

# **TRANSITION TO THE NEW ENERGY LABEL IN AUSTRALIA: EARLY RESULTS**

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## **ABSTRACT**

Energy labelling for household appliances was originally introduced in Australia in 1986. The program now covers refrigerators, freezers, dishwashers, clothes washers, clothes dryers and air conditioners, all with a similar “star” energy label design. Over 90% of appliance buyers recognise the energy label, and studies have found that average appliance energy efficiency has increased significantly as a result of labelling.

Appliance efficiency increased so rapidly that, by the mid 1990's, many products rated 5 stars, and some even reached the maximum rating of 6 stars. Consequently, the commercial incentive for suppliers to introduce more efficient products was much reduced, since they knew that buyers were satisfied with 4 or 5 star products. For these reasons, Australian Federal and State governments relaunched the labelling program in 2000 with a redesigned label. Products have to achieve a higher energy efficiency to gain the same star rating on the new label compared to the old one.

This paper reviews the process of redesigning of label, and reports some early results of the changeover.

## **1. THE DEVELOPMENT OF LABELLING IN AUSTRALIA**

In Australia, steps towards the energy labelling of household electrical appliances were initiated by the New South Wales state government in 1982 (EANSW 1982). In 1983 the following objectives for labelling were formally endorsed by all nine energy ministers of the Commonwealth, State and Territory governments:

- “to enable the consumer to make an informed choice between energy consuming products (a higher initial purchase price may be offset by accumulated energy cost savings over the appliance's lifetime);
- to provide an incentive for manufacturers in the medium term to design and market appliances with improved energy performance, and consequently better tailored to consumers' requirements;
- to promote energy conservation on a national scale and to retard growth in energy demand” (NECP 1983).

Informing consumer choice and providing incentive to increase energy efficiency for manufacturers remain central objectives of energy labelling. The third objective has been progressively expanded to include other measures, such as minimum energy performance standards (MEPS) and the aim of reducing greenhouse gas emissions, which was not a public policy issue in 1983.

In 1985, after unsuccessful attempts to introduce a nationwide voluntary scheme, the NSW and Victorian governments regulated for the mandatory energy labelling of refrigerators, freezers, dishwashers and air conditioners, to be phased in from December 1986. Since the two States have about 60% of Australia's population, all suppliers had to participate and the program was effectively national from the beginning. By 1990 Victoria had introduced labelling for clothes washers and dryers.

In the following years more States and Territories legislated for labelling, and it has now become national in a formal as well as an effective sense. However, it still relies on complementary legislation in each of

the six States and two Territories. The Commonwealth government works with the State and Territory energy agencies to coordinate the program but has no regulatory powers in this area, because under the Constitution functions such as energy supply are State responsibilities.

When labelling first began, the energy tests and the form of the label (Figure 1) were all described in detail in State regulations, either because there were no appropriate Australian Standards, or because the regulators did not want to refer to Standards which could be changed without their control.

In the early 1990s as each successive State adopted mandatory labelling, it tried to replicate the content of the other State's regulations, but there were inconsistencies because of different regulatory frameworks and styles. The program worked reasonably well as it was, but change was almost impossible since all the States would have had to change their technical provisions at the same time and in a coordinated manner.

## **2. THE NEED FOR CHANGE**

The need for change to the energy labelling program was identified as early as 1991, when the first program evaluation was carried out (GWA et al 1991). The main finding was that energy labelling has been successful because suppliers perceived a commercial value in having 5 star products, and had adopted the policy of engineering their new models to reach 5 stars where possible.

Efficiency had increased more rapidly than was expected when the label scales were set in 1985, and by 1991 there were 5 or 6 star products in nearly every product category. Once products reached 5 stars, the incentive for suppliers to introduce still more efficient models was much reduced. When most products are "crowded" near the top of the scale, the effective product choice facing buyers is narrowed and the impact of the label on purchase decisions declines. Market research showed that most buyers expected 5 stars to be the best, and were often surprised when they found 6 star products in the showrooms. This was understandable, because of quality associations with "5 star hotels" and "5 star service".

The 1991 evaluation also found many technical areas where the energy tests and the "rating algorithms" (the mathematical rules for translating energy test results into star ratings) could be improved. However, it concluded that the necessary changes could not be made without first setting up a new national coordination framework. In the event, the process took nine years.

## **3. THE CHANGES**

A National Appliance Energy Labelling Co-ordinating Committee of officials, and an advisory committee of industry and consumer representatives, were established in early 1992. The revision of the label design and algorithms still took a further eight years, because of the need to develop a consensus amongst the many jurisdictions and stakeholders involved. Much of this program development work was carried out during 1998 and 1999, following the establishment of the Australian Greenhouse Office. Details of the changeover process, including the estimated costs and benefits, are given in Wilkenfeld (2001).

It was decided after consumer research to make the new label (Figure 2) similar to the existing design in order to build on the high level of consumer recognition and acceptance, but with sufficient changes in shape and text to ensure that consumers do not confuse new with old.

The new label retains a 6 star scale but with different rating algorithms, so that a product which previously rated, say, 5 to 6 stars will rate only 3 to 4 stars on the new scale (or even 2 to 3 stars for products such as freezers, where the original algorithm was too lenient). This is intended to renew the commercial incentive for suppliers to introduce new 5 and 6 star products, which will be significantly more energy efficient than those which rate highly on the present scale.

There was a transition period during which suppliers were able to choose to state what the rating would have been on the previous scale. This statement appeared in the green band, but this has now been

discontinued. The purpose of showing the old star rating on the label was to minimise calls from customers who had chosen an appliance on the basis of seeing an old label in the showroom, but received an appliance with a new label from the warehouse.

The label revision process also reviewed information on the label that was based on assumptions that have been found to be difficult to sustain (eg that the annual energy consumed by an air conditioner purchased anywhere in Australia can be reasonably approximated as 500 hours of operation at full load). These elements have now been removed, or presented in a different way (eg the energy value on the air conditioner label is now “kWh consumed per hour of operation at full load”).

The guidelines for presentation of partial stars on the old label were unclear, and some suppliers printed labels in a way that arguably exaggerated the comparative star rating of the product. The new label allows only full stars or half stars to be displayed, and so should reduce the prospect of consumers being confused or misled (the example in Figure 2 is a product that meets or exceeds 2.5 stars, but does not achieve 3.0 stars). The new label also shows all six star in outline so consumers can clearly see that maximum rating that the appliance could potentially achieve.

The revision of the label scales gave an opportunity to make changes to the energy consumption tests on which the labels are based. These changes should improve the repeatability of the test, and in the main are small enough so that models previously tested need not be retested – it is possible to produce the new label from the original test results. The exception is dishwashers, where there are major problems of test repeatability and of ambiguity in the specification of the program cycle selected for the label data. This reduces the ability of the label (whether in the existing or the new format) to fairly indicate comparative energy performance to dishwasher buyers. A new test standard to address these issues will be introduced in 2001. All dishwasher models remaining on the market will then need to be retested to the new standard.

The proposed changes have been included in the Australian Standards which describe energy testing and labelling requirements for each product type, and which – since the regulatory framework was streamlined - are referenced in each State and Territory’s labelling regulations. These Standards are prepared with industry and public input, but cannot be changed without government agreement. The transition from the existing to the new label designs was managed through the timing of Australian Standard revisions and through the product registration process.

#### 4. THE TRANSITION PROCESS

Under the State and Territory regulations, no refrigerator, freezer, dishwasher, clothes washer, clothes dryer or air conditioner can be sold unless a label has been registered for that model, and the correct label is displayed at the point of sale. All pre-existing label registrations expired on 1 October 2000. The only mechanism previously available for retiring registrations was voluntary notification, and it is estimated that about 70% of the models registered at September 1999 were no longer on the market (see Table 1). In future all label registrations labels will expire after a period of 5 years, unless the suppliers renew.

Table 1 Appliance Models On Labelling Registers, April 1999

	Models on register at 30 Sept 1999	Models on the market, Sept 1999	Registered but not on sale, Sept 1999	Current/all registered
Refrigerators and Freezers	1341	322	1019	24%
Dishwashers	400	139	261	35%
Air-conditioners	1957	681	1276	35%
Clothes Washers	642	152	490	24%
Clothes Dryers	220	53	167	24%
All registered models	4560	1347	3213	30%

Source: Energy Efficient Strategies, Personal Communication

Between 1 April 2000 and 30 September 2000 suppliers had the option of registering new models with either the old or the new label, but if the old label was used the registration expired on 1 October 2000. Since 30 September 2000 only registrations of the new label have been accepted.

The major potential source of buyer confusion was the possibility of seeing models with old labels next to models with new labels in the same showroom. At first glance the new label models could appear to be less efficient than the old label models because they display fewer stars for the same level of energy efficiency. In order to minimise the possibility of confusion there was a managed “display transition period” commencing 1 July 2000. Governments worked with appliance suppliers and retailers to try to ensure that:

- Where a unit remained on the showroom floor after 1 July 2000, the retailer stuck the new label over the old label. This required coordination between retailers and suppliers, who had to provide the new labels;
- Whenever a model was put on display after 1 July 2000, the retailer selected a new labelled unit from the packaged stock in preference to an old labelled unit. This required retail staff to take more care in selecting floor stock.

The display transition period was to have been completed by 30 September 2000, after which all showroom models were to carry new labels – although this has not quite been achieved (see below). Warehouse stock can carry the original labels until 30 September 2001, except for airconditioners, which have until 30 September 2002.

## **5. EARLY RESULTS**

In November 2000, at the end of the display transition period, the National Appliance and Equipment Energy Efficiency Committee (NAEEEC) commissioned a pilot survey to gauge progress with the transition. This survey covered 150 retail outlets in three States, and over 14,500 appliances. It was found that 70% displayed the new label, 21% the old label and 9% had no label. The survey found that label compliance was better in city areas than in regional areas. A full scale survey was to commence in March 2001 (NAEEEC 2001).

The last major survey, carried out in 1998, covered 400 stores and 30,000 appliances. It found that label compliance was over 92% (ie less than 8% were unlabelled). Therefore overall compliance did not seem to decline significantly during the period of transition to the new label, even though the transition had not been completed by the end of September as originally planned.

Another indication of the impact of the change is the extent to which it has relieved crowding at the top of the scale. Table 2 indicates the highest rated appliance in each category in 1999 and 2000, using the old and the new scales respectively. In some cases the same model remained the highest rated in both years, and these have been identified where possible (although some may have been missed). In other cases, new and more efficient models came on the market. The following observations can be made with regard to Table 2:

- Of the 20 product categories listed, the maximum number of stars (6) was achieved in 9 product categories in 1999, but only 2 categories in 2000;
- The product categories where the greatest de-ratings occurred were chest freezers (where the highest rated product lost 3.5 stars), upright frost free freezers (3.0 stars), side by side refrigerator-freezers (2.5 stars) and dishwashers (2.5 stars);
- In one category (dryers) the same model - a heat pump dryer - reached 6 stars on both the old and new scales;
- In two product categories, new models were introduced which scored more highly on the new, more difficult scale than on the old scale: a single door refrigerator and an upright

freezer. These were genuinely high-technology models: the freezer was the first domestic unit in the Australian market to have an inverter, DC motor and variable speed compressor.

Table 2 Highest rated appliances, 1999 and 2000

Appliance	Type	Highest star rating on market	
		Sept 1999 (old scale)	Sept 2000 (new scale)
Airconditioner	Cooling only	6	4.5
	Reverse cycle – cooling mode	6	5.0
	Reverse cycle – heating mode	6	5.0
	Reverse cycle – combined (a)	11	9.5
Clothes dryer	Heat pump	6	6.0 (b)
	Conventional	4	3.0 (b)
	Combined washer-dryer – drying mode	6	4.5 (b)
Clothes washers	Top loader	5	4.5
	Front loader	5	4.0
	Combined washer-dryer – washing mode	5	3.5 (b)
Dishwasher	Full size (600 mm wide)	6	3.5 (b)
Refrigerator	Class 1 – Single door refrigerator (no freezer)	5	6.0
	Class 2 – Single door (with icemaker)	4	3.0
	Class 3 – Single door (freezer compartment inside)	5	4.5
	Class 4 – Two door refrigerator-freezer (cyclic)	5	3.5
	Class 5 – Two door refrigerator-freezer (frost free)	5	4.0
	Class 5 – Frost free (side by side)	6	3.5 (b)
Freezer	Class 6 – Chest freezers	6	2.5 (b)
	Class 6 – Upright freezers	5	5.5
	Class 7 – Frost free upright freezers	5	2.0 (b)

Source: Energy Efficiency Victoria News December 1999, *1999 Galaxy Energy Award winners*, Sustainable Energy Authority News December 2000, *2000 Galaxy Energy Award winners* (a) Sum of star ratings in cooling and heating mode for the same model: theoretical maximum is 12. 1999 model achieved 6 cooling/5 heating. (b) Same model re-rated on new scale.

## 6. CONCLUSIONS

The early indications are that the transition to the new label is going reasonably smoothly. The display transition phase was not concluded as quickly as planned – at the end of the six month period nearly a quarter of labels in showrooms were still of the old design. However, the timetable was probably too ambitious, and the natural turnover of display stock should see nearly all of the old labels disappear in any case. Eventually, the only old labels left will be on discontinued stock for which no new labels have been registered, and it is possible that retailers will then choose to display them unlabelled (contrary to the law) rather than leave on an old label that emphasises the product's age.

With regard to the effect on star ratings, it appears that the rescaling has indeed created more space at the top of the scale as intended, and new products are already emerging to fill that space. It is likely that the aggregate “de-rating” effect on the models that consumers see in the showrooms is even larger than the effect on the most highly rated appliances shown in Table 2. It will be necessary to carry out a full frequency distribution of the model range in each category under both the old and the new scale to assess the full extent of the reduction in star ratings that buyers are seeing. This effect should give even more prominence to the most highly rated products than before.

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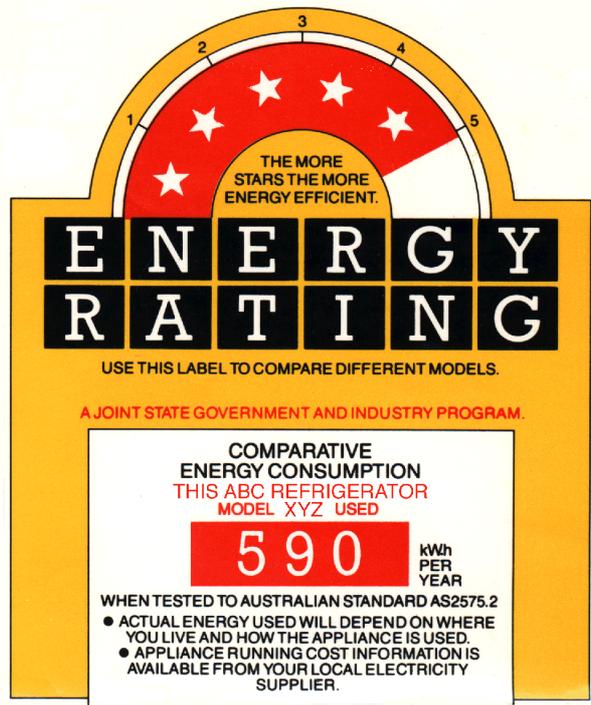


Figure 1 Original Australian Energy Label, 1986

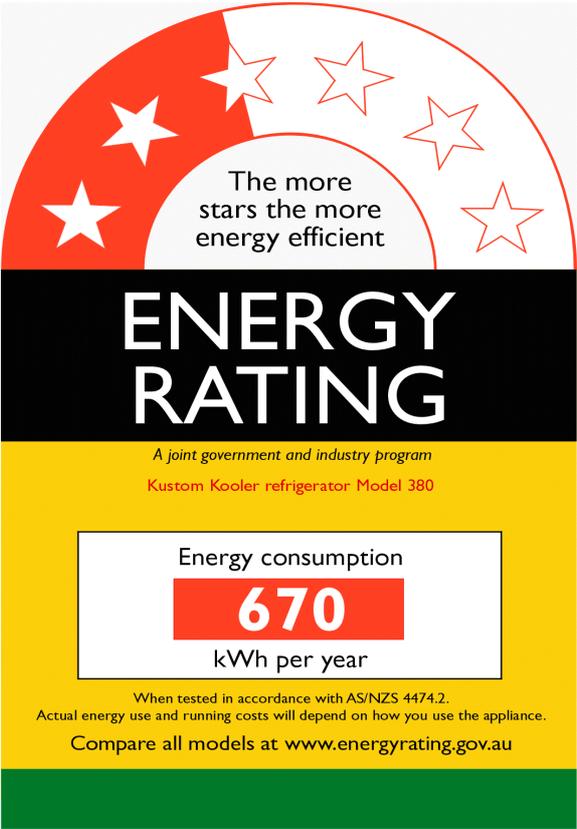


Figure 2 Revised Australian Energy Label, 2000