

PRODUCT PROFILE



CLOTHES DRYERS

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:

Clothes Dryers Product Profile
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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 clothes dryers.

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.

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PRODUCT DESCRIPTION

Clothes dryers all operate basically the same way; a fan distributes heated air through a drum that rotates the clothes placed inside it. In Australia clothes dryers are powered electrically and have an average expected life of around 18 years. Dryers come in a range of capacities starting at around 3.5kg up to 13kg with the Australian average being 4.4kg. Dryers differentiate themselves with a variety of features such as touch or manual controls, reverse tumble, delay start,



temperature control, heat free cycles etc. However there are two features that are key to classifying dryer type:

1. Vented or Condenser dryer – In a vented dryer warm, moist air leaves the dryer through a hole or pipe at the rear of the unit, while in a condenser dryer the moisture is extracted from the air and either held to be emptied manually, or pumped away to a drain. The dry air is then reused in the dryer. In Australia vented type dryers make up the vast majority of models.
2. Timer or Auto Sensing dryer – A timer dryer allows the consumer to set the length of time the dryer will operate for, whereas an auto sensing dryer has moisture sensors that determine when clothes are dry, automatically switching off the machine and preventing excessive drying. Most of these units estimate dryness by sensing the temperature of the exhaust air. This feature can save up to 15% of running costs. The popularity of auto sensing dryers is increasing in the Australian market however timer models still dominate with approximately 72% of sales.

CURRENT OWNERSHIP AND TRENDS

The Australian clothes dryer market has experienced fairly stable retail sales since 1995. The annual sales of clothes dryers appear to be dependent upon weather conditions and the state of the economy. The 2002 BIS Shrapnel Study found that 60% of clothes dryer purchases were for replacement units. Since 1993, clothes dryer retail sales have increased by less than 35,000 units with the value of sales only increasing \$23 million. Table 1 shows the national retail sales figures from 1993 through to 2001.

The ABS has collected ownership data for clothes dryers in its "Environmental Issues – People's Views and Practices" report since 1994. In 2002 it reported that 60% of households across Australia owned a clothes dryer, up from 53% in 1994. The BIS Shrapnel 2002 report found that ownership had reached 0.64. As shown in Table 2 saturation was found to be 1.03 and penetration was 62%, with less than 2% of households having more than one clothes dryer.

TABLE 1: AUSTRALIAN RETAIL SALES OF CLOTHES DRYERS, 1993- 2001

Year	Units Sold	Value (\$m)	Average Price (\$)
1993	142,726	\$48	\$314
1995	180,828	\$63	\$328
1997	175,721	\$69	\$352
1999	193,557	\$75	\$354
2001	176,670	\$71	\$368

Source: GFK Marketing Services

TABLE 2: OWNERSHIP DATA FOR CLOTHES DRYERS - AUSTRALIA

Year	Statistic	2001/02	Source
1994	Ownership	0.53	ABS 2002
1999	Ownership	0.56	ABS 2002
2002	Ownership	0.60	ABS 2002
1997/1998	Ownership	0.62	BIS Shrapnel 2002
1999/2000	Ownership	0.62	BIS Shrapnel 2002
2001/2002	Ownership	0.64	BIS Shrapnel 2002
2001/2002	Penetration	62%	BIS Shrapnel 2002
2001/2002	Saturation	1.03	BIS Shrapnel 2002

RELEVANT MODES FOR THE 'ONE WATT' POWER PLAN

Clothes Dryers sold in Australia have several operational modes:

- On (the unit is running a cycle or performing a program)
- Active standby (the unit is turned on and waiting to be programmed)
- Delay start (the unit has been turned to active standby and the program selected but commencement of program has been delayed by the user)
- End of program (program completed - waiting for action by the user)
- Off

The **on mode** is not generally relevant for the standby power plan, although the on mode power consumption and the hours of use are critical in determining total energy consumption of clothes dryers. Clothes dryer usage varies dramatically, with weather conditions having a large impact on patterns of use. In the 2002 ABS survey one third of respondents reported that usage was dependent upon weather, one third reported that they rarely used the dryer while 7% claimed the dryer was never used. Only 20% of clothes dryers were used at least once a week.

Active standby mode is usually relevant only for a short period prior to commencement of the program. Power consumption in this mode is not relevant for the standby strategy as only a small number of clothes dryers have an on/off switch and those that do are usually only in this mode for short periods.

Delay start mode: this feature is present only on a limited number of models. Typically even when present this function is rarely used by all consumers. This mode is not considered relevant for the standby strategy.

End of program mode: This mode is more commonly present on clothes dryers originating from Europe. This mode persists for an indefinite period at the completion of the program (i.e. the unit does not revert to off mode after a fixed period). In this mode, many units have an indicator light or visual display communicating that the clothes dryer is either finished, or waiting to be programmed to start another cycle. Given user habits, the end of program mode is likely to constitute a significant proportion of the total mode time for a clothes dryer, especially if the machine is run overnight or programs are completed when the user is not there to turn it off. Standby limits for this mode are relevant to the standby strategy.

Most clothes dryers manufactured in Australia or New Zealand "power down" at the end of a cycle, or turn themselves off. As such, end of program mode is not relevant for these models.

Off mode is applicable to all clothes dryers and standby limits for this mode are relevant to the standby strategy. The 2003 store survey found only one of the eleven models measured had a 'hard' off switch that disconnects the mains from most electrical circuits in an appliance. Electronics in clothes dryers is still relatively uncommon in Australia with this feature more common in European models. The NAEDEC commissioned survey of households conducted in 2000 found only 4 clothes dryers with an on/off switch, hence it is not surprising that all units measured in the survey were either in off mode or unplugged. It should also be noted that the average age of the clothes dryers measured was 11 years, as such these appliances were purchased prior to dryers having the capacity to be left in on, or standby mode.

KNOWN STANDBY DATA FOR NEW PRODUCTS

The NAEEEC commissioned store surveys of products conducted in major retail stores during 2001, 2002 and 2003 collected measurements from 34 clothes dryers over the 3 years: 7 in 2001, 16 in 2002 and 11 in 2003. The clothes dryers on display were measured in off mode.

Energy consumption of clothes dryers in off mode appears to be decreasing with the average power drawn measured as 1.2W in 2001, 0.3W in 2002 and 0.4W in 2003. The range of consumption has remained fairly static with only 0.3W difference over the three years. Table 3 summarises these results.

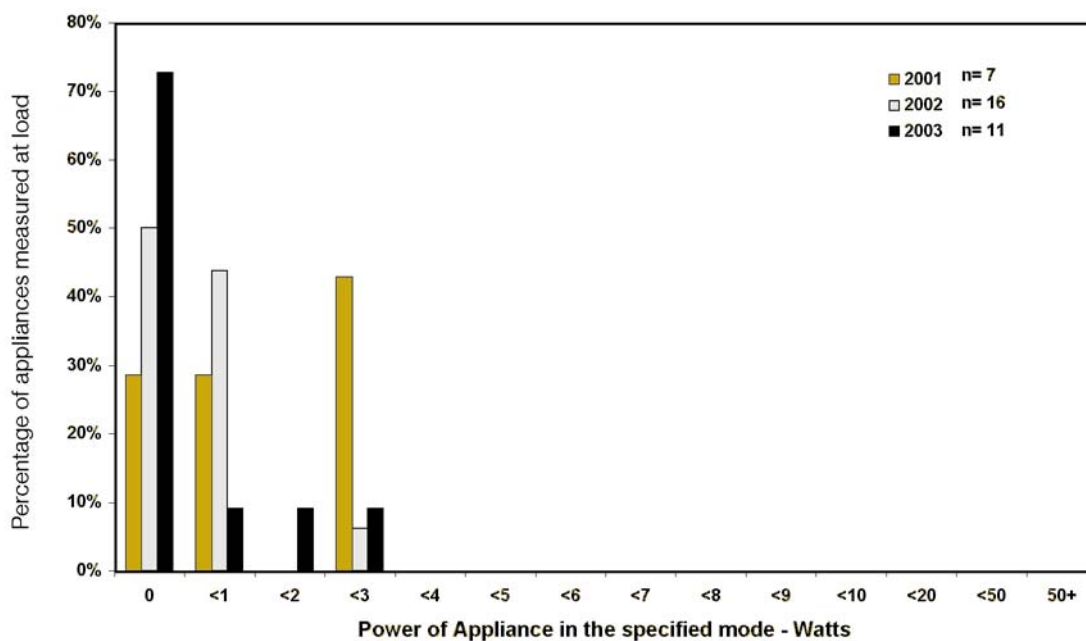
TABLE 3: SUMMARY OF RESULTS FOR 2001, 2002 AND 2003 NAEEEC STORE SURVEYS

Mode	2001 (n=7)	2002 (n=16)	2003 (n=11)
Average Off	1.2W	0.3W	0.4W
Minimum Off	0.0W	0.0W	0.0W
Maximum Off	2.9W	2.6W	2.5W

The 2001 survey found that 57% of clothes dryers consumed less than 1W in off mode. This figure rose to 94% in 2002 and 81% in 2003. With the exception of 5 models all these machines were in fact under the proposed 0.3W recommendation with the vast majority recording zero consumption. Figure 1 presents the distribution of results for dryers in off mode.

The power consumption of clothes dryers in end of cycle mode was not measured in the store surveys, due to the difficulty of testing this mode while the machine is on display. Therefore an estimate is required of the power consumption of clothes dryers when they have not been turned off and have completed their drying cycle. As the majority of clothes dryers simply turn off or power down at the completion of the cycle, the lower boundary for this estimate would be the power consumption in off mode, i.e., the average from the store survey for off mode is 0.4W. It is proposed to use an estimate of 1W for this analysis, however this implies that the current models already meet the proposed government target.

FIGURE 1: DISTRIBUTION OF OFF POWER CONSUMPTION - CLOTHES DRYERS 2001, 2002 & 2003



KNOWN STANDBY DATA FOR INSTALLED STOCK

The NAEEEEC commissioned household survey (conducted late 2000) measured 35 clothes dryers. The machines had an average age of 11 years with the oldest model being 19 years. The average consumption in off was found to be 0.4W. Seventy seven percent of models had a reading of 0W. The models that did record consumption in off mode were all purchased after 1990.

Based on this survey, the amount of time a clothes dryer is estimated to be left in the relevant mode is shown in Table 4. This estimate is thought to be conservative and the time left in the end of program mode is considered to be minimal.

TABLE 4: ESTIMATED TIME IN MODE

Mode	Time in Mode/day
In use	0.25 hr
Delay start	0
Active Standby	0
End of program (EoP)	5% remaining time
Off	95% remaining time

GREENHOUSE EMISSIONS

The GHG emissions reduction potential for the proposed standby target of 1W for end of program mode and 0.3W for off mode is in the order of 2 kt CO₂-e pa by 2012 and 3 kt CO₂-e pa by 2020.

To examine the potential for greenhouse savings, one scenario was modelled based on a standby power target of 1W for end of program mode applying to 80% of the market in 2005 and 0.3 W for off mode applying

to 80% of the market in 2005. Figure 2 shows the potential GHG emissions reduction. The projected sales of clothes dryers are expected to continue to rise at about 2% pa.

The projected effect on total energy consumption used annually by these clothes dryers based on the implementation of these targets in Australia is shown in Figure 3.

FIGURE 2: BAU VS. POLICY TARGET GHG EMISSIONS FOR CLOTHES DRYERS

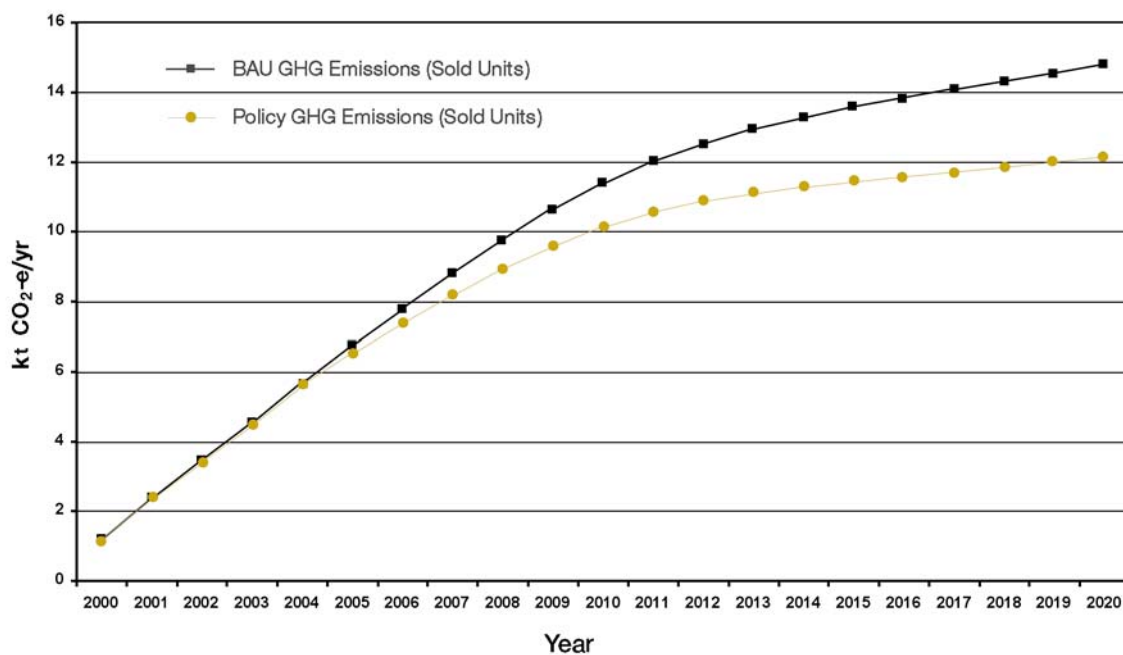
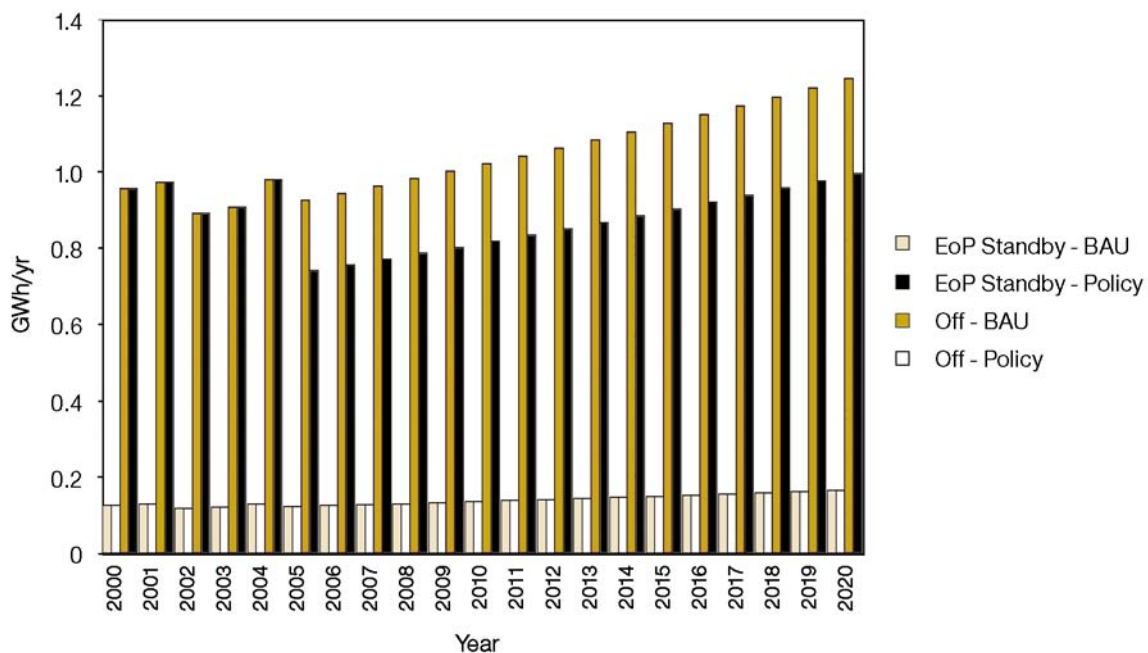


FIGURE 3: BAU VS. POLICY TARGETS FOR ENERGY CONSUMPTION OF ALL CLOTHES DRYERS SOLD



CURRENT OVERSEAS POLICIES AND TRENDS

Currently, only the USA and Canada have MEPS requirements for clothes dryers. Programs in Europe and Australia are labelling programs although these do not presently address standby power consumption. These programs are summarised below in Table 5. The German “Blue Angel” program is the only program that takes standby consumption into consideration and this program is described below.

TABLE 5: SUMMARY OF REGULATORY AND VOLUNTARY POLICY MEASURES FOR CLOTHES DRYERS

Country/Region	MEPS	Energy	Voluntary Programs (Name)
USA	✓		
Canada	✓	✓	
Europe (EU)		✓	
Germany		✓	Blue Angel
Australia		✓	

GERMANY

The German eco-label program, Blue Angel, is currently the only program that has developed standby power consumption levels for clothes dryers. The Blue Angel labelling program is an endorsement system that is available to a broad range of products. Products are assessed to be eligible for the label once meeting a set of environmental criteria. Clothes dryers are assessed on criteria as varied as type of exterior coating, insulating materials and energy usage. Clothes dryers must receive a class A or B efficiency label to qualify and they must meet the following standby criteria:

- When a drying cycle has ended, the appliance’s power draw must not exceed 5W.
- When the appliance is switched off the power draw must not exceed 1 Watt.

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 1W 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 the Ministerial Council on Energy standby strategy “Money isn’t all you’re saving” (MCE 2002).

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 - 2007

Product	Off mode power ¹⁾	End of program mode ²⁾
Clothes dryer	Less than 1Watt	Less than 4 Watts

Notes:

1. *Lowest power when connected to the mains. Limit is applicable to models which have an off mode.*
2. *Power consumed when the clothes dryer has ended the program or cycle, where the unit does not revert to off mode after a fixed period.*

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

2. NATIONAL STANDBY STRATEGY TARGET - 2012

Product	Off mode power ¹⁾	End of program mode ²⁾
Clothes dryer	Less than 0.3 Watt	Less than 1 Watt

Notes:

1. *Lowest power when connected to the mains. Limit is applicable to models which have an off mode.*
2. *Power consumed when the clothes dryer has ended the program or cycle, where the unit does not revert to off mode after a fixed period.*

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". This target should apply to all clothes dryers.

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 clothes dryers:

Voluntary Tool Available	Use for this Product	Rationale	Date
Government procurement list	✓	<ul style="list-style-type: none"> MCE will consider creating Government Policy of purchasing low standby clothes dryers where available and fit for purpose. This policy will encourage manufacturers to supply government agencies with clothes dryers that are energy efficient. 	4th Q - 2003
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 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 clothes dryers and to analyse trends 	ongoing
Publish Statistics	✓	<ul style="list-style-type: none"> NAEEEC will highlight the range of performances of clothes dryers in the marketplace through publishing data on a website or other means. 	Ongoing
Energy Rating label	✓	<ul style="list-style-type: none"> Over the past three years NAEEEC has reiterated its intention to progressively include standby energy consumption into the Comparative Energy Consumption for labelled products such as dishwashers, clothes washers and clothes dryers. NAEEEC will be working with the Standards Committees to finalise the details of modes and test methods for incorporation into Part 2 of the relevant standards. 	Ongoing

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:

2008

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- MCE 2002, *Australia's Standby Power Strategy 2002-2012 - "Money Isn't All Your Saving"*. Final report of long-term strategy to achieve Australia's One-Watt Goal 2002 to 2012, Ministerial Council on Energy. NAEDEC Report 2002/12. www.energyrating.gov.au

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