

STANDBY PRODUCT PROFILE 2003/03

OCTOBER 2003

PRODUCT PROFILE



COMPUTER PRINTERS

AUSTRALIA'S STANDBY POWER STRATEGY 2002 - 2012

AN INITIATIVE OF THE MINISTERIAL
COUNCIL ON ENERGY FORMING
PART OF THE NATIONAL
GREENHOUSE STRATEGY

The National Appliance and Equipment Energy Efficiency Committee seeks comment on this proposal from any interested person or organisation.

Please email comments to:

energy.efficiency@greenhouse.gov.au

Alternatively, hard copy comments can be mailed to:

Printer Product Profile
Equipment, Appliances & Transport Team
Built Environment & Communities Branch
Australian Greenhouse Office
GPO Box 621
CANBERRA ACT 2601

Comments received by 30 December 2003 will assist in determining the final form of the policy proposals taken to government regarding Printers.

An electronic version of this Standby Product Profile and other Profiles released for public discussion can be obtained from www.energyrating.gov.au under standby.

CONTENTS

Product Description - Printers	3
Current Ownership and Trends	4
Sales	4
Relevant Modes for the One Watt Power Plan	6
Known Standby Data for Installed Stock	7
Known Standby Data for New Products	9
Greenhouse Emissions	13
Current Overseas Policies and Trends	14
Government Target	20
Government Proposals to meet this Target	21
References	22



PRODUCT DESCRIPTION

The majority of printers today are either inkjet or laser printers, although dot matrix and thermal printers remain the principal types for some specialist applications. There has been a recent trend towards the use of colour printers, particularly inkjet types for domestic/small business applications. Laser printers tend to dominate in commercial applications and where higher printer volumes are required.

Computer printers are sold all over the world with little product differentiation between countries. The main regional variations occur where power supplies are designed for local supply voltages and frequencies. However most printers now have universal power supplies and a local power cord is supplied for the country of sale.

CURRENT OWNERSHIP AND TRENDS

Since the introduction of the PC in the late 1970's, the penetration of computer printers has increased dramatically. In general, the stock of printers is less than that for computers due to printer sharing, particularly in the commercial sector. Some household applications for computers, such as for games or email, do not require printers.

In the residential sector, a recent survey reported that 51.5% of Australian households owned at least one printer with a saturation level of 1.15 per household [NAEEEC, 2001]. The overall average ownership rate was 0.59 printers per household, compared to 0.73 PCs per household, and the mean age of printers was found to be 4 years old [NAEEEC, 2001].

This data suggests that there are over 4 million printers in Australian homes. Based on available sales trend data from ABS and IDC, and the average printer lifetime of six years, experts estimate that the government and business stock of printers is approximately 4 million and that in 2003 the total stock in all sectors is in the order of 8 million units (see Figure 1).

SALES

As can be seen in Table 1 and Figure 2, the average annual sales of printers over the past four years has been 1.4 million, although there appears to be considerable annual variation from year to year.

FIGURE 1: ESTIMATED PRINTER STOCK [MEA 2003]

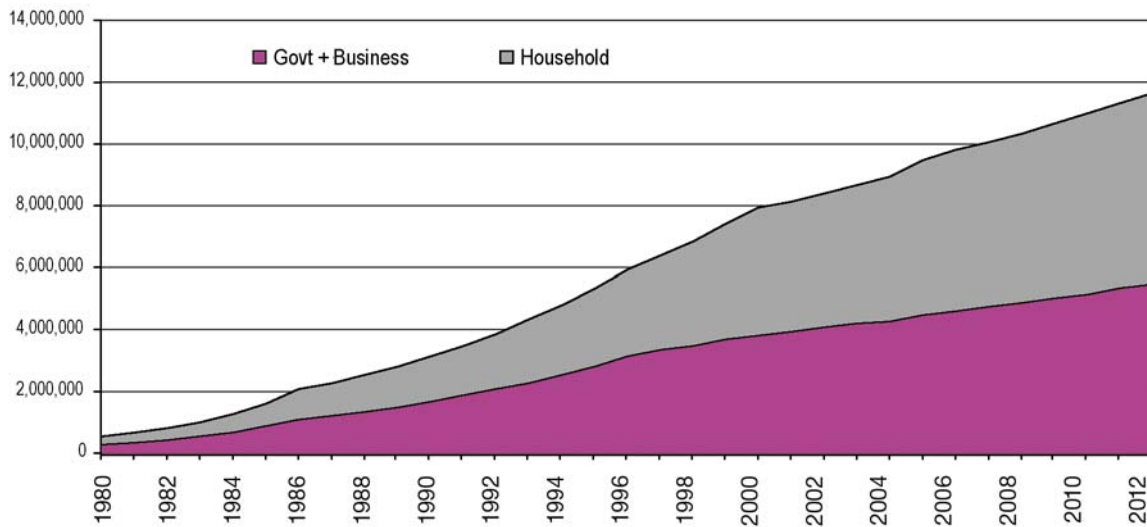
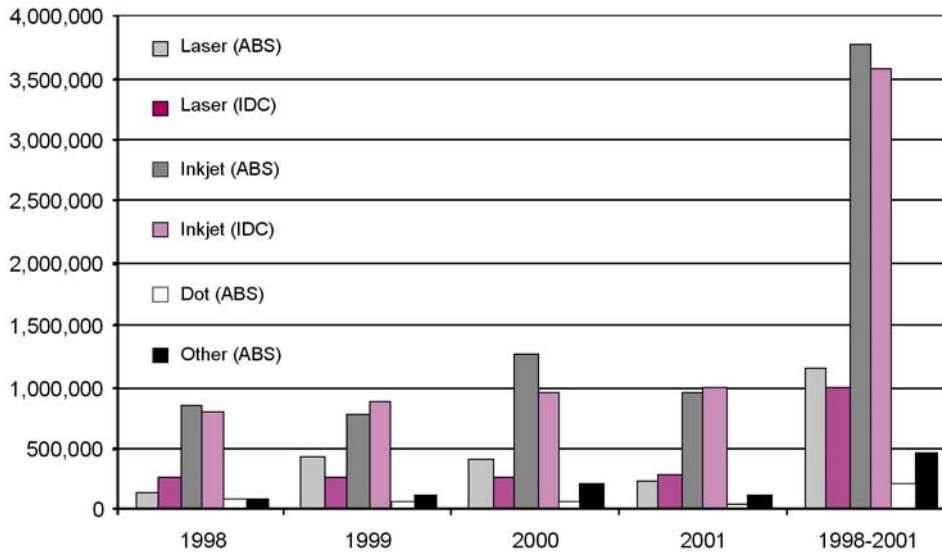


TABLE 1: ESTIMATED SHIPMENTS (IDC) AND IMPORTS (ABS) OF COMPUTER PRINTERS [IDC, 1998, ABS, 2002]

Year	Laser (ABS)	Laser (IDC)	Inkjet (ABS)	Inkjet (IDC)	Dot (ABS)	Other (ABS)	Total (ABS)
1998	124,005	230,000	824,206	783,000	72,229	64,685	1,085,125
1999	413,909	241,000	744,493	855,000	49,443	95,074	1,302,919
2000	385,925	251,000	1,248,133	928,000	33,506	188,639	1,856,203
2001	205,247	265,000	923,209	983,000	24,614	92,671	1,245,741
1998-2001	1,129,086	987,000	3,740,041	3,549,000	179,792	441,069	5,489,988

FIGURE 2: ESTIMATED SHIPMENTS OF COMPUTER PRINTERS [IDC, 1998; ABS, 2002]



The market is dominated by inkjet type printers (see Figure 3), with dot matrix printers losing market share since 1998. In recent years the costs of both inkjet and laser printer technology has fallen considerably, while printer performance, in terms of speed and colour reproduction, has increased. This has probably helped to keep the market buoyant and fuelled the early retirement of stock.

Based on available data, sales are projected to grow steadily to nearly 2 million units per annum by 2012 (see Figure 4).

FIGURE 3: AVERAGE DISTRIBUTION OF SALES BY TYPE OF PRINTER, 1998-2001

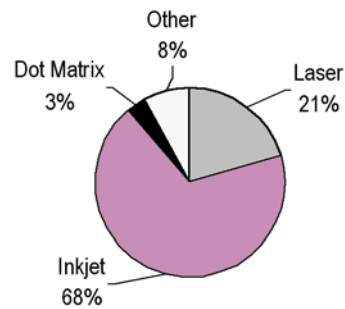
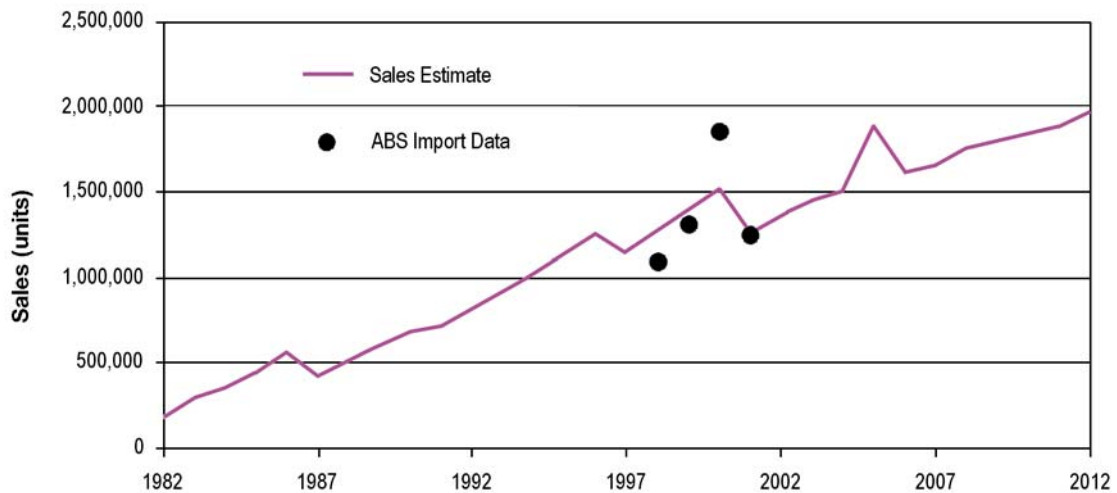


FIGURE 4: ANNUAL SALES ESTIMATE COMPARED TO ABS IMPORT FIGURES [MEA 2003]



RELEVANT MODES FOR THE 1 WATT POWER PLAN

Printers in Australia have up to four primary modes of operation, defined as follows

- > **active mode:** performing the unit's primary task (ie printing).
- > **active standby mode:** switched on and ready to print, but not printing.
- > **passive standby mode:** after a period of time the unit switches to a lower power mode for the purpose of energy conservation.
- > **off mode:** connected to mains power, but switched off by the user.

Issues relating to these modes are summarized below:

- Active mode is not generally considered relevant for the standby power plan because the active mode energy consumption of printers does not form a significant component of total energy consumption. Active mode power consumption is a function of many factors such as speed of printer (pages per minute), colour or black and white, quality of print, etc.
- Higher specification printers have become more commonly available and cheaper over recent years, giving rise to higher penetration of faster printers, laser models suitable for domestic use, and colour printers. While there is insufficient information on the relationship between these facilities and power consumption, there is some evidence that this trend may increase power consumption, at least in some modes of operation.
- With respect to off mode consumption, in the past many printers incorporated a 'hard' on-off switch. However there is currently a trend towards using a 'soft' on-off switch, which results in some off mode power consumption. This is particularly relevant for ink jet printers.
- Analysis suggests that both off and standby modes make a significant contribution to total greenhouse emissions in Australia. Total emissions from printers are likely to grow, mirroring the growth in personal computers, and as a result of increased functionality of products. However, data from the NAEEEC surveys indicates that low power consumption is technically feasible in both standby and off modes.

- For example, in 2002, four laser printers and four inkjet printers consumed less than 1 Watt in off mode. In 2003, six inkjets consumed less than 1 watt in off mode. In 2002 five inkjets consumed less than 3W in standby mode, and in 2003 there were four models with similar low levels of standby power consumption. These performance levels are very much lower than the current Energy Star requirements, and similar to the criteria set by the Group for Energy Efficient Appliances (GEEA) in Europe.
- There is little data available on the usage patterns of printers in any sector in Australia, which is significant in determining current energy consumption and therefore policies designed to reduce consumption.
- A new Australian and New Zealand Standard based on IEC 62301 (Household Electrical Appliances – Measurement of Standby Power) and the Testing Conditions for Energy Star Measurement will be developed to test passive and off modes in printers. Australian and New Zealand will adopt the general test method as AS/NZS 62301 in 2003 and it is proposed that a the test method for printers is developed as a part of this standard.

KNOWN STANDBY DATA FOR INSTALLED STOCK

The power consumption of printers in standby and off modes was measured in a 2001 intrusive survey of Australian households [NAEEEC, 2001], as shown in Table 2, suggesting that average standby energy consumption for laser printers is nearly twice as large as that for inkjet printers. However, off mode energy consumption appears considerably larger for inkjets than for laser printers. A limitation of the intrusive survey is that the standby power for laser printers is probably understated as a full number of drum heating cycles was not included in those measurement (this is the steady state power consumption after startup). This qualification applies to all laser printer standby measurements determined on site or in a store.

TABLE 2: POWER CONSUMPTION FOR AUSTRALIAN PRINTERS [NAEEEC 2001]

Equipment Type	On (W)	Standby (W)	Off (W)
Inkjet Printer	n/av	6.6	2.7
Laser Printer	n/av	12.3	0.5

As can be seen in Figure 5 and Figure 6, there is considerable variation between the power consumption of the sample in each mode of operation.

Although these findings are generally consistent with those in the US (see Table 3), it should be noted that the sample of laser printers surveyed in Australia have lower standby consumption than the larger sample in the US.

FIGURE 5: OFF MODE POWER CONSUMPTION OF PRINTERS [NAEEEC 2001]

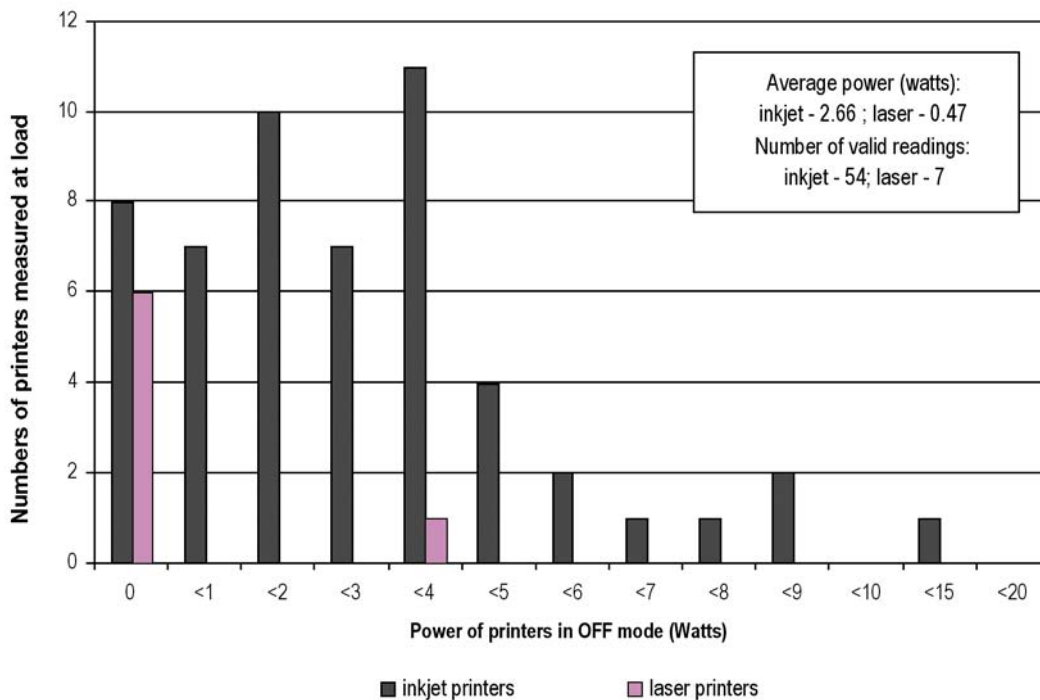


FIGURE 6: STANDBY MODE CONSUMPTION OF PRINTERS, 2001 NAEEEC SURVEY

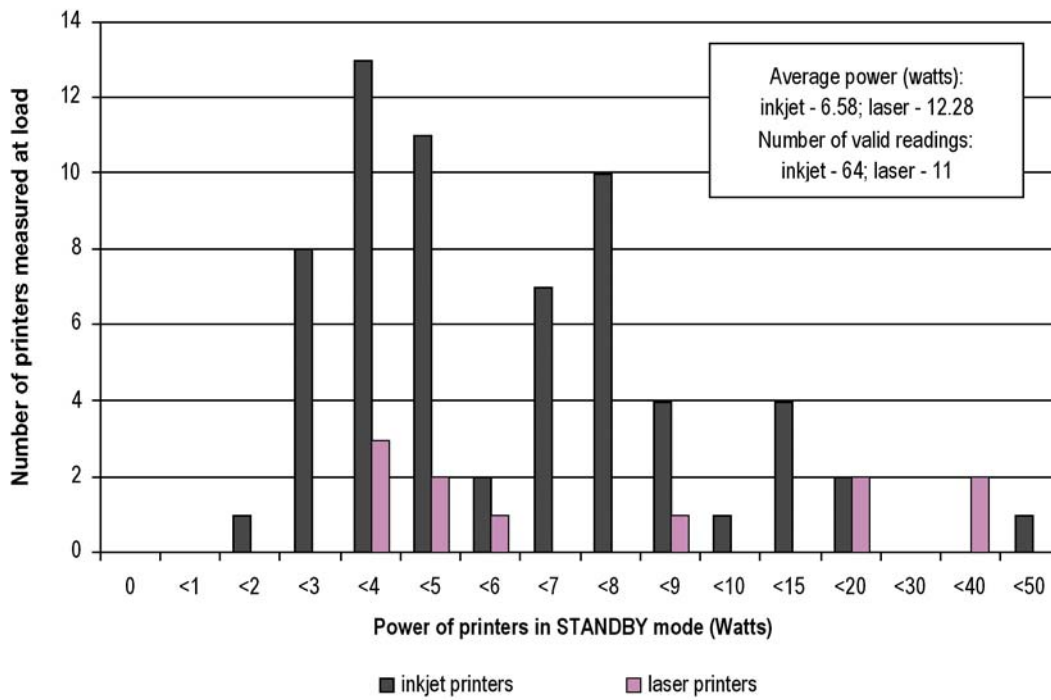


TABLE 3 - POWER CONSUMPTION FOR PRINTERS [LBL, 2001]

Equipment Type	Active (W)	Standby (W)	Off (W)
Laser Printer - Residential Use	30	20	1
Laser Printer - Commercial Use	77	25	1
Inkjet Printer - Residential Use	17	N/A*	2
Inkjet Printer - Commercial Use	17	N/A*	2

* Note that Passive standby was not measured for inkjet printers because most US inkjet printers do not have a passive standby mode.

KNOWN STANDBY DATA FOR NEW PRODUCTS

OFF MODE

The 2001 NAEDEC survey was followed up by in-store surveys of new printers in 2002 and 2003. Although the store survey data on laser printers is inconclusive due to small sample sizes, at least half of the inkjet printers tested had an off mode consumption of 2 W or

more, indicating that inkjet printers generally have poor performance in off mode. The three sets of data show no obvious trend.

The results from the store surveys for off mode power consumption are shown in Figure 7, Figure 8 and Figure 9.

FIGURE 7: POWER CONSUMPTION OF PRINTERS IN OFF MODE, 2002 STORE SURVEY

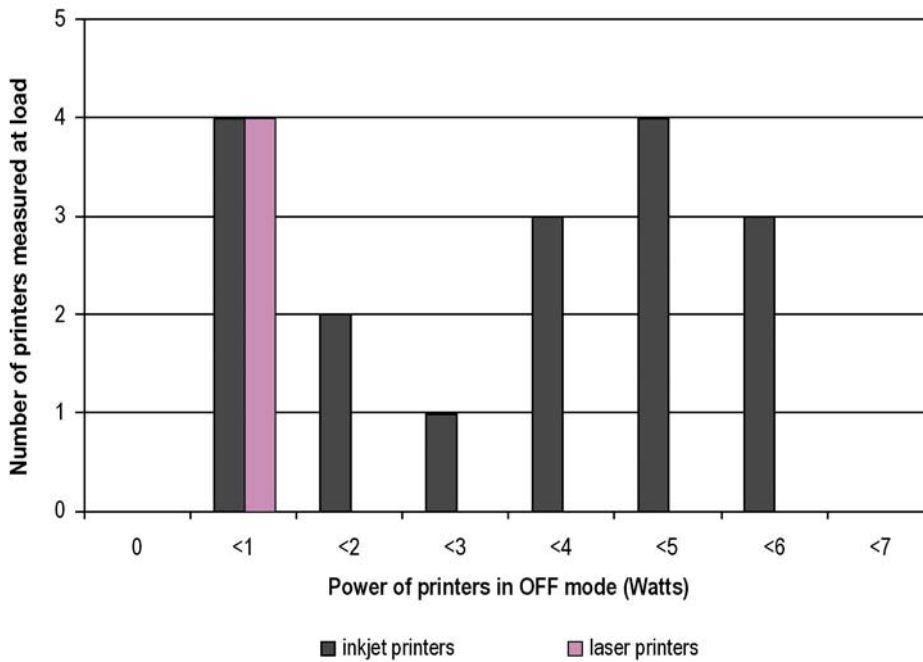


FIGURE 8: POWER CONSUMPTION OF PRINTERS IN OFF MODE, 2003 STORE SURVEY

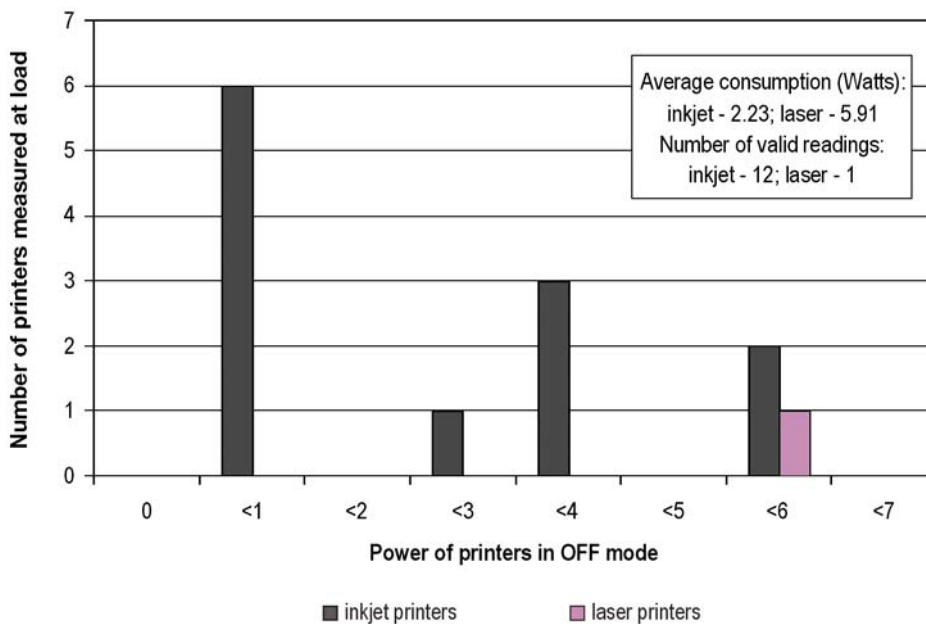
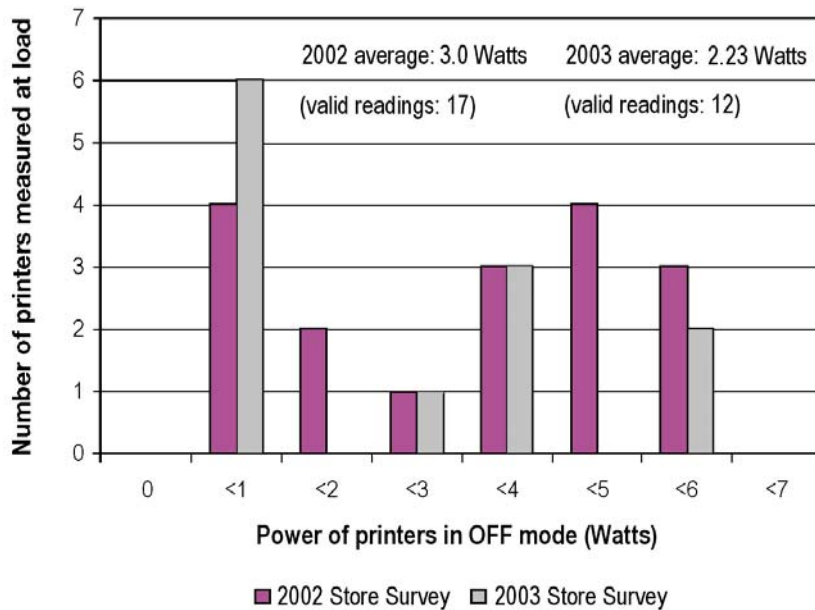


FIGURE 9: COMPARISON OF INKJET PRINTER OFF MODE CONSUMPTION, 2002 AND 2003 STORE SURVEYS



Since the 2002 survey measured off consumption in only four laser printers (all of which measured close to zero consumption), and the 2003 survey measured just one laser printer (with a consumption of 5.9 W), it is difficult to make a meaningful comparison for laser printers (none were measured in 2001). Consequently Figure 9 shows the comparison in consumption between the two store surveys for inkjet printers only. Industry will be asked to supply data in the future to improve this analysis.

STANDBY MODE

In the NAEEEEC stock survey (conducted in late 2000) measured an average standby consumption for inkjet printers of 6.58 W. The 2002 store survey measured an average 5.54 W and in 2003, 4.57 W. Although the sample size is small it suggests that standby consumption for inkjet printers may be decreasing steadily. The results for laser printers are inconclusive due to the small sample sizes.

The results from the store surveys for standby power consumption are shown in Figure 10, Figure 11 and Figure 12.

A comparison between the 2002 and 2003 store survey results for active standby mode is made only for inkjet printers (the 2002 survey measured only 5 laser printers (average consumption 6.1 W), and the 2003 survey measured none).

The average standby consumption (where known) of currently registered Energy Star products in Australia in 11.6W, with values ranging from 4.5 to 25W (see Figure 13). This is clearly higher than the averages found in the store surveys, and is probably due a higher proportion of domestic or home office products in the store surveys. (Note that registered Energy Star products include higher output printers suitable for office applications). The off mode consumption of these models is not known since it is not currently a requirement of Energy Star.

In addition to the standby consumption of registered Energy Star products, Figure 13 shows the existing Energy Star standby limit, an industry proposal for the new Energy Star standby threshold and the performance level of the best 25% on products available in the US market.

FIGURE 10: POWER CONSUMPTION OF PRINTERS IN STANDBY MODE, 2002 STORE SURVEY

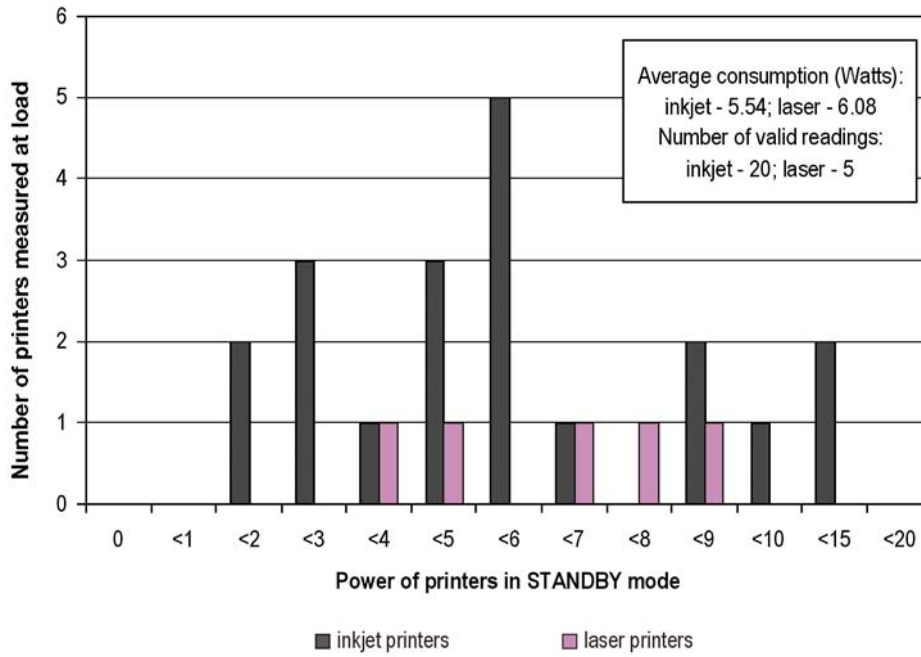
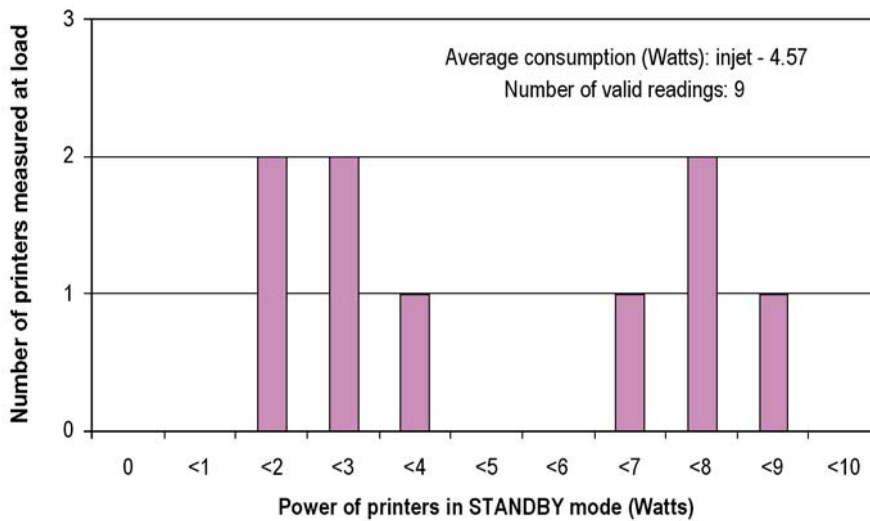


FIGURE 11: POWER CONSUMPTION OF INKJET PRINTERS IN STANDBY MODE, 2003 STORE SURVEY*



* note that no valid readings were obtained for laser printers

FIGURE 12: COMPARISON OF INKJET PRINTER STANDBY MODE CONSUMPTION, 2002 AND 2003 STORE

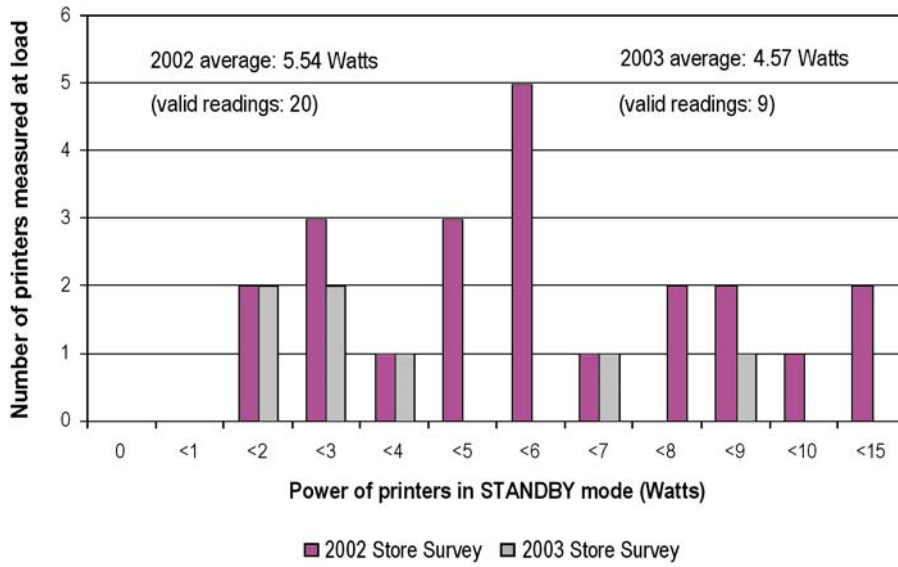
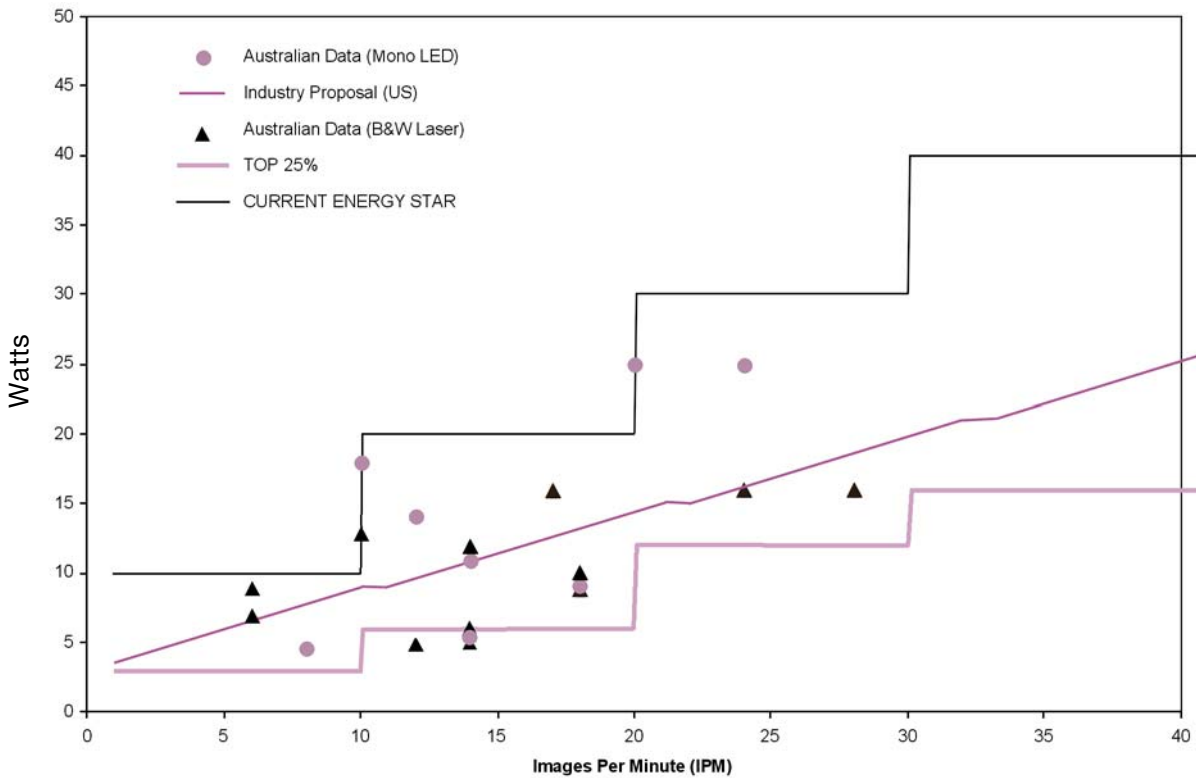


FIGURE 13: AUSTRALIAN REGISTERED ENERGY STAR PRINTERS, ENERGY STAR CRITERIA FOR MONO EP, MONOCHROME THERMAL TRANSFER, MONO IJ, COLOUR IJ, DYE SUBLIMATION



GREENHOUSE EMISSIONS

Experts estimate that annual energy consumption due to printers in Australia is approximately 555 GWh, equivalent to total greenhouse emissions of approximately 620 ktCO₂-e. This estimate is based on data from the NAEEEEC 2001 survey and information from US Studies on printer use in the commercial sector.

As can be seen in Figure 14, emissions in standby mode account for 60% of the total, primarily as a result of long hours in standby mode estimated for laser printers in the commercial sector. Emissions from off and active mode each account for approximately 20%.

In the residential sector, consumption in off mode dominates, due to the penetration of inkjets with high off mode power requirements.

The results of surveys into usage patterns are shown in Table 4. Further survey of usage patterns in Australia is required to confirm whether these assumptions are accurate.

Based on available data, if Australian printers matched the standby performance of the top 25% of US models, greenhouse emissions from standby mode would be reduced by approximately 50%.

FIGURE 14: ESTIMATED GREENHOUSE EMISSIONS BY MODE AND SECTOR [MEA 2003]

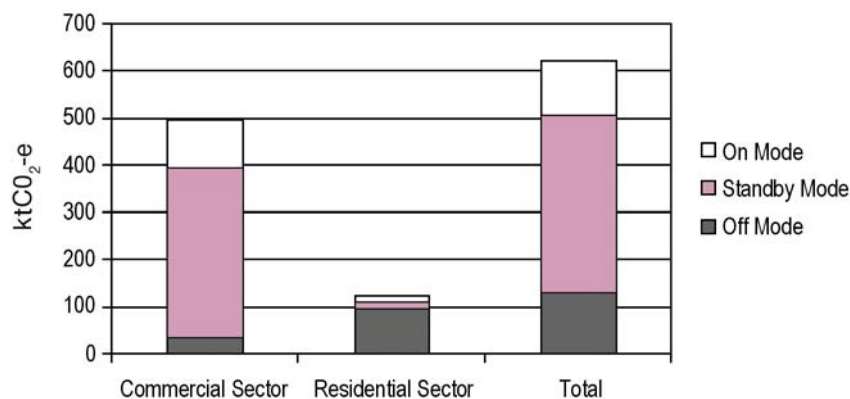


TABLE 4: USAGE PATTERNS FOR LASER AND INKJET PRINTERS, AUSTRALIAN AND US DATA [NAEEEC 2001, LBL 2001]

		Off	Standby	On
		Hours/week		
NAEEEC 2001	All Types Residential	157	10.9	
LBL	Residential Laser	163	4.3	0.7
LBL	Residential Inkjet	163	0	5
LBL	Commercial Laser	39	118	11
LBL	Commercial Inkjet	97	0*	71*

* Note assumed to be 60hrs – standby, and 11hrs – on.

CURRENT OVERSEAS POLICIES & TRENDS

Several countries have introduced programs (both mandatory and voluntary) for minimising the standby power consumption of printers. These programs are described in the following section.

THE UNITED STATES OF AMERICA

EXECUTIVE ORDER 13221

The US Executive Order 13221 requires that federal agencies purchase products using no more than one watt in their standby power consuming mode [US Gov 2001]. In accordance with this the US Federal Environment Management Program (FEMP) has set a recommended standby level of ≤ 1.0 Watt (by July 2003) for printers.

ENERGY STAR

The US Energy Star label is a voluntary label awarded to products that meet key energy efficiency criteria, which may include standby specifications. Energy Star specifications for standard size printers and printer/fax combinations are shown in Table 5.

Specifications for standard size colour printers (except colour inkjets) are contained in Table 6.

Specifications for large/wide-format printers are contained in Table 7.

Specifications for impact printers (accommodating primarily A3 paper) are contained in Table 8.

Specifications for mailing machines (for products shipped 1 Nov 2000 to 31 Oct 2002) are contained in Table 9.

TABLE 5: SPECIFICATIONS FOR STANDARD SIZE PRINTERS AND PRINTER/FAX COMBINATIONS

Product speed pages per minute (ppm)	Active standby mode (watts)	Default time to passive standby mode
$0 \leq 10$ ppm	≤ 10 W	≤ 5 mins
$> 10 \leq 20$ ppm	≤ 20 W	≤ 15 mins
$> 20 \leq 30$ ppm	≤ 30 W	≤ 30 mins
$> 30 \leq 44$ ppm	≤ 40 W	≤ 60 mins
> 44 ppm	≤ 75 W	≤ 60 mins

TABLE 6: COLOUR PRINTER SPECIFICATIONS

Product speed (colour pages / minute - ppm)	Active standby mode (watts)	Default time to deep active standby mode
$0 \leq 10$ ppm	≤ 35 W	≤ 30 mins
$> 10 \leq 20$ ppm	≤ 45 W	≤ 60 mins
> 20 ppm	≤ 70 W	≤ 60 mins

TABLE 7: LARGE FORMAT PRINTER SPECIFICATIONS

Product speed (pages per minute - ppm)	Active standby mode (watts)	Default time to passive standby mode
$0 \leq 10$	≤ 35 W	≤ 30 mins
$> 10 \leq 40$ ppm	≤ 65 W	≤ 30 mins
> 40 ppm	≤ 100 W	≤ 90 mins

TABLE 8: IMPACT PRINTER SPECIFICATIONS

When shipped	Active standby mode (watts)	Default time to passive standby mode
1 Nov 2000 - 31 Oct 2001 (Tier 1)	≤ 30 W	≤ 30 mins
1 Nov 2001 - 31 Oct 2002 (Tier 2)	≤ 28 W	≤ 30 mins

TABLE 9: MAILING MACHINE SPECIFICATIONS

Product speed in mail pieces per minute (mppm)	Active standby mode (watts)	Default time to passive standby mode
0 ≤ 50 mppm	≤ 10 W	≤ 20 minutes
> 50 ≤ 100 mppm	≤ 30 W	≤ 30 minutes
> 100 ≤ 150 mppm	≤ 50 W	≤ 40 minutes
> 150 mppm	≤ 85 W	≤ 60 minutes

TABLE 10: NEW ENERGY STAR REQUIREMENTS FOR PRINTERS PROPOSED BY THE INFORMATION TECHNOLOGY INDUSTRY COUNCIL

Technology	Standby (Sleep 2)		Plug-in Off
	Power Allowance (Watts)	Default Delay Time (Minutes)	Power Allowance (Watts)
EP, Monochrome Thermal Transfer, Mono IJ, Colour IJ, Dye Sublimation	≤ 40 or (0.6 X IPM) + 3 whichever is lower	≤ 5 to ≤ 60 depending on speed	≤ 1
Serial Colour EP	≤ 45 or (0.6 X IPM) + 15 whichever is lower	≤ 30 to ≤ 60 depending on speed	≤ 1
Parallel Colour EP, Colour Thermal Transfer	≤ 65 or (0.7 X IPM) + 25 whichever is lower	≤ 15 to ≤ 90 depending on speed	≤ 1
Dot Formed Impact, Fully Formed Impact	≤ 28	≤ 30	≤ 1
LARGE FORMAT PRINTER * Mono EP, Serial Colour EP, Parallel Colour EP, Monochrome Thermal Transfer, Colour Thermal Transfer, Mono IJ, Colour IJ, Dye Sublimation	≤ 100 or 2 X IPM) + 20 whichever is lower	≤ 15 to ≤ 90 depending on speed	≤ 3

* Note: Large Format have a maximum smallest dimension of 420mm.

The following definitions apply:

Monochrome Electrophotography (Mono EP): Products using this technology are commonly called Laser Printers, LED printers, Laser Fax Machines and Copy Machines.

Serial Colour Electrophotography (Serial Colour EP): Products with this marking technology are commonly called Colour Laser Printers, Colour LED Printers or Colour Copiers.

Parallel Colour Electrophotography (Parallel Colour EP): Products with this marking technology are commonly called Colour Laser Printers, Colour LED Printers or Colour Copiers.

The Energy Star requirements for printers and other imaging equipment are currently under review, with the specifications due to be finalized by April-May 2004. The US EPA has received a proposed new set of eligibility criteria from the Information Technology Industry Council (ITIC)¹ which have been summarised in Table 10 and Table 11 below.

The EPA is currently considering this proposal and have indicated that off mode consumption will be included in the new criteria. Based on data analysed by the EPA, the levels proposed by ITIC are less stringent than the performance of the top 25% of products in the market, a threshold which is typically used to set Energy Star levels (see Figure 13).

Further details can be viewed at:
http://www.energystar.gov/index.cfm?c=revisions.img equip_spec

TABLE 11: NEW ENERGY STAR REQUIREMENTS FOR MAILING MACHINES PROPOSED BY THE INFORMATION TECHNOLOGY INDUSTRY COUNCIL

Claimed Speed	Standby (Sleep 2)		Plug-in Off
	Power Allowance (Watts)	Default Delay Time (Minutes)	Power Allowance (Watts)
IPM ≤ 50	≤ 10	≤ 20	≤ 1
50 < IPM ≤ 100	≤ 30	≤ 30	≤ 1
100 < IPM ≤ 150	≤ 50	≤ 40	≤ 1
150 < IPM	≤ 85	≤ 60	≤ 1

¹ Information on the ITIC proposal can be obtained from Ken Salaets, Information Technology Industries Council, ksalasets@itic.org

ENERGY STAR IN OTHER COUNTRIES

Because of the global nature of product markets, several other countries have agreed to join the Energy Star program and adopt some or all of the Energy Star criteria for products. All of the Energy Star partners (the European Union, Australia and New Zealand, Canada, Japan and Taiwan) have adopted Energy Star criteria for computer printers. Brazil and Mexico are amongst other countries that have also expressed interest in the program [IEA 2001].

EUROPE

NORDIC SWAN AND BLAUER-ENGEL (BLUE ANGEL) ECO-LABELS

These are voluntary labelling systems which cover 'cradle to the grave' environmental impacts and set standby criteria for printers and other products. The Nordic Swan Eco-label is the official eco-label in Norway, Sweden, Denmark, Finland and Iceland; and the Blue Angel Eco-label is used in Germany. Note that the European Union Eco-label, which is similar to the Nordic Swan and Blue Angel Eco-labels, does not apply to printers.

The Nordic Swan and Blue Angel Eco-label standby criteria for printers are set out in Table 12 to Table 14.

TABLE 12: BLUE ANGEL ECO-LABEL STANDBY CRITERIA FOR PRINTERS

Printer operating mode	Maximum consumption	Default time to standby mode
Off mode	≤ 2 W	
Idle (passive standby) mode:		
1 - 7 ppm	15 W	15 mins
7 - 14 ppm	30 W	30 mins
> 14 ppm and all high performance printers	45 W	60 mins

TABLE 13: NORDIC SWAN ECO-LABEL CRITERIA FOR INK JET AND MATRIX PRINTERS, INCLUDING PRINTER/FAX COMBINATIONS

Printer operating mode	Maximum power consumption
Off mode	≤ 3 W
Active standby mode	≤ 6 W
Active standby (no off mode)	≤ 3 W

TABLE 14: NORDIC SWAN ECO-LABEL CRITERIA FOR LASER/LED PRINTERS AND PRINTER/FAX COMBINATIONS

Printer operating mode	Maximum consumption	Default time to standby mode
Low-power (passive standby):		
0 - 10 ppm	10 W	5 mins
11 - 20 ppm	20 W	15 mins
21 - 30 ppm	30 W	30 mins
31 - 44 ppm	40 W	30 mins
45 - 100 ppm	75 W	60 mins
100 ppm	85 W	60 mins

GEEA (FORMERLY GEA) LABEL

The Group for Energy Efficient Appliances (GEEA), made up of government agencies and institutions from several European countries, has introduced a labelling system for a range of appliances which includes printers. The GEEA standby criteria for printers are shown in Table 15 and Table 16 below. It should be noted that these are considerably lower than the current equivalent performance requirements for the Energy Star program.

TABLE 15: GEEA STANDBY CRITERIA FOR PRINTER AND PRINTER/FAX COMBINATIONS: BLACK PRINT, LOW-END COLOUR [ie. INKJETS, DOT MATRIX AND LINE PRINTERS]

Standby mode	Implementation date	
	2003	2004
Off mode	≤ 1 W	≤ 1 W
No off mode	≤ 3 W	≤ 3 W
Sleep (passive standby) mode:		
< 10 ppm	≤ 5 W	≤ 5 W
≥ 10 < 20 ppm	≤ 10 W	≤ 10 W
≥ 20 < 30 ppm	≤ 30 W	≤ 15 W
≥ 30 ppm	≤ 30 W	≤ 15 W

TABLE 16: GEEA STANDBY CRITERIA FOR PRINTERS [HIGH END COLOUR]

Standby mode	Implementation date	
	2003	2004
Off mode	≤ 1 W	≤ 1 W
Sleep (passive standby) mode	≤ 30 W preset default: < 30 min.	≤ 15 W preset default: default: < 30 min.

SWITZERLAND'S ENERGY 2000 LABEL

Under the SwissEnergy program (formerly Energy 2000), the Energy 2000 label is applied to a range of products including printers. The Group for Energy Efficient Appliances coordinates the standby criteria for Energy 2000 labelled appliances (see section above re GEEA).

SWISS ORDINANCES:

Swiss legislation allows for voluntary agreements relating to standby power consumption followed by the introduction of ordinances if the agreements do not meet their objectives. The Swiss government has made voluntary agreements with two trade associations (representing enterprises in business and consumer electronics, computer and software, and household appliance markets) [IEA 2001].

The Swiss Ordinances criteria are shown in Table 17.

TABLE 17: SWISS ORDINANCES CRITERIA FOR PRINTERS

Appliance	Maximum standby power consumption	Maximum off mode power consumption
Laser/LED printers	2 W	1 W
Inkjet printers	2 W	1 W

UNITED KINGDOM MARKET TRANSFORMATION PROGRAM

The UK Market Transformation Program (MTP) provides information on the environmental performance of a range of products through the UK Environmental Product Information Consortium (EPIC). MTP is currently assessing how to implement Energy Star in the UK, and the role for procurement activities through EPIC. (See <http://www.mtprog.com/>).

JAPAN

Three major Japanese manufacturers associations have set voluntary targets for products which require standby power for operating their functions, to reduce this standby power to 1 W or less by fiscal year 2003/4. Their voluntary target for standby power of other products is close to zero by the end of fiscal year 2003/4 [IEA 2002a].

KOREA

The Korea Energy Management Corporation (KEMCO) supervises the implementation of the Energy-saving Office Equipment & Home Electronics Program (locally called "Energy Boy") which uses an endorsement label on qualifying products. This is a voluntary partnership between manufacturers and KEMCO to reduce the standby electricity used by products including printers.

The Program sets standby power consumption standards for printers and printer/fax combinations, colour printers and impact printers, which are equal to the Energy Star criteria. By Regulation, all public institutions in Korea must purchase printers (and other energy saving office equipment) with the energy saving label attached [IEA 2002b].

SUMMARY

The US EPA Energy Star program, as the only international program for promoting energy efficient printers, is the basis for the majority of overseas programs, but currently limits only standby energy consumption. Other European programs, while less widely implemented, tend to be more stringent and include limits for off mode consumption. The new proposals for Energy Star are both more stringent and include off mode thresholds, reflecting the trends for more efficient standby consumption in printers.

GOVERNMENT TARGET

Australian governments have determined to use off and standby consumption as the basis for setting efficiency targets. Furthermore, Australian governments propose to follow the US EPA lead, promoted within the Energy Star scheme. Australia through the Australian Greenhouse Office, has a long-term commitment to working with the Energy Star program and, more generally, working cooperatively within internationally supported product development programs.

Australia will continue support for the international scheme (lead by US EPA) in following the proposed more stringent Energy Star criteria, and the inclusion of off mode limits not greater than 1 Watt for all printers other than large format printers (where the off target will be 3W). Australia proposes to use the standby energy consumption levels to be finalised by Energy Star in 2004 as the target for the new standby criteria. It is likely that these will fall between the levels proposed by US Industry and the top 25% performing products, as indicated in Figure 13.

Australia proposes to adopt the new Energy Star criteria not earlier than 12 months after they become effective in the US, which at this time is likely to be mid-2005.

The target date in Australia for commencement is therefore mid 2006.

To provide a clear signal of the Australian target and to reinforce international efficiency developments, the new Energy Star criteria will be included as a voluntary requirement in the relevant Australian Standard as soon as possible.

Based on those criteria, Australian government agencies want industry to supply evidence that either:

1. At least 66 % of product available for sale complies with the existing efficiency target (Table 5 to Table 9) in the year 2007 (these levels were set in November 2000); or
2. At least 25% of product available for sale complies with the new more stringent Energy Star requirements (indicated in Table 10 or Table 11) by the year 2007 (the USA proposes to meet this target in mid-2005).

The absence of evidence showing printers meeting either target by that year may trigger consideration of stage two of the National Standby Strategy involving mandatory measures.

GOVERNMENT PROPOSALS TO ACHIEVE THIS TARGET

Government intends to take the following actions to assist industry meet any targets adopted for printers:

Voluntary Tool Available	Use for this product	Rationale	Date
Energy Star	✓	<ul style="list-style-type: none"> This Program will continue to be supported and communicated to stakeholders, particularly emphasising the value of investing in Energy Star printers. 	ongoing
		<ul style="list-style-type: none"> NAEEEC will set voluntary targets for the market share of printers that are Energy Star compliant. 	In this paper
		<ul style="list-style-type: none"> MCE will consider creating Government Policy of purchasing Energy Star printers where available and fit for purpose. This policy will encourage suppliers to supply Government agencies with printers that are Energy Star compliant. 	4th Q - 2003
		<ul style="list-style-type: none"> Publish Energy Star Partner compliant printer data on a government website such as www.energystar.gov.au from 2004. 	4th Q - 2003
Industry Code of Conduct	✗	<ul style="list-style-type: none"> Not considered appropriate at this stage. 	
Australian Standards	✓	<ul style="list-style-type: none"> To communicate government expectations consistent with Energy Star levels in a new Australian Standard, likely to be a part of AS/NZS 62301 	Initiate 3rd Q - 2003
Annual in-store survey	✓	<ul style="list-style-type: none"> To collect data on all modes for new printers and to analyse trends. 	ongoing
Publish Statistics	✓	<ul style="list-style-type: none"> NAEEEC will highlight the range of performances of printers in the marketplace through publishing data on a website or other means. 	ongoing
		<ul style="list-style-type: none"> NAEEEC will also consider highlighting manufacturers who are not Energy Star partners. 	Initiate 3rd Q - 2003

Government will announce whether this product should be targeted for stage two intervention under the National Standby Power Strategy (involving possible regulatory intervention) or whether the above-mentioned actions together with industry intervention have been successful in meeting the target at the NAEEEC Forum in the year:

2008

REFERENCES

- ABS 2002, Import Data for Computer Printers: 8471.60, Australian Bureau of Statistics, 2002.
- EPA 2003, www.energystar.gov – product specifications.
- IDC 1998, International Data Corporation, 1988.
- IEA 2001, Energy Efficiency Standards & Labelling, November 2001, seminar organised by the IEA and the State Economic and Trade Commission (SETC), China. See www.iea.org.
- IEA 2002a, Energy efficiency policies: Japan, December 2002. See www.iea.org.
- IEA 2002b, Energy efficiency policies: Korea, July 2002. See www.iea.org.
- LBL 2001, *Electricity Used by Office Equipment and Network Equipment in the U.S.*, Lawrence Berkeley Laboratories, 2001
- MEA 2003, Modelling undertaken for this analysis. Mark Ellis and Associates, Sydney May 2003.
- NAEEEC 2001, *Quantification of residential standby power consumption in Australia: Results of Recent Survey Work*, Final Report for the NAEEEC by EES & Energy Consult, April 2001.
- NAEEEC 2002, *Appliance Standby Power Consumption: Store Survey 2002*, Project for the NAEEEC by EES & Energy Consult, 2002.
- NAEEEC 2003, *Appliance Standby Power Consumption: Store Survey 2003*, Project for the NAEEEC by EES & Energy Consult, 2002.
- US Gov 2001, www.whitehouse.gov/news/releases/2001/07/20010731-14.html

The National Appliance and Equipment Energy Efficiency Committee seeks comment on this proposal from any interested person or organisation.

Please email comments to:

energy.efficiency@greenhouse.gov.au

Alternatively, hard copy comments can be mailed to:

Printer Product Profile
Equipment, Appliances & Transport Team
Built Environment & Communities Branch
Australian Greenhouse Office
GPO Box 621
CANBERRA ACT 2601

Comments received by 30 December 2003 will assist in determining the final form of the policy proposals taken to government regarding Printers.

An electronic version of this Standby Product Profile and other Profiles released for public discussion can be obtained from www.energyrating.gov.au under standby.