NAEEEC Report 2004/05

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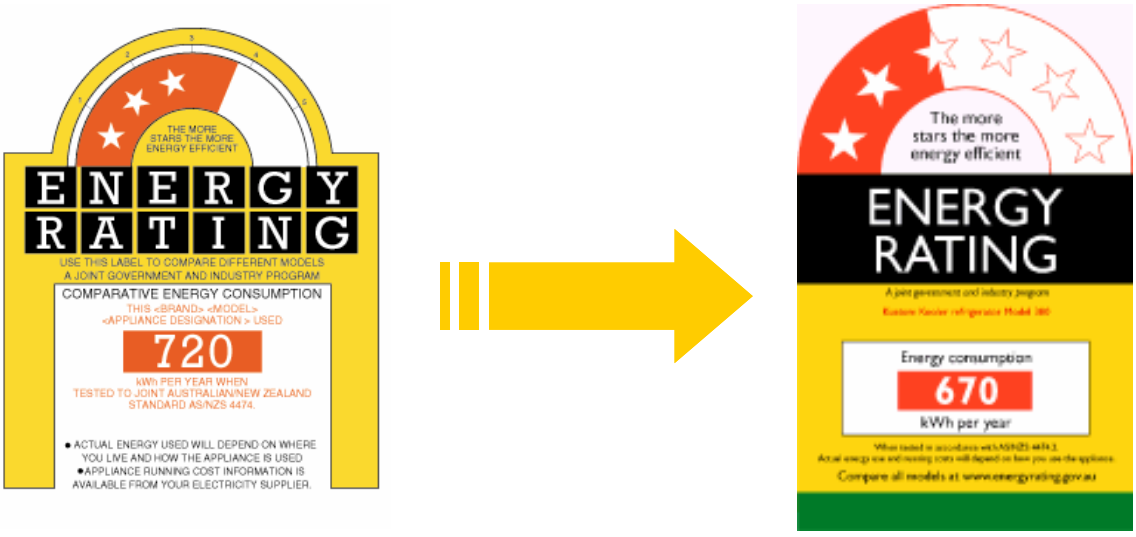
Report for the Australian Greenhouse Office

Energy Label Transition – The Australian Experience:

Main Report



Prepared by Energy Efficient Strategies

FOREWORD

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References cited in this report are available electronically. The References section lists the reports cited and has direct links to the relevant web page to enable documents to be downloaded. Appendices cited in the report are available as a separate file in conjunction with this report.

This is the main report. The appendices are available as a separate file.

Energy Efficient Strategies
Warragul, Victoria
July 2004

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ABBREVIATIONS

AEEMA	The Australian Electrical & Electronic Manufacturers Association
AGO	Australian Greenhouse Office
CEC	Comparative Energy Consumption, on the energy label
CESA	Consumer Electronics Suppliers Association
DPIE	Department of Primary Industries and Energy
EES	Energy Efficient Strategies
EEV	Energy Efficiency Victoria – now SEAV
ELRC	Energy Label Review Committee
GST	Goods and Services Tax
GWA	George Wilkenfeld and Associates
MEPS	Minimum Energy Performance Standards
MRA	Mutual Recognition Agreement
NAEEEC	National Appliance and Equipment Energy Efficiency Committee
RIS	Regulatory Impact Study
SEAV	Sustainable Energy Authority of Victoria – formerly EEV
SEDA	Sustainable Energy Development Authority - NSW
TTMRA	Trans Tasman Mutual Recognition Arrangement (1997)

1. INTRODUCTION

Improving the energy efficiency of household appliances is a major initiative within the Australian Commonwealth and State Governments' energy efficiency programs, and is recognised as a key initiative to reduce greenhouse gas emissions. The main mechanisms to improve the energy efficiency of appliances that have been adopted by the government have been the introduction of minimum energy performance standards (MEPS) and appliance energy labelling. These programs are managed by the National Appliance and Equipment Energy Efficiency Committee (NAEEEC) which is made up of state and commonwealth government energy efficiency officials.

The appliance energy labelling scheme for electrical appliances has been underway in Australia for well over 15 years. This scheme requires certain household appliances to display an energy rating label that aims to encourage consumers to purchase more energy efficient appliances, and therefore to provides incentive for manufacturers to improve the energy performance of appliances. The scheme commenced with the labelling of refrigerators and freezers in 1986/1987[1] in New South Wales and Victoria, and was quickly extended to include air conditioners (1987), dishwashers (1988), clothes dryers (1989) and washing machines (1990). Other states introduced energy labelling progressively from 1990. All states and territories now have regulations.

The first extensive review of the energy labelling program in Australia was conducted by George Wilkenfeld & Associates in 1991 (GWA 1991). The report reviewed the technical basis for all labelled appliances and marked the start of a coherent national energy labelling program in Australia, especially with regard to test procedures. George Wilkenfeld & Associates also conducted a study into the feasibility of minimum energy performance standards over the period 1992 to 1993 (GWA 1993).

The first cost benefit evaluation of the labelling program was undertaken in 1996 (GWA 1996).

A further review of the technical basis of the energy efficiency labelling program was commenced late in 1997, which included within its scope revision of the energy efficiency labelling algorithms for all labelled appliances as well as the energy label design itself. The committee undertaking the work was made up of government, industry and consumer representatives.

By 1998 the program had been operational for more than 10 years and the continuous improvements in appliance performance had resulted in star ratings clustering at the top of the range. To overcome this disincentive to further efficiency improvements, NAEEEC recommended the introduction of new energy labelling algorithms (equations used to calculate the 'star' rating) to provide expanded scope for improvements in energy efficiency (5+ star rated units were regraded to become 3 – 3.5 star units). The

[1] Energy Labelling regulations in NSW actually started in December 1986 while in Victoria regulations commenced in February 1987.

slope of many algorithms were changed to reflect the range of current products and generally algorithms were revised to give a geometric progression of stars (fixed percentage reduction in energy per additional star) rather than the previous fixed kWh reduction per star (which made higher star ratings increasing difficult to achieve). The label itself was also revised with an update of the look, graphics and fonts and separation of the salient parts (the stars) from the technical content (the CEC and capacity). The sixth star, which was always present (but invisible to most consumers), was made obvious through outlining of all unachieved stars in the redesign. The energy labelling website www.energyrating.gov.au was also added to the label. The new labels were introduced in 2000, and it became compulsory for all display stock to carry these labels from 1 October 2000.

This report endeavours to detail the process undertaken to achieve a successful transition in 2000 from the old to the new energy label. It includes:

- Background to the appliance labelling scheme in Australia
- Details of the process control
- Studies Undertaken including:
  - Technical Studies
  - Market Research Studies
  - Regulatory Impact Studies
- Communications Strategies
- Evaluation Procedures

This report is intended to assist those who may wish to undertake a similar label revision/implementation process. This includes Australian Federal and State government instrumentalities who are currently considering revisions to both gas appliance and water efficiency labels as well as the extension of the labelling program to a wider range of electrical products (eg TVs).

2. BRIEF HISTORY OF ENERGY LABELLING IN AUSTRALIA

Energy labelling for major appliances in Australia was first proposed in the late 1970s, by the State governments in New South Wales (NSW) and Victoria (the two largest of Australia's six states and two territories). When the government first raised the matter with the appliance industry in 1982, there was considerable resistance, on the grounds that any program should be uniform nationally rather than risk different State approaches, and that it should be voluntary rather than mandatory.

Despite three years of negotiation, government and industry could not agree on a mutually satisfactory voluntary labelling program. Finally, the NSW and Victorian state governments announced in late 1985 that they would make energy labelling mandatory in those States. Energy labelling for refrigerators and freezers became mandatory in late 1986. In 1987 and 1988, room air conditioners and dishwashers were included in regulations in those states. Victoria labelled clothes dryers in 1989 and clothes washers in 1990. In 1991, the State of South Australia introduced labelling regulations for all 5 major appliances. Other states and territories progressively introduced energy labelling (and later MEPS) regulations.

All of the remaining States and Territories now have energy labelling regulations in force, giving formal nationwide backing for a program which has effectively been in place for more than 15 years. Major manufacturers and importers now recognise the commercial value of energy labelling, and are generally very supportive of the program.

3. ADMINISTRATIVE STRUCTURE FOR THE LABELLING PROGRAM

Energy labelling is made mandatory in Australia by state government legislation and regulations which give force to the relevant Australian Standards and they also set out offences and penalties if a party does not comply with the requirements.

Up until 1998 these regulations also contained details of:

- Algorithms for the calculation of the energy efficiency star rating and projected energy usage
- Performance requirements
- Details of the energy label design
- Requirements for registration and compliance

There was considerable technical material regarding the energy label and algorithms that was included in regulations. Whilst the inclusion in regulation of such technical detail had worked reasonably well early on, in time it was found to create some problems, particularly when changes were required. As there are 8 states and territories with 5 appliance groups (potentially 40 sets of regulations), differences in requirements between states began to emerge primarily as a result of differences in drafting. When changes became necessary, amending so many regulations in a uniform manner presented as a daunting task.

To overcome this problem an additional part to each Australian Appliance Standard containing the detailed technical requirements for energy labelling and MEPS (as applicable) was proposed. This approach was first proposed during the early discussions surrounding the introduction of MEPS for refrigerators and electric storage water heaters in 1993 (see GWA 1993 for details). Such a regulatory standard (generally known as the “Part 2” standard, but in reality could be any part number) could then be called up by each jurisdiction in their relevant regulations. Part 2 Standards covering Energy Labelling were first published and adopted by all Australian jurisdictions in 1996 for clothes dryers, 1997 for refrigerators and freezers and 1998 for air conditioners, dishwashers and clothes washers.

This “part two” of the standard, while it is drafted by the relevant standards committee, is under the effective joint control of the energy labelling regulators from each state who have to approve the standard prior to publication. This part of the standard includes data on how to calculate star ratings and CEC for each appliance, details on the number of units to be tested, application forms, check testing procedures, design and shape of the energy label, MEPS levels, transition arrangements and so on. Energy labelling regulators are also actively involved in all relevant standard committees which are responsible for test procedures of energy labelled appliances. Such a system has much to recommend it as it provides a uniform technical basis for

the development of energy labelling and MEPS programs. It allows uniformity to be maintained across a wide range of jurisdictions when changes to the program are implemented.

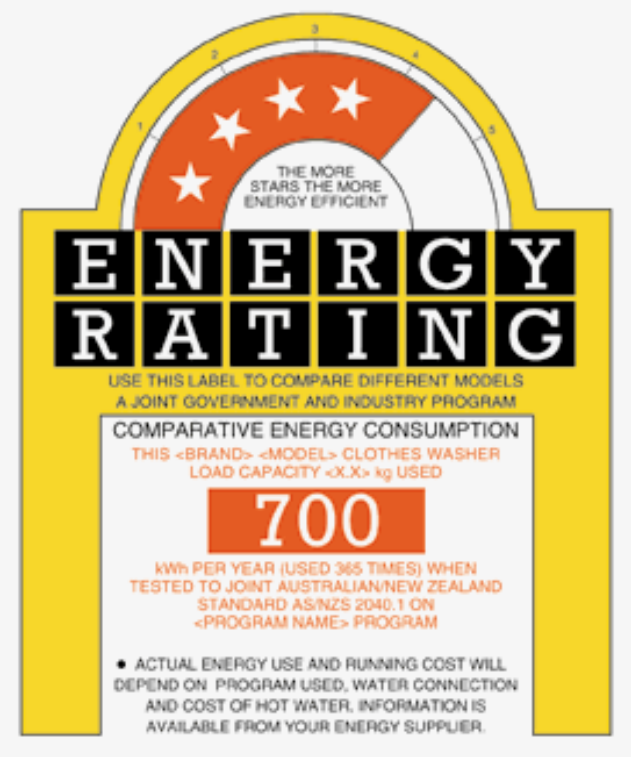
As an adjunct to the new parts of the appliance standards, a set of model regulations were also developed by governments, in consultation with appliance manufacturers, to complement and give force to the appliance performance and energy labelling standards. The introduction of model regulations in each State and Territory has led to a consistent approach to standards (and hence energy labelling and MEPS) across each of the governments in Australia (refer to GWA 1999).

Administration of the energy labelling and MEPS programs in Australia has been further enhanced via the application of a "Mutual Recognition Agreement" (MRA) between all states and territories in Australia. This agreement means that approval to sell a proscribed appliance in any state or territory in Australia is recognised in all other states and territories. More recently a similar agreement has been implemented between Australia and New Zealand, this agreement is known as the Trans Tasman Mutual Recognition Arrangement (TTMRA).

4. THE ENERGY LABEL

The energy labelling regulations require labels to be affixed to all units offered or displayed for sale (suppliers typically label all units on the production line). An example of a clothes washer energy label used prior to transition is shown in Figure 1. The label was designed to stand out well from a white background, with black, yellow and red components. The two key items of information are the comparative energy consumption (expressed as kWh/year for most products in the red box[2]) and the "star rating" (shown as an arch of stars across the top of the label). The comparative energy consumption is an estimate of the annual energy consumption of the appliance, based on the tested energy consumption (measured against the relevant standard) together with information about the typical use of the appliance in the home. The star rating gives a quick comparative assessment of the model's energy efficiency. The star rating is a non-dimensional measure of energy service per unit of energy consumption and is calculated using an algorithm which takes into account energy consumption and volume or capacity.

Figure 1: Example of a Clothes Washer Energy Label – Pre Transition



[2] Air conditioners now show the CEC as kW (power) which is red for heating and blue for cooling, while some clothes washers also show cold water washing CEC as a blue box. The original pre-transition air conditioner energy label showed cooling and heating energy for 500 hours.

The star rating formula is dependent primarily on the measured energy consumption of the appliance when tested in defined operating conditions or over a single performance cycle (eg a washing or drying load). However, some star rating algorithms include assumptions about user behaviour. For example, a "field use factor" applied to clothes dryers gives a 10% penalty to timer dryers when compared with auto-sensing dryers, on the assumption that manual operation more often leads to over-drying and hence higher energy consumption in use. Similarly, clothes washers with good spinning performance get a small credit on their star rating on the basis that some people will subsequently dry their clothes in a clothes dryer.

The other key feature of the energy label is that it shows the estimated annual energy consumption of the appliance when operated under standard conditions. This value, derived from the laboratory tests, has been found to correspond reasonably well (within 10%) to in-use energy consumption for refrigerators and freezers. The energy consumption for other appliances is highly dependent on whether actual frequency and duration of use by users corresponds to the values assumed for labelling.

5. THE NEED TO REVISE THE LABEL

The star rating system is a "closed" rating system[3] in that all units, however efficient or inefficient, rate from 1 to 6 stars. This has had the advantage of salience and good consumer comprehension, but by the mid 90's had also led to "crowding" at the top of the rating range, and a lack of differentiation between the better mainstream products and innovative, very efficient models. However, the degree of crowding varied somewhat by product.

By the mid 90's there was general agreement that the star rating scales needed to be overhauled, and a debate was initiated on whether to extend the scale to, say, 10 stars (thereby retaining the essence of the current algorithms) or to revise the algorithms so that existing models did not generally rate more than three stars, so opening up the top of the range again. Either approach had perceived advantages and disadvantages, and it was recognised that the transition to new labels would need careful management. Government, industry and consumer organisations needed to be involved in the possible redesign of the energy labelling algorithms.

A review of the labelling scheme in Australia was needed. The scope of the review was to include potential changes to the technical basis for the measurement of energy and performance of the various appliances, the method of determining a comparative energy rating, as well as possible changes to the label design and the range of information included on the label.

[3] Closed in this context means that the highest achievable efficiency rating does not move even when some products on the market are able to exceed this level.

6. PROCESS INITIATION AND CONTROL

6.1 INITIATION OF THE PROJECT

In the second half of 1997, as a precursor to the formal transition process, the Department of Primary Industries and Energy (the federal government department responsible for domestic energy issues prior to the formation of the Australian Greenhouse Office) commissioned two preliminary studies on behalf of NAEEEC. The objective of the studies was to "identify improvements to the pertinence and accuracy of information provided on labels…". One study was commissioned to obtain a consumer perspective (Patterson, 1998) and one to obtain an industry perspective (Brown 1998). These studies[4][5] suggested a range of options for the energy label, ranging from removing the star rating, modifying the star bands to include half stars and/or increasing the number of stars (eg, to a 10 star rating), and including additional information such as energy running costs and water consumption (where applicable).

In late October 1997 a steering committee consisting of selected government, industry and consumer representatives was established to oversee these studies and prepare the ground for future work on the label transition process. On 30th October 1997 the steering committee met to consider amongst other things:

- Initial findings from the preliminary studies (noted above).
- The formation of an "Energy Label Review Committee" to develop and finalise the major policy decisions with regard to the program. This group would over time make a series of recommendations to NAEEEC regarding the labelling program.
- The need for Market Research using focus groups.
- The need for an international review of energy labels.
- The need for research into appliance usage patterns. In most cases, the energy label shows an estimated value for annual energy consumption for an appliance based on an assumed pattern of usage.
- The need for transitional arrangements to be planned.

6.2 INDUSTRY FORUM – December 1997

In early December 1997 NAEEEC held a national industry forum where the major topic of discussion was the review of the existing national appliance labelling scheme

[4] Patterson, Neill, January 1998, Energy Labelling Review: Consumer Research, prepared for NAEEEC. See references for access to an electronic copy.

[5] R A Brown & Associates, January 1998, Energy Labelling Review: Options for Improvement of Labels, prepared for NAEEEC. See references for access to an electronic copy.

(see Appendix 1 for the workshop report). At the forum draft final findings of the two preliminary studies were presented to the labelling workshop.

The Workshop made the following key recommendations:

- That a steering committee be formed (to be known as "The Energy Label Review Committee"). It should have a broad focus upon commercial, consumer and government perspectives. It should be able to appoint working groups to deal with product specific issues on an as needs basis. The group members were drawn from Industry Groups, Consumer Groups and Government. The first meeting of this group was scheduled for 5th February 1998.
- That a review of overseas experience would be of great interest. This would include a review of processes to develop energy labels overseas, a summary of the information included on overseas labels and a summary of any evaluations of energy labelling programs undertaken to date.
- That a summary of energy end use in the residential sector in Australia was needed to get some idea of the relative importance of various labelled appliances within the big picture.
- That the Sustainable Energy Authority of Victoria prepare a brief for the marketing studies and that specific consumer research on new labels not be undertaken until outputs from the other consultancies could be considered in detail and used as a basis for developing specific proposal for consumer testing.
- That there will be a need to consider the costs and benefits of change and be sure that these are justified before any major changes are undertaken. (ie a Regulatory Impact Statement - RIS)

Finally the workshop developed a mission statement :

> *Purpose of energy labelling is to influence consumers to buy the appliance which will result in the lowest energy consumption and which meets their (energy service) needs. The weaknesses and strengths of the energy label need to be examined within this process. Investment in the labelling program to date has been substantial and the costs and benefits of proposed changes need to be carefully considered*

6.3 PROJECT CONTROL

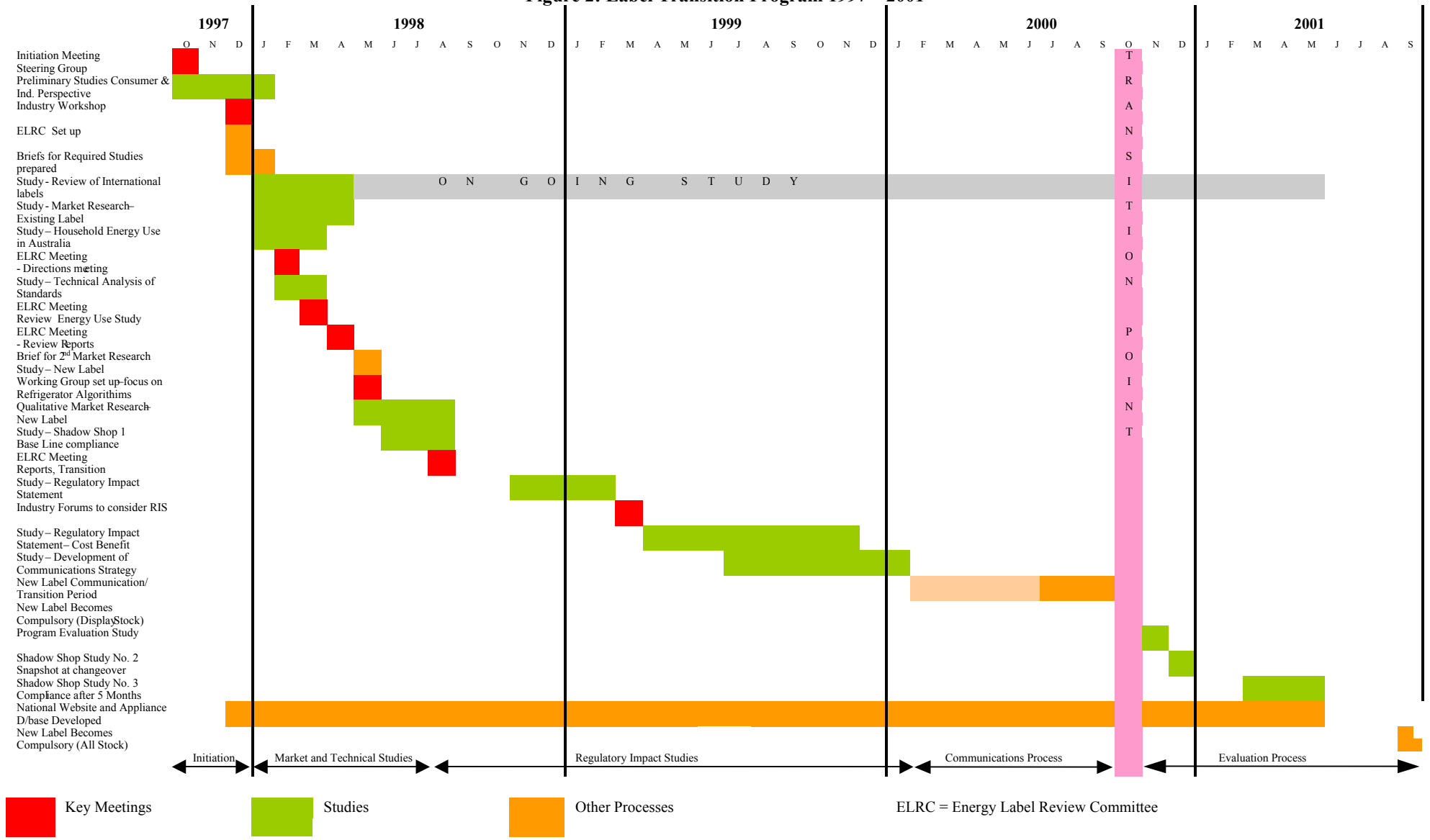
Following the Industry Forum in December 1997 the Appliance Energy Labelling Review Committee assumed control of the project throughout 1998. Their initial meeting was held on 5th of February 1998 where the committees objectives were further fleshed out. In April 1998 the committee met again primarily to review the outputs from various studies completed at that stage and to make recommendations to NAEEEC. A final meeting was held in August 1998 where the second marketing study (relating to the proposed new label) was reviewed and recommendations to NAEEEC made, including recommendations on transition arrangements and communications strategies.

Day to day management of the project was undertaken by the Department of Primary Industry and Energy with assistance from their primary consultants, Energy Efficient Strategies.

To provide transparency and ensure that industry maintained a sense of ownership of the entire process, government placed a high priority on industry consultation and involvement in the decision making process throughout the entire development and implementation phases of this project.

This project was initiated in 1997 and concluded in late 2001. A summary of the major tasks undertaken is contained in the following program chart (see Figure 2).

Figure 2: Label Transition Program 1997 – 2001



7. TECHNICAL STUDIES COMMISSIONED

As an outcome from the Industry Workshop in Sydney in December 1997, several technical studies were commissioned. Basically these studies were designed to provide background data on technical aspects for consideration by the Appliance Energy Label Review Committee.

The energy labelling program relies on Australian Standards to define test procedures for the measurement of energy consumption of appliances when operated to meet set minimum performance criteria. The first technical study examined the technical basis for appliance labelling and focused on key issues of concern regarding the relevance and accuracy of both the test methods and the algorithms used to calculate data for the energy label. The second study was an overview of residential end use energy consumption in Australia with a close examination of the share of total energy consumption covered by current and proposed energy programs (eg labelling and MEPS) together with identification of any major areas of energy use with no program cover.

These technical studies were:

1. Appliance Energy Labelling Review Committee: Support Documentation – Energy Efficient Strategies (review of algorithm and standards issues) (EES 1998).
2. Household Energy Use in Australia – George Wilkenfeld & Associates (overview of residential energy program coverage) (GWA 1998).

These studies are described in brief in the following subsections of this report.

Subsequent to the completion of Study 1, the ELRC determined that further detailed work was required on the complex issue of algorithms (equations) for determining the star ratings for all of the labelled products. This process is described in more detail in the following section below.

7.1 Technical Study 1 – Appliance Energy Labelling Review Committee: Support Documentation – Energy Efficient Strategies

At the Energy Labelling Review Committee (ELRC) meeting of 5 February 1998, issues raised in the consultant reports (Brown 1998 and Patterson 1998) and by the committee members were identified. It was agreed that additional background data sources should be compiled (where relevant) for consideration by committee during their deliberations on possible changes to the appliance energy label.

The study (see EES 1998a) was prepared by Energy Efficient Strategies and compiled available data sources for review by the ELRC and provided a brief commentary on the relevance or use of the data to assist in the work of the committee.

Primarily this study examined the technical basis for appliance labelling and focused on key issues of concern regarding the relevance and accuracy of both the test methods and the algorithms used to calculate data for the energy label.

The study also examined a number of other pertinent issues including:

- The proposal to put the energy cost on the label.
- The fact that many consumers are unaware that it is a 6 star range rather than a 5 star range.
- Should other product groups be the subject of Energy labelling?
- The need for a higher profile to the checktesting (compliance) program
- The need for a coordinated Standards transition program
- The issue of Standby power consumption
- The representativeness of the CEC algorithm when compared to actual use
- The need for a national profile to the endorsement scheme (Galaxy Awards)

The study was completed on 20 March 1998 and circulated to the ELRC for consideration at their meeting on 2 April 1998. At that meeting it was decided that the report should be made public to illustrate the process that has been used in the revision of the appliance energy label in Australia through 1998. The report was subsequently edited and re-edited and publicly released later in 1998.

Subsequent to the consideration of this report, the Energy Labelling Review Committee decided that the technical issues associated with reviewing individual products algorithms (or star rating equations) were far too complex and diverse, so a specialised working group for each product was set up to examine these issues in more detail. These so called product “algorithm working groups” were set up to provide undertake analysis, consider algorithm options and provide recommendations to the ELRC. Three main working groups were formed: air conditioners, refrigerators and freezers and “wet products” (which included clothes dryers, clothes washers and dishwashers).

The broad objectives of the product algorithm working groups were to:

- undertake a review of the existing energy labelling algorithms
- consider the issues raised by the Energy Labelling Review Committee, bearing in mind the decisions already made by the Committee
- develop algorithm options that redress identified problems
- refine these options into technically feasible algorithm proposals
- make detailed technical recommendations regarding revision of energy labelling algorithms to the Energy Labelling Review Committee for their consideration, including an implementation strategy and schedule.

Once approved by the Energy Labelling Review Committee, the recommendations from the algorithm working groups were considered by the National Appliance & Equipment Energy Efficiency Committee (NAEEEC) prior to their implementation through the Standards process.

Broad guidelines for the development of new algorithms were provided by the Energy Labelling Review Committee at their April 1998 meeting as follows:

- 1 star set as the MEPS level (where relevant)
- use a geometric progression for the star rating system (eg fixed % reduction in energy per additional star - noting that the current system is linear as it has a fixed kWh reduction per additional star)
- set maximum star rating on market at the time of review to be around 3.5 stars
- try to ensure that only limited products on the market will achieve 5 stars within the nominal 5 year period (based on estimates of technology progress in this timeframe)
- consider options in the Brown consultancy paper as the basis for developing new proposals for algorithms.

For each product, an initial discussion paper was prepared which provided an overview of the key issues and explored a range of algorithm options for consideration and refinement by the working group. In the case of refrigerators, 2 algorithm option papers were prepared (as the issue of covering 10 product groups was very complex and could not be resolved in a single meeting). After consideration of the discussion papers and exploration of other algorithm options, each working group developed a set of recommendations for implementation. A further algorithm review for dishwashers was conducted in 2002 to review the transition to the new test procedure and “normal” program which were included as part of the original energy labelling transition process developed in 1998/1999.

All of the discussion papers and recommendations from the algorithm working groups are included in the appendices to this report. Appendices 5 & 6 cover air conditioners, Appendices 7 to 9 cover refrigerators and freezers and Appendices 10 to 15 cover “wet products” (clothes dryers, clothes washers and dishwashers).

7.2 Technical Study 2 – Household Energy Use in Australia – GWA

This study was commissioned in January 1998 and completed by George Wilkenfeld and Associates early in March 1998 for consideration by the ELRC. This study (see GWA 1998) was primarily a study to examine household energy consumption in Australia by end use.

The study provided useful information on the relative importance of the current scheme in terms of energy savings and greenhouse gas abatement potential as well as providing a check on the representativeness of the CEC algorithm when compared to actual use.

The study examined the coverage of the current labelling and MEPS programs and determined that these programs covered approximately 60% of all energy used in the home and approximately 70% of all greenhouse gas emissions.

Finally the study considered potential enhancements and extensions to the current scheme including extension to cover:

- Brown Goods – home entertainment etc.
- Computers and set top boxes
- Standby power
- Small plug load transformers
- Lighting
- Building shell efficiency

Subsequent to this study the Australian Greenhouse Office commissioned a far more detailed study of household energy use and greenhouse gas emissions in the residential sector with projections to 2010. The aim of this study was to examine the impact of building shell efficiency on greenhouse gas emissions, but it also contained very detailed appliance end use models. This study was commissioned in October 1998 and completed in February 1999 by Energy Efficient Strategies et al. The study entitled “Australian Residential Building Sector Greenhouse Gas Emissions 1990 – 2010” was published in July 1999 (see EES 1999).

8. MARKET RESEARCH

As an outcome from the Industry Workshop in Sydney in December 1997, three Market Research studies were commissioned.

The first study was an international review of energy labelling studies The overall purpose of this study was to collect key information on energy labelling programs in other countries and present it in a way that would assist the Appliance Energy Label Review Committee in its review of labelling in Australia.

The second and third studies used focus groups to conduct market research into consumer attitudes to the label. The first study determined the relevance and effectiveness of the current energy label for today's consumers, and provided a preliminary indication of possible label improvements from a consumer perspective. The second later study assessed alternative label designs produced as a result of the first study.

The three studies commissioned were entitled:

Study 1 – International Review of Energy Labelling

Study 2 – Evaluation of Existing Label – focus groups (Artcraft, April 1998)

Study 3 – Designing and Testing a New Label (Artcraft, August 1998)

These studies are described in brief in the following subsections of this report.

8.1 Market Research Study 1 - International Review

This report prepared by Energy Efficient Strategies on contract to NAEEEC contains a review of international appliance energy labelling programs and examines their broad aims and objectives in the context of energy policy. It also looked at the need for an energy label to take into account local cultural and socio-economic considerations if its implementation is to be successful. The terms of reference for the study included the following:

1. Collect information on household appliance energy labelling schemes currently in use in different parts of the world, including copies of the labels, the type (eg comparative or endorsement), appliances covered, rating system, date of implementation, implementing agency, and whether major elements of the scheme have changed since inception.

2. Analyse and review the information contained on the above energy labels with a view to identifying the purpose of the information and the communication strategy with the consumer (where this is documented) and to identify the most common information types found on labels

3. Review any available international research and reports which document the

development of the above energy labels and their communications strategy and provide a summary of the processes used to optimise the content of the energy label, including the main conclusions of this research.

4. Review any available international research and reports which have evaluated existing energy labelling programs in terms of consumer awareness, consumer understanding and estimated impact evaluation, and which have resulted in changes in the major elements of the schemes.

5. Review any available international research and reports relating to changes in the major elements of existing energy labelling schemes.

6. Collect information on household appliance MEPS schemes currently in use in different parts of the world, including appliances covered, MEPS levels, date of implementation, implementing agency, and whether major elements of the scheme have changed since inception.

A draft version of the report entitled International Update on the Status of Energy Labelling and MEPS (see EES 1998b) was completed in March 1998 and tabled at the 2nd ELRC meeting in April 2004. The study provided much useful background material as well as the following key findings:

- most consumers would prefer $ running costs somewhere on the label, but no labelling program appears to have satisfactorily resolved how to do this, given that energy prices vary regionally and over time and that there is potential confusion between operating costs and savings (and in some cases purchase costs);

- comparative labels using an absolute reference scale (eg “A to G” or “1 to 5”, or in Australia’s case 1 to 6 stars) appear to be more effective than the US label, which uses a continuous scale where the extremes represent the actual market spread;

- there is a strong case for separating the label elements to minimise confusion for the consumer. The most important elements (such as the rating category) need to be clearly delineated, with the most important aspects (3 maximum) highlighted.

- While being generally complementary in nature, endorsement labels appeal to a distinct market segment that want to know which products are “the best” without having to wade through detailed analysis.

The review of past evaluations of energy labelling programs indicated the need to redirect research efforts in three areas:

- field studies that assess consumer preferences and understanding of labels directly in the store environment;

- in-depth interviews and participant observation to assess consumer decision-making, both in the retail environment and elsewhere; and

- a need to link the label to actual behaviour and to quantify the extent to which the label influences consumers to purchase more energy-efficient models.

Subsequently NAEEEC commissioned EES to update and revise the part of the study covers energy labelling and MEPS and this was first released in May 2001 as a report titled "*Energy Labelling and Standards Programs Throughout the World*". While not as detailed as the original report, the new version provides a brief overview and additional data sources for further information for programs in over 60 countries. The latest version is dated July 2004 (see EES 2004) and this is updated from time to time.

8.2 Market Research Study 2 – Evaluation of existing label – focus groups

The first focus group study was entitled "Qualitative Market Research Study Regarding Appliance energy Rating labels" (Artcraft Research, April 1998) was completed in April 1998. The overall aim of this study was to provide a benchmark regarding current consumer use and understanding of the existing appliance energy label. A second aim was to gain preliminary feedback from consumers that may assist in determining the nature and extent of any changes to the labelling scheme and in particular to the appliance energy label.

Specifically the project objectives were:

- gauging how effective the current label design is in influencing consumers to choose an energy efficient appliance;
- identifying the strength and weaknesses of the current label design in influencing consumers' choice;
- identifying what aspects of the current label, if any, are considered important or unimportant to consumers;
- identifying what other information could be included on the label to make it more influential, and gauge the relative importance of any additional information; and
- gauging consumer responses to proposals to modify the star bands

The research methodology employed was wholly qualitative in nature, involving a series of 7 focus group discussions (around 8 people in each group) with relevant consumers in Melbourne, Sydney and Brisbane. The 'sample' was of recent and/or intending purchasers of labelled appliances, not all consumers or even all appliance purchasers. From a communications perspective, recent and/or intended purchasers of labelled appliances were the main targets of the labelling campaign in the short to medium term.

8.2.1 Study Findings

- Energy Efficiency, the presence of energy labels on appliances, environmental impacts and running costs were all found to be relatively important in the overall appliance purchase decision-making process.

- Importantly, in all groups, mention of the 'star ratings' or 'rating labels' or 'energy labels' was often accompanied by a sweeping hand movement (ie, drawing the dial or arc of stars in the air). This phenomenon occurred occasionally in earlier research, but was now more prevalent, indicating the strong role the labels (and especially the graphic quality of the arc of stars) play in reminding people to consider energy efficiency (or cost of running, or environmental impact or whatever) in the purchase decision-making process.

- The study strongly pointed to the fact that the star rating scale is almost certainly the most important element of the label visually — there is strong consensus that it is a graphic device with which almost all are familiar and which they tend to notice on appliances in stores[6].

- One clear finding that is consistent with all earlier studies was that almost all consumers believe that it is a five-star rather than a six-star rating system, a perception not helped by the fact that the scale only goes from '1' to '5' with no '6' (or '0') printed on the label. Subject to further research, it would also seem logical to include outlines of all six stars on all labels, with those earned being emphasised.

- Given the increasing knowledge and sophistication of consumers, the provision of a 'plain English' explanation of how the ratings are calculated would seem timely, but not on the label, which is almost universally thought already to contain about as much wording as is visually acceptable.

- Although a few people found the idea of a ten-star scale more appealing (either for greater differentiation or because they liked the idea of "marking appliances out of ten"), most felt that this would be less appealing and familiar visually (smaller stars or a different-looking scale), and some believed that this was starting to make it too technical and precise, compromising the simplicity of fewer stars.

- Whereas in earlier studies consumers tended mainly to opt for adding more stars rather than scaling back, the response in 1998 was far more circumspect, with the scaling back alternative eventually enjoying clear support in six of the seven focus groups. Apart from being concerned about the major change in appearance and perceived complexity that a ten-star scale might produce (see above), many people also felt that leaving current appliances where they are could be misleading inasmuch as it would suggest that they were still efficient.

- In general, consumers were found to be far more knowledgeable than in earlier studies about energy use of appliances, and an increasing proportion now seem to use the energy consumption figure to compare appliances directly either in conjunction with or in place of the star rating.

[6] At the December 1997 forum, Industry representatives expressed a strong preference for the retention of the star rating system. A lot of marketing effort had been put into the labelling program and removal of star ratings would require marketing to start from scratch. It was also noted that politically such a proposal may be unacceptable.

- Running Costs - People tend to agree that replacing the energy use figure with a cost of running figure would make more sense if it were achievable, but then recognised that any change in the unit price of electricity would render the figure inaccurate. While some approved of the idea of placing a simple formula or set of examples of running cost at different unit prices of electricity on the label, others maintained that this would clutter or overcomplicate a simple label that already contains about as much information as they could accept visually.

- Generally annual consumption was considered an appropriate basis for calculating energy use figure. On the other hand, in terms of types of appliances where usage varies dramatically according to such factors as size of family, geographic location (eg, clothes dryers in cold wet areas versus hot dry areas; air-conditioners in extreme versus moderate climates), the consensus strongly favoured some form of per-load or per-use figure, over any form of time-based figure. Although some would always argue that their use is so different from the average as to defy comparison, most could accept that a typical cycle can be used as the basis for calculation.

- The coloured band behind the stars (ie which indicates exact SRI in the old label) was mostly regarded simply as a background colour against which the earned stars can be clearly displayed. The fact that it pointed to the number on the scale depicting the number of stars for that appliance was not realised by most people, and even when asked to look at it closely some still could not grasp this — to most it is perceived simply as a background against which to display the earned stars.

- Red and Blue bands for A/Cs was regarded as both logical and effective, with people generally recognising that an air-conditioner with very energy efficient cooling capacity may not necessarily be as efficient on reverse cycle. The concept of combining the two into an average was generally rejected on the basis that it would hide internal differences.

- Partial Stars - Many people approved of the possibility of introducing half stars to the labels — none rejected it outright. This is in line with half stars in hotel ratings (eg, a 3½-star hotel has more features or a higher standard of accommodation than a 3-star hotel, but falls short compared to a 4-star hotel). On the other hand, going any further into partial stars (eg, ¼, ½, ¾ for the last star), or going even further (eg, 3.1, 3.2, 3.3 stars) by adding decimal gradations to the simple whole numbers on the outer 'ring', was generally thought (even by most of the more technically minded and numerate consumers) to compromise the notional and visual simplicity of the star rating scale, thus rendering it far less accessible to those many consumers who currently understand and use it because of its simplicity.

- Amount of information on the label - the current label seems to be already at about the acceptable limit of information inclusion. Indeed, given the different ways in which people use the label (eg, using only the stars vs using only the energy use figure vs using both) and the fact that many are already convinced of the credibility of the labelling program, it already contains superfluous information for many people. Where additional information is needed (eg, unit cost of electricity, how the ratings are calculated, etc), consumers would generally prefer it not to clutter the labels but be easily accessible.

8.3 Study 3 - Designing and testing a new label

The second focus group study entitled "*Summary of Key Findings from the Second Qualitative Market Research Study regarding Appliance energy Rating Labels*" (Artcraft Research, August 1998) was completed in August 1998.

As with the previous focus group study, this study was wholly qualitative in nature, involving a series of 7 focus group discussions (around 8 people in each group) with relevant consumers in Melbourne, Sydney and Brisbane.

The overall aim of this study was to gain feedback from consumers on a series of specially prepared options for changes to the labelling scheme. A secondary aim was to gain feedback from consumers on appropriate methods for effecting the transition from the old label to the new.

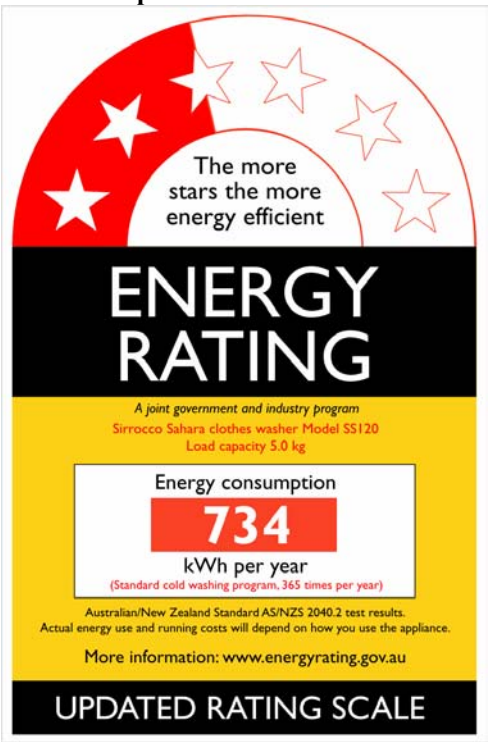
The main findings are set out in the following section.

8.3.1 On the Labels:

1. The new style labels (see Figure 3) enjoyed strong support from all market segments:
   - They stand out, they are clearly recognised from a distance.
   - The stars are strong and bold, leaving no-one in doubt as to what they are.
   - They are simple and clear, with the level and presentation of information being acceptable to most.
2. The use of 'energy' on top of 'rating' with a thick black background (Figure 3) tested very well and was preferred strongly over the words side by side with a thinner black background.
   - It is bold, it clearly identified what the label is
   - It separates the stars from the other information for those who only need the stars.
3. The ½ stars were clearly understood
   - They were instantly recognised as ½ stars in all groups, with no confusion at all.
4. The unearned stars are needed, and lined unearned stars (Figure 3) were strongly preferred over dotted unearned stars
   - The reason for lined rather than dotted, people want to see the unearned stars
5. As indicated in the first study, the reasons for scaling back are easily understood, and once this concept is grasped, people can cope with the idea of buying a 2 star or 2½ star fridge, provided that this is about the best around under the new algorithms.

- Indeed, the general feeling is that if there is better technology around now, they would rather see current appliances marked down as far as possible, so that there is “plenty of room for the new ones”.

Figure 3: Example of Test Label used for focus groups



6. From a visual standpoint, there was no real preference for either the 6 star or 5 star scale. However, after discussion, people tended to lean towards the 6 star approach for three main reasons:

   - It was consistent with the look of the old scale, even if they hadn’t realised it was capable of 6 stars
   - A 3 star appliance would look barely efficient on a 6 star scale [eg, the red dial would be at the vertical half-way point], but on a 5 star scale would look almost as efficient as a 4 star fridge on the old scale, tending to compromise the purpose of scaling back – in this regard, people would prefer to see today’s appliances marked down sufficiently far to clearly show what is possible in the future.
   - Although a few prefer a 5 star scale to be consistent with ratings for hotels, restaurants and the like, many would prefer to go the extra star to enable better differentiation among appliances.

7. The Pilot Internet website (see section 10.3.5) tested very well and its potential is easily grasped in terms of ease of use and quantity and quality of information that could be included. On the other hand, a 1800 number did not test well if it is likely

to be of the 'press 1 for this, press 2 for that' variety, which consumers increasingly criticise – if a phone number is used, it must be a manned number to be effective.

8. Some people prefer that just the kWh figure be highlighted in the bottom half of the label [eg, with the rest of the information readily readable but not standing out as in Figure 3], whereas others would prefer a tabular format in the bottom half as set out in Figure 4

    - There was no clear consensus here, and it will depend on whether sufficient information needs to be included for all appliances to make the table look OK [eg, fridges would have very little to say]

9. For clothes washers and dishwashers, there was considerable support for inclusion of water consumption on the labels:

    - User-pay now means it is also an important factor to take into account.
    - As it is seen as a resource, water is regarded as a logical inclusion in an energy rating table.
    - As a sometimes scarce resource, the environmental implications of water use efficiency are as compelling as for energy efficiency.

10. The inclusion of a cold water star scale and energy consumption number on clothes washer labels (eg Figure 4) was seen to be highly relevant.

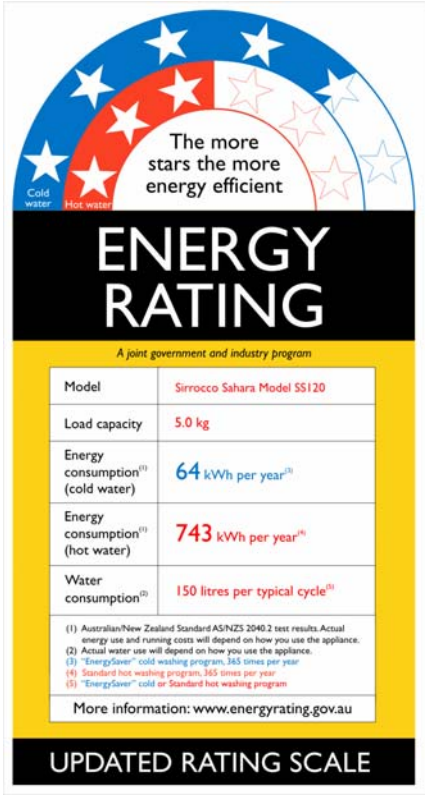
    - Most consumers seem already to be using cold water for at least some washes [because today's powders work OK in cold water].
    - The very substantial energy savings to be gained from cold over warm or hot washing reinforces their behaviour [and the cold scale is more relevant to them than the hot], and could in future convince many others to turn to cold washing with substantial energy savings.

11. When looked at individually, there was no clear preference on whether clothes washers (or dryers or dishwashers) should portray energy consumption on a per load, per n loads, per year or per lifetime basis. However, people tended to notice and feel comfortable with the idea that at the moment the energy consumption figures are about the same order of magnitude across all appliance types [eg, "in the hundreds of kWh" – annual estimate].

    - Playing around with figures per use [eg, for clothes washers] and per hour [eg, air conditioners] yields very low numbers [eg, single digits], which would have to go to one or two decimal points for comparison purposes, and which can tend to show that the appliance doesn't use much electricity at all on an individual use basis, so cost savings seem of little relevance.

12. The reference to 'sensible output capacity' on the new air conditioner labels was misinterpreted by consumers, and they do not see its relevance to them even when its correct meaning is explained; it was recommend against including this data on the labels.

Figure 4: Proposed tabular format to bottom half of label



8.3.2 Transition Issues:

1. The concept of scaling back to allow for new technology was easy to get across to people – they had little difficulty understanding the basic concept and see it as a totally logical thing to do.

2. The black 'Updated Rating Scale' on the bottom of the new labels was not considered sufficient communication or differentiation for the transition period. People wished to retain the current label colours, but in most groups the additional use of green was suggested. (hence a modified label was developed and tested in the last four groups – refer Figure 5).

   - Used this way, the green works very well, but could be even larger.
   - 'Updated' is insufficient explanation [could just refer to the new design!], so we examined other wording [eg, 'more stringent', 'tougher', 'stronger'] which might work OK.

- Consumers tended to want to see a date somewhere, so they could know when the new scheme comes into effect[7].

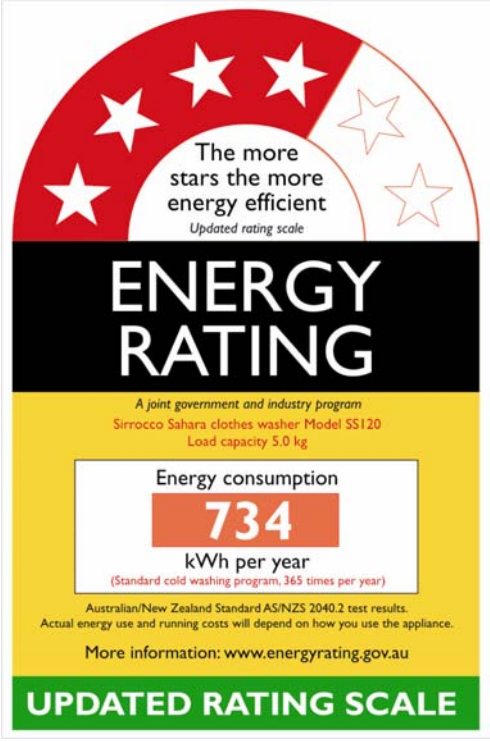
3. At the retail level, some would like to see both the old and new labels on as many appliances as possible during the transition phase, or possibly even a label showing the old and new scales on the one label.

4. Displays [eg, poster, free-standing billboard, etc] in retail stores were suggested, showing the old and new labels and explaining the change. Brochure racks could also help here.

5. These was some support for indicating [by sticker or whatever] that the old labels on appliances on the shop floor had been superseded.

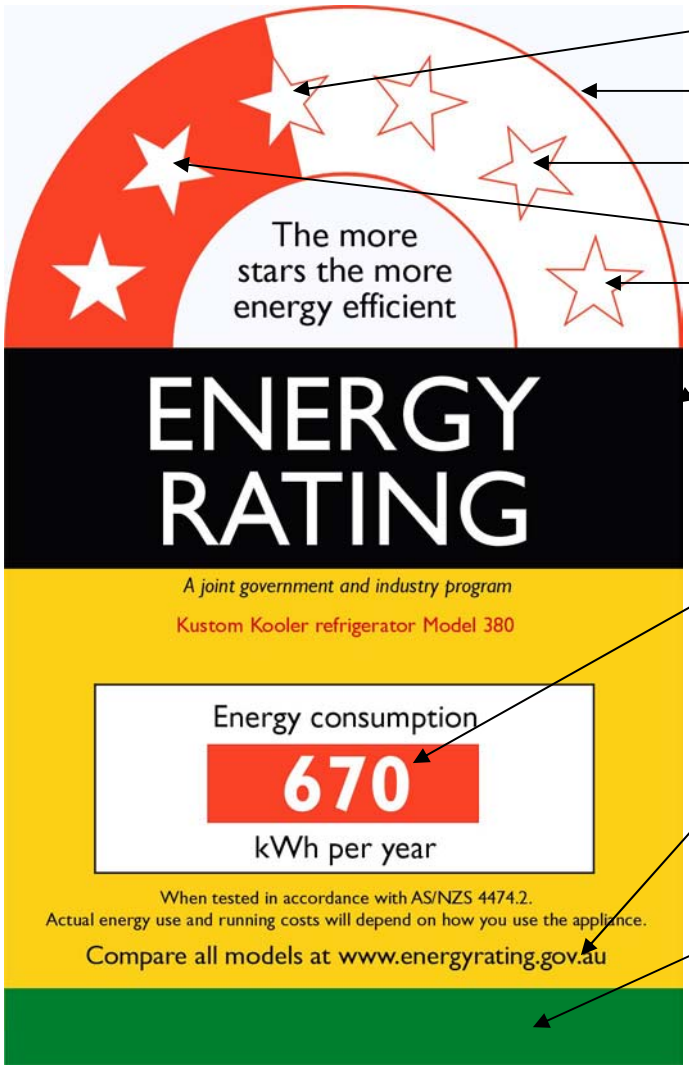
The outcome from these focus groups was a set of clear recommendations regarding the new energy label. These recommendations were taken on board by the ELRC and largely adopted in the label design that was eventually adopted – see example in Figure 6. Examples of labels for all product categories can be found in Appendix 3.

Figure 5: "Green Band" version of test label



[7] This proposal was later rejected by industry who did not want older shop floor stock to be easily identified as such by reference to the label.

Figure 6: The new label



½ Stars now included

Simplified presentation of Star Band

Unearned star delineated

Stronger Bolder Stars

6th Star clearly defined

"Energy" on top of "Rating" Word with thick black Background clearly Identifies what the label is

Single bold kWh figure

- **A/C have heat and cool**
- **CW have hot and cold Wash**

Internet Site details included – explanations and additional data provided

Green Band indicates new label – option for manufacturers to include old star rating here

9. REGULATORY IMPACT ASSESSMENTS

During 1998 the main focus of the label transition program was the development of changes to the technical basis for the measurement of energy and performance of the various appliances, revisions to the method of determining a comparative energy rating, changes to the label design and the range of information included on the label.

By the end of 1998 these issues were substantially bedded down and the focus was redirected to the question of establishing the merits of the proposed change. That is, regulatory impact statements needed to be undertaken to establish both the costs and benefits of the proposed regulatory changes.

Two related studies were undertaken by George Wilkenfeld and Associates. The first (main) study was a regulatory impact statement (RIS) which considered multiple aspects including; introduction of model regulations (see section 3), introduction of MEPS for various appliance types (specifics for each product were not covered in this report), the introduction of new label designs and finally the consequences for these regulations of the provisions of the Trans Tasman Mutual Recognition Arrangement 1997 (TTMRA).

The second (supplementary) study was an RIS that specifically considered the costs and benefits for the transition to the new energy label.

9.1 RIS: Energy Labelling, MEPS and Model Regulations

In the second half of 1998 the NSW Department of Energy in association with the Australian Greenhouse Office commissioned a study entitled: *Regulatory Impact Statement: Energy Labelling and Minimum Energy Performance Standards for Household Electrical Appliances in Australia* (GWA February 1999).

This RIS prepared by George Wilkenfeld and Associates considered four main aspects:

- The proposal to introduce model regulations in each State and Territory covering mandatory energy labelling and minimum energy performance standards (MEPS) for household electrical appliances.
- The proposal to introduce MEPS for refrigerators, freezers and electric water heaters, as agreed by ANZMEC in 1995 (noting that specific RISs were prepared for each product).
- The introduction of new label designs which are intended to further increase the effectiveness of the labelling program.
- Assessment of the consequences for the regulations of the provisions of the Trans Tasman Mutual Recognition Arrangement 1997 (TTMRA).

At the time, labelling regulations existed in NSW, Victoria, Queensland, SA, WA and the NT. The proposed model regulations, if adopted by all jurisdictions, would have the effect of confirming the existing mandatory labelling regime in those States, extending it to Tasmania and ACT, and slightly expanding the scope of labelling in NSW.

The study made the following conclusions and recommendations:

9.1.1 Conclusions

1. the projected monetary benefits of a uniform national system of energy labelling and MEPS for Australia significantly exceed the projected monetary costs. The benefit/cost ratio of the proposed regulations is estimated at between 2.8 (undiscounted) and 1.9 (discount rate of 8%);

2. energy labelling enhances competition between suppliers and products, since it reveals an important aspect of product performance that would otherwise be concealed from purchasers;

3. MEPS has some impacts on competition and trade, but these are relatively minor in the light of the monetary benefits to purchasers of increased energy efficiency, and the contribution to meeting national greenhouse gas reduction objectives;

4. all stakeholders (governments, suppliers, purchasers) benefit from uniformity and consistency in labelling and MEPS, especially as progress towards compliance with initial MEPS levels is well advanced;

5. a mandatory system is more effective and cost-effective than a voluntary system for energy labelling, and in the case of MEPS is the only realistic mode of introduction;

6. the proposed model regulations, if adopted by all jurisdictions, would establish the framework for a consistent energy labelling and MEPS framework in Australia; and

7. the framework would be at risk to non-compliant imports from New Zealand, so long as the latter did not impose similar energy labelling and MEPS requirements.

9.1.2 Recommendations

1. the proposed model regulations be adopted by all Australian jurisdictions;

2. refrigerators, freezers, dishwashers, air conditioners, clothes washers and clothes dryers be scheduled for mandatory energy labelling in all jurisdictions;

3. the regulations should allow for jurisdictions to jointly update the label, the scope of appliances covered and other aspects of the labelling program from time to time, should that prove justified in order to maintain the effectiveness of energy labelling in meeting energy efficiency and greenhouse gas reduction objectives;

4. refrigerators, freezers and electric storage water heaters be scheduled for mandatory MEPS in all jurisdictions;

5. the initial levels of MEPS should be those agreed by ANZMEC in 1995;

6. the initial MEPS levels should take effect at the time agreed by ANZMEC, ie in October 1999;

7. the regulations should allow for jurisdictions to jointly update the MEPS levels, the scope of appliances covered and other aspects of the MEPS program from time to time, should that prove justified in order to maintain the effectiveness of MEPS in meeting energy efficiency and greenhouse gas reduction objectives;

8. reviews of the effectiveness of the energy labelling regime and of the current MEPS levels should be undertaken at intervals of not more than three years; and

9. in the absence of an undertaking by New Zealand to implement energy labelling and MEPS regimes similar to Australia's, permanent exemption of the proposed regulations from the provisions of the TTMRA should be sought.

This study was released for public comment in March 1999. At that time the RIS was mailed out to approximately 250 key stakeholders as well as being published on the AGO's recently commissioned internet site. Public forums to discuss the RIS were also scheduled to be held in Melbourne and Sydney.

9.2 RIS: Cost Benefit Study - Label Transition

A second Regulatory Impact Statement was undertaken later in 1999. This study was entitled *REGULATORY IMPACT STATEMENT: Energy Labelling and Minimum Energy Performance Standards for Household Electrical Appliances in Australia Supplementary Cost-Benefit Analysis on Transition to a Revised Energy Label* (GWA, November 1999). This study was a supplement to the original study and dealt specifically with the following aspects:

1. Describing the proposed process of transition to revised energy labels;

2. Estimating the costs involved in the process;

3. Establishing whether the costs are consistent with the assumptions made in the original RIS;

4. Clarifying the benefit/cost ratios for measures to enhance labelling effectiveness, as estimated in the original modelling.

9.2.1 The second study found that:

1. The Estimated costs of the proposed transition to the revised label was $3,196,000 (see Table 1).

2. The benefit/cost ratios for action to increase the effectiveness of the labelling

program that were estimated in the original RIS were still applicable. The ratios were 2.7 at 0% discount rate, 2.2 at 4% discount rate and 1.8 at 8% discount rate.

3. Enhancing the effectiveness of labelling was found to be cost-effective, even if CO_2 emissions are given no monetary value. If a monetary value were assigned to the CO_2 emitted in generating the electricity consumed by appliances, the benefit/cost ratios of enhancing the effectiveness of labelling would increase (except in Tasmania, where electricity is generated from zero-emissions sources).

Table 1: Estimated Costs of Proposed Transition to Revised Label

Item	Estimated cost (a)	% of total cost
Registration of "new" labels for models remaining on the market	$ 920,000	29%
Re-labelling and other display management during transition period	$ 955,000	30%
Re-testing of dishwashers after introduction of new Standard, 2001	$ 972,000	30%
Label design development and market research	$ 100,000	3%
NAEEEC publicity program to assist with transition period	$ 250,000	8%
Total cost of proposed change	**$ 3,196,000**	**100%**

(a) From perspective of appliance buyers: supplier and retailer costs marked up to retail price

4. The projected reductions in greenhouse gas emissions due to increasing the effectiveness of the energy labelling program are summarised in Table 2. It was projected that emissions associated with the lifetime electricity consumption of appliances purchased new over the period 1999-2015 will be reduced by about 26.0 Mt CO_2-e, or 11% less than if the program effectiveness remains at its present level. The average impact during the Kyoto Protocol "commitment period", 2008-12, was estimated at 2.2 Mt CO_2-e per annum.

Table 2: Projected Reductions in CO2-equivalent Emissions

	Mt CO_2–e present level of effectiveness (a)	Mt CO_2–e enhanced effectiveness(a)	Mt CO_2–e saved, 1999 to 2015	% of baseline CO_2–e saved	Average Mt CO_2–e saved per year, 2008-12(b)
NSW	63.1	56.4	6.7	10.6%	0.6
VIC	73.7	65.5	8.2	11.1%	0.7
QLD	56.7	50.3	6.3	11.2%	0.5
WA	21.3	19.0	2.3	10.9%	0.2
SA	17.2	15.3	1.8	10.7%	0.2
Tasmania	0.0	0.0	0.0	0.0%	0.0
ACT	3.1	2.8	0.3	10.6%	0.0
NT	2.9	2.6	0.3	10.8%	0.0
Australia	238.0	212.0	26.0	10.9%	2.2

(a) Projected emissions associated with lifetime electricity consumption of appliances purchased new, 1999-2015

(b) Kyoto Protocol Commitment Period

10. MAKING THE TRANSITION

By the end of 1999 the label review process was complete. Changes to the technical basis for the measurement of energy and performance of the various appliances had been agreed. Revisions to the method for determining a comparative energy rating were in hand. A revised label had been developed which included changes to the design as well as the range of information included on the label. Finally the necessary regulatory impact statements supporting the proposed changes to the scheme had been completed.

The transition to the revised label was scheduled to occur over a three month period, concluding on 1 October 2000. Following that date it would be illegal to display goods without the revised label, although products could still be delivered to consumers with the original label until 30 September 2001.

The next step then was to plan and implement a transition process designed to minimise disruption and cost to manufacturers and retailers, and to minimise consumer confusion. For this task NAEEEC allocated a budget of $250,000.

10.1 Development of a Communications Strategy

The Phillips Group (communications consultants) were appointed by the Australian Greenhouse Office (AGO) on behalf of the National Appliance and Equipment Energy Efficiency Committee (NAEEEC) to produce and implement a communication strategy to inform stakeholders about the transition to the revised label.

Their first step was to develop the strategy and communicate that strategy in the form of a report. The report entitled *Communications Strategy: Energy Rating Label Transition Program* was tabled in January 2000 (Phillips Group, January 2000). This study covered the following elements of the Communications Strategy:

The Communication Challenge - a situation analysis that sets out the goals of the program, and nominates the key issues associated with achieving those goals.

Strategic Approach - a rationale for the communication approach, identifying key audiences and messages, and detailing recommended communication products, activities and distribution channels.

Implementation - a planned timetable of activities and budgets for those activities.

Evaluation – the evaluation methodology recommended to measure progress and outcomes and how this will be reported.

The development of the communications strategy was researched-based. Surveys of manufacturers and suppliers, and consultations with other interested parties established their information needs and favoured forms of assistance. The development and selection of campaign material, particularly point-of-sale collateral, was as a result of extensive liaison with the industry. These consultations included:

- A written survey of the seven major buying groups and department stores, distributed via email or fax.
- Personal surveys of store managers or floor staff from seven retail chains, conducted via face-to-face interviews and a telephone interview.
- Consultations with manufacturers, industry bodies, industry media and other interested parties, conducted via face-to-face interviews, telephone interviews, or email responses.

10.2 The Communications Task

The Phillips group commenced their study by defining the communications task as follows:

> *Our understanding of the communication task is that this strategy, when implemented, must minimise the opportunity for consumer misunderstanding and maximise compliance amongst suppliers with the new regulation by clearly and simply informing consumers, retailers and manufacturers of the transition to the revised label, the timetable for the transition, and the implications of the change on energy ratings.*
>
> *The strategy will also aim to raise awareness and understanding of the label and the greenhouse emission reduction benefits of purchasing efficient appliances. The strategy must also manage activities at a national level and establish effective communication with regional and non-English speaking communities.*
>
> *The strategy must build and maintain relationships with industry stakeholders and utilise communication initiatives that are appropriate to the manufacturing and retailing environment.*

10.3 Outline of Communications Activities Undertaken

Following is a brief description of the communication activities undertaken.

10.3.1 Update Bulletins

Key Audiences: Manufacturers, Retailers/Buying Groups

Frequency: 3 times during campaign

Update Bulletins (see Appendix 4 for an example) were compiled and distributed prior to the three key stages of the program, to build momentum, emphasise deadlines,

encourage cooperation and support, provide feedback and thank stakeholders for their participation.

Printed in a single sheet A4 format (newsletter style), the Update Bulletins allowed all parties to keep abreast of the bigger picture during the label transition.

10.3.2 Industry Education Material

Key Audiences: Retailers, Shop Floor Staff

Secondary Audiences: Manufacturers, Interest Groups

A Retail Staff Education Kit providing comprehensive information on the label change for store managers and their staff was supplied to retail stores via buying groups and department store chains.

The kit included:

- A detailed information booklet, including key dates and supplier responsibilities.
- An A4 staff poster of key messages, for use in staff-only areas such as noticeboards, lunch rooms, administrative areas or near cash registers.
- A short (2-3 minute) video, explaining the changes.

10.3.3 Point-of-Sale Materials

Key Audiences: Consumers, Sales Floor Staff

Sales floor staff were be provided with point-of-sale (POS) material to assist them in explaining the label transition to customers.

POS material included:

- DL size (1/3 A4) information flyers for distribution to interested customers, displayed in a suitable dispenser.
- A self-supporting A4 sign to sit on the top of appliances.

All POS material promoted the energy rating label website as a source of further information for consumers.

10.3.4 Inquiry line

Key Audiences: Manufactures, Retailers/Buying Groups, Retail Store Managers, Sales Floor Staff, Interest Groups / Government

A ‘1800’ contact number was set up to answer the more in-depth questions from manufacturers, retailers and sales staff. The inquiry line number was included on material aimed at industry and interest groups only, and not disseminated to the general public.

10.3.5 Website

Key Audiences: Manufacturers, Retailers/Buying Groups, Retail Store Managers, Sales Floor Staff, Consumers

Detailed information on the label transition was made available on the AGO's "Energyrating" website that commenced operation in early 2000.

During the development of the website a review of the information relating to the label transition was undertaken by the Phillips group. This review was undertaken from a communications and marketing perspective.

The website (located at www.energyrating.gov.au) included an interactive product listing of all labelled appliances, during the transition period star ratings on this site included both the new and the old star ratings.

10.3.6 Cooperative Activities – Catalogue / Advertising Inserts

Key Audience: Consumers

To inform active consumers about the revised label, the support of retailers was sought for two activities.

Retailers and buying groups were offered prepared information panels (on disk or bromide) regarding the revised label, for inclusion in their catalogues. The information panels contained the high level consumer messages of the campaign.

Retailers undertaking large-scale print advertising were offered small icons highlighting the changes to the label. The stylised icon would contain a very brief message such as:

- Look for revised energy ratings – ask our expert staff.
- Ask our expert staff about revised star ratings.

10.3.7 Cooperative Activities – Manufacturer Product Events & Store Visits

Key Audience: Sales Floor Staff

A number of manufacturers indicated that they would undertake education of sales staff on the transition at product launch evenings or through visits by reps to stores.

Manufacturers were encouraged to undertake these activities through the update bulletins and the information booklet. Manufacturers were also encouraged to assist retailers update labels in their stores where possible.

10.3.8 Cooperative Activities - Retailer/Buying Group Sales Meetings

Key Audience: Retail Store Managers

In discussions with retailers/buying groups, most stated that they would welcome the opportunity to hear about the energy rating label transition at their regular state or region sales meetings or annual conferences. Buying groups were encouraged to

contact a suitable government spokesperson through the update bulletins and the information booklet.

10.3.9 Cooperative Activities - Retail / Buying Group Internal Communication

Key Audience: Retail Store Managers

Retail and buying groups indicated that they would include news information relating to the label transition in their own internal newsletters. Editions of the update bulletins were supplied to identified editors of these publications.

10.3.10 Coordination With Reach For The Stars Program

Key Audience: Sales Floor Staff

Liaison with the Reach for the Stars campaign[8] was undertaken to identify and maximise opportunities for co-ordinated or shared initiatives. This included using Reach for the Stars trainers to reinforce transition program messages at in-store training sessions, and the inclusion of transition information in campaign materials as appropriate.

10.3.11 Energy Information Centres

Key audiences: Consumers

The core information booklet and DL size flyers were supplied to State Government energy information centres (e.g. EEV, EARS) and non-government information centres (e.g. conservation groups).

10.3.12 Additional / alternative options – industry publication advertising

Key audiences: Retailers & Manufacturers

Advertising features in the major industry magazines, Appliance Retailer and Counterpoint, were undertaken to supplement industry education and support editorial opportunities in these publications.

10.3.13 Media Relations Activities - Industry Media

Key Audiences: Manufacturers, Retailers/Buying Groups, Retail Store Managers, Sales Floor Staff

[8] The 'Reach for the Stars' Program was a program developed to promote the purchase of energy efficient appliances. Through major appliance retailers in NSW, Victoria, Western Australia and South Australia 'Reach for the Stars' sought to give customers the information to make an informed choice, based on the Energy Rating label found on electrical and gas appliances. Through educated sales staff and in-store literature, customers were encouraged to compare the energy use and running cost savings of different appliance models by using the Energy Rating label. The program was the initiative of, and was supported by five government agencies.

To support communications with retailers and manufacturers, public relations activities were undertaken with industry publications such as AEEMA, New Appliance Retailer and Counterpoint in order to re-enforce messages relating to the label transition.

10.3.14 Media Relations Activities - Consumer Media

Key Audiences: Consumers, Interest Groups

A consumer media plan was devised to reach the following audiences:

- Homemaker / lifestyle audience
- Regional audiences
- Non-English Speaking Background (NSEB) Audiences
- Consumer / Environmentally aware audience
- General public.

To ensure maximum use of AGO resources and avoid overlap, all media relations activities were co-ordinated with the Reach for the Stars campaign.

Table 3 summarises the communication activities targeting each of the audience groups and Figure 7 sets out the scheduling for the major activities undertaken during the communications/transition process.

Table 3: Summary of Communications Activities

Communication Activity	Retailer	Manufact.	Consumer	Interest/ Gov.	Public
Bulletins					
1 April	✓	✓			
1 July	✓	✓			
1 October	✓	✓			
Industry education					
Information booklet	✓	✓		✓	
Poster	✓				
Video	✓				
Point-of-sale					
DL flyer	✓		✓		
In-store sign	✓		✓		
Cooperative activities					
Ad/catalogue insert	✓		✓		✓
Product events	✓				
Sales meetings	✓				
Internal communication	✓	✓			
Inquiry line	✓	✓		✓	
Website	✓	✓	✓	✓	✓
Media relations					
Industry	✓	✓			
Consumer			✓		
General			✓	✓	✓
Regional			✓		✓
NESB			✓		

Figure 7: Schedule of Communications Activities

	2000											
Activity	J	F	M	A	M	J	J	A	S	O	N	D
Finalise Transition Strategy												
Video Development												
Artwork Development												
Website Review												
Approval by NAEEEC of Campaign Strategy												
Introduction of New label commences												
1800 Inquiry line set up												
Website commissioned												
Update Bulletin 1												
Manufacturers Information booklet Distributed												
Negotiate with buying groups re catalogues												
Video produced												
Update Bulletin 2												
Retailers Information Kits Distributed												
Media Campaign |Launch												
Commencement of Co operative activities												
Final Bulletin												
New Label becomes mandatory												
Evaluation process												

11. EVALUATION - MEASURING SUCCESS

Two separate studies were undertaken to assist in evaluating the success of the label transition process in the field.

The first study consisted of three related studies known as “Shadow Shop Surveys”. These studies were part of a national evaluation of the appliance energy labelling program. Their objective was to ascertain the proportion of relevant appliances displaying Energy Rating Labels in retail premises throughout Australia. The surveys were conducted on three occasions:

- Prior to the label transition ie a benchmark survey
- Within a month following the transition; and
- Six months after transition.

These studies are detailed in section 11.1 below.

The second study known as a “Communications Evaluation Study” was conducted by The Phillips Group during and immediately after the transition process. This study sort to evaluate the effectiveness of the communications strategy and also to make recommendations which may enhance future programs.

11.1 Shadow Shop Surveys – Evaluating Compliance

11.1.1 Study A – Benchmarking : June 1998

Between 27th June 1998 and 3rd August 1998 Yann Campbell Hoare Wheeler conducted a ‘Shadow Shop’ survey in eight of Australia’s largest cities. The ‘Shadow Shop’ consisted of interviewers within each city anonymously viewing appliances on display in a total of 400 electrical retail sites. These sites included “small”, “medium” and “department/superstore” categories. Interviewers recorded the number, brand and type of appliances which had energy labels correctly displayed in retail outlets and those that did not have a label displayed. Within each site there were five electrical appliance groups. The ‘Shadow Shopper’ identified which products fell into the specified categories and record its compliance. A total of 29,024 electrical appliances were included in the study (providing a sample error of ± 0.3%). The breakdown of appliances was:

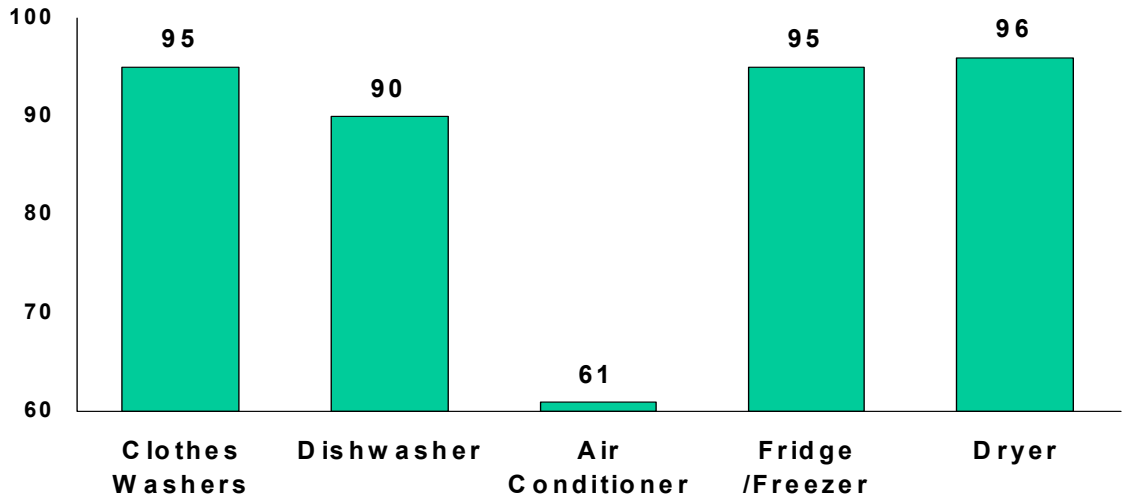
- 7,152 clothes washers,
- 3,645 dishwashers,
- 1,695 air- conditioners,
- 13,431 fridge/freezers and

- 3,101 dryers

Their study (see YCHW 1998) provided a baseline against which compliance during and after the label transition period could be judged. In their study the following key findings were made:

- Of the 29,024 retail electrical appliances included in the study the overall compliance rate was 92%. Compliance rates by appliance type are detailed in Figure 8.
- Air Conditioners were the only category which performed substantially below the other appliance groups with an overall compliance rating of 61%.
- Amongst the three size categories the Large Department Stores (94%) were more likely to have appliances on display with the Energy Efficiency labelling.

Figure 8: Percentage of Appliances with Label – By Appliance Type
(Yann Campbell Hoare Wheeler – Shadow Shop Report August 1998)



Source: Yann Campbell Hoare Wheeler – Shadow Shop Report, August 1998 (YCHW 1998)

11.1.2 Study B – Level of Compliance – Initial Follow Up - November 2000

In late 2000, NAEEEC commissioned a 2 part follow up study to the initial shadow shop baseline study detailed in section 11.1.1. The purpose of the study was to determine the initial level of compliance with the new labelling program.

The aim of the first stage of this follow up study was to obtain an overview of whether the label change had occurred successfully in a limited number of retail stores. The study entitled Energy Rating Audit, "Shadow Shop" – Stage One Report, was conducted by Millward Brown Australia. The report was tabled at a NAEEEC meeting in December 2000.

The objectives of this study were as follows:

- To provide retailers and manufacturers with instant feedback following the label transition period.
- To enable the NAEEEC to determine how well retailers/manufacturers have adjusted to the label change.

The survey conducted in November 2000 (immediately following the transition) utilized a subset of the sample used in the baseline study. In this study a total of 150 sites were visited and 14,568 electrical appliances surveyed (providing a sample error of ± 0.3%), this included:

- 3,966 clothes washers,
- 1,735 dishwashers,
- 1,289 air- conditioners,
- 6,398 fridge/freezers and
- 1,108 dryers

Interviewers worked as a team to record the type, brand and number of appliances in the retail outlets, discerning whether each unit had:

- The new energy label correctly displayed;
- The 'old' label only on display, or
- No energy rating label displayed at all

In this study the following key findings were made:

- Of the 14,568 retail electrical appliances included in the study, 91% were labelled (either old or new) the overall compliance to the label change was 70.4% (new only). Compliance rates by appliance type are detailed in Figure 9
- As per the 1998 audit, air conditioners were again the only category that performed substantially below the other appliance groups with a compliance rating of 29.8%.
- there was a noticeable lag in compliance across all regional areas, with 4% more appliances being unlabelled, 3% having the old label on display and 7% less displaying the new label.
- Amongst the three size categories, the Mega/Super/Department stores (75.8%) were more likely to have appliances with the new Energy Efficiency label on display

In this study, compliance rates by individual manufacturers was also tracked. This information was then used to inform manufacturers via a bulletin of the performance of their products in terms of their compliance with the energy labelling requirements.

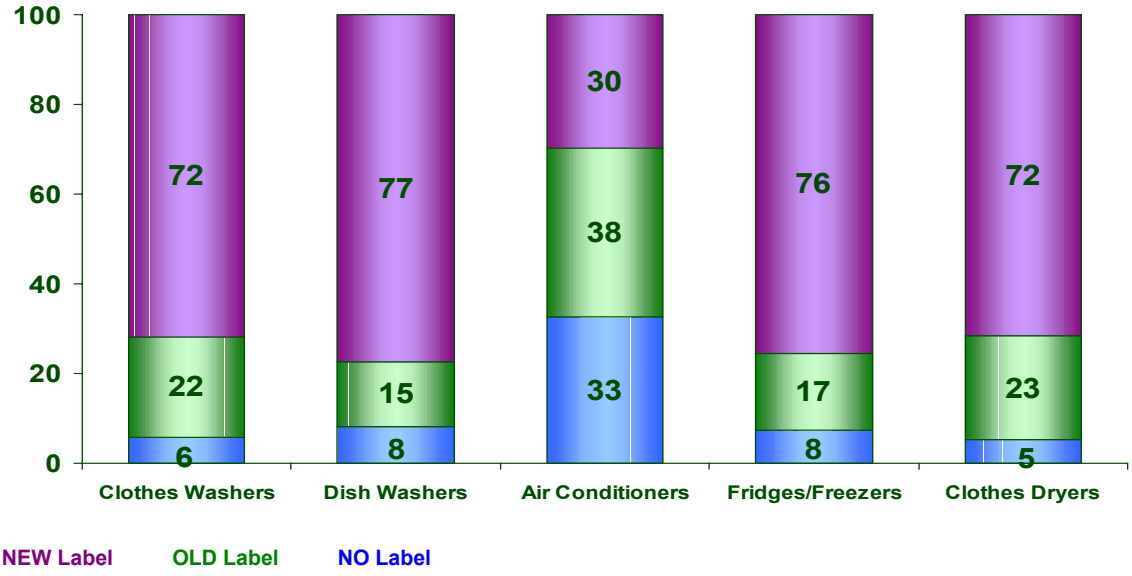
11.1.3 Study C – Level of Compliance - After 6 Months - March 2001

The aim of this second stage of the follow up study was to obtain a more comprehensive assessment of the compliance level for displaying the new energy efficiency rating label, with a representative and significantly larger sample size of electrical retail outlets selling the relevant appliances throughout Australia. The study entitled Energy Rating Audit, "Shadow Shop" – Stage Two Report, was conducted by Millward Brown Australia. The report was tabled at NAEEEC in April 2001.

The objectives of this study were as follows:

- To provide retailers and manufacturers with instant feedback following the label transition period.
- To enable the NAEEEC to determine how well retailers/manufacturers have adjusted to the label change.
- To aid government jurisdictions in identifying breaches of the regulation.

Figure 9: Percentage of Appliances with Label – By Appliance Type



Source: Millward Brown Australia – Stage 1 Report, December 2000

The survey was conducted in March 2001, approximately 6 months after the transition. The 'Shadow Shop' consisted of interviewers anonymously viewing a total of 401 electrical retail sites to survey 30,805 electrical appliances (providing a sample error of ± 0.5%), this included:

- 8,383 clothes washers,
- 3,875 dishwashers,
- 2,108 air- conditioners,
- 13,774 fridge/freezers and

- 2,665 dryers

Interviewers worked as a team to record the type, brand and number of appliances in the retail outlets, discerning whether each unit had:

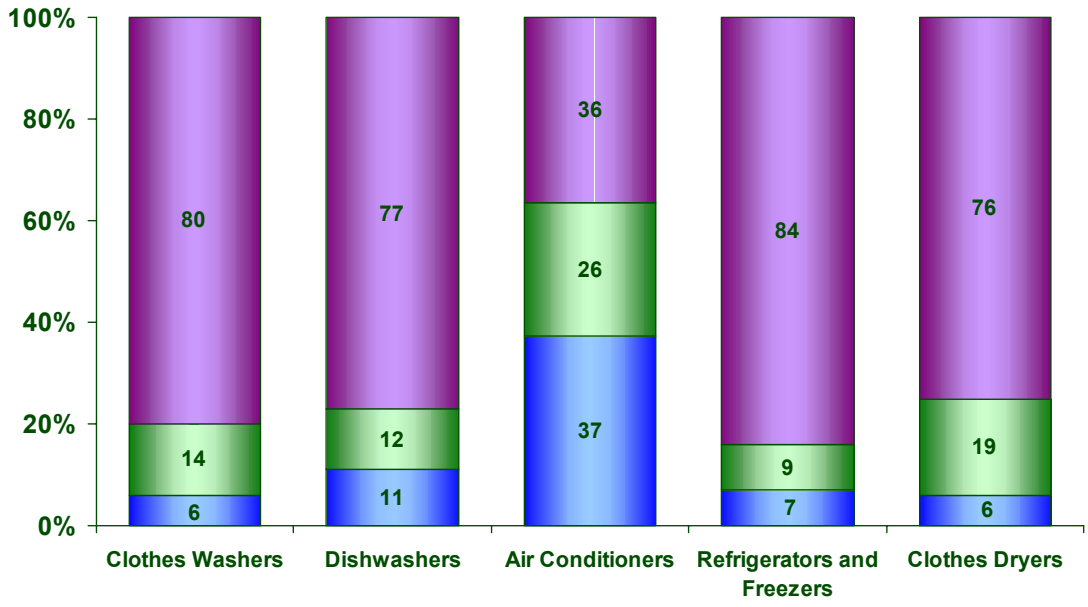
- The new energy label correctly displayed;
- The 'old' label only on display, or
- No energy rating label displayed at all

In this study the following key findings were made:

- Of the 30,805 retail electrical appliances audited in stage two, the overall proportion of appliances with the new energy efficiency rating label on display was 78%.
- The most compliant appliance group was that of refrigerators and freezers, which achieved 84%, followed by clothes washing machines at 80%. Dishwashing machines and clothes dryers were marked with the new label in 77% and 76% of cases, respectively. As per the 1998 and 2000 audits, air conditioners performed significantly below all other appliance groups, with a compliance rating of just 36%[9] .
- The level of compliance by appliance type appears to correlate with approximate market share, in that the more any category of appliance is on display in Australian retail appliance stores, the more likely it is that the overall appliance category will be correctly labelled.
- While there was a noticeable lag in compliance across all regional areas in Stage One, regional retailers now appear to be roughly on par with their metropolitan counterparts.
- The small to medium stores were somewhat less likely to have appliances with the new Energy Efficiency label on display (68%), compared with the large stores (80%) and mega/superstores (77%). The smaller stores also have a high rate of unlabelled appliances (16%), which is twice that of the large store category.
- Half of all stores are 80-100% compliant (above the national average).

[9] This may be a reflection of a degree of confusion among retailers as to which air conditioners require labelling, along with the way in which the labels are often positioned on the units (for example, on the output vent), which tends not to promote adhesion. Many air conditioner types such as evaporative and three phase do not require a label and it was not always possible for the personnel conducting the survey to distinguish these.

Figure 10: Percentage of Appliances with Label – By Appliance Type

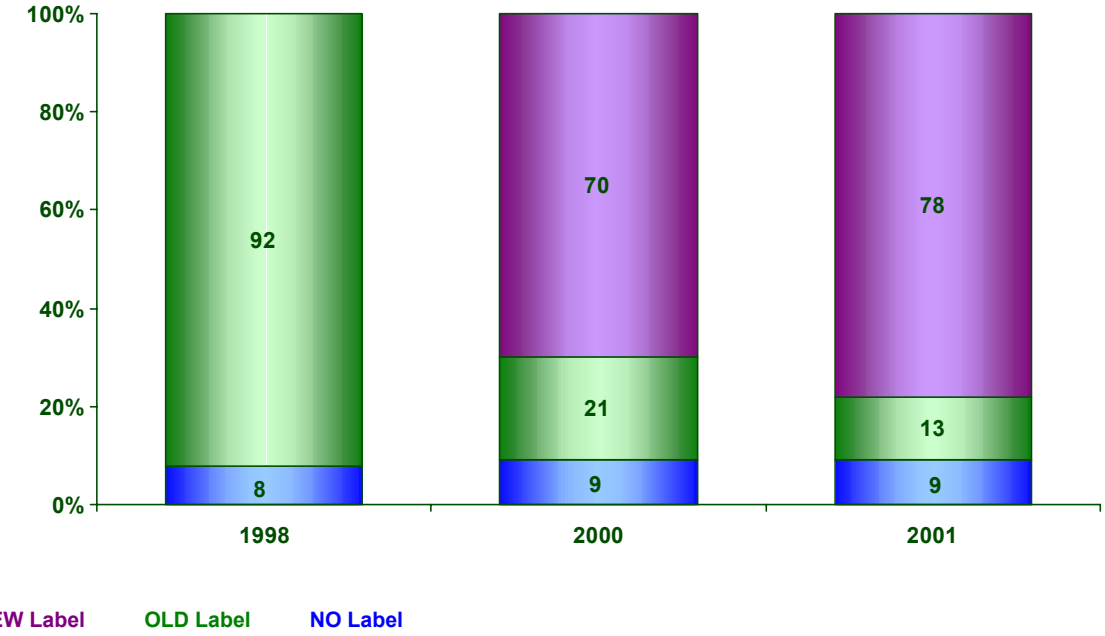


Source: Millward Brown Australia – Stage 2 Report, April 2001

As part of this study a comparative analysis with the 1998 audit and the 2000 audits was undertaken. In summary this comparative analysis found that:

- Retailer awareness of the energy efficiency labelling program continues to be high, and that compliance to the label change has improved since November 2000, see - Figure 11,
- From 2000 to 2001, improvements in compliance are observed across all store size categories, most noticeably so in the large stores (69% to 80%),
- While in 2000, immediately following the transition no stores were 100% compliant by March 2001, 15 of the stores audited were 100% compliant,
- Considering these comparative analyses, it could be said that while most manufacturers and retailers are making concerted efforts to comply with the National Energy Efficiency Labelling program, some assistance is required to ensure that the improvement observed herein continues, in order for the program to fulfil its objectives.

Figure 11: Percentage of All Appliances with Label – 1998, 2000, 2001



Source: Millward Brown Australia – Stage 2 Report, April 2001

11.2 Communications Evaluation Study

An evaluation of the communications strategy was undertaken by The Phillips Group in a report entitled Appliance Energy Rating Label Transition Program – Communication Strategy Evaluation (see Phillips Group, November 2000). This report describes the main components of the communication strategy and reports on the findings of evaluation activities carried out both during and following the transition program. Conclusions are drawn on the effectiveness of the communication strategy and recommendations made on opportunities for improvement which may be applied to future programs.

11.2.1 Monitoring Exercises Undertaken

The following monitoring exercises were undertaken:

- Content and design concepts for the education kit were pre-tested with target audience representatives prior to finalisation. This was done by sending draft material to select retailers and asking for their feedback through telephone interviews.

- Media Monitors was engaged to monitor print media throughout Australia during the transition phase from June 2000 through to September 2000. The aim of media monitoring was to assess the extent to which media releases were resulting in articles, to see whether key messages were being accurately conveyed and to identify any emerging issues.
- The Phillips Group provided an ongoing review of reports from the Energy Rating hotline to monitor the enquiries being received, identify any emerging issues and suggest alternative approaches which may be required mid-program to address these.
- Twelve retail outlets in Canberra, Brisbane and Sydney were visited by members of the communication strategy team who posed as customers to test sales staff knowledge of the label transition. They also checked to see whether the customer point-of-sale material was on display.
- Telephone interviews were held with buying groups and major retailers in early September to ensure they had still had sufficient information materials, and to gain qualitative feedback on the education kits and point-of-sale material.
- A self-completion evaluation survey was sent to just over 400 manufacturers, buying groups, major retail outlets, government agencies and relevant interest groups to gain feedback on the perceived effectiveness of the communication materials and suggestions as to how the transition program could have been improved.

11.2.2 Outcomes from Monitoring

Anecdotal evidence from buying group representatives during telephone interviews indicated that retailers were generally aware of the changes and the transition program was seen to be running smoothly. This was supported by the evaluation survey conducted at the end of the program.

The random store visits revealed that 60 percent had material on display and 60 percent of staff were informed of and communicating the label changes to their customers. This lower than ideal level is most likely attributable to the fact that distribution depended entirely on co-operation from buying groups and major department stores, which distributed all education and point-of-sale materials

Two emerging issues were identified in reports from the telephone hotline, the first being that some retailers were unable to obtain labels from manufacturers before the compliance dates, and the second that some retailers had been incorrectly informed that compliance dates had been extended.

11.2.3 Effectiveness

The use of multiple communication channels during the transition program – media, printed materials and website – helped to ensure the target audience received key messages.

The media relations program reached all of the target audiences, including industry and consumer. Changes to the energy rating label generated a large amount of coverage in industry, environmental and ethnic media. There was limited coverage in daily metropolitan newspapers, however this may have been due to the introduction of the GST (Goods and Services Tax) around the same time.

The evaluation survey revealed a high level of satisfaction with the communication materials provided during the transition period. The booklet, label update and the website appeared to be the most popular sources of information, with all respondents rating these materials as useful or very useful. The survey also revealed a high level of awareness and position response to the education kit as a whole.

The only initiative which received negative feedback was the telephone hotline. Respondents complained of slow response times and not being provided with answers to their questions.

The timing of the transition period was the most commonly raised issue in the survey.

11.2.4 Appropriateness

The positive response to the information materials could be attributed in part to the consultation undertaken with industry during the strategy development phase to identify their information needs and preferred information delivery mechanisms. As a result, the communication strategy appears to have been well tailored to their requirements. Market testing design concepts and content during the preparation of materials also contributed to this positive response.

12. LESSONS LEARNT

The following lessons were learnt from Australia's first experience with an energy label transition process:

Process Control – The process of label transition is a complex process affecting many stakeholders. The process needs to be professionally managed and it needs to be transparent. The formation of a steering committee (Energy Labelling Review Committee) consisting of Key industry Groups, Key consumer groups, Government and Technical advisors is considered essential. The formation and management of key working groups with broad industry participation to analyse the market for each appliance type and develop new energy labelling equations is also critical.

Scope of Transition – The Australian experience involved a label transition for all five energy labelled product groups. In hindsight this was most likely overly ambitious and caused an excessive burden on industry. For future transition programs consideration should be given to a staged transition process.

Timing – The transition process from conception to completion was originally intended to take two years but ended up taking three. Realistically, plans for future transitions should allow for at least a three year transition period. Furthermore, from the outset the process needs to be rigorously programmed with set timelines for each stage. The time allocation for the regulatory impact assessment process can be significant and programmers should consider parallel development of communications strategies during this period.

Research – The timely commissioning and delivery of research papers to support the transition process is a key element in the success of the program : The main areas of research are:

- International review of energy labels
- Technical Analysis of the basis for labelling including current household energy use
- Market Research using focus groups to determine consumer attitudes to the current label followed by a later study to assess alternative new label designs produced as a result of the first study.

Standards – The timely publication of standards that set out the algorithms and define labelling requirements are critical to the process. Industry needs to have published standards in place before it can confidently commit to a transition process.

Communication Strategy – An effective communication strategy is the key to the public success of any label transition program. The communication process must be well planned in advance. Specific lessons learnt from the communications strategy adopted were:

- Research and consultation with industry during the development of the communications strategy is critical
- Public information services must provide a satisfactory level of service. Poor service (as was the perception with the telephone hotline) can undermine the credibility of the entire program. Service providers must be well briefed, they must have immediate access to senior staff so as to provide rapid responses to the more difficult questions and finally standards of service (including maximum response times) should be established.
- Media launches should be well tailored to the target audience of each publication and ideally scheduled for “slow news days”.
- There are risks associated with relying on a third-party, in this case buying groups and major department stores, to distribute information materials which are the central focus of the campaign. Lead times need to be adequate to seek co operation from the organisation. Benefits to that organisation need to be clearly stated. Contact needs to be made prior to dispatch of materials to ensure they know when to expect them. Courtesy calls following distribution need to be made to ensure materials were received in a satisfactory manner.

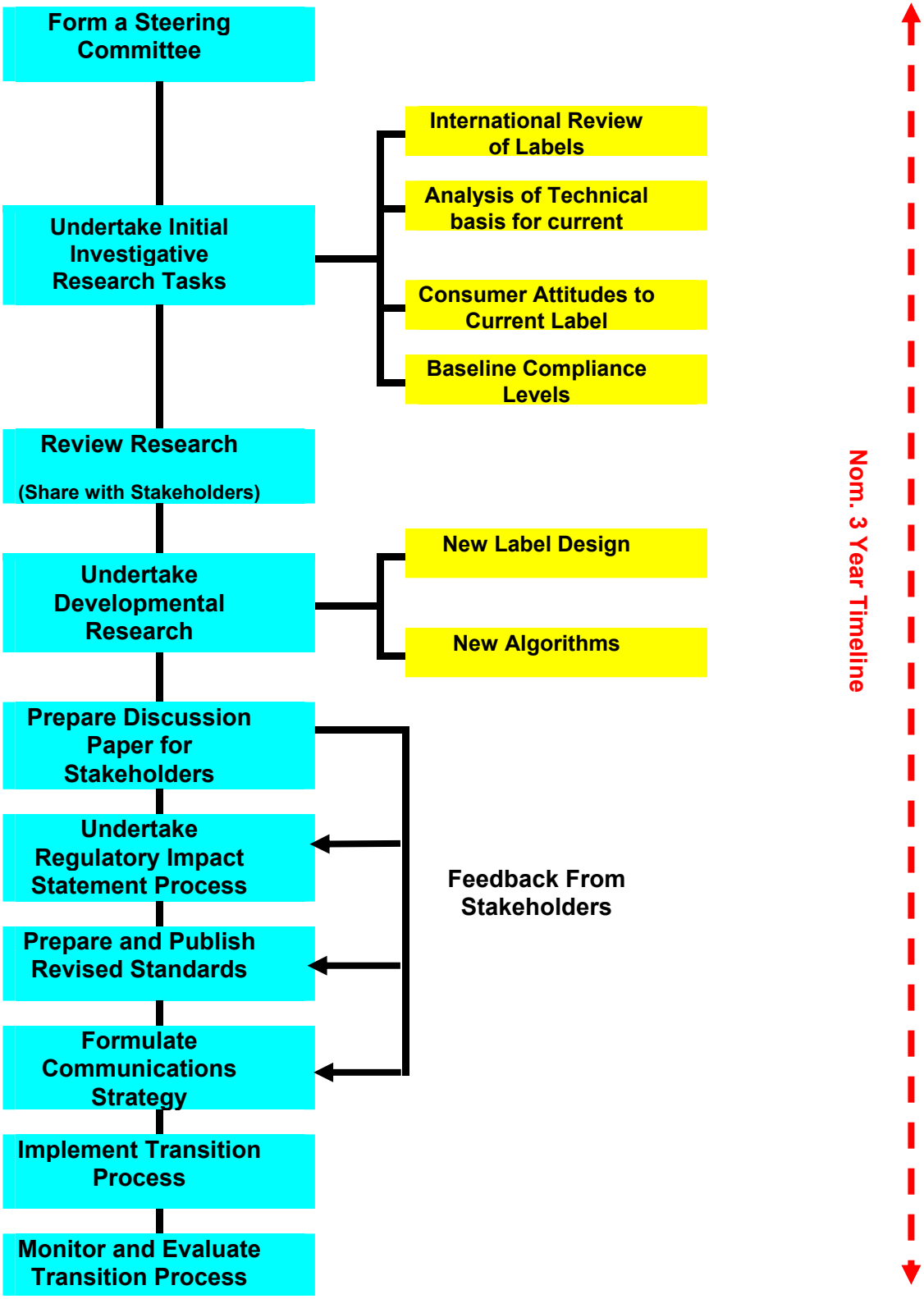
Assessment – A continuous process to assess the success of the label transition process should be undertaken. Assessments need to be made to:

- evaluate the effectiveness of the communications strategy,
- evaluate the level of compliance with the revised labelling program.

Program managers should expect to continue this process for some time beyond the actual transition period.

Figure 12 provides an outline process diagram to assist future managers of label transition processes.

Figure 12: Process Diagram



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APPENDICES

The following appendices are available in a single consolidated document for reference.

Appendix 1: NAEEEC Workshop Report – December 1997

Appendix 2: Energy Label Review Committee Members

Appendix 3: Examples of New Energy Labels – All categories

Appendix 4: Sample Bulletin from the Phillips Group

Algorithm Working Group Documents:

Appendix 5: Air conditioners – algorithm discussion paper

Appendix 6: Air conditioners – algorithm recommendations

Appendix 7: Refrigerators – algorithm discussion paper 1

Appendix 8: Refrigerators – algorithm discussion paper 2

Appendix 9: Refrigerators – algorithm recommendations

Appendix 10: Wet products – overview of algorithm issues

Appendix 11: Clothes Dryers – algorithm discussion paper

Appendix 12: Clothes Washers – algorithm discussion paper

Appendix 13: Dishwashers – algorithm discussion paper

Appendix 14: Wet products – algorithm recommendations

Appendix 15: Dishwashers – algorithm discussion paper 2002