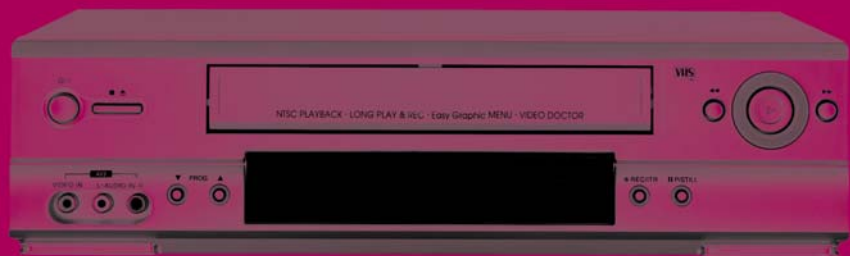




PRODUCT PROFILE



VIDEO CASSETTE RECORDERS (VCRS)

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:

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Alternatively, hard copy comments can be mailed to:

Video Cassette Recorders Product Profile
Equipment, Appliances & Transport Team
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GPO Box 621
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Comments received by 30 December 2003 will assist in determining the final form of the policy proposals taken to government regarding video cassette recorders.

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PRODUCT DESCRIPTION

VCRs are formally known as Video Cassette Recorders. In Australia, this means a conventional VHS video cassette recorder which uses the PAL broadcast system. Typically a VCR both converts a signal off a tape enabling a television to transmit audiovisual images as well as recording television transmissions for later playback. The advent of the VCR allowed viewers to have control of when and what they could watch on their televisions.

CURRENT OWNERSHIP AND TRENDS

The VCR was introduced into Australia in 1976. Its initial price tag was in 1989/90 dollars was around \$4,500. By 1993 this had dramatically decreased to around \$440 (in 1989/90 dollars) making it much more affordable to the average household (ABS 2002).

In 1994 the Bureau of Transport and Communications Economics produced a Statistical Summary of the Communications, Entertainment and Information Industries. This study reported penetration of VCRs in Australian Households at five-year intervals between 1976 and 1993. It found that VCR ownership increased from 3% of households in 1981 to 80% of households in 1993 (ABS 2002). Since 1984, the penetration of VCRs has also been tracked by Roy Morgan Research Centre (1984-1993) and AC Neilson TV Trends (1994 to 2001). The results of these surveys are shown in Figure 1 overleaf.

In 2001, the penetration and ownership of VCRs was reported in a NAEEEC commissioned study of standby power usage in Australian households¹. This information on VCR ownership is presented in Table 2. The penetration figure from the NAEEEC research (89%) is in correspondence with the research conducted by Roy Morgan and AC Neilsen as presented in Figure 1 above.

TABLE 2: OWNERSHIP DATA FOR VCRS - AUSTRALIA

VCRs	2000 (NAEEEC)
None	11%
1 VCR	62.5%
2 VCRs	21.6%
3 VCRs	4.6%
4 VCRs	0.3%
Ownership	1.206
Saturation	1.355
Penetration	89%

A graphical overview of VCR penetration and ownership trends are shown in Figure 2 overleaf.

¹ Quantification Of Residential Standby Power Consumption In Australia: Results of recent survey work. March 2001, Energy Efficient Strategies & EnergyConsult.

FIGURE 1: PENETRATION OF VCR OWNERSHIP - AUSTRALIA

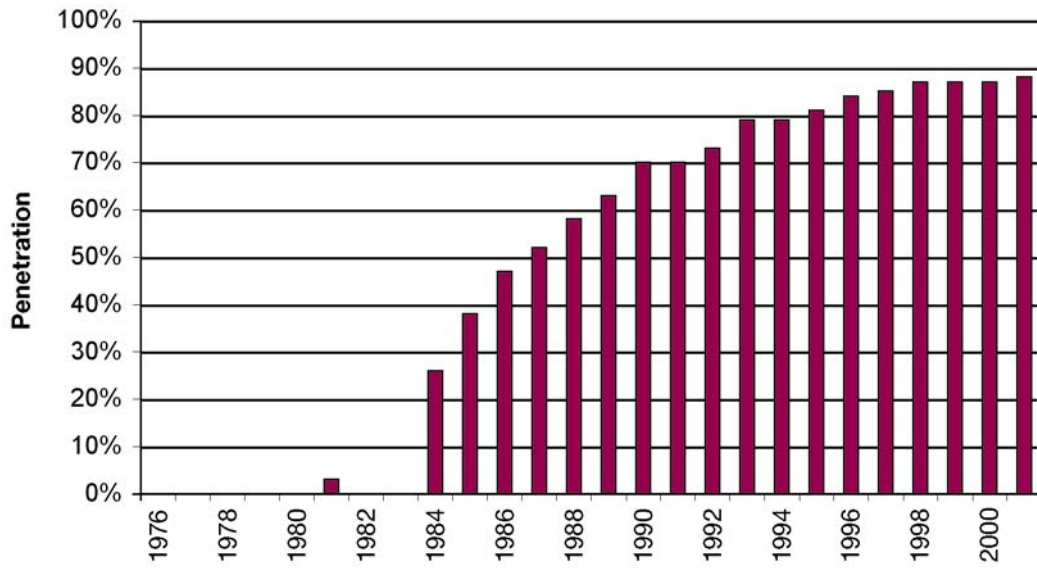
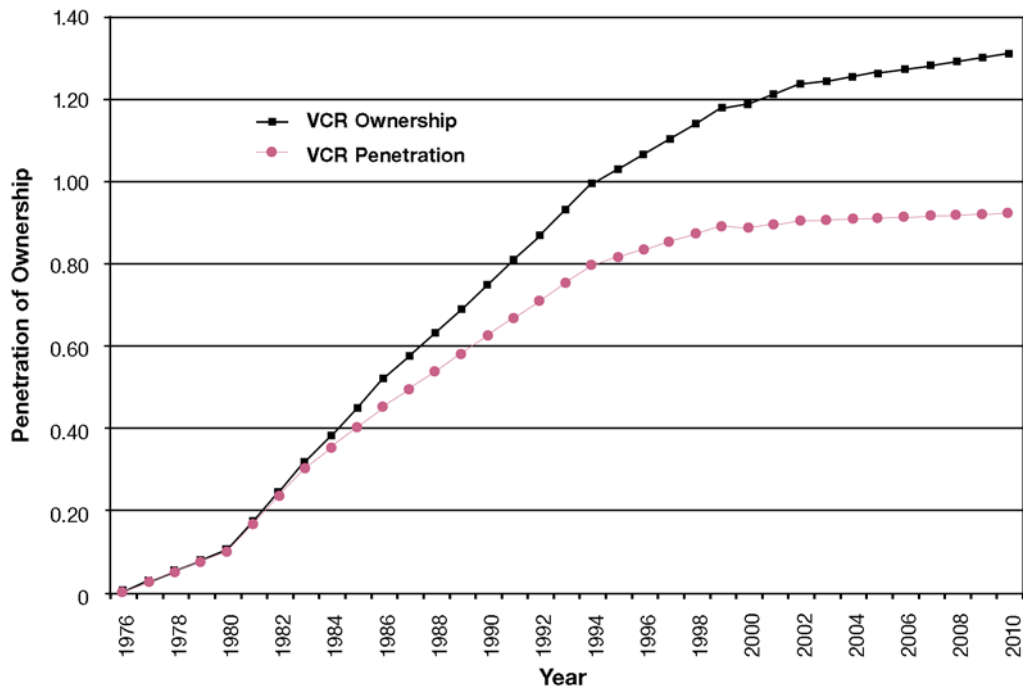


FIGURE 2: VCR PENETRATION AND OWNERSHIP IN AUSTRALIA



Source: EES estimates using ABS data

RELEVANT MODES FOR THE '1 WATT' POWER PLAN

In Australia, VCRs generally have a combination of four operational modes: on, active standby, passive standby and off. The on mode power consumption and the hours of use are critical in determining total energy consumption of VCRs, however this mode is not generally relevant for the standby power plan.

Active standby mode is part of the operation of all VCRs. When a VCR has been activated and is ready to play a cassette it is considered to be in active standby mode. Additionally a VCR can also be considered to be in active standby mode when it is being used to relay free to air television pictures. In this mode the unit is not performing its primary function but waiting for instructions.

Most VCRs can be put 'to sleep' either via a remote control or manual standby switch. In this mode, the unit typically still has a visual clock display but is not performing any other function. This mode is commonly referred to as Passive Standby. In Australia passive standby is usually the lowest power state for most VCRs, i.e. the unit can always be activated by a remote control.

A very small minority of VCRs on the Australian market have an off mode that is a 'hard' off switch. Off mode disconnects the mains from all electrical circuits in an appliance. When the off mode is activated most units have no measurable power consumption, however, a small proportion still consume power in 'off mode'.

The 2001 NAEEEEC Study asked respondents in both the intrusive household survey and the telephone survey the normal method used to turn off their VCR. The intrusive survey sampled 84 units and discovered 89 percent of VCRs were left in passive standby mode and 11 percent were left in off (most of these unplugged from the mains). The telephone survey sampled (661) and found that 50 percent of respondents turned the VCRs off with a remote, 38 percent switched off at the unit and 11 percent unplugged the unit from the mains. Given that few VCRs actually have a 'hard off' function these results indicate that an overwhelming majority of VCRs are left in passive standby mode. Table 3 summarises how VCRs are turned off, as found in the household and telephone surveys.

TABLE 3: HOW CONSUMERS SWITCH "OFF" THEIR VCRS

Method	Household Survey (2001) (n=84)	Telephone survey (2001) (n=661)
Turned off with remote	89%	50%
Turned off at the unit	0%	38%
Unplugged/switched off at the wall	11%	11%
Total	100%	100%

KNOWN STANDBY DATA FOR NEW PRODUCTS

VCRs on display at major retail stores in Brisbane and Sydney were sampled as part of the NAEEEC 2001 study. The power consumption of 39 units was measured in the active standby, passive standby and off mode. Two follow-up surveys have been conducted since, in early 2002, where 40 units were measured and early 2003, where 25 units were measured. In both follow-up surveys, retail stores in Melbourne were surveyed.

As noted earlier, most consumers switch their VCRs to passive standby mode when the unit is not being used. The store surveys indicate that passive standby is trending downwards with the recorded average passive standby at 3.8W in 2001, 3.5W in 2002 and 3.1W in 2003. The minimum passive mode consumption recorded in the 2003 store survey was 1.4W while the maximum was 4.6W. The current energy star standard requires VCRs in standby to consume less than 4W and in 2002, 73% of units tested met this criterion while in 2003, 88% of units measured less than 4W in passive standby. Figure 3 shows the distribution of passive standby measurements for each of the store surveys.

All studies recorded active standby measurements, with the 2001 average being 10.9W, the 2002 average being 9W and the 2003 average being 8W. There was wide variation in the results with measurements in 2003 ranging from 5.9W to 12W. The results from the

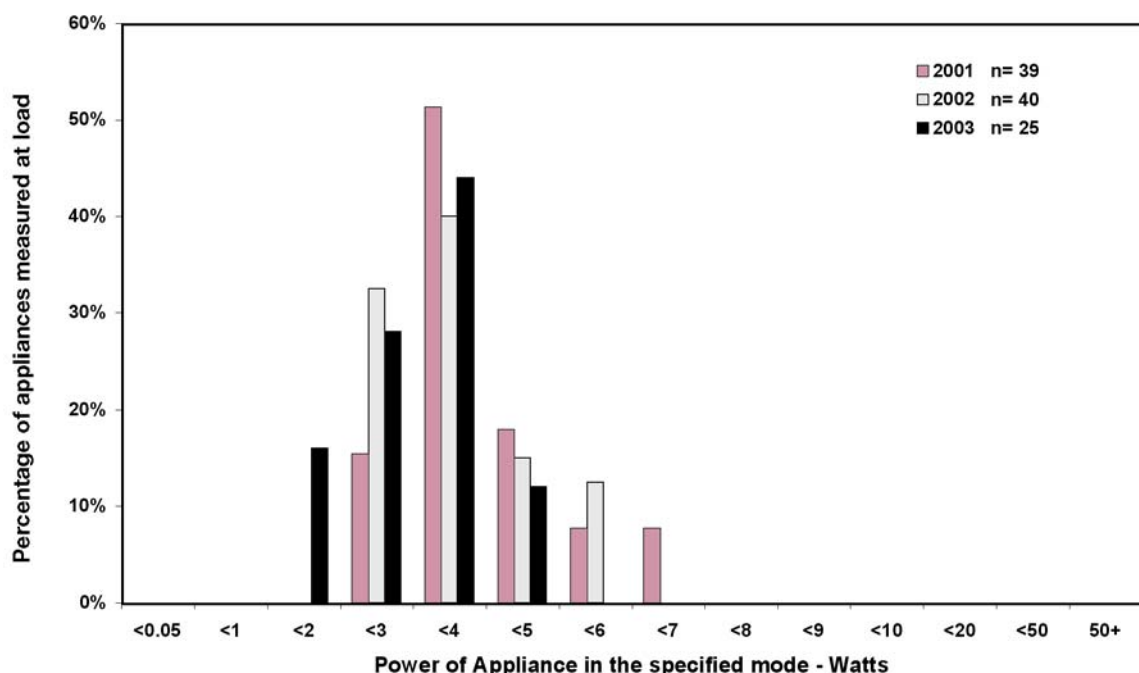
2003 survey indicate that while most VCRs consume between 7W and 10W in active standby, one fifth (20%) consume less than 8W, making lower energy consumption in active mode a realistic goal. Table 4 below summarises the results for the 2001, 2002 and 2003 NAEEEC store surveys.

TABLE 4: SUMMARY OF RESULTS FOR 2001, 2002 AND 2003 NAEEEC STORE SURVEYS

	2001 (n=39)	2002 (n=40)	2003 (n=25)
Average Active Standby	10.9W	9.0W	8.0W
Minimum Active Standby	8.9W	6.7W	5.9W
Maximum Active Standby	14.7W	12.3W	12.0W
Average Passive Standby	3.8W	3.5W	3.1W
Minimum Passive Standby	2.1W	2.0W	1.4W
Maximum Passive Standby	6.1W	5.6W	4.6W
Average Off	1.3W	NA	NA

As stated earlier, very few VCRs have off mode and given the current trends in the home electronic market this situation is unlikely to change. In both the 2002 and 2003 surveys none of the models on display had a 'hard off' function and only three units in the 2001 survey could be switched into off mode. All models with 'hard off' recorded some power consumption while in off mode with values ranging from 0.9W to 1.6W.

FIGURE 3: DISTRIBUTION OF VCR PASSIVE STANDBY POWER CONSUMPTION 2001, 2002 & 2003



KNOWN STANDBY DATA FOR INSTALLED STOCK

Late in 2000 an intrusive household survey in Melbourne, Brisbane and Sydney sampled 64 households, measuring the off, passive standby, active standby and on mode of 90 VCRs.

Only 8 VCRs sampled had a hard off function and power consumption in this mode varied dramatically with some models having no detectable power consumption and the highest consuming 15W. However such a small sample is unable to provide much insight into any possible trends or the magnitude of consumption by VCRs in off mode. It does however, reinforce the findings of research so far, that for most VCRs, passive standby is the lowest possible power state.

In the survey the average passive standby power consumption for VCRs was 7.9W. Most of the VCRs

(84%) were found to consume more than 5W in passive standby. Figure 4 presents the average standby consumption of VCRs over time with results indicating a decrease in consumption over the last decade.

The intrusive survey found the average standby consumption of VCRs peaked at 13W in 1992, reducing to 3.5W in 2002. Note that the average values from year to year vary due to the relatively small sample size for some years, although the values for 2001 and 2002 are based on relatively large store samples.

In both the telephone survey and the intrusive survey respondents were asked to report the age of the VCR unit(s). Both surveys gained similar results with an average age of 6 and 7 years respectively. Figure 5 presents the age distribution of VCRs as recorded by both surveys.

FIGURE 4: DISTRIBUTION OF VCR STANDBY POWER CONSUMPTION BY AGE - INTRUSIVE SURVEY

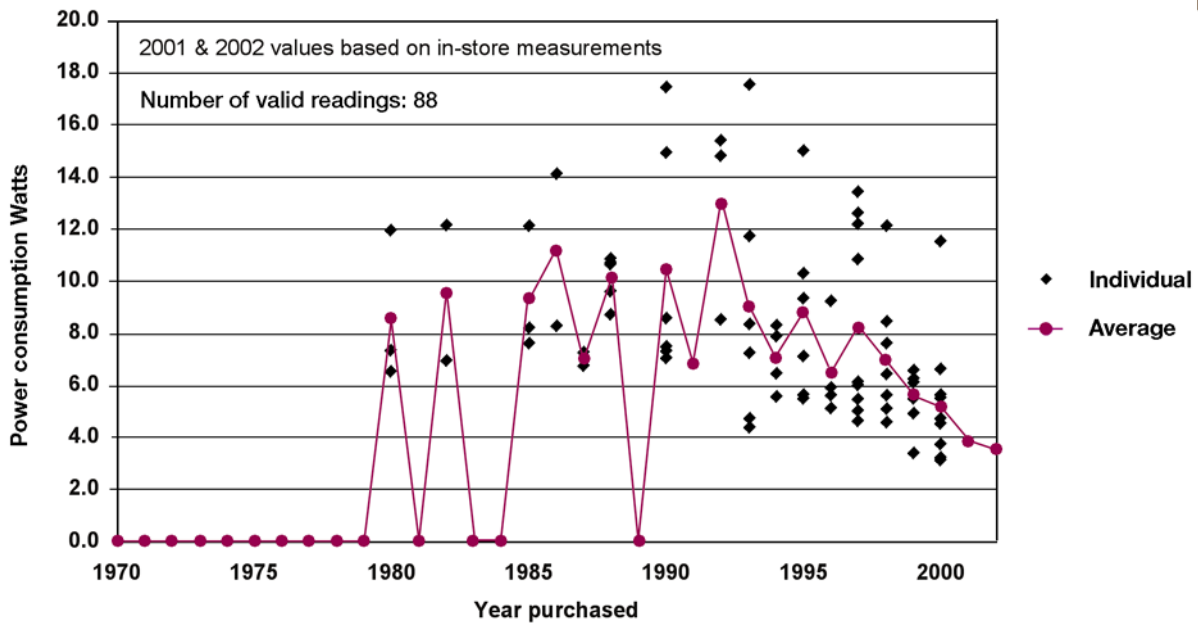
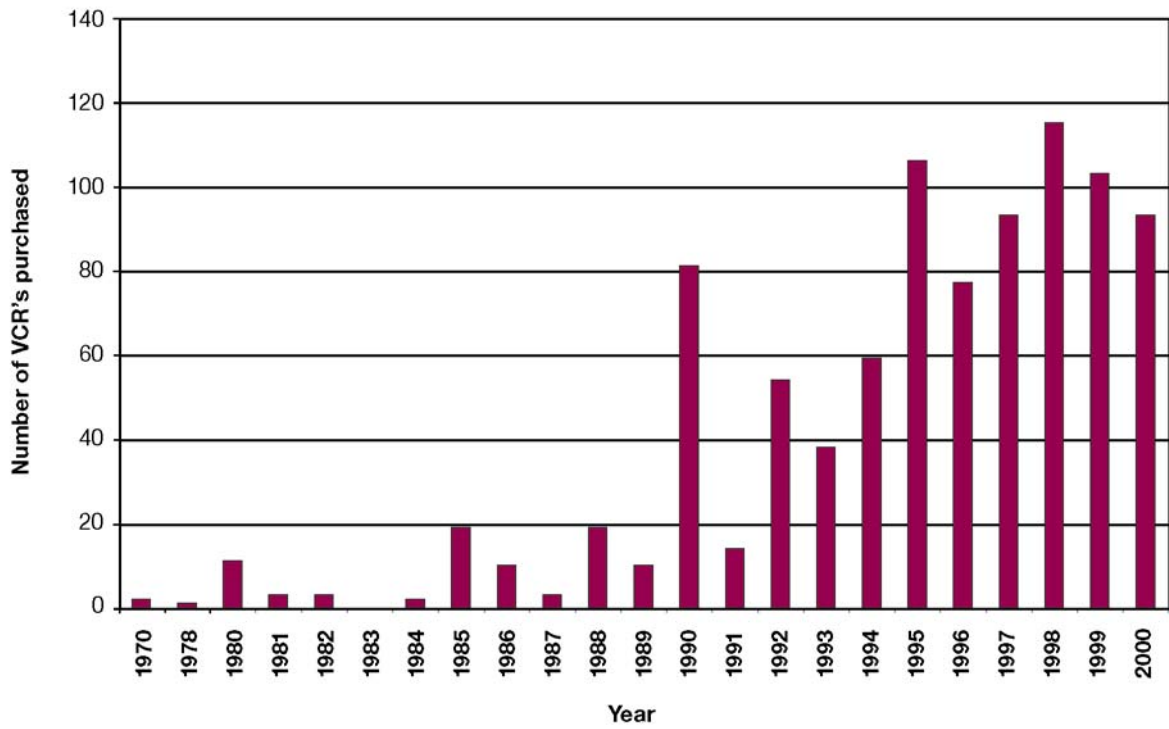


FIGURE 5: AGE DISTRIBUTION OF VCRS IN STOCK - 2000



Note the higher frequency of responses of years that are multiples of 5 (eg 1985, 1990) – this age approximation appears more common for periods of > 10 years.

GREENHOUSE EMISSIONS

The GHG emissions reductions potential for the proposed standby target of 1W is in the order of 34 kt CO₂-e pa by 2012 and 13 kt CO₂-e pa by 2020. Overall, the estimated model weighted passive standby power consumption of all VCRs sold Australia in 2003 was approximately 3W.

To examine the potential for greenhouse savings, one scenario was modelled based on a standby power target of 1W for 80% of the market in 2005. Figure 6 shows the potential GHG emissions reduction. The

projected sales of VCRs are expected to continue to decline as replacement technologies (such as DVD players, DVD recorders and personal video recorders) increase in market share. Current sales are declining at a rate of 8% pa, however, after 2007, it is projected to decline more rapidly.

The projected effect on total energy consumption used annually by these VCRs based on the implementation of these targets in Australia is shown in Figure 7.

FIGURE 6: BAU VS POLICY TARGET GHG EMISSIONS FOR VCRS

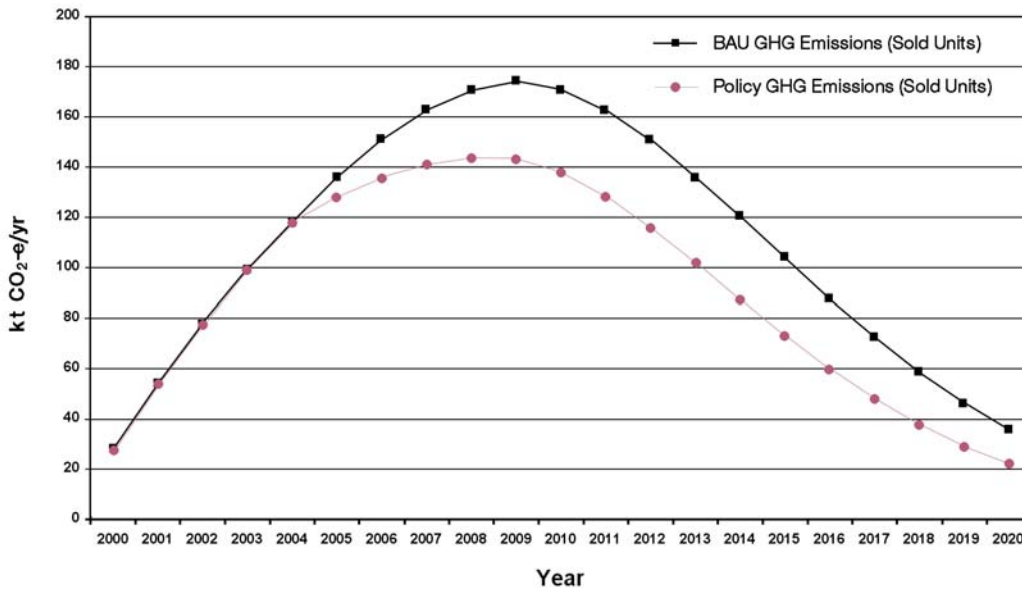
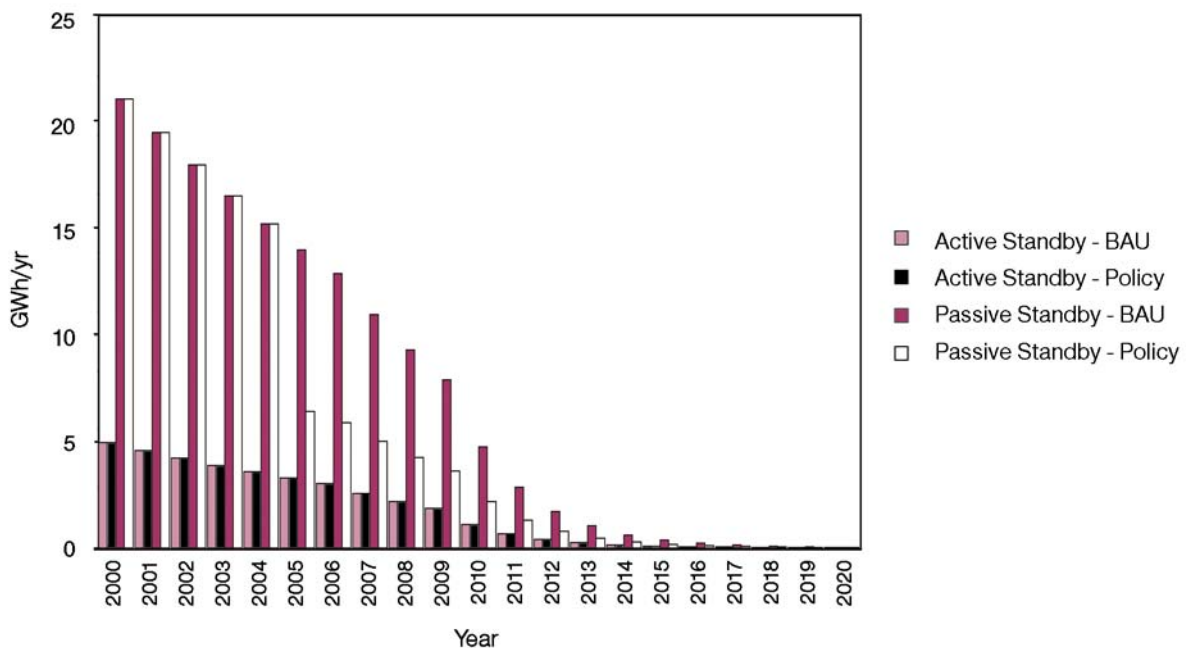


FIGURE 7: BAU VS POLICY TARGETS FOR ENERGY CONSUMPTION OF ALL VCRS SOLD



CURRENT OVERSEAS POLICIES AND TRENDS

USA AND INTERNATIONAL

In the US and internationally, the ENERGY STAR Program run by the EPA aims to encourage industry best practice by forming partnerships with manufacturers and setting performance targets for appliances. The ENERGY STAR program is a voluntary program and is being implemented in three phases. Phase I which became effective on July 1, 2002 specifies that for a product to display the ENERGY STAR label, it must consume less than or equal to 4W in standby. Phase II, which becomes effective on July 1, 2004 specifies that a VCR may consume either 1W or less to display the ENERGY STAR label.

In July 2004 the program will introduce an "Illuminated Display Allowance" whereby manufacturers may add an additional 1W to the 1W specification for products with an illuminated or backlit display (eg. Clock). For example a VCR with an illuminated display must consume 2W or less to qualify for the ENERGY STAR label beginning on July 1, 2004. Phase III becomes effective on the July 1, 2005 and

all VCRs must consume 1W or less in standby to qualify for the ENERGY STAR label. In 2004, ENERGY STAR will assess the marketplace to determine if the 1W allowance for illuminated displays is justified and should be extended for Phase III. More details can be found on www.energystar.gov and www.energystar.gov.au

EUROPE

The Group for Energy Efficient Appliances (GEEA), which is made up of representatives from European national energy agencies and government departments, encourages industry best practice through a voluntary energy labelling scheme.

For VCRs, the criteria for receiving the GEEA label varies for VCRs with a playback function only and VCRs that can record. The criteria also specifies off and on mode limits in addition to passive standby. For Video Cassette Players, the power consumption in passive standby must be 1W or less, while in off, consumption must be 0.5W or less. After December 31, 2003,

TABLE 1: SUMMARY OF PROGRAM REQUIREMENTS FOR VCRS - INTERNATIONALLY

	Mode	Dates	Criteria
Energy Star	Passive standby	Phase I: Effective until 30/06/2004	≤4W
	Passive standby	Phase II: Effective 1/07/2004	≤1W*
	Passive standby	Phase III: Effective 1/07/2005	≤1W
GEEA, Europe VCR players	Off	Current until 31/12/2003 From 1/01/2004	0.5W 0.5W
	Passive standby	Current until 31/12/2003 From 1/01/2004	1W 1W
	On	Current until 31/12/2003 From 1/01/2004	- 11W
GEEA, Europe VCRs	Passive standby	Current until 31/12/2003 From 1/01/2004	3W 2.5W
	On	Current until 31/12/2003 From 1/01/2004	- 15W

* Illuminated Display Allowance: Beginning in July 2004, manufacturers may add an additional 1 Watt to the 1 Watt specification for products with an illuminated or backlit display (eg a clock).

Video Cassette Players must consume 11W or less in on mode. The criteria also specifies that the unit has a factory default setting which automatically switches to passive standby after 30 minutes of inactivity.

For VCRs, the criteria for receiving the GEEA label stipulates that the unit consume 3W or less in passive standby and this will reduce to 2.5W after December 31, 2003. Also after this time, the on mode must be 15W or less. Again the VCR must have a factory default setting which automatically switches to passive standby after 30 minutes of inactivity. More details can be found on www.gealabel.org/home.htm.

GOVERNMENT TARGET

In accordance with the National Standby Strategy, NAEEEC intends to recommend to the Ministerial Council on Energy an 'interim' target. The purpose of which is to provide governments with confidence that Australian products will meet the ultimate target, of one watt in 2012. If the 'interim' target is not met in the specified year, government will commence dialogue with industry to explore other options, including the possibility of moving to Stage 2 mandatory measures.

1. INTERIM TARGET - 2006

Product	Off mode power ¹⁾	Passive standby mode power ²⁾	Power down time ³⁾
VCR	Less than 1 Watt	Less than 4 Watts	30 minutes

Notes:

1. Lowest power when connected to the mains. Limit is applicable to models which have an off mode
2. When switched off using a remote control, where applicable.
3. Required to power down to passive standby after a nominated period of inactivity

This target applies to all VCRs brought into Australia for sale in that year. NAEEEC proposes to monitor the sale of VCRs in that year and to move toward regulation should that target not be met by a significant number of suppliers of products.

INTERNATIONAL INITIATIVES

The International Energy Agency (IEA) has been promoting the "One Watt Initiative" energy saving program to cut world-wide electricity losses from appliances in standby. Launched in 1999, this campaign aims to guide government policy-makers and appliance manufacturers towards equipment that consumes no more than one watt when in standby mode. The Australian Government has endorsed the one watt standby target for appliances sold in Australia. More details can be found in Ministerial Council on Energy standby strategy "Money isn't all you're saving" (MCE 2002).

In addition, all VCRs will be required to "power down" to passive standby after a period of **thirty minutes**.

2. NATIONAL STANDBY STRATEGY TARGET - 2012

Product	Off mode power ¹⁾	Passive standby mode power ²⁾	Power down time ³⁾
VCR	Less than 0.3 Watt	Less than 1.0 Watt	10 minutes

Notes:

1. Lowest power when connected to the mains. Limit is applicable to models which have an off mode
2. When switched off using a remote control, where applicable.
3. Required to power down to passive standby after a nominated period of inactivity

The National Standby Strategy sets out the target of one watt, to be achieved by 2012. This is consistent with international activities, in particular, the IEA "One Watt Initiative" and the current Energy Star requirements. This target should apply to all VCRs. In addition, all VCRs will be required to "power down" to passive standby after a period of ten minutes.

The above requirements will be inserted into the relevant Australian Standard.

GOVERNMENT PROPOSALS TO ACHIEVE THIS TARGET

Government agencies intend to take the following actions to assist industry meet the standby targets for VCRs:

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 compliant VCRs. 	ongoing
		<ul style="list-style-type: none"> NAEEEC will set voluntary targets for the market share of VCRs that are Energy Star compliant. 	2nd Q - 2004
		<ul style="list-style-type: none"> MCE will consider creating Government Policy of purchasing Energy Star VCRs where available and fit for purpose. This policy will encourage manufacturers to supply Government agencies with VCRs that are Energy Star compliant. 	4th Q - 2003
		<ul style="list-style-type: none"> Publish Energy Star Partner compliant VCRs data on www.energystar.gov.au 	1st Q - 2004
Industry Code of Conduct	✗	<ul style="list-style-type: none"> Not considered appropriate at this stage 	NA
Australian Standard	✓	<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 VCRs and to analyse trends 	ongoing
Publish Statistics	✓	<ul style="list-style-type: none"> NAEEEC will highlight the range of performances of VCRs 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 	2nd Q - 2004

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 abovementioned actions together with industry intervention have been successful in meeting the target at the NAEEEC Forum in the year:

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