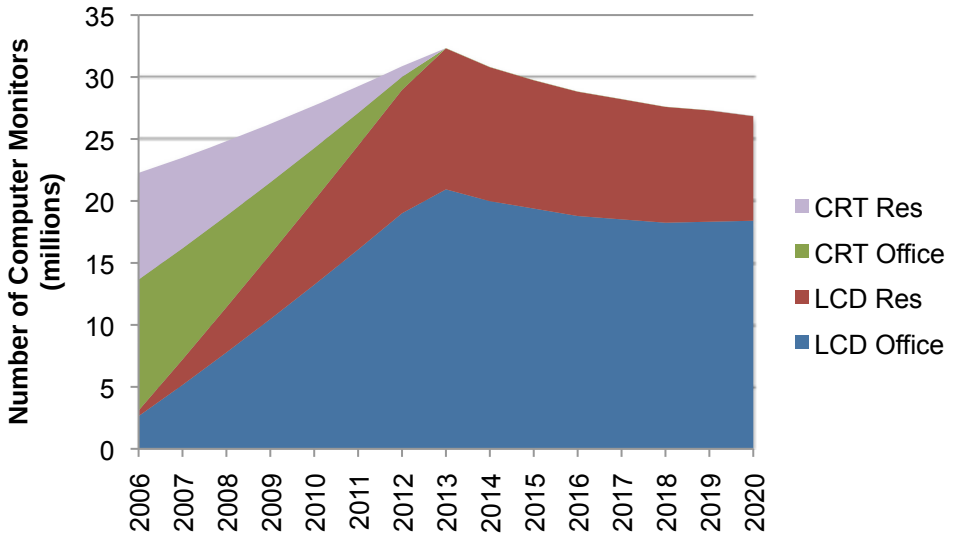
While E3 has consulted with key industry bodies about its forecasts they are not agreed by all parties. The E3 Committee seeks comment on the figures along with information to improve the estimates of the current and future stocks of computers and computer monitors.

Figure 1 The forecast number of computers in Australian and New Zealand



[2] 'Projected Impact of the Equipment Energy Efficiency Program to 2020' (Wilkenfeld and Associates) January 2009, page 25

Figure 2 The forecast number of computer monitors in Australian and New Zealand



The problem

Australia's 2009 greenhouse gas emissions, due to electricity generation, are estimated to be 202 Mt CO2-e[3]. The contribution of computers and computer monitors, within the scope of this RIS are estimated to be 8.12 Mt CO2-e, thus representing 4% of Australia's greenhouse gas emissions from electricity generation in 2009.

Computers and computer monitors are now one of the largest end uses of electrical energy in the residential sector not covered by energy efficiency regulation.[4] While energy efficiency has improved with time, there are further relatively simple and cost effective means of increasing the energy efficiency of computers and computer monitors. Despite efforts in Australia, New Zealand and internationally to encourage greater energy efficiency in the computer market, there is considerable evidence that cost-effective energy efficiency improvements are not being adopted. Energy efficiency performance varies across computers and computer monitors with roughly equivalent features. In addition, there is often little or no information on energy performance provided in retail outlets to help consumers make an informed purchasing decision. Computers are a relatively complex product involving the bundling of a range of features such as graphics, processing speed, memory and other components, which adds to the difficulty providing comparable energy information to allow consumers to make an informed choice. Indeed, consumers may place computing attributes/performance ahead of energy efficiency/performance.

Whilst expanded upon in this RIS and in greater detail in the supplementary document to this RIS, market failures are summarised as follows.

Power consumption

Desktop and notebook computers are categorized by their configuration/components. Category A is the lowest specification, typically with one or two processor cores and less than 2 Gb system memory (RAM). As more processor cores, more RAM and graphics cards are included, the category changes to B, C or D, with D being the highest specification for desktop and C the highest specification for notebook. For example, a category D desktop is a high end computer with four or more processor cores, four or more Gb RAM and/or a high performance graphics processing unit.

Australian and international testing shows a wide range of power consumption of equivalent categories of computers and computer monitors. (Section 1.4 in the Supplementary Information) The following table summarises the Department of Climate Change and Energy

[3] http://www.climatechange.gov.au/publications/greenhouse-acctg/national-greenhouse-gas-inventory-2008.aspx
[4] Projected Impact of the Equipment Energy Efficiency Program to 2020' (Wilkenfeld) January 2009, page 23

Efficiency (DCCEE) test results[5] when computers are on but not in active use (idle mode). Idle mode and the higher energy consuming active use mode are the major contributors to annual energy consumption and consumer information, in general, is not readily available.

Computer type	Category[6]	Best (Watts)	Worst (Watts) A	verage (Watts)
Desktop A		17.6	99.0	62.8
Desktop B		26.6	73.2	54.6
Desktop C		67.9	162.8	104.4
Notebook A		12.2	18.2	14.7
Notebook B		9.8	37.4	17.7

In summary, the test results, which correlate well with international studies, indicates the computer market includes many models consuming much higher energy than other models in the same category having similar performance. Within the computers tested, there is no apparent correlation between price and energy performance between equivalent classes of computers. i.e. a higher purchase price does not necessarily mean a more efficient computer. (More detail is in Section 2 of the Supplementary Information)

Energy information

There is little information available to consumers regarding the energy performance of computers and computer monitors. (Section 2.4 in the Supplementary Information)

2009 DCCEE testing of desktop computer models identified that 41% did not use power management (PM) functions enabled as shipped to automatically reduce energy consumption in periods of non-use. PM, irrespective of a computer's or computer monitor's power demand, can simply and cheaply achieve significant energy consumption reductions with virtually no disruption to the functionality of the devices.

Monitor power consumption

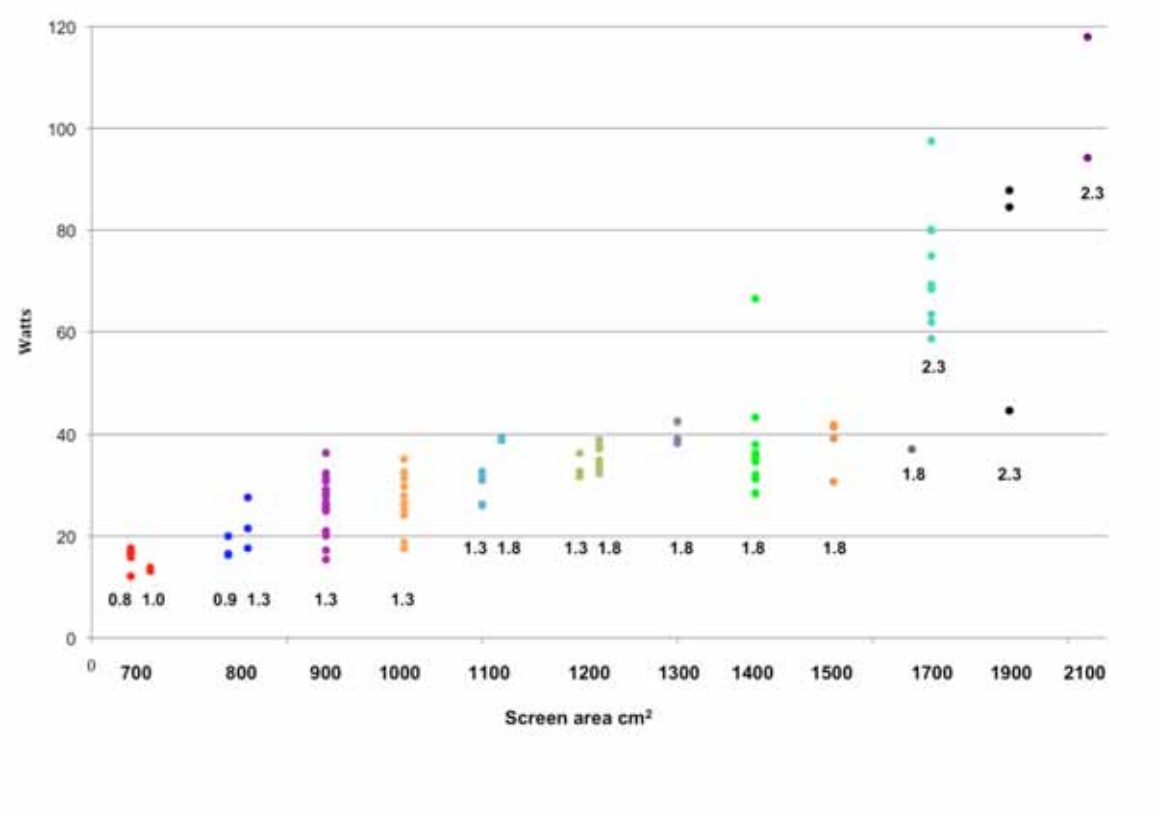
Computer monitor power data in Australia is limited, however due to them being globally traded products, the following draws upon the comprehensive test data gathered by the US Environment Protection Agency (EPA) for their ENERGY STAR® program. The EPA tested 109 LCD computer monitors and published test data including screen size, resolution and power.[7]

The following chart presents the data using 'as shipped' power vs screen area and where applicable, subdivided by screen resolution as indicated by single decimal point numbers within the chart. The chart shows a number of important factors.

[5] E3 Computers and Energy Efficiency in Australia report June 2009
http://www.energyrating.gov.au/library/pubs/200909-computers.pdf

[6] http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/computer/Version5.0_Computer_Spec.pdf

[7] http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/monitors/Draft_5.0_Dataset_Analysis.xls



For each screen area band and resolution, there is a wide range of power consumption between best and worst and there are many examples where larger screens consume less than smaller screens. In summary, there are many models, even though compliant with the previous version 4.0 of the ENERGY STAR® program, that consume much more energy than those of similar or even greater size.

Overall energy use

In 2010 the residential sector electrical energy consumption of computers and computer monitors is estimated to reach 1,915 and 364 GWh in Australia and New Zealand, respectively. This energy consumption in the residential sector represents between 3% and 3.2% in Australian and New Zealand.

Office ICT equipment is also a significant energy consumer. ICT equipment is estimated to use around 14% of the electricity use in commercial office buildings[8] with computers and computer monitors accounting for 25% to 50% of that figure depending on the type of commercial office building. In absolute terms for 2009, this is estimated to be 6,360 GWh and 988 GWh for Australia and New Zealand respectively. This energy consumption is estimated to have contributed to 4% of Australia's greenhouse gas emissions from electricity generation.

While better design and technology is available, it is not being adopted universally by equipment suppliers, as indicated in DCCEE test results and other international studies. In part this may reflect the fact that the supplier does not bear the costs of energy inefficiencies. Rather it is the user that bears these costs. Whilst every computer system is used differently, estimated average annual savings, calculated by estimated energy reduction times an average tariff (2010) of 17.7 cents per kWh are:

- $24 for an office desktop and LCD system;
- $15 for a home desktop and LCD system;
- $9 for an office notebook; and
- $3 for a home notebook.

Further details of the full calculation methodology are in Appendix 8 of the Supplementary Information.

[8] AGL Energy presentation to GAEN 2009

Numerous studies suggest that energy efficiency is rarely a high priority issue relative to other factors such as ease of use, aesthetics, reliability and convenience (IEA 2007). In 79 computers randomly selected and purchased from retail sources for testing under the E3 program there was virtually no information provided on energy efficiency. After sales software and hardware solutions are available for improving energy efficiency for those with an interest or need for energy performance improvement. However, these improvements are a costly method for improving energy efficiency for many consumers. Regardless of the cause, the energy inefficiency associated with computers and computer monitors represents a relatively significant and growing cost to society.

ENERGY STAR® has become the international benchmark for energy efficient electronic equipment. ENERGY STAR® was created by the US Environmental Protection Agency in 1992. ENERGY STAR® for computers was first developed and implemented in 1994 with various improvements since. The latest specification, ENERGY STAR® V5.0, was introduced from July 2009.

ENERGY STAR® is intended to be a voluntary efficiency standard, but has been mandated for US Federal Government purchasing and by some US states. The *'Australian Government ICT Sustainability Plan 2010-2015'*[9], introduced in August 2010, requires all Australian Government agencies to adopt mandatory environmental standards in ICT procurement including compliance with the current ENERGY STAR® version.

It has been adopted in the US to assess which products are in the top 25 percent in terms of energy efficiency. ENERGY STAR® has been adopted by many countries around the world, including European Union and New Zealand. Focus group surveys indicate that the ENERGY STAR® logo is recognised on electrical products, in particular, but that most people know little about its meaning.

On a less positive note, testing of products on the Australian market in 2009 found:

- only 25% of computers complied with the voluntary ENERGY STAR® V4.0 specification (introduced in July 2007),
- 30% complied with an earlier version of voluntary ENERGY STAR® V3.0 (introduced in 2000).

Previously it was assumed that the ENERGY STAR® specification would flow through the market place because major suppliers would only produce products to the latest ENERGY STAR® specification. This is not the case as 45% of the computers tested did not comply with either the ENERGY STAR® V4.0 or ENERGY STAR® V3.0 specification[10].

Testing in Commonwealth Government agencies also indicates that computers procured for their staff did little better, as most did not comply with the voluntary ENERGY STAR® specification in place at the time of purchase[11].

Data from these tests is comparable to data reported overseas.[12] International studies show that inefficient models proliferate even in circumstances where the market can easily identify ENERGY STAR® endorsed product. Australian studies also show that end users wishing to purchase an ENERGY STAR® compliant product will struggle to identify such a product. When this finding is considered together with the knowledge that ENERGY STAR® is intended in the USA market to only capture the top 25% of the market, it may be that Australian consumers who wish to buy an ENERGY STAR® product that actually meet performance claims, have a very limited choice – perhaps in the region of 10% of the market.

While power consumption of computer and monitors represents a relatively small contribution to Australia's and New Zealand's greenhouse gas emissions, in aggregate, the inefficiency associated with computer and computer monitor power represents a relatively significant cost to society as a whole (Table 1).

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[9] http://www.environment.gov.au/sustainability/government/ictplan/publications/plan/pubs/ict-plan.pdf

[10] E3 Computers and Energy Efficiency in Australia report June 2009 http://www.energyrating.gov.au/library/pubs/200909-computers.pdf

[11] E3 Energy use in Desktop and Laptop Computers in Government Operations report September 2009

[12] ENERGY STAR Computer Levels Update 082606

Table 1 Total projected BAU energy and GHG emissions by computers and computer monitors.

	2010		2020	
	Aust	NZ	Aust	NZ
Energy use (GWh)	8615	1399	8314	1289
GHG emissions (Mt CO2-e)	8.19 0.84		6.28	0.52

Figure 3 Australia projected BAU energy consumption – GWh

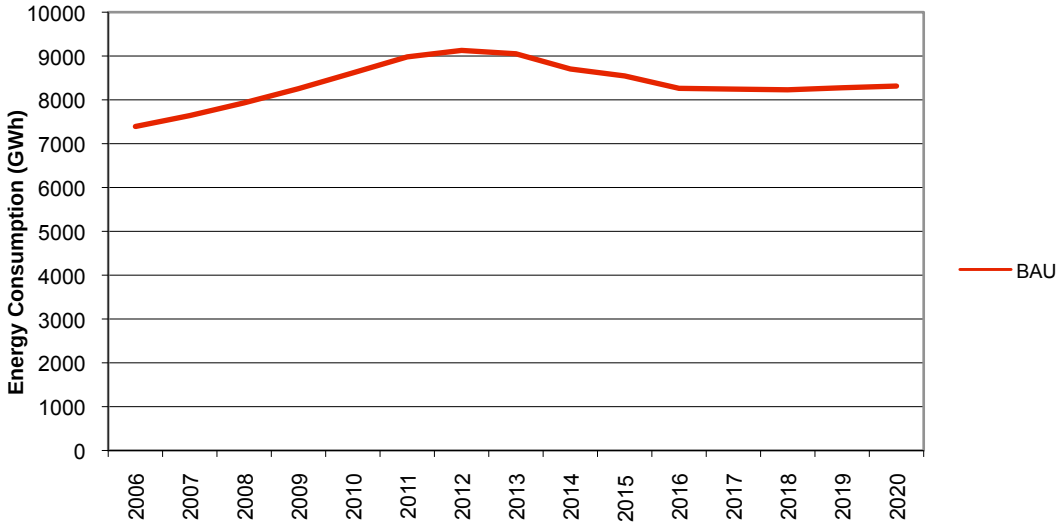
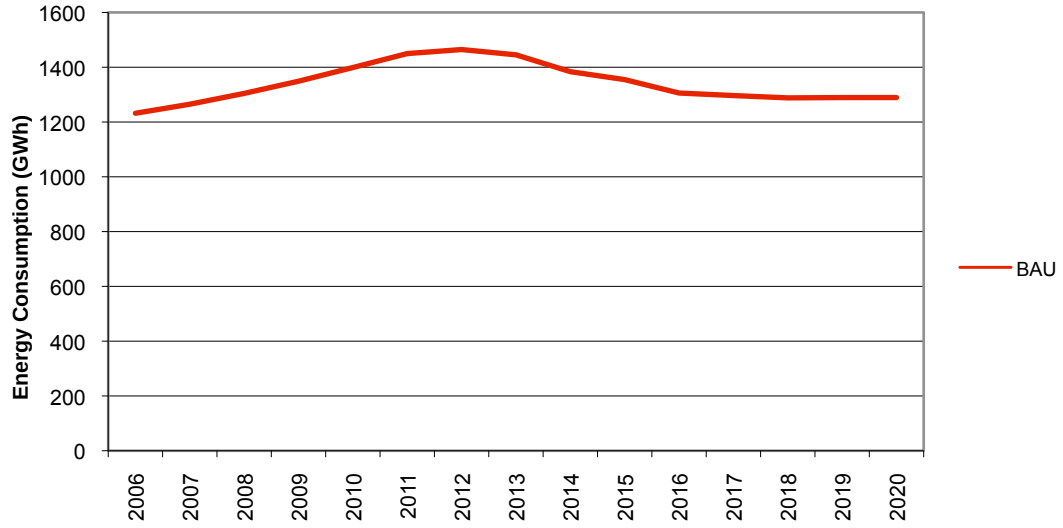


Figure 4 New Zealand projected BAU energy consumption – GWh



There are relatively simple and cost effective means of increasing the energy efficiency of computers and monitors. Computers and computer monitors can be designed for improved energy efficiency at little cost which results in an additional purchase price of between $5 and $30 per product (less than 2% of the average purchase cost of a computer). With time, technological improvements and economies of scale could be expected to reduce this cost.[13]

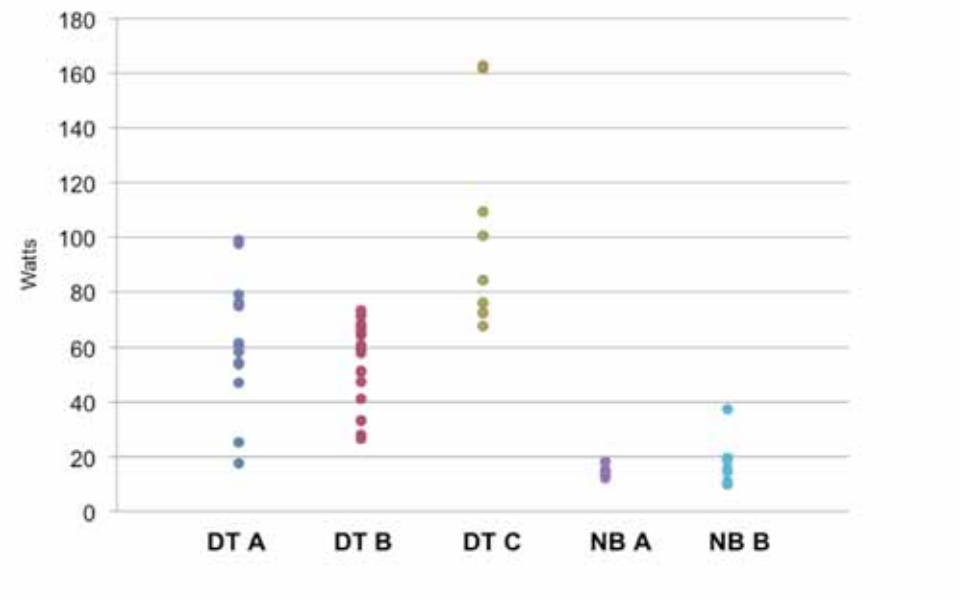
Energy consumption of computers can be significantly influenced by component selection and operation. All computers use a power supply to convert grid AC power to DC power which is

[13] http://www.climatesaverscomputing.org/media/White_Paper_02.02.09.pdf
http://extra.ivf.se/ecocomputer/downloads/Eup%20Lot%203%20Final%20Report%20070913%20published.pdf

required to power internal components of the computer. By increasing the power supply conversion efficiency, less power is drawn from the grid and hence less energy is consumed over time.

Even when not in active use, computers and computer monitors can use significant amount of power if power management (PM) systems are not switched on. The magnitude and range of idle (not in active use) power for ranges of similar performance computers is shown in Figure 5. The figure shows results for the three categories of desktop (DT) computers and two categories of Notebook (NB) computers

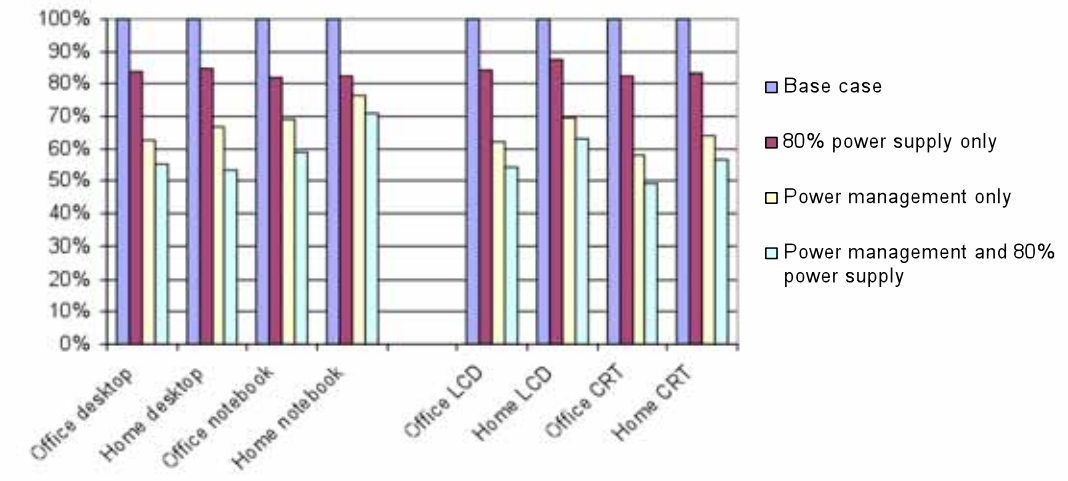
Figure 5 Idle power test results



Computer hardware and software initiatives/developments allow the use of PM. If used, PM automatically puts the computer/monitor into a lower power "sleep mode" which consumes less energy than "on mode". In sleep mode, after the touch of a key or movement of a mouse, the monitor will "wake" virtually instantly, whilst the computer may take a few seconds to be ready for use. Historically, this could have been much longer, but technological advances have reduced wake times that will not inconvenience users.

A European study (EuP Lot 3) shows the step reductions that can be achieved by increasing power supply efficiency to 80% or enabling PM and the case if both are implemented. See Figure 6. These are relatively simple measures that would provide significant reductions in energy consumption from the base (BAU) case.

Figure 6 Results from a European Union study showing possible power reductions for computers



While better design and technology is now available to improve the energy efficiency of computers and computer monitors, it is not being adopted universally by equipment suppliers. There may be a range of reasons for this lack of uptake by suppliers. For example, while it may only cost an additional $20 to improve the energy efficiency of a computer or computer monitor, this cost must be paid upfront at the time of purchase while the energy efficiency improvements are realised over the lifetime of the product through lower operating costs. Other product features may outweigh energy efficiency concerns in making decisions about computer purchases. In addition, suppliers may have little motivation to improve the efficiency of computer equipment where there is an available market for after sales software and hardware solutions for this task, although these services are significantly more expensive than original design and technology solutions.

Some suppliers go further to suggest that in the absence of a clear signal to the contrary, the market will continue to supply inefficient product because a group of purchasers will always be motivated to purchase low priced equipment irrespective of operating costs and efficiency. It should be noted that energy efficiency is typically a more important factor for portable computers, due to weight and battery life requirements, and the market has responded accordingly. In spite of this, E3 tests identified a wide range of energy consumption for computers with a similar level of performance, indicating that there is significant scope to improve performance in many brands and models.

There are other groups of purchasers who are motivated to choose efficient equipment and who would use an energy rating label when making a purchase decision[14]. However, many suppliers claim energy labelling of an entire computer system is impractical because:

- of the proliferation of labels already appearing on computers and monitors
- the particular sales model where computers and monitors are frequently sold 'in the box' or via websites (so the label would not be used or available to consumers at the time of purchase)
- the range of optional componentry affecting efficiency within both the computer and monitor which enables a purchaser to customise their system would make the label scheme too complex and prone to error.

At the retail "on the shelf/take it now" level, the computer system configuration is generally fixed, although consumers can still customise a range of components. Similarly web-based products generally have a base platform from which a consumer can customise. Enterprising organisations may issue a request for tender with specific components and functions to meet a variety of needs. In the first two cases, the label applied at shipment would not reflect the computer's final configuration. In the third case, where the enterprising organisation has specified the configuration it could add an extra cost to the supplier for no real benefit. Hence energy efficiency regulators have accepted these arguments on computer systems and have indicated that labels on monitors is a promising option.

ENERGY STAR® have adopted the same measuring methodology for monitors as has recently been introduced for televisions globally. As this methodology has also been used for television regulation in Australia, efficiency authorities are keen to explore monitor labelling in the very near future. Efficiency agencies will encourage the adoption of a voluntary industry labelling scheme based on the ENERGY STAR® methodology immediately as a precursor to the scheme proposed in the future. This means that energy use information will become available at point of sale or displayed on some monitors prior to regulation.

The objectives of government action

The MEPS program seeks to reduce greenhouse gas emissions and contribute to meeting other energy and energy efficiency policy objectives in Australia and New Zealand by ensuring that cost effective efficiency improvements are adopted for appliances and equipment sold in Australia and New Zealand.

The specific objective of this proposal for computers and computer monitors is to:

- bring about relatively significant reductions in Australia's and New Zealand's greenhouse gas (GHG) emissions from computers and computer monitors below what

[14] Consumer Group Discussion on Purchasing Major Household Appliances with Reference to TVs and ICT, 2008, Winton Sustainable Research Strategies (available for download at http://www.energyrating.gov.au/library/details200806-focusgroup-tvpurchase.html

they would otherwise projected to be (i.e., the “business-as-usual” case) by improving the energy performance of the equipment
- reduce energy demand, which decreases pressure on energy supplies
- help businesses and households adjust to the impacts of higher electricity prices and provide a degree of consumer protection from unnecessarily high running costs
- provide a positive financial benefit to consumers, without compromising appliance quality or functionality
- provide consumers with the information necessary to encourage informed purchasing decisions.

The options considered

This RIS is focused on considering whether to maintain existing arrangements (no regulation or BAU) compared with imposing MEPS and consulting with stakeholders on the value of mandating labelling on computers and computer monitors in Australia and New Zealand.

Other options considered include:
- voluntary efficiency standards and labelling;
- voluntary certification standards;
- consumer education campaign;
- levies and financial instruments; and
- dis-endorsem ent labelling.

Internationally, industry has been encouraged to adopt voluntary efficiency standards and labelling, namely the US ENERGY STAR® specifications with little effect, apart from markets where government purchasing directives make these voluntary measures mandatory. The failure for this to cascade to at least the Australian market has been evident during efforts over the last two years to purchase ENERGY STAR® compliant products. Consequently this option is considered to be part of BAU practice. Education campaigns are also considered to be part of the BAU case. However, education campaigns alone could not achieve the outcomes sought by this proposal. Levies and dis-endorsement options are considered in more detail in the supplementary document. Overall the options other than MEPS and mandatory labelling for monitors are not preferred because:
- voluntary certification and efficiency standards for computers are unlikely to drive optimal adoption of energy efficiency improvements – they have not done so in the past and projections of the revised industry proposals suggest that voluntary measures will not have the same impact as regulation;
- education campaigns aiming to change user behaviour appear less likely to improve efficiency outcomes than regulation because the industry driven signals come after the purchase of comparatively less efficient product;
- it should be noted that the BAU already includes a levy and as noted in ‘The problem’ section some businesses voluntarily participate in the ENERGY STAR® program and label their equipment accordingly, the E3 Committee has not considered the option of levies and voluntary standards or certification in detail. There is however, further scope to expand the voluntary labelling to include an energy rating label.
- a dis-endorsement label is also not considered in detail at this stage. While this option is feasible it would be more expensive to implement than the energy rating label that people are already familiar with because a new label would need to be designed and new education and awareness campaign implemented. The E3 Committee therefore considers that it would be appropriate to consider such an option only where there is evidence that an ENERGY STAR® rating was not effective.

A voluntary labelling scheme for computer monitors that will transition into a mandatory scheme, similar to the scheme that operated prior to the introduction of regulation for televisions, will commence as soon as practicable

For comparison purposes a BAU case has been established which recognises and incorporates reductions in energy consumption, as an average to all products, that would occur even in the absence of supplier and consumer action. This includes:
- trends to increasing use of notebooks and LCD monitors;
- allowances for technological improvements; and
- increased use of PM and improved awareness of the energy consumption of these products.

In the office sector PM is assumed to reduce 2010 energy consumption of individual computers and computer monitors by 5% in 2011 then peaking at 15% in 2014 and remaining at this level through to 2020. In the residential sector, this is assumed to be 5% less than 2010 in 2011, then peaking at 17% in 2014 and remaining at this level through to 2020.

The BAU case illustrates the effect of market failure, which results in energy efficiency being lower than is readily and cost effectively achievable (the 'optimal' level). The energy inefficiency is measured in terms of increased greenhouse gas emissions.

The MEPS option

MEPS, as a policy tool to improve the efficiency of products sold, has been adopted in Australia for a decade and labelling for twenty years. These types of intervention are currently applied to many equipment types sold in Australia and New Zealand.

MEPS remove the least efficient products from the marketplace so that potential purchasers are choosing from the remaining comparatively more efficient product still using their own selection criteria. Labelling empowers motivated consumers with reliable information to make an informed purchasing decision. Both are achieved by including the energy performance criteria within an Australian/New Zealand Standard (relevant to computers and monitors) which is then called into regulation by the various regulatory agencies in each jurisdiction.

The regulatory proposal builds on established industry practice. Indeed, the Australian Information Industries Association (AIIA) encouraged E3 Committee at consultation forum to use the internationally recognised ENERGY STAR® test method as the only basis for measuring compliance to MEPS in Australia and New Zealand. In their view, which is supported by E3 Committee, any other test protocol might cause trading barriers for these globally traded products.

E3 Committee agreed to use ENERGY STAR® as the preferred means of measuring the energy efficiency of computers and monitors in Australia and New Zealand because it:

- is recognised and accepted internationally and used by international suppliers of computers and monitors;
- its use encouraged by AIIA;
- was developed in the USA as an endorsement scheme to identify the more efficient products available in the marketplace so can support the voluntary monitor labelling scheme;
- is part of the New Zealand Government's plans and was part of the now discontinued Australian *Energy Allstars* scheme.
- can support government procurement type activities, the US Government specifies the latest version for all federal government computer and monitor procurement;
- has stood the test of time with the scheme now having 15 years of experience and five versions to reflect the development of the technology; and
- specifies the typical energy consumption (TEC) per year for operational times in a variety of modes in the current V5.0 specification, which came into effect in 2009.

Australian and New Zealand industry sources have previously identified these features as a necessary pre-condition to accepting regulation.[15]

The E3 Committee initially suggested that the performance requirement embedded in MEPS should mirror ENERGY STAR® levels, V4.0 for computers and V4.1 for monitors. The rationale being that this version came into effect in 2007 and now might represent an appropriate level for regulation in 2011. However, AIIA and its members advocated avoiding the use of ENERGY STAR® V4.0 as they were all migrating to V5.0 (computers), which came into effect in July 2009 and provides greater versatility for manufacturers to achieve compliance. They argued that a better scheme would concentrate on using the most-up-to-date measurement methodology which would save them time and money in not having two testing standards running concurrently. The E3 Committee agreed to these representations to avoid using V4.0 in case it had the unintended consequences of barring the use of better overall performing ENERGY STAR® V5.0 (computers).

A committee has been established under the auspices of Standards Australia to develop and publish the required Australian and New Zealand Standard (AS/NZS). This two part standard

[15] Hewlett Packard representation at 23 April 2009 meeting.

will cover Method of Test (Part 1) and Minimum Energy Performance Standards (Part 2). The ENERGY STAR® V5.0 (computers) provides metrics for calculating the maximum allowed typical annual energy consumption (TEC) of computer types, mandatory enablement of "built in" PM functions and minimum power supply efficiency levels. The proposed MEPS for defined categories of computers, based upon ENERGY STAR® specification version 5.0, are as follows.

Typical Energy Consumption (TEC) requirements

	Desktops and Integrated Computers (kWh)	Notebook Computers (kWh)
TEC (kWh) per annum	Category A: ≤ 148.0 Category B: ≤ 175.0 Category C: ≤ 209.0 Category D: ≤ 234.0	Category A: ≤ 40.0 Category B: ≤ 53.0 Category C: ≤ 88.5
Capability adders		
Memory	1 kWh (per GB over base) *Base Memory*: Categories A, B and C: 2 GB Category D: 4 GB	0.4 kWh (per GB over 4)
Premium Graphics (for Discrete GPUs with specified Frame Buffer Widths)	Cat. A, B: 35 kWh (FB Width ≤ 128-bit) 50 kWh (FB Width > 128-bit)	Cat. B: 3 kWh (FB Width > 64-bit)
	Cat. C, D: 50 kWh (FB Width > 128-bit)	
Additional Internal Storage	25 kWh	3 kWh

For computer monitors, E3 had suggested a mandatory scheme in 2008 but few suppliers were supportive. However, the landscape changed recently when the US EPA decided to include the International Electrotechnical Commission (IEC) television energy efficiency method of test for larger size monitors in ENERGY STAR® V5.0 (displays). This is the same methodology mandated in Australia for televisions. This development means that monitors can be subject to both mandatory MEPS and labelling where maximum values for sleep, off and on power are set.

Maximum sleep and off mode power for all computer monitors

Sleep mode	Off mode
≤ 2.0 W	≤ 1.0 W

The proposed MEPS for computer monitors, based upon ENERGY STAR® specification version 5.0, Tier 1 levels are as follows:

Maximum on mode power for computer monitors without automatic brightness control enabled by default

Display category	Maximum on mode power Watts
Diagonal Screen Size < 76.2 cm Screen Resolution ≤ 1.1 MP	PO = 6*(MP) + 0.007752*(A) + 3
Diagonal Screen Size < 76.2 cm Screen Resolution > 1.1 M	PO = 9*(MP) + 0.007752*(A) + 3
Diagonal Screen Size 76.2 – 152.4 cm All Screen Resolutions	PO = 0.04185*(A) + 8

Where Po = maximum on mode power, MP = Display Resolution (megapixels) and A = Viewable Screen Area (square centimetres)

The convergence of technology between televisions and computer monitors has established a methodology that can easily and fairly be applied to monitors of all sizes. It also means that a voluntary labelling scheme that transition into a mandatory scheme, as used for the introduction of regulation for televisions, could also be applied. The voluntary labelling scheme to be launched as soon as practicable will allow suppliers (many of whom already involved in the mandatory television labelling scheme) time to become familiar with the test methodology.

The E3 Committee recommend that the proposed MEPS and labelling not be introduced any earlier than 30 June 2011 to enable the Australian and New Zealand-based industry time to specify the MEPS requirements to overseas manufacturing operations. Use of ENERGY STAR® V5.0 performance levels will mean that disruption to manufacturing operations will be negligible. The AIIA on behalf of their entire membership do not support regulation but should Ministers press ahead with regulatory plans, AIIA and many of their members expressed support for this proposed regulatory option, as at least the best format for that option.

The E3 Committee will engage through the Australian and New Zealand standards processes to consider exemptions for specific product groups/technologies should the proposed performance levels have an adverse impact on competition in specialist market segments. For instance, the consultations undertaken prior to this RIS led to agreement around the concept of "deemed to comply" for smaller computer manufacturers who assemble limited numbers of products for specific client requirements (sometimes called 'white box' manufacturers) or even large suppliers who have small quantities of specialist computers and monitors made for particular purposes. The deemed-to-comply proposal will see computer suppliers using an internal power supply which meets ENERGY STAR® V5.0 (computer) minimum requirements (at least 85% minimum efficiency at 50% of rated output and 82% efficiency at 20% and 100% of load) pass the MEPS irrespective of the tested outcome. However, products in this category must be identified to the public and PM provisions would still apply.

Impact analysis (including costs and benefits)

Methodology and data

This section sets out the details of the modelling used in estimating the net present value (NPV) of the proposed option. Further details are available in the appendices of the supplementary report. The modelling is based upon the proposed MEPS levels and does not include potential more stringent MEPS with associated costs and benefits, which if considered, would be subject to a further RIS.

Baseline stock and forecasts

The key element in any energy analysis is to establish the base stock of products and agreement on forecasts of future stock levels, product mix and lifetime.

The base year for the initial review was 2006. This was based upon Australian Bureau of Statistics data for residential computer use and data for ICT use in business compared to historical data from the International Telecommunications Union.

Australian Bureau of Statistics (ABS) data, as shown in Figure 7, indicated continued growth in household access to computers and the internet. This data only addresses households with computer access, not the total number of computers. I.e. some households have more than one computer. ABS data from 2005 indicates there were some 6.45 million computers in Australian households.

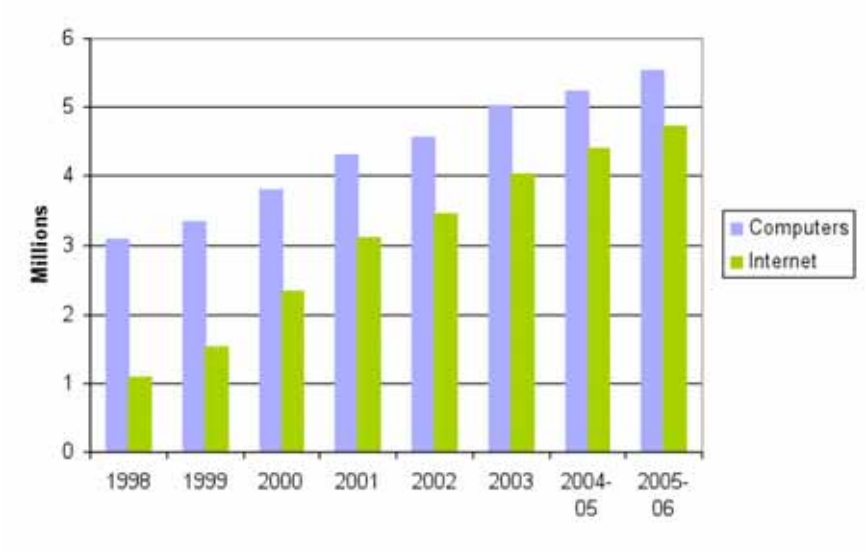


Figure 7: ABS household data for computers and internet access - Australia

Initial estimates were made to forecast stock and product mix in the residential and office sectors to 2014 using conservative and high growth scenarios, based upon historical ABS data and published sales data from IDC.

These forecasts were discussed with James McAdam, then General Manager - Strategy and Policy in the Australian Information Industry Association (AIIA), who advised that the base estimate should be 24 Million computers in Australia split 1/3rd in the residential and the balance in non-residential (office, government etc.). Subsequently, via stakeholder forums, meetings and other communications, the stock forecast and product mix has been set as Figure 8. In product volume it is relatively similar to the initial conservative scenario, but extended to 2020. Principal input came from Josh Millen (AIIA) in December 2008, particularly with respect to forecast product mix with later verbal agreement from Sean Casey (Intel) in May 2009 that the forecasts were in close agreement to the Intel forecasts.

A key point illustrated by the following charts is increasing use of notebooks (NB) and netbooks at the expense of desktop (DT) computers. Even more profound is the dominance of LCD computer monitor technology over CRT computer monitors in virtually all but a few specialised applications, such as the medical sector.

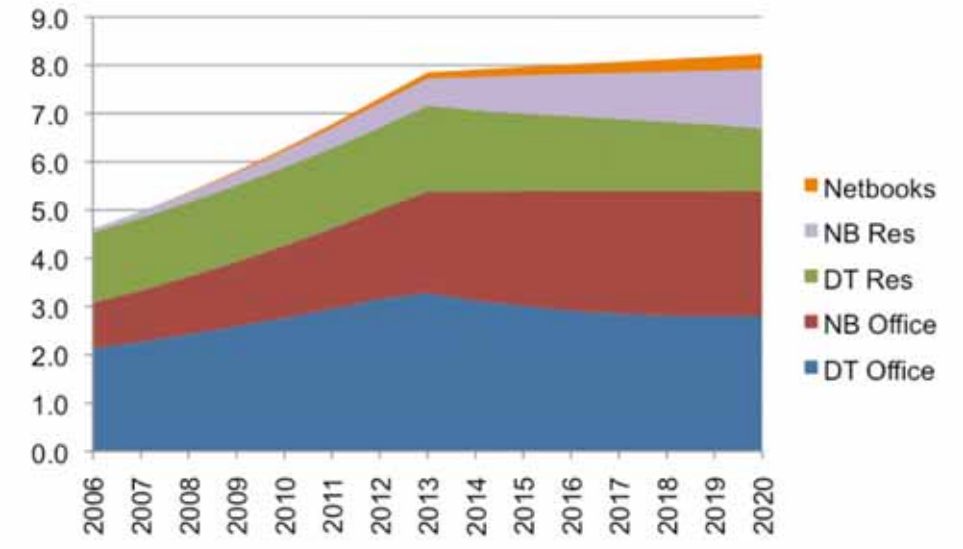


Figure 8: Australian computer stock forecast - millions

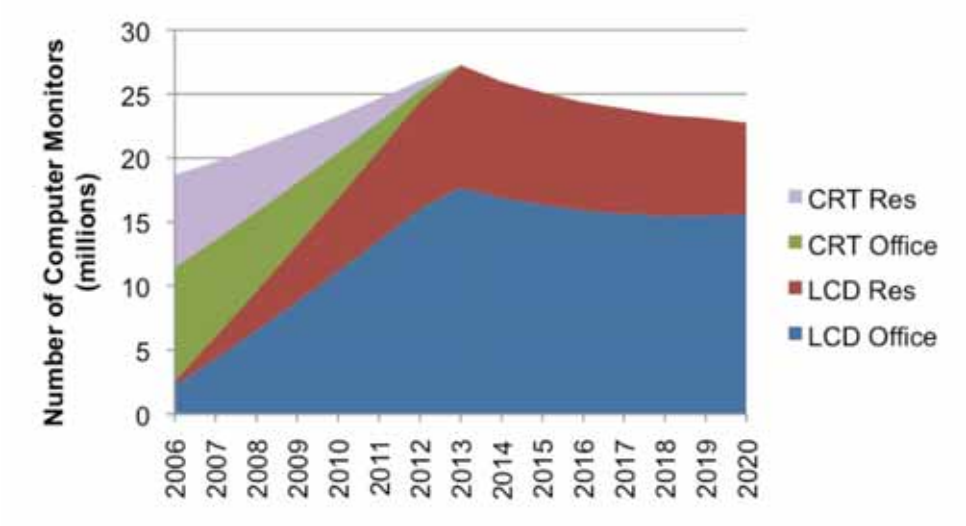


Figure 9: Australian computer monitor stock forecast - millions

Data from Statistics New Zealand[16] is limited to 2001 and 2006, however the 2006 penetration is similar to Australia as shown in Table 2 and, as such, New Zealand product stock is in proportion to the Australian stock and product mix.

Table 2: Household computer and internet penetration, Australia and New Zealand

Country	Internet 2001	Computers 2001	Internet 2006	Computers 2006
New Zealand	37%	45%	64.5%	71.6%
Australia	31%	51%	59%	68%

Distribution of products by jurisdiction

To model energy, emissions, costs and benefits it is necessary to estimate the distribution of products by jurisdiction. As data on ICT use by jurisdiction is not available, the model breaks down the total estimated stock by product mix based upon the households in each jurisdiction. It also assumes that the ratio of residential to non-residential usage is the same for all jurisdictions.

Unit energy consumption – BAU and MEPS

There have been many studies of computer and computer monitors over the last decade in many countries. The most comprehensive is the EuP Ecodesign Preparatory Study - Computers and Monitors study conducted under the auspices of the European Union's Energy using Products (EuP) Directive. This study reviewed past reports from around the world and reports a high level of informed stakeholder input. In summary, the Lot 3 study estimated the annual energy consumption of computers and computer monitors for their BAU case and the expected savings that could be achieved by improving power supply efficiency and enabling power management. This data is used in the model as the average base data for BAU and MEPS improvements.

Table 3: Average base annual energy by product and sector – kWh per year

Product	Residential	Office
Desktop	141.7	194.1
Notebook	59.8	97.3
Netbook	15.0	15.0
LCD	50.8	106.0
CRT	189.0	100.8

[16] http://www.stats.govt.nz/NR/rdonlyres/BA872497-4B85-4386-8395-3ACBEBDA7C4A/0/householduseofict2006hotp.pdf

Improvements to base annual energy data

The EuP study included analysis of potential energy savings due to improving power supply efficiency to 80% and the impact of enabling power management. These impacts are shown in Figure 10 and the model utilises these power management and 80% power supply efficiency reductions for the MEPS case.

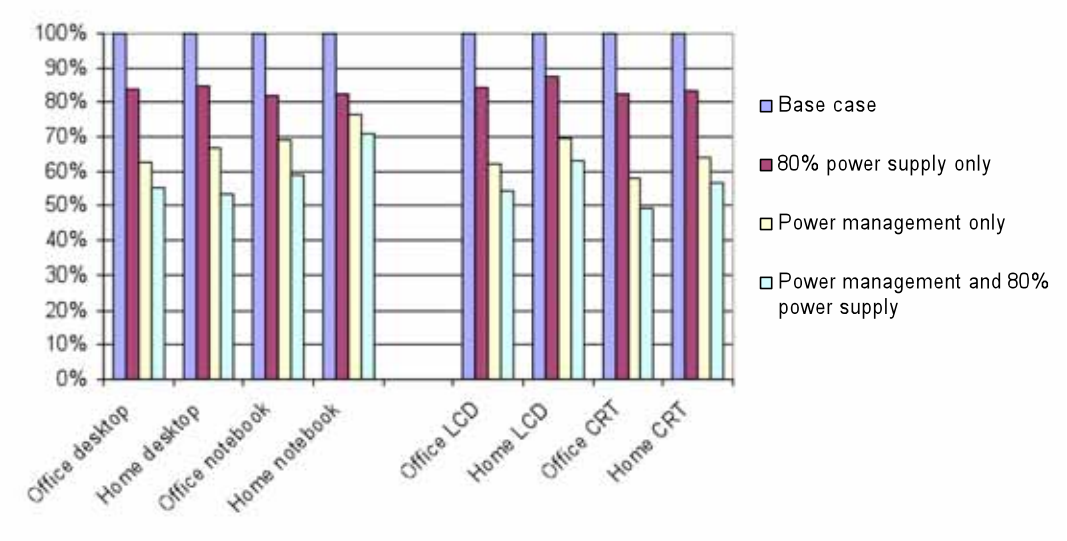


Figure 10: EuP Lot 3 impact of power supply efficiency and power management

For BAU projecting, the model recognises and incorporates reductions in energy consumption, as an average to all products, that would occur even in the absence of intervention due to both supplier and consumer action. In the office sector this is assumed to be 5% in 2011 then peaking at 17% in 2014 through to 2020. In the residential sector, this is assumed to be 2% in 2012, then peaking at 8% in 2014 through to 2020.

Direct energy calculation

Direct energy is the simple multiplication of the quantity of the product (BAU, MEPS, and improved BAU) by the annual energy for that product in each year of its service life. It is in this calculation stock growth or decline, the service life and hence retirement and replacement affects energy consumption in any year, due to removing poorer performing product and replacing it with MEPS or improved BAU product. The model splits annual energy into residential and non-residential in each jurisdiction. Through discussion with AIIA and Intel service life is set at 5 years, which covers initial owner and subsequent owner(s) of second hand products.

Indirect energy impacts

The method used was first used in the external power supplies (EPS) RIS and subsequently the TV RIS.

Indirect energy gains and losses arise from the impact of energy consuming products in spaces that are heated and cooled. The heating and cooling loads depend upon the external ambient temperature in each region, the design of the building and the sources of heat within the building, the thermostat setting, appliances, processes, humans etc.

To estimate indirect energy, data was sourced by capital city on the basis of energy consumed in office buildings from the following link:
www.greenhouse.gov.au/lgmodules/wep/buldings/training/training4.html

This was used to estimate heating, cooling and neutral time percentages. It was also assumed that heating and cooling uses reverse cycle technology, thus reducing the energy required to manage the temperature. E.g. if 1 kWh of heat is emitted, then at a COP of 3, the indirect

energy is 0.33 kWh required to remove that heat. The converse applies in heating months, where the heat emitted is beneficial and hence reduces indirect energy demand.

Within the residential sector, it would be very difficult to model when computers are used and whether or not this was in a heating, cooling or neutral periods. As such, indirect energy has been applied to the non-residential stock estimates only. Whilst not all offices and households will have reverse cycle heating/cooling system, this is most likely compensated for by not applying indirect energy to the residential sector. In calculating the indirect energy it has been assumed that 93% of annual energy is consumed during hours when heating, cooling or neutral is in progress.

For the New Zealand case, the indirect effect is based upon Hobart data and again only applies to the non-residential sector.

Greenhouse gas emissions

Greenhouse gas emissions are calculated from the direct plus indirect energy for each state, which is then multiplied by the standard emission factors for each jurisdiction and year. Greenhouse gas reductions are calculated to 2025, as products purchased from 2016 to 2020 will reduce emissions during their 5 year service life.

Energy cost benefits

Energy by year in the residential and non residential sectors are multiplied by the tariffs in each jurisdiction.

Energy cost savings are calculated to 2025, as products purchased from 2016 to 2020 will reduce energy costs during their 5 year service life.

For the Australian case where two cost benefit analysis have been done, one without carbon price and one which includes carbon value of A$10 per tonne, the value per kWh saved by the program are added to the benefit to the community at large.

Cost and benefit analysis.

This is done using the NPV function in Excel and use 7% discount rate for Australia and 6% for New Zealand.

Incremental product and program costs run from 2010 to 2020.

Benefits run from 2010 to 2025.

At EECA's request, the NZ benefits include carbon pricing at NZ$22.36 per tonne. The Australian carbon price is based on Treasury modelling of the CPRS -5 scenario.

Results

When compared to the BAU case, the proposed MEPS must benefit Australia and New Zealand by improving the efficiency of energy use of computers and computer monitors over the long term. This improvement must more than offset any additional cost in purchasing the more energy efficient product.

There are large energy and greenhouse benefits of introducing MEPS for computers and computer monitors in Australia (Table 4) and New Zealand (Table 5). In the Australian case, it is assumed that the CPRS comes into force July 2013. The table also shows impacts for no carbon price and with carbon price trajectories provided by the Department of Treasury (see Appendix 4 in the Supplementary Information).

Whilst detailed in Appendix 8 of the Supplementary Information, for each year in the period of 2011 to 2025, the modelling utilises forecast stock of each product (both retirements and market trends), estimated MEPS energy saving by product compared to BAU, forecast electricity tariffs and greenhouse gas emissions by jurisdiction.

Table 4 Australia - Summary of the cost-benefit analysis of a MEPS (relative to BAU) with CPRS commencing July 2013.

Australia Cumulative 2010 to 2025 * 2010 Dollars	**No carbon price**			**With carbon price**		
Discount rate	**7%**	**3%**	**10%**	**7%**	**3%**	**10%**
Total benefit A$ M	$3,617.6	$5,219.4	$2,800.6	$3,745.8	$5,589.2	$2,860.5
Total cost A$ M	$704.3	$906.2	$590.9	$704.3	$906.2	$590.9
Net benefit A$ M	$2,913.2	$4,313.2	$2,209.7	$3,041.4	$4,683.0	$2,269.6
Benefit Cost Ratio	5.14	5.76	4.74	5.32	6.17	4.84
Energy Saved GWh	27,885					
GHG emissions reductions Mt CO_2-e	22.63					

Note: Benefits stream to 2025, as costs incurred in 2020 provide benefits for the service life to 2025 from the MEPS compliant products. Full details of the model used to generate this table are shown in the Supplementary document. The key assumption is that MEPS delivers energy reductions for each product as per the EuP chart at Figure 6 in "The Problem" section.

Table 5 New Zealand - Summary of the cost-benefit analysis of a MEPS (relative to BAU).

New Zealand Cumulative 2010 to 2025 * 2010 NZ Dollars	**With carbon price**		
Discount rate	6%	8.0%	10%
Total benefit NZ$ M	$468.4	$396.1	$337.3
Total cost NZ$ M	$165.6	$146.8	$130.8
Net benefit NZ$ M	$302.8	$249.3	$206.5
Benefit Cost Ratio	2.83	2.70	2.58
Energy Saved GWh	4,382		
GHG emissions reductions Mt CO_2-e	1.75		

Note: Benefits stream to 2025, as costs incurred in 2020 provide benefits for the service life to 2025 from the MEPS compliant products. Full details of the model used to generate this table are shown in the Supplementary document. The key assumption is that MEPS delivers energy reductions for each product as per the EuP chart at Figure 6 in "The Problem" section.

The following figures serve to demonstrate the ongoing impact BAU and MEPS have over time.

Figures 11 and 12 show the projected energy consumption and emissions respectively, for computers and computer monitors in Australia. Figures 13 and 14 show the projections for New Zealand.

Figure 11: Australia – Projected Energy Consumption associated with BAU and MEPS for computers and computer monitors

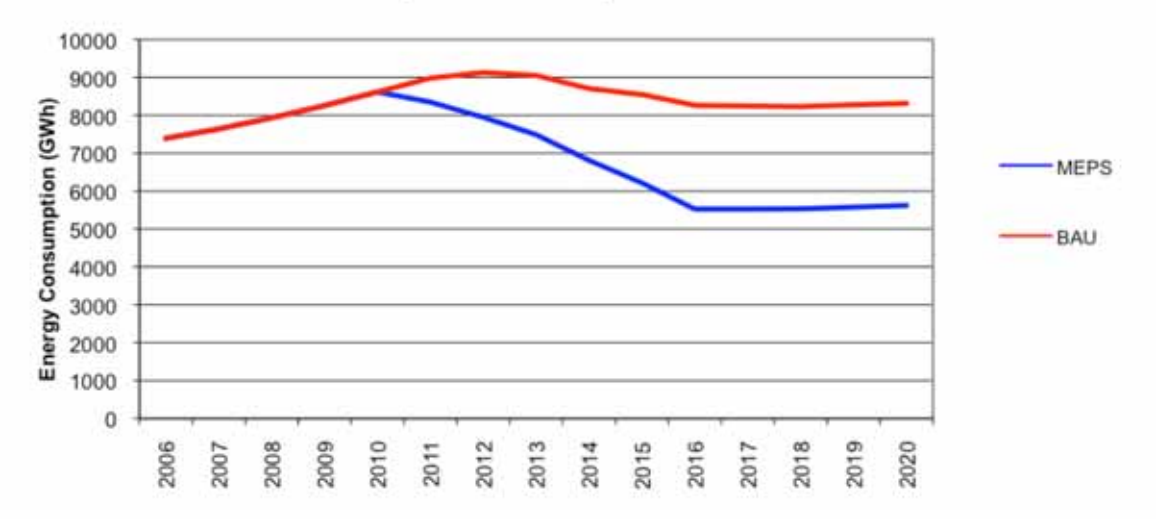


Figure 12: Australia – Projected emissions associated with BAU and MEPS for computers and computer monitors

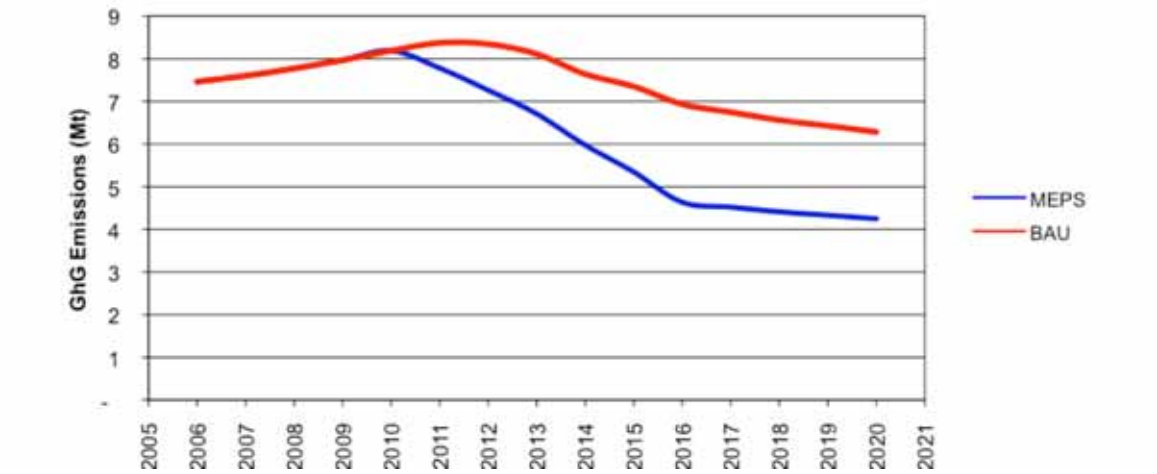


Figure 13: New Zealand – Projected Energy Consumption associated with BAU and MEPS for computers and computer monitors

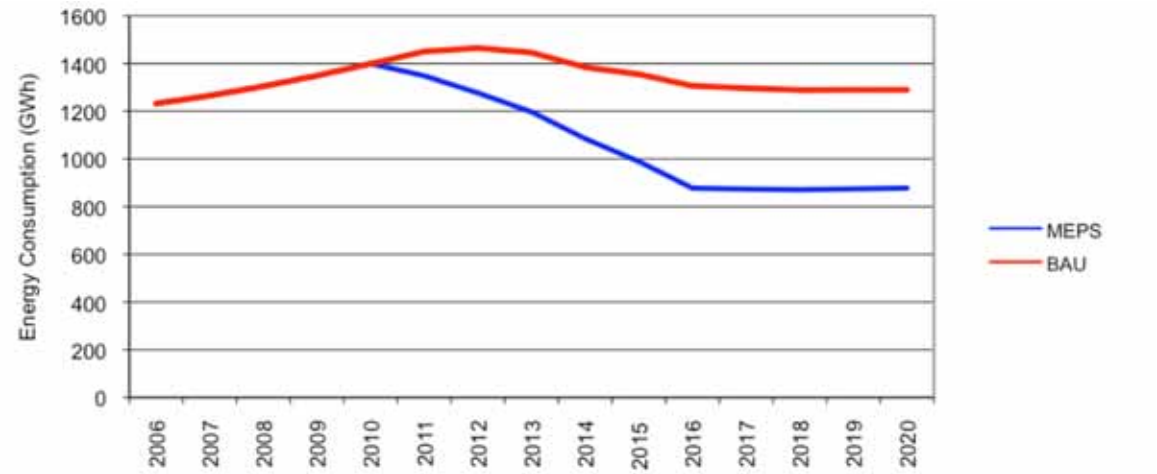
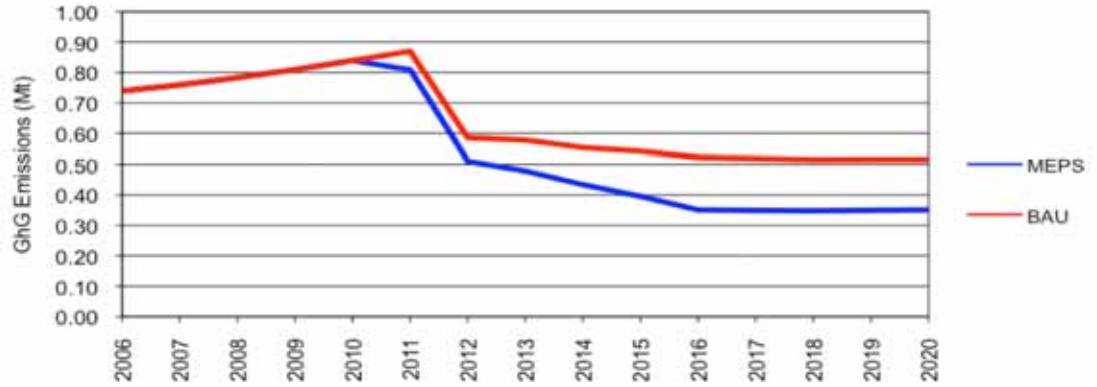


Figure 14: New Zealand – Projected emissions associated with BAU and MEPS for computers and computer monitors



NOTE – This chart shows an unusual curve as emissions intensity is modelled as shifting from 0.6kg CO_2 per kWh in 2011 and dropping to 0.4kg CO_2 per kWh from 2012 onwards.

MEPS also has the potential to reduce or delay the need for investment in energy infrastructure. For example moving from a 70% efficient power supply to an 80% efficient power supply an individual computer's load on the grid be will reduced by 12.5%. Whilst impossible to quantify how many computers or monitors may be on or in sleep mode at a given instance, an indication of the potential impact can be derived from the following conservative example:

> There are 1000 computers that consume 100 watts each when in idle mode and 4 watts when in sleep mode. In the BAU case, due to low PM, 5% (50) are in sleep mode at a given time and draw 4 Watts and the remaining 950 are in idle mode at 100 W. i.e. 100 x 4W plus 900 x 100 W = 95,200 W = 95.2 kW load on the grid.
>
> With mandatory PM, 30% (300) are in sleep mode and 70% (700) in idle mode. i.e. 300 x 4 W plus 700 x 100 W = 71,200 W = 71.2 kW load on the grid, some 25% less load on the grid by these computers.

Summary of impacts on main affected groups

Business

Approximately 35 - 50 businesses, made up of importers and assemblers of computers, will be affected by these regulatory proposals. Responsibility for compliance with the MEPS lies with the supplier of the product. Suppliers need to alter manufacturing in the country-of-origin and/or change ordering practices to ensure only MEPS compliant products will be imported into Australia and New Zealand. These costs do not extend to significant research and development costs as the MEPS levels are set at internationally recognised and accepted levels easily attainable for all suppliers sourcing product from overseas.

Local businesses will incur ongoing compliance costs as each new model will need to be registered under state law and prudent suppliers will organise verification testing to ensure the models from overseas do indeed meet the specified MEPS and labelling requirements. Businesses will also incur ongoing costs to ensure they are aware of legislative and regulatory requirements and maintaining records and other paperwork. All these costs have been included in the modelling.

Indicative compliance costs per model registered:

Product registration	A$150 – A$280	Depending on registering authority used
Standards	A$200	Typical cost of a 2 part standard
Testing costs (computers)	A$500 – A$1,000	Typical cost of test at NATA accredited lab. In house test reports are acceptable for product registration
Testing costs (monitors)	A$800	Typical cost of test at NATA accredited lab. In house test reports are acceptable for product registration.

Industry impacts

Adoption of the MEPS, which may require design, hardware and software changes for products otherwise not complying, has the potential to increase average production costs for those small numbers of models. The potential production cost increases could result in a retail price increase of $30 and $15 to implement the MEPS requirement for desktop and notebook computers respectively and about $5 for computer monitors. These costs are capable of being passed on to the consumer and the modelling makes this assumption. With time these costs are expected to fall. By around 2020 the retail price impacts are expected to reduce to $13 for computers and close to zero for monitors. However, experience with the introduction of other efficiency standards indicates that price increases are rarely realised in practice and coupled with the introduction of faster processors, graphics cards and other innovative features it would be difficult to determine such costs. Any changes to the MEPS requirements may have price impacts but these would be subject to a further RIS process.

Competition

The proposed MEPS would ensure that the worst performing products did not enter the Market.. However, the typical product lifecycle of computers is only 18 months and given that ENERGY STAR V5.0 came into effect in July2009 it should give industry adequate time to factor MEPS into their ordering cycles. Further, the adoption of ENERGY STAR® V5.0 performance levels will only apply to stock manufactured or imported on or after the implementation date and industry supply capability is already geared to meet this specification. Consequently, as the technology already exists to comply with the proposed MEPS, no significant competition impacts are anticipated specifically relating to obtaining suitable components or models. Whilst difficulty was experienced in identifying/sourcing ENERGY STAR® compliant products in the Australian market in particular, analysis of the ENERGY STAR® registration web sites in the US and Europe shows that most brands represented in Australia have a range of compliant registered models available in those overseas markets. PM requirements should not be a reason for non-compliance, as it is merely a matter of enabling it to required settings. Due to their lesser influence at the design/manufacture stage, white box suppliers, suppliers offering specific configurations for a small order or even single unit, will need to exercise greater care when specifying components, however international voluntary programs, combined with MEPS in the Australian and New Zealand markets is anticipated to increase demand and availability of suitable components.

During consultations undertaken for the preparation of this RIS, potential adverse and disproportionate impacts on white box suppliers was raised. In order to avoid potentially onerous and costly situations for relatively small orders, a ‘deemed to comply’ addition has been drafted for inclusion in the Australian/New Zealand Standards. This will allow manufacturers and suppliers to use highly efficient componentry within computers including power supplies as a means of demonstrating MEPS compliance.

Consumers

Consumers could potentially face an initial increase in the retail price of about $30 per desktop computer, $15 per notebook computer and $5 per computer monitor (typically less than 1.5% of the total average retail price). This is expected to decline over time so that by 2020 modelling suggests that there is no real increase in retail price other than the cost of new technologies and features. However, in practice, retail prices may not be affected because suppliers are operating in a competitive market and have time to adjust their inventories to the proposed MEPS. Regardless, consumers are expected to recoup any additional upfront costs in the form of reduced running costs of their computer systems. Modelling suggests the proposal could be providing improved efficiency in about a year.

At the outset the higher retail prices represent a potential aggregate upfront cost to consumers of about $105m for Australia and NZ$24m for New Zealand in 2011. This will be fully offset by the energy savings over their 5 year service life.

Table 6 shows the cumulative net benefit of the proposal by 2015, 2020 and 2025. Whilst products purchased in 2015 and 2020 have yet to deliver their energy savings, the cumulative net benefit, measured in present value terms at discount rates of 7% and 6% for Australia and New Zealand respectively, is positive. The data for 2025 is based upon sales up to 2020, with the benefit streaming to 2025 due to their 5 year service life.

Table 6: Net benefit of the proposal

	2015	2020	2025
Australia NPV at 7% No carbon price With carbon price	 A$ 737.3 M A$ 780.4 M	 A$ 2359.3 M A$ 2509.5 M	 A$ 2913.2M A$ 3041.4 M
New Zealand NPV at 6%	NZ$ 56.2 M	NZ$ 220.2 M	NZ$ 291.0 M

Consumer choice is not expected to be significantly affected by the implementation of the proposed MEPS because the standards address efficiency performance rather than particular functions and features. In addition, an exception process has been foreshadowed if product groups or technologies are not able to meet the proposed MEPS level.

Government and taxpayers

The proposed MEPS program will impose costs on governments to administer the program. These activities include:

- administration of the program by government officials (salaries and overheads, attendance at E3 Committee and Standards meetings, etc.);
- cost of maintaining a registration and approval capability;
- random check testing to protect the integrity of the program;
- costs of producing leaflets and other consumer information; and
- consultant costs for Standards development, market research, RIS, etc.

Based upon similar E3 programs the annual government costs have been estimated as A$150,000 for Australia, which includes a proportion of New Zealand's contribution to E3, and NZ$20,000 in New Zealand.

Consultation

The E3 Committee recognise that this regulatory proposal places Australia and New Zealand at the forefront of global regulatory action for this product. While other countries and regions are also proposing regulation, the project management team has been testing industry and other key stakeholder support or otherwise for MEPS for some time. Stakeholder consultation commenced late in 2007 with preliminary consultations with key computer industry representatives over this period culminating in this proposal and continues with the release of this Consultation RIS. Over that time, industry views have shifted with some support for regulation appearing, if based on the de-facto global measurement standard and where the initial regulatory level leaves ample models available to compete in this market. While many suppliers have expressed support for voluntary action, modelling suggest regulation will be much more successful with a number of individual suppliers have expressing muted support in private meetings.

Issues identified in those discussions have shaped this RIS proposal. A summary of preliminary consultations and list of participating industry groups is provided in Table 7.

Table 7: Timetable of open consultation meetings

Date	Location	Notes
19 Dec 2007	Melbourne	Les Winton consumer survey group
8 Feb 2008	Grand Stamford North Ryde	E3 open meeting – CESA, Choice, Aust Computer Society,
8 Feb 2008	HP head office North Ryde	AIIA sustainability group
20 Feb 2008	Seville Apartments., Canberra	AIIA, HP, Dell, Apple and Lenovo
22 May 2008	Medina Grand, Sydney	AIIA, CESA, Apple, BenQ, Hewlett-Packard, IBM, Intel, Lenovo, Panasonic, Samsung Electronics, Sharp, Sony
July 2008	Computers Off Australia launch, Hilton Sydney	Presentation to attendees on overview of proposed MEPS
29 July 2008	Menzies Hotel, Sydney	Acer, Apple, Asus, BenQ, Cisco, Dell, HP, IBM, Intel, Ipex, Lenovo, Panasonic, Philips, Samsung, Sony, Viewsonic, AIIA, CESA
24 September 2008	Mercure, Sydney	AIIA, Distance, HP, IBM, Intel, Lenovo, NEC, Philips, Samsung, Sony

30 October 2008	Federation Square, Melbourne	Gershon Report presentation/ meeting with AIIA
23 April 2009	Menzies Hotel, Sydney	AIIA, HP, Apple, Samsung, Dell, Intel, Sony, Viewsonics, Panasonic, CESA, Sharp
Various	Various	One-on-one meeting with manufacturers over two years, predating the open meetings.
Various T	eleconference	Consultations with overseas offices of manufacturers over two years.

Recommendations

E3 Committee recommend that the Ministerial Council on Energy adopt the following set of integrated recommendations:

- a mandatory Minimum Energy Performance Standard (MEPS) be implemented for computers from not earlier than 30 June 2011;
- a MEPS and labelling scheme for computer monitors be implemented from not earlier than 30 June 2011. Consideration should be given for the introduction of a voluntary labelling scheme that transition into a mandatory scheme, based on a similar scheme that operated prior to the introduction of regulation for televisions, as soon as practicable;
- the Australian and New Zealand Standard use the current ENERGY STAR® specifications for test methods, computers (ENERGY STAR® V5.0) and monitors (ENERGY STAR® V5.0 – the methodology for larger sized monitors) as the basis of the Australian and New Zealand measurement standard;
- MEPS to be based on the ENERGY STAR® V5.0 metrics for calculating the maximum allowed typical annual energy consumption (TEC) of computer types, mandatory enablement of “built in” PM functions and minimum power supply efficiency levels and on-power modes as set out in the tables on pages 11 and 12 and published in the relevant Australian and New Zealand Standard as quickly as possible; and
- that Australian and New Zealand Standard also include provisions for ‘deemed-to-comply’ to avoid overly burdensome regulation for custom-made or small computer production runs provided energy efficient components are used.

Mandatory energy rating labelling is only recommended for computer monitors and not for computer systems.

- the Energy Efficiency Authorities be authorised to undertake the necessary administrative steps required to give effect to these decisions prior to 30 June 2011.

E3 Committee also recommend MCE give the ICT industry a clear signal about its future regulatory intent. They recommend that Australian and New Zealand Governments commit to considering a further round of MEPS for computers and computer monitors that:

- are subject of a further RIS process; and
- further MEPS and labelling to be determined by an international market place review to be undertaken before ENERGY STAR® V6 is finalised and published and commence not earlier than 12 months after its publication.

This statement of commitment intends to give the computer and computer monitor industry a clear signal about the future direction of regulation and maintain the links to the globally applicable ENERGY STAR® scheme.

QUESTIONS TO GUIDE COMMENTS FROM INTERESTED PARTIES

The E3 Program welcomes input from interested parties on any of the issues raised in this Consultation Regulatory Impact Statement (RIS). Specifically, input is requested relating to the options for achieving the stated objective of regulating computers and computer monitors to bring about reductions in Australia's and New Zealand's GHG emissions below what they would otherwise projected to be (i.e., the "business-as-usual" case).

In addition, the E3 Program invites input from interested parties relating to the following questions:

- What additional data/information is available that is likely to improve the assumptions or findings of this RIS such as:
  - Expected consumer price rises?
  - Additional costs to manufacturers?
  - Additional costs to retailers?
  - Competition or range of products available or future product innovation?
- What are the adverse impacts to product quality and/or functionality expected by complying with the proposed MEPS (based on the ENERGY STAR® specifications)?
- Are the ENERGY STAR® specifications appropriate as the basis of developing an Australian/New Zealand MEPS (and associated test methods)?
- Are the specific exemptions or deemed-to-comply exemptions for 'white box' manufacturers appropriate to address potential anti-competitive impacts of registering multiple configurations for specific batches or orders, while still achieving the stated objectives?
- Are small businesses likely to experience any disproportionate costs that may result in anti-competition effects that have not been address in the proposed regulation? (The definition of a "small business" is intended to include companies that employ a minimum number of staff and/or do not have in-house expertise to interpret and comply with legislative/regulatory requirements such as those proposed by this RIS).

Please address written submissions to:

Australia
Allan Booth Appliance Energy Efficiency Team Renewables and Energy Efficiency Division Department of Climate Change and Energy Efficiency GPO Box 854 CANBERRA ACT 2600 Or via email to: energyrating@climatechange.gov.au

Deadline for comments is COB 8 December 2010