

STANDBY PRODUCT PROFILE 2004/9

NOVEMBER 2004

PRODUCT PROFILE



GAS COOKERS AND GAS OVENS

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.rating@deh.gov.au

Alternatively, hard copy comments can be mailed to:

Equipment & Appliances Team
Australian Greenhouse Office
Department of Environment and Heritage
GPO Box 787
CANBERRA ACT 2601

Comments received by 28 February 2005 will assist in determining the final form of the policy proposals taken to government.

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

CONTENTS

Product Description	1
Current Ownership and Trends	2
Relevant modes for the 1 Watt power plan	2
Known Standby Data for New Products	3
Greenhouse Emissions	5
Current Overseas Policies and Trends	6
Government Target	6
Government Proposals to meet this Target	7
References	7



PRODUCT DESCRIPTION

There are three main types of conventional cooking appliances, these being:

- Cook Tops:** Also known as hobs, smooth top cooking surfaces or built in cook top. These units consist of one or more hotplates or internal heating components.
- Ovens:** An oven is essentially an enclosed heated chamber in which baking or roasting can occur. This category includes wall mounted, under-bench, double and separate ovens. They may be fan forced or self-cleaning ovens.
- Upright Cookers:** Also known as a range, stove or cooker. These products combine both a cook top and one or more ovens. Upright cookers can be elevated with the cook top- and oven adjacent to each other or free standing with the cook top above the oven. Additionally, upright gas cookers may have an electric griller and be either hard wired or have a plug-in operation.

All of these appliances are available in either gas or electrically fuelled models but this profile focuses only on the gas fuelled appliances. Electric conventional cooking appliances will be analysed in separate product profiles and will not be discussed further here. Microwave ovens were separately considered in a profile published in 2003.

CURRENT OWNERSHIP AND TRENDS

Since the late 1970's the Australian residential market has had almost complete penetration of cooking appliances, with oven/cook-top combinations or upright cookers in almost all Australian households. Since the late 1980's there have been several trends emerge which are affecting the mix of cooking appliance stock in the residential sector, these being:

- Greater penetration of gas cooking appliances over electric,
- Purchase of separate ovens and cook tops, with a corresponding decrease in the purchase of upright cookers, and
- A preference for gas cook tops together with separate electric ovens, resulting in a significant increase in the penetration of gas cook tops but a slow decline in gas ovens.

The annual sales of new gas upright cookers or oven/cook tops is driven by the increase in households corresponding to the number of new dwellings built each year, by the replacement of existing installed stock and by the trend towards more gas cook tops and less gas ovens. It is estimated that cooking appliances of this type are replaced every fifteen years.

Information has been obtained from GFK Marketing Services on cooking appliance sales in 2001. The total sales of cooking appliances obtained from the GFK data is shown in Table 1. However, these sales probably underestimate the market as GFK only obtain data on about 65% of the market, from those retailers willing to supply this data.

Industry stakeholders in the cooking appliance market were interviewed for an earlier study conducted for the AGO (EnergyConsult 2003) to obtain further information on the upright cookers, ovens and cook-tops markets. The feedback from the stakeholders gave a similar impression of the market, though implied the market was larger than the GFK data suggested. The total cooking appliance market was estimated by one industry stakeholder, based on past information, at 720,000 units p.a., consisting of the following:

- Approximately 230,000 ovens sold annually, with 95% electric
- Cook-tops sales are around 230,000 annually, with 60% electric
- Sales of upright cookers are about 260,000 annually, with again 60% electric.

This information would suggest the gas appliances market is approximately 40% larger than GFK data indicates.

TABLE 1: ESTIMATED TOTAL ANNUAL SALES

Product Group	Gas Cook tops	Gas Ovens	Gas Cookers	Total
Estimated Annual Sales	82 357	6 360	62 557	151 274

RELEVANT MODES FOR THE 'ONE WATT' POWER PLAN

There are only two operating modes for upright cookers, ovens and cook-tops, these being either "off" or "on". Cooking appliances are not operated by remote controls so there is no need for a passive standby mode and, though ovens and cookers can be operated using timers, the appliances do not consume any additional power while the timers are activated compared to when the timers are not in use.

Off mode is therefore the only relevant mode for the National Standby Strategy. Off mode in theory disconnects the mains from all electrical circuits in an appliance. However, many upright cookers, ovens and cook-tops continued to have some standby power consumption, even in off mode. This consumption will be for the operation of auxiliary features such as ignition systems, temperature controls and clocks/timers.

KNOWN STANDBY DATA FOR NEW PRODUCTS

The NAEEEC May 2004 store surveys measured the standby power consumption of upright cookers, ovens and cook-tops. The more relevant statistics from this survey are presented in Table 2.

These results indicate that standby consumption in cook tops and upright cookers are at present minimal, and their mean standby consumption is well under one watt.

The frequency distribution of the consumption of cook tops and upright cookers indicates that many appliances have no appreciable standby consumption and only one of the upright cookers measured had a standby consumption of more than one watt. The distribution of power consumption of the measured appliances is shown in Figure 1 and Figure 2.

This suggests that cook tops and upright cookers may meet the target of 1W by 2012 assuming there is no significant increase in their standby consumption. However, there will

TABLE 2: SUMMARY OF RESULTS FOR 2004 NAEEEC STORE SURVEY

	Cook tops (n=15)	Ovens (n=2)	Upright Cookers (n=18)
Average "Off" Standby	0.03	5.78W	0.17W
Minimum Off Standby	0W	5.65W	0W
Maximum Off Standby	0.05W	5.90W	1.1W

Note: n is sample size in 2004 store survey

FIGURE 1: DISTRIBUTION OF POWER CONSUMPTION FOR COOK TOPS IN OFF MODE (N=15)

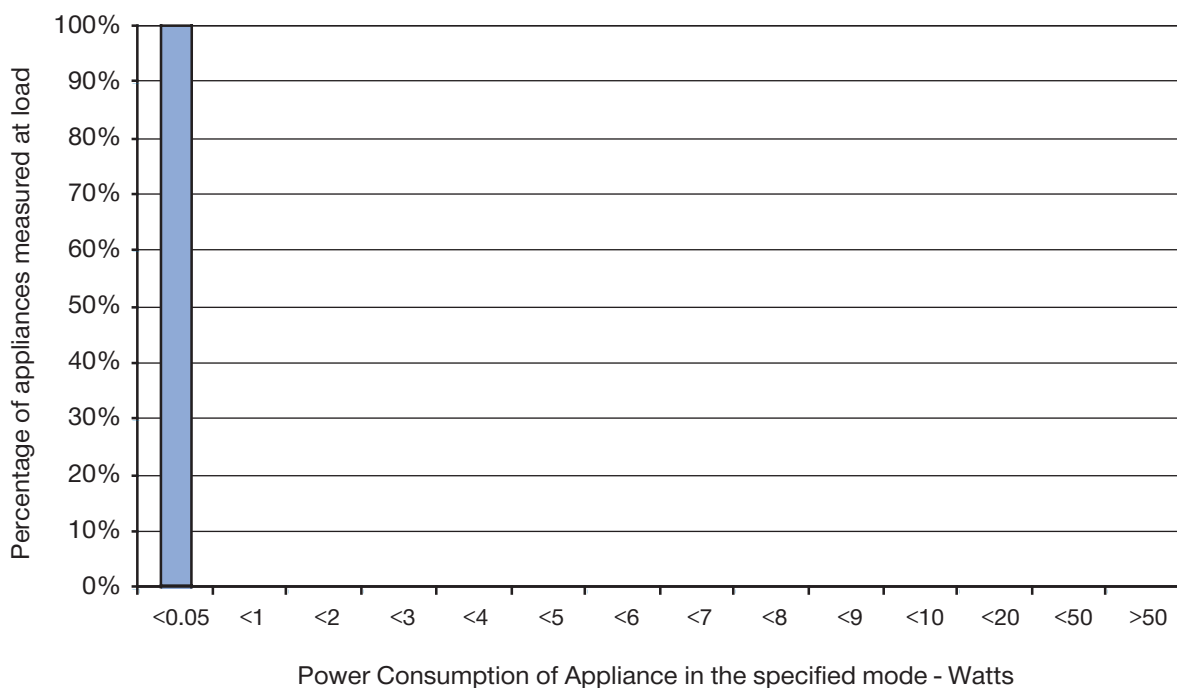
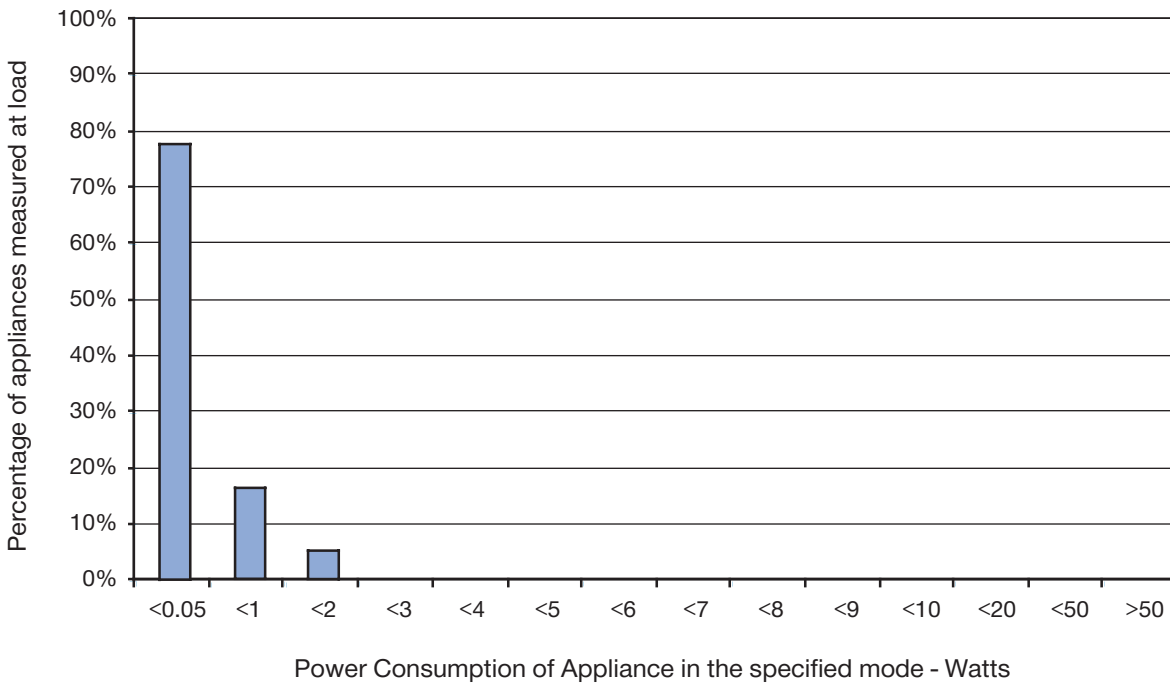


FIGURE 2: DISTRIBUTION OF POWER CONSUMPTION FOR UPRIGHT COOKERS IN OFF MODE (N=18)



be a need to continue to monitor the standby consumption of the appliances, as the introduction of additional features into the appliances could lead to greater standby consumption in the future.

These results for ovens are quite different and the store survey samples mean standby consumption of 5.78 W indicated that these appliances could be of significance to the National Standby Strategy of the cooking appliances examined. However, data was collected from only a very small sample and further data is required to determine the standby characteristics of ovens from a more representative sample. However, a review of the products of some of the main manufacturers revealed that approximately two thirds of the ovens advertised had timer/clocks. As most appliances with time displays presently tend to have a minimum standby consumption in the vicinity of 2 to 3W, this suggests that most ovens will have an 'off' mode consumption that significantly exceeds the One Watt target.

It is recommended that continued sampling of ovens be conducted in the standby store survey, however only limited appliance are available for measurement due to the limited access to these display models. Further measurement by the oven suppliers can help verify the off mode power consumption.

The standby power consumption measured in the store survey is likely to be highly similar to the consumption in the home of the cooking appliances surveyed, as few will ever be switched off at the wall switch. This is because householders will be reluctant to switch off the appliance if it has a time display and also because of the inconvenience of switching on the appliance whenever the household wished to use the gas ignition. Most gas ovens with main power supplied auxiliaries utilise a plug, rather than hard wired into the house power supply.

GREENHOUSE EMISSIONS

The data collected so far for gas cooking appliances suggests that only the standby consumption of ovens is likely to be of a concern. The impact of a policy to restrict the standby energy consumption of ovens on energy consumption and greenhouse emissions was therefore estimated. For the purposes of estimating greenhouse emissions, it has been assumed that oven sales grow 1% annually, in line with the projected population.

The greenhouse emissions reduction potential for the proposed off mode target of 0.5W by 2008 and 0.3W by 2012 is shown in Figure 3. This indicates potential reductions of 300 t CO₂-e pa by 2012 and building to over 2.9 kt CO₂-e pa by 2020. Note that Figure 3 shows the cumulative effect of the savings over time.

The projected effect on total annual energy consumption by gas ovens based on the implementation of these targets in Australia is also shown in Figure 4.

FIGURE 3: BAU VS POLICY TARGET – CUMULATIVE ANNUAL GREENHOUSE EMISSIONS FOR OVENS

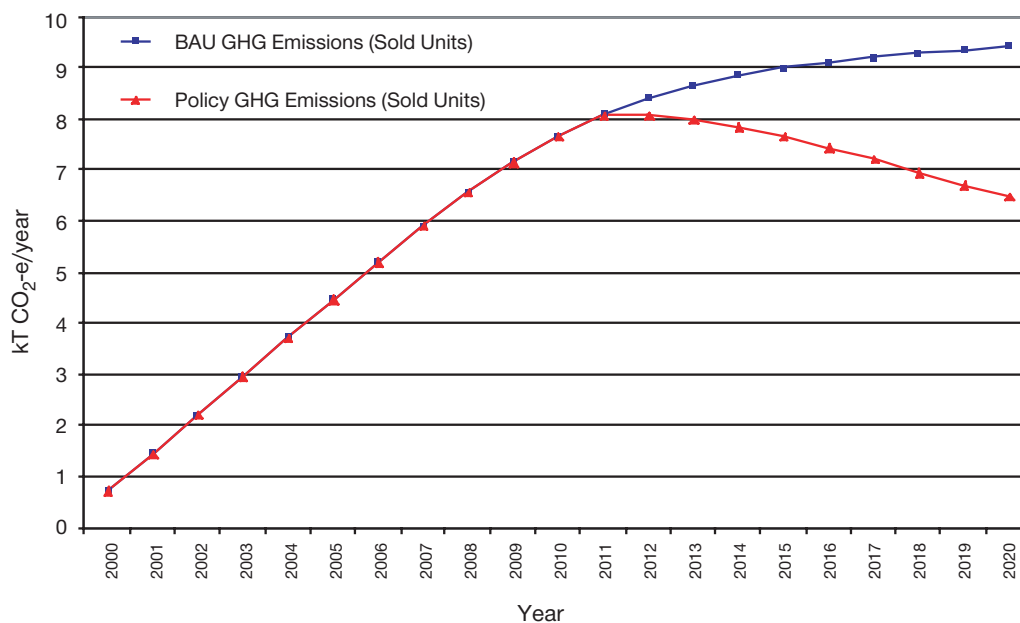
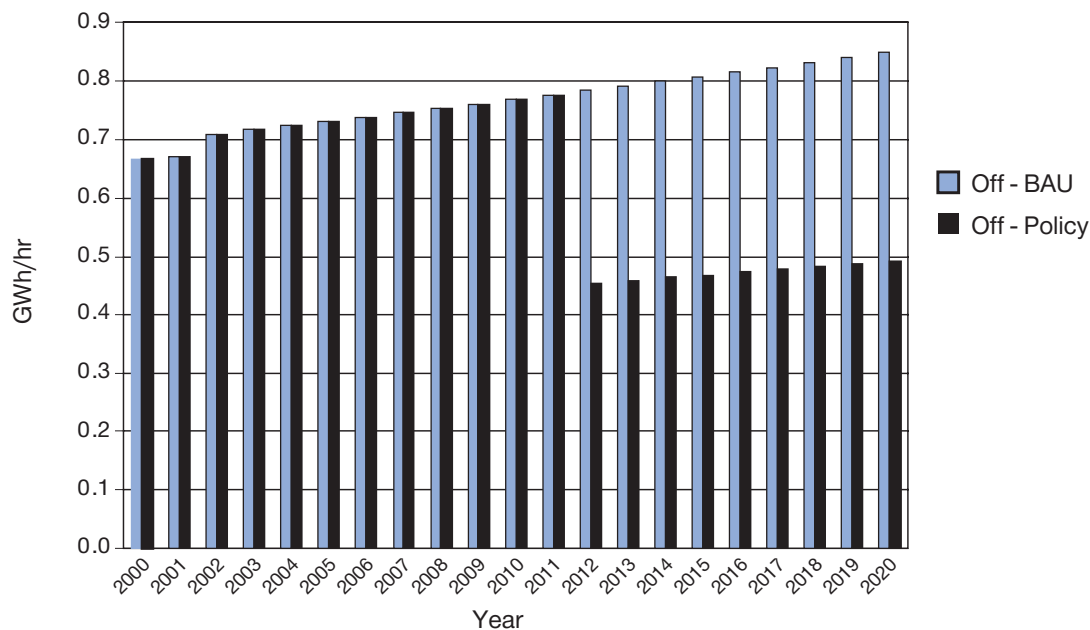


FIGURE 4: ANNUAL EFFECT ON ENERGY CONSUMPTION OF POLICY TARGETS VS. BAU FOR GAS OVENS



CURRENT OVERSEAS POLICIES AND TRENDS

An examination of a range of international programs did not reveal any initiatives related to standby in gas cook tops, cookers or ovens, with the exception of the USA DOE Federal Energy Management Program (FEMP) for government. The FEMP is investigating the implementation of the inclusion of cook tops and ovens; however no target is currently published. The few countries that have given attention to the energy consumption of such cooking appliances have concentrated on the operating energy consumption, the energy measurement of such consumption and the need for MEPS or labelling programs. The UK Market Transformation Program is also investigating the inclusion of standby power use in their oven labelling program.

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 1W 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.

Although the proposed longer term target is less than 1W for gas cook tops, ovens and cookers, this is likely to be technically achievable without undue cost and changes in the design of the product. Standby targets for each product are developed in the context of what is achievable. It should be noted that this product is present in large numbers in Australian homes, so even modest reductions in per unit energy consumption will result in significant national energy and greenhouse savings.

1. INTERIM TARGET - 2008

Off mode (W)	Passive standby mode
< 0.5	Not applicable

This target applies to all relevant gas cook tops, ovens and cookers sold in Australia that year. NAEEEC proposes to monitor the sale of gas cook tops, ovens and cookers in that year and to move toward regulation should that target not be met by a significant number of products.

2. NATIONAL STANDBY STRATEGY TARGET – 2012

Off mode (W)	Passive standby mode
< 0.3	Not applicable

This target applies to all gas cook-tops, ovens and cookers within the scope of this profile.

GOVERNMENT PROPOSALS TO ACHIEVE THIS TARGET

Government agencies intend to take the following actions to assist industry meet the standby targets for gas cook-tops, ovens and cookers:

Voluntary Tool Available	Action / Rationale	Date
Government procurement list	<ul style="list-style-type: none"> MCE are considering a policy of preferencing the purchase of low standby gas cook-tops, ovens and cookers where available and fit for purpose. Qualifying products to be included on the government Energy Allstars procurement database. 	2005/6
Australian Standard	<ul style="list-style-type: none"> To communicate government expectations in a new part of AS/NZS 62301. 	From 2005
Annual survey	<ul style="list-style-type: none"> To collect data on new gas cook tops, ovens and cookers and analyse trends. This data will be published annually. 	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:

2009

REFERENCES

EES & EnergyConsult 2003, *Appliance Standby Energy Consumption: Store Report 2003*, report for the National Appliance and Equipment Energy Efficiency Committee prepared by Energy Efficient Strategies & EnergyConsult, March 2003, Canberra. NAEEEC Report 2003/04. www.energyrating.gov.au

EnergyConsult 2002, *Options Study – MEPS/Labelling Possibilities for Stoves and Cook-tops*, report for the National Appliance and Equipment Energy Efficiency Committee. NAEEEC Report 2002/03.

EES & EnergyConsult 2001, *Quantification Of Residential Standby Power Consumption In Australia: Results Of Recent Survey Work*, report for the National Appliance and Equipment Energy Efficiency Committee prepared by Lloyd Harrington (EES) and Paula Kleverlaan (EnergyConsult), Canberra. www.energyrating.gov.au

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. NAEEEC Report 2002/12. www.energyrating.gov.au