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Communications, Marketing and Social Research Consultants

## Energy Labelling Project No. R511994

### Comments on the US EnergyGuide Label and Related Matters

### Submission to the US Federal Trade Commission

By  
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Managing Director  
Artcraft Research

12 January 2006

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## Summary:

The purpose of any label is to provide information to people. Some labels simply provide the information passively, but other labels also motivate people to read and use that information. Whether people will read a label, let alone act on the information it contains, depends very much on their level of functional literacy and numeracy, their interest in the subject, how many other factors are involved, and how relevant all this is to whatever else is going on in their lives.

The EnergyGuide label provides some useful information, but is overly complex and confusing, and is likely therefore to communicate mainly with highly functionally literate and numerate people who are also sufficiently interested in the subject to try to fathom it out, and already sufficiently motivated to be bothered to do so. On the other hand, categorical labels such as the star-based rating scale used in the Australian label have been shown to work very effectively in both interesting and motivating a very wide range of people.

We believe that the existing EnergyGuide label needs to be modified to take account of changes in the market place and the increasing sophistication of the consumer (albeit starting from a low base). We recognise that considerable investment has gone into the existing EnergyGuide label, but it may be timely to upgrade to a categorical label, based on a simple premise like the Australian label. This kind of categorical label would appeal to, and more effectively communicate with, a far broader spectrum of the community (ie, not only the already motivated and functionally literate and numerate). This kind of label could also enhance the contribution that the FTC could make in improving public understanding of the importance of energy use in household appliances. Extension of the categorical label to also cover home entertainment equipment would further improve the relevance of the label to consumers.

I have read the full report of the ACEEE 2002 study referred to several times in your call for comments and found it to be very well designed, executed and reported, and we came to more or less the same conclusions here in Australia in our 2003 study.

We will be happy to assist you further with your endeavours, when the opportunity arises, and a brief CV is provided in the Appendix. In the meantime, we have provided comments below in response to those of your questions to which we feel we can add value.

Yours sincerely,

Les Winton, Managing Director, Artcraft Research  
Australia, +61(0)294131233

## Detailed comments:

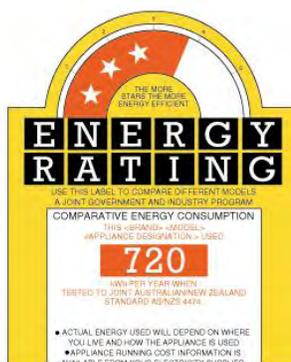
### A. Effectiveness of the Labelling Program

1. *Do any recent reports, studies, or research provide data with which to estimate the benefits and costs of current consumer appliance energy labeling programs in the United States? In particular, have any such studies examined the effectiveness of the EnergyGuide label and alternative formats and approaches? Are there any recent studies from other countries that would be helpful for the Commission to consider?*
  - o Les Winton, managing director of Artcraft Research, has been involved from the beginning of the energy efficiency labelling program of appliances in Australia since the inception of the early 1980s. He was one of the people involved in the original label's design, and was the designer of the revised label in the 1990's.

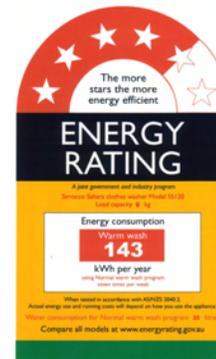
Mock-up for testing in early 1980s:



Design of first label mid-1980s to 1990s:



Revised design for re-scaling of algorithms Late 1990s onwards:



- o He has conducted a great many qualitative and quantitative studies on a wide range of appliance labels over that period, including a major and broad-ranging qualitative research study in late 2003 and a definitive quantitative study in late 2005. Both of these studies covered both Australia and New Zealand.
- o A reference to the late 2003 study is: <http://www.energyrating.gov.au/library/details2003-applabelreview.html>. The report for the late 2005 study will be available shortly on the website (as soon as I've finished writing it!)
- o References to electronic copies of other reports are also provided where relevant in this submission.
- o The answers we have provided to the rest of the questions are heavily based on this wide body of research.

2. *How should the Commission measure the "effectiveness" of the appliance labeling program "in assisting consumers in making purchasing decisions"? For example, should effectiveness be measured by consumer comprehension of specific label elements, consumer preference for different labels, the impact of labels on product choice, or other means?*

- The role and relevance of an energy label varies from appliance to appliance. For example, with water heaters and, to some extent air-conditioners, it is the installer (plumber, electrician or other expert) who strongly influences the decision and the consumer may only see the label after the product is installed – often only one model is considered. On the other hand, with refrigerators, freezers, washing machines, dishwashers and clothes dryers, the consumer makes the decision after short-listing appliances which are easily examined and compared (to the extent of makes and models on display).
- Secondly, the appliance purchase-making decision for these latter appliances is a two-stage process, in which the label is mainly relevant to the second stage.
- The first stage in the process is the short-listing of relevant makes and models, during which the following are commonly asked questions:
  - Does it fit the space available?
  - Is it the size/capacity we want?
  - Can we afford it?
  - Will it do the job?
  - Will it be reliable?
  - Do we know the brand name?
  - Is it available immediately?
  - Can it be installed easily?
  - Do we like the colour/style/features?
- At this first stage the energy label will often be referred to, but mainly only to eliminate short-listed models with unacceptable energy efficiency (eg, only one or two stars).
- The short-list generally starts with 4 to 5 models and reduces to two or three from which a final choice is made, after having also considered the above questions thoroughly. In the second (final) stage of the process, the following questions come into play, with each person placing different emphases on each question, but with many at least considering most of them:
  - How many stars does it have?
  - How efficient is it?
  - How much power will it use?
  - How much will it cost to run?

- Is it good for the environment?
  - Is the more expensive one worth the extra money in greater efficiency?
  - What does the label say about all this?
- We know that in Australia almost everyone is aware of our energy label (96%).
  - Some 44% consider the energy label in one way or another at stage one of the purchase decision (often only to eliminate bad performers at this short-listing stage) and 76% consider the energy label at the final stage, with some 88% considering it at either or both stages.
  - Some three in four people (75%) maintain that the energy label is at least quite important in their decision to purchase.
  - There is also very high compliance by manufacturers, importers and retailers in terms of ensuring that labels are actually displayed on appliances in the retail stores, see <http://www.energyrating.gov.au/library/pubs/compliance-stage2.pdf>
  - Of course, all this didn't happen overnight – the energy label has been mandatory on all eligible appliances for around two decades, and has been promoted by various utilities, energy agencies and even manufacturers fairly consistently (but at relatively low levels of expenditure) for much of that time.
  - We have used a wide range of indicators to judge the effectiveness of our labelling program, and not only with consumers. In addition to encouraging consumers to purchase more efficient appliances, an important objective of the labelling program is (also) to encourage manufacturers to design more efficient appliances. So an important source of information is the response of manufacturers, who told us as early as 1991 that they instruct their engineers to make sure they get a 5 star rating for each new product (refer to the 1991 evaluation report at <http://www.energyrating.gov.au/library/details1991-wilkenfeld-reslabel.html>).
  - Ongoing contact with manufacturers indicates that they continue strongly to support the labelling program. However, it could be that US manufacturers are well aware of the low level of US consumer response to the FTC label (and the lack of clear target points to aim for on a continuous scale) and so have not bothered.

3. *How effective is the EnergyGuide label in providing consumers with useful, accurate information about the energy consumption or energy efficiency of covered products? What is the net benefit of the current EnergyGuide labels? Can appliance energy labels be modified to increase the net benefits of consumer energy labeling programs in the United States?*
- We have chosen not to include cost of running on Australian labels for two reasons, (a) the electricity tariff differs from place to place, so there is no common figure; and (b) prices change over time, so the information would be quickly out-dated anyway. Rather, we include an energy consumption figure on the labels. Over time people have come to realise (and/or have been slowly communicated to) that energy consumption is an indicator of cost of running – ie, the larger the number, the more it will cost to run. They can, of course, work out the actual cost of running by referring to the \$ per kWh on their electricity bills and/or referring to the [www.energyrating.gov.au](http://www.energyrating.gov.au) website which includes a calculator that will work it out for them, once they indicate where they live (for the different tariffs) – the website and electricity bill are always up-to-date in terms of electricity tariffs, but a tariff figure used on the energy label would quickly become out-of-date and therefore misleading.
  - We have also chosen not to indicate the range from the most to least efficient models on the label for similar reasons. Firstly, new models are being introduced and old models are being withdrawn from the market very regularly, so any label displaying this range (from least to most efficient) is likely to be out-of-date and therefore misleading almost before the model appear on the shop floor. Secondly, in some circumstances (eg, clothes dryers) there may be one model in a class which is exceptionally more energy efficient than all the rest, but is so prohibitively expensive (eg, thousands rather than hundreds of dollars) as to be way beyond the reach of most people, and/or due to low sales volume, may simply not be readily available in many areas. Again, details of all models are arranged on the [www.energyrating.gov.au](http://www.energyrating.gov.au) website so that they can be sorted by energy efficiency within class – because the website is always up-to-date (as all new models are required to be registered on it, and old ones removed from it or at least marked as old), those few people who are interested in knowing the full range from least to most energy efficient can source up-to-date information.
  - The inclusion of an energy consumption figure on Australian labels is complemented by a star rating system. Any model which is acceptable on the Australian market, eg, meets or exceeds minimum energy performance standards (MEPs), receives at least one star, up to a possible six stars.

- It is very important to note that people (in Australia) tend to prefer the stars more so than the numbers, although while over eight in ten use the stars (83%), some two-thirds (also) use the numbers (67%). The stars are seen as FUN, easy to decipher (the more stars the more efficient, or the more stars the less energy it uses), and a quick and easy comparative tools. If people have short-listed two models that happen both to have four stars, many will then refer to the numbers to check which one is even more efficient than the other (although this behaviour has taken some years to cultivate).

**4. *What is the effectiveness of the current EnergyGuide label in improving energy efficiency?***

- We cannot comment directly on the effectiveness of the current EnergyGuide label, except to point out that the ACEEE 2002 report suggests that its effectiveness is limited, for the reasons expressed above.

**5. *What has been the impact of the Energy Star program on the effectiveness of the EnergyGuide label and its usefulness for consumers?***

- Our view is that the Energy Star label has limited usefulness to consumers because (a) it is a very blunt instrument only endorsing models at or above one defined level of minimum eligible efficiency, therefore not encouraging consumers to look for the most efficient ones amongst these models; and (b) being a voluntary program it is not required to be placed on all models that meet the criteria, therefore confusing and possibly even misleading consumers.
- A "Top Energy Saver Award" label was introduced in Australia which had a similar role to the Energy Star label, but it was neither supported universally by manufacturers (eg, they registered many, but by no means all, eligible models), nor by consumers, who tended to use the energy rating (6-star based) label to make up their own minds about that.

**6a. *Would changes to the current label design and format significantly improve or have a significant impact upon the effectiveness of the labels?***

- We believe that the existing label needs to be modified to take account of changes in the market place and the increasing sophistication of the consumer (albeit starting from a low base).
- We recognise that considerable investment has gone into the existing EnergyGuide label, but that it may be timely to upgrade to a categorical label, based on a simple premise like the Australian label.
- We believe that this kind of label would now appeal to, and more effectively communicate with, a far broader spectrum of the community (ie, not only the already motivated and functionally literate and numerate).

**6b. How is the effectiveness of the EnergyGuide label affected by factors unrelated to label design (e.g., consumer priorities)?**

- See response to Q.2 above.

**7. What changes, if any, should be made to the current appearance of the EnergyGuide label (content, size, format, color, graphical presentation, etc.)?**

- See responses to Q.1 and Q.3 above.

**8. Should the FTC change the EnergyGuide label to require a categorical design such as a star based label? Would a categorical design yield benefits for consumers? What would be the costs of implementing a categorical label system? How would the benefits of such a system compare to the costs?**

- Based on recommendations already made in the ACEEE 2002 report and our own research, the answer is categorically YES.
- From the research evidence, a far broader range of consumers will bother to look at, understand, and be motivated to use, a categorical design (eg, one to six stars) than the current EnergyGuide label.
- However, it still also needs to include some numerical measure (eg, the energy consumption figure) to back up the categorical rating for those many consumers who (also) need some factual basis. (It can also appease the engineers, technocrats, super-numerates and precision-focussed bureaucrats who are often the final decision-makers regarding label design).

**9. Do commenters have views about the design, methodology, conclusions,**

- See earlier comments.
- A range of designs should be developed and researched. Based on their 2002 work, ACEEE already understands the issues involved.
- Based on our extensive background and experience in this area in Australia and New Zealand, we will be happy to advise and review if asked.

**10a Would a categorical label design significantly improve energy efficiency?**

- A categorical label is likely to reach and motivate a far broader market than the current label, but we are not in a position to predict likely resultant energy efficiency improvements.
- Certainly in the real world we will never see every appliance purchaser buy the top rating, most energy-efficient model, because other factors can prevent this (eg, too expensive, doesn't fit the space available, ugly to look at, model not immediately available, etc). However, if in Australia 96% are aware of the label, 88% refer to it during the purchasing process and 75% say that the label was important in their decision to purchase, then something must be working!

- Dr George Wilkenfeld has developed some projections which suggest that the impact is significant. The document can be found at <http://www.energyrating.gov.au/library/details200505-projectimpacts.html>

**10b** *Would consumers interpret a categorical label as an indicia of product quality instead of energy performance or efficiency?*

- The Australian energy label is known to, understood by, and acted upon by the vast majority of consumers here in Australia. There is a very small minority that does not understand or care about the label, but hardly any at all think that the label indicates product quality rather than (or as well as) energy efficiency.

**11.** *What criteria would the FTC need to use to assign a star rating to various models in specific product categories (i.e., criteria for a product to receive five stars, one star, etc.)? Would the stars be based on the DOE minimum efficiency standards, the range of energy consumption for models in a particular class, or some other measure? How would a star-based categorical label depict the required ranges? For example, would the lowest rating (i.e., one star) apply to the least efficient products in a product class category regardless of the number of products in the class and the efficiency of those products relative to DOE standards?*

- The Australian Greenhouse Office can advise you on this – they wrestle (successfully) with these issues all the time.
- Having a preset rating scale where the increments are mathematical (eg 1 star for being minimum MEPS-compliant, 2 stars for 90% of MEPS energy use, 3 stars for 90% of 2 star level etc) means that it is not necessary to collect and distribute official high and low points.
- The range of comparability will be obvious to a buyer on the showroom floor (or a browser on the website) because they will see the highest and lowest stars. The only possible problem is that a motivated buyer who sees only one or a few models in a store would not immediately know whether higher rated models are available, but this is best addressed by maintaining and publicising a website that has a complete and continuously updated list (See comments about website in Q.3 above).

**12.** *Would a categorical label require the FTC to make judgments about the relative energy efficiency of products in the market? If so, what information would the Commission need to make such judgments? How would it obtain the necessary information? What would be the costs of making such determinations?*

- The Australian Greenhouse Office can advise you on this.

**13.** *Would a star based EnergyGuide label be duplicative of the Energy Star program? Would the star based label cause consumer confusion given the existence of the Energy Star program?*

- If the US had originally introduced an effective categorical energy rating label rather than the current EnergyGuide label, there would have been no need to also apply the Energy Star label to household appliances.

- However, given that it will presumably take some time to replace the EnergyGuide with a categorical label, the Energy Star label can at least achieve something (see earlier comments) until the new categorical label has been implemented and effectively communicated.
- There will be a need to handle transition issues carefully and to gauge accurately when the new categorical label has achieved sufficient penetration, support and action that the presence of the Energy Star label is no longer needed.

**14. Section 305.19 of the Rule contains an exemption which allows manufacturers to place the Energy Star logo on the EnergyGuide label for qualified products. Under the exemption, the Energy Star logo must be placed "above the comparability bar in the box that contains the applicable range of comparability." Should the Commission consider changes to that exemption (e.g., changes to the placement of the logo on the label)?**

- My view is that placing one logo (label) within another complicates, conflicts with and confuses the purpose for the original label. The categorical (star-based) label should stand on its own. If it is thought necessary (for whatever reasons, eg, see comments to Q.13 above) also to put an Energy Star label on the appliance, then it should certainly be separate from the main label (even if the manufacturer chooses to print it on the same backing sheet), but its purpose and meaning will also need to be communicated separately.

**15. In addition to considering the categorical label as required by the Energy Policy Act of 2005, should the Commission consider other formats or graphical representations for the EnergyGuide label? Are there improvements that can be made to the current bar graph design in the EnergyGuide label?**

- Again, the ACEEE 2002 report highlighted that based on testing examples in the research, American consumers themselves would prefer a star-rating scale.
- The European Categorical Label (as depicted in Figure 2 of the Federal Register Document) does not test well in Australia for two reasons:
  - Australians have preferred an arch with stars from the beginning over a bar chart or flat scale (that is why the scale in the mock-up label included in response to Q.A1 above was changed to an arch following research to finalise the first real label in the mid-1980s)
  - Whereas people easily understand that the more stars (and half stars) there are, the more efficient is the appliance (like four-and-a-half star hotels are "better" than three or two star hotels), they become confused with the European label where the most efficient grading (A) has the shortest bar (which is presumably meant to depict least energy used, but doesn't say so).
- On the other hand, the Chinese Government has chosen to follow the European label, and this decision process did include some consumer research.

- Research in the US will show whether Americans are more inclined towards the Australian or European approach, or whether, indeed, another categorical depiction would work even more effectively.

## **B. Energy Descriptors for Various Products**

- 1. Are the current energy descriptors understandable to consumers? What changes, if any, should be made to the energy descriptors used on the EnergyGuide label?*
  - This needs to be tested locally, in conjunction with the issues in Q.B2 below.
- 2. Should the FTC consider requiring estimated annual operating costs as the primary descriptor on EnergyGuide labels in lieu of energy consumption or energy efficiency information? What are the costs and benefits of requiring operating costs as the primary descriptor?*
  - The challenges with using “estimated annual operating costs” are many.
  - From the practical viewpoint, different electricity tariffs from area to area and changes in tariffs over time render it very difficult to be accurate and up-to-date. Further, we have found that consumers do not accept the use of an “average” tariff. That is why we use the energy consumption figure on Australian labels.
  - From the consumer viewpoint, there is also an issue with using “estimated annual” usage (or operating costs). Refrigerators and freezers don’t pose much of a problem as they are run all the time (“24/7”). However, attempting to portray “estimated” or “average” or “typical” annual usage (or operating cost) for such things as dishwashers, washing machines, clothes dryers and air-conditioners meets with some consumer resistance as most do not see themselves as “estimated”, “average” or “typical” households – on the other hand, per wash costs might appear so low (eg, especially for cold water washing) as to make comparison irrelevant.
- 3. Should the Commission consider different energy descriptors for existing products? For instance, should the clothes washer label disclose the model’s efficiency rating using the measure currently required by DOE (the “Modified Energy Factor”) instead of the product’s annual energy consumption?*
  - See comments above.

## **C. Disclosures for Central Air Conditioning, Heat Pumps and Furnaces**

**1. *How do consumers generally receive information about the energy efficiency of central air conditioners, heat pumps, and furnaces?***

- Unlike fridges and other whitegoods, air-conditioners and heat pumps are often a first-time purchase in Australia. They are also perceived as more complex (especially ducted units). Also, whereas consumers usually go to larger stores displaying many makes and models of fridges and other whitegoods which means that they gain a reasonable impression of the range available (at least in terms of most of the popular ones), stores generally display only a few models of one or two brands of air-conditioners or heat pumps.
- Our research indicates that compared to fridges and other white goods, when purchasing air-conditioners and heat pumps consumers therefore rely far more heavily on advice from the retail store (in the case of small units) or companies that sell and install air-conditioners (in the case of larger and ducted units), and many may not even see the energy label until the unit is delivered (if at all in the case of ducted units).
- We have therefore suggested in several studies that:
  - The energy label for air-conditioners and heat pumps should include a note steering people towards experts for advice.
  - There should be industry training and certification of air-conditioning specialists, installers and other relevant salespeople.
  - Manufacturers and retailers should be encouraged (and preferably required) to include a depiction of the energy label in leaflets, brochures and advertising for each model.

**2. *Are EnergyGuide labels on central air conditioners, heat pumps, and furnaces assisting consumers in their purchasing decisions? If not, should the Commission consider an alternative method of ensuring that consumers have access to useful efficiency information for these products?***

- See comments to Q.C1 above

**3. *Should the Commission consider changes to the current fact sheet requirements for central air conditioners, heat pumps, and furnaces?***

- See comments to Q.C1 above

**4. *Are there any alternative or additional forms of information (such as brochures, catalogs, or information sheets) that the FTC could require at the point of sale that would help consumers in making their purchasing decisions for these products?***

- See comments to Q.C1 above

## **D. Reporting Requirements**

1. *What changes, if any, should be made to the specific information covered by existing reporting requirements in the Rule? Would such changes improve the effectiveness of the labeling program for consumers?*
  - No comments
  
2. *Is there additional product information that the FTC should require, consistent with its statutory authority, in reports from manufacturers? What are the costs and benefits of requiring such additional information? Are there reporting requirements that the FTC should eliminate from the Rule (consistent with current statutory requirements)?*
  - No comments

## **E. Annual Revisions to the Ranges of Comparability**

1. *Are changes in the energy use of products in the market significant enough to warrant an examination of the ranges of comparability every year?*
  - Every year is not frequently enough. There is a need for ongoing updating on (for example) a website to which the label refers, but the 'range of comparability' should not appear on the label itself for the following reasons.
  - Including a 'range of comparability' on the label itself builds in an administrative lag between the market, the regulator (who has to receive, process and officially advise the high and low points) and the customer, which fails to make sense in practice. For example, a colleague also closely involved in appliance energy efficiency and labelling issues (Dr George Wilkenfeld, Sydney) has indicated that on every visit to the US (since 1991) he has noticed labels on some of the more efficient models where the set point ('this model uses') was LESS than the minimum value on the official comparability bar - ie it was literally 'off the scale' simply because of the administrative lag. This is a very effective way of destroying both communication value and consumer confidence in the label at the same time!
  - Even if the administrative lag could be reduced and the label could therefore show a meaningful 'range of comparability' at the time the label is applied to the appliance, it quickly becomes out-of-date, and therefore misleading to consumers, the moment a model more efficient than the lowest point on the range is released to the market and/or the moment the least efficient model ceases to be sold (see comments in Q.A3 above). Again, pointing consumers to a website containing up-to-date information on all current models can always provide consumers with the correct information, whereas a label by definition cannot do so the moment the higher or lower value of the range changes – remember that some slow moving models can remain on the showroom floor for a year or more, hence their labels could (and do) present very misleading information in terms of the very out-of-date 'range of

comparability' depicted thereon.

**2. *Should the Commission consider amending the Rule so that the FTC examines the comparability ranges less often than annually? If so, how often should the Commission examine the ranges? Would such a change affect the effectiveness of the labeling program?***

- Even 'annually' is misleading in categories where significant changes are taking place leading to more efficient models appearing and less efficient models disappearing. If you are going to show a range at all (see Q.3A above for reasons not to) it needs to be up-to-date, which a label cannot and does not do (for long).
- On the other hand, the star-rating algorithm for the Australian labels is itself the 'range of comparability' in a broad sense, but it needs to be revised only from time to time (eg, when there is significant 'bunching at the top') but this tends to take around a decade to occur, which also gives the opportunity to change the label design slightly (so avoiding confusion between old and new) and to freshen the labelling program for the market (see comments to Q.E3 below).

**3. *Are there ways to alleviate potential consumer confusion caused when certain product labels display new range and cost information and other models in the same showroom have labels displaying old range and cost information?***

- When I revised the energy label in the late 1990s (fridges were bunching at the top of the star rating scale based on the old algorithms), we included a green band at the bottom (see third image in Q.A1 responses) to allow for a message explaining why the labels were being revised and to differentiate them from the old labels (see second image in Q.A1 responses). In the end, the revised label was seen as sufficiently different from, and sufficiently more appealing than, the old label, that a new regime of some sort was self-evident, and retailer cooperation and good point-of-sale signs and leaflets ensured a generally smooth transition, and the green band has been retained.
- As fridges were again starting to bunch at the top of the star rating scale we briefly researched how to handle an eventual revision in our 2003 qualitative research, and as the algorithms for the star ratings (and MEPS levels) are now being revised, I will very shortly be researching the issue in some depth in Australia and New Zealand. Based on the 2003 findings (and subject to what the 2006 study says), the solution may be as simple as to change the colour of the green bar to red (or purple or whatever), with accompanying retailer co-operation and explanatory point-of-sale signs and leaflets.

## **F. Lighting and Plumbing Products**

1. *What changes, if any, should be made to existing labeling requirements for lighting and plumbing products in 16 CFR part 305?*
  - o No comments on lighting.
  - o In terms of plumbing products (including washing machines and dishwashers), Australia has recently changed from a voluntary industry labelling program to a mandatory government program (to take effect from July 2006), adopting (after thorough researching) a categorical label similar to the energy label, as depicted below:



## Appendix: Les Winton's CV



**Les Winton** BA DipEd, MA (MktgComs), FAICD, FAIM, FAMI (CPM), MAMSRS (QPMR)

Les is Managing Director and owner of Artcraft Research, and has been a social and marketing researcher for 34 years. He holds a Bachelor of Arts degree in the Social Sciences, a Diploma of Education, and a Master of Arts in Marketing Communications.

After working in marketing positions with a Swedish steel company in Australia (1962-66), Les was called up for National Service, serving in Australia and South Vietnam (1966-68). He then completed his initial university studies (1969-73) and embarked upon a career in market research and marketing with ANOP (1971-83). Les started his own consultancy Artcraft Studios (Artcraft Research, Artcraft Marketing and Artcraft Training) in 1981.

Mr Winton is a Member of the Australian Market and Social Research Society (AMSRS), through which he has Qualified Practising Market Researcher status (QPMR), the Association for Qualitative Research (AQR), the Australasian Evaluation Society (AES) and the International Association for Public Participation (IAP2) and the International Association of Business Communicators (IABC). He is also a Fellow of the Australian Institute of Company Directors (AICD), the Australian Institute of Management (AIM), and the Australian Marketing Institute (AMI) through which he has Certified Practising Marketer status (CPM).

Over the past three decades as a consultant to Federal, State and Local governments, Les has conducted research in a wide range of areas. The following list covers studies undertaken in energy efficiency and appliance labelling, greenhouse strategy, climate change, the environment, gas efficiency, water resources and efficiency, and public utilities:

- **Revising the Energy Efficiency Label for Refrigerators, Freezers and Air Conditioners:** A qualitative study in Australia and New Zealand, exploring ways to revise the energy efficiency rating labels to accommodate

new algorithms – Australian Greenhouse Office (AGO) and Energy Efficiency and Conservation Authority NZ (EECA) – January 2006

- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Chief Minister’s Department ACT – December 2005
- **Energy Efficiency Label for Air Conditioners in NZ:** A study in Christchurch, New Zealand, exploring the air conditioner energy efficiency rating labels in the light of H2 (2°C) conditions in Christchurch – Energy Efficiency and Conservation Authority (EECA) NZ – September 2005
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Chief Minister’s Department ACT – September 2005
- **Energy Efficiency Labelling – Surveys among the general public, recent electrical appliance purchasers, and electrical appliance retailers:** Major quantitative studies across Australia and New Zealand, covering a wide range of issues, attitudes and behaviours concerning the energy, gas and water labelling programs, including consumer segmentations aspects – Dept of the Environment and Heritage (AGO) – August 2005 onwards
- **Gas Efficiency Labelling – Surveys among the general public, recent gas appliance purchasers, and gas appliance retailers:** Major quantitative studies to guide the development of the national mandatory gas labelling program which is replacing the previous voluntary industry-based labelling program – Dept of the Environment and Heritage (AGO) – August 2005 onwards
- **Energy Labelling Possibilities for refrigerators and freezers in the context of the 2005 MEPS levels:** Discussion Paper prepared for the Australian Greenhouse Office within the Department of the Environment and Heritage, for discussion at a NAEEEEC Forum in Sydney – Australian Greenhouse Office – August 2005
- **An Assessment of the Need to Adapt Buildings for the Unavoidable Consequences of Climate Change:** Major input on the social and lifestyle need of Australians and implications for modification of buildings in relation to climate change – for BRANZ and the Australian Greenhouse Office – June 2005
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Environment ACT – June 2005

- **Compact Fluorescent Lamps (CFLs)** – A Consumer Research Study conducted for the Australian Greenhouse Office in the Department of Heritage and the Environment – May 2005
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Environment ACT – March 2005
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Environment ACT – December 2004
- **Uptake of the TESAW (Top Energy Saver Award Winner) Award:** A study among appliance companies with models eligible for the Award but who have not yet applied for the Award, to identify their reasons for not applying – Australian Greenhouse Office – November 2004
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Environment ACT, on DUS0904 – September 2004
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after further communications activity – Environment ACT, on DUS0604 – June 2004
- **National Pollution Inventory (NPI):** An evaluation of the National Pollution Inventory among decision-makers in Federal Government Departments and Agencies, involving in-depth interviews and an on-line study – Department of the Environment and Heritage, June 2004.
- **Small Inefficient Cupboard-Contained Electric Water Heater Labelling:** A study in Sydney and the Gold Coast to establish appropriate wording for dis-endorsement labels for small inefficient electric water heaters, among people living in older flats where the more efficient model will not fit a cupboard built to Imperial measurements and the older inefficient model that fits is still allowed to be sold preferably only to these people – Australian Greenhouse Office – May 2004
- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, and awareness of the Water Resources Strategy after some communications activity – Environment ACT, on DUS0304 – March 2004
- **Air-Conditioning Energy Efficiency Labelling:** A study in Canberra and Sydney to establish appropriate wording for energy efficiency labels on reverse-cycle air-conditioners to identify clearly those that are effective when outside temperatures regularly drop below 7°C – Australian Greenhouse Office – May 2004

- **ACT Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, after some communications activity – Environment ACT, on DUS1203 – December 2003
- **State of the Environment Report:** An evaluation of the 2001 Report among decision-makers in Federal Government Departments and Agencies, involving in-depth interviews and an on-line study, to investigate its usefulness and useability, in order to inform development of the 2006 Report – Department of the Environment and Heritage, October 2003.
- **Resource Efficiency Labelling – Phase II:** A major follow-up study in Australia and New Zealand, to further refine aspects of the energy, gas, water and other efficiency labels used in Australia to promote energy-efficient household and commercial appliances, and to develop labelling concepts for luminaires, commercial refrigerated drink cabinets and a top energy saver award label (replacing Galaxy) – Australian Greenhouse Office – October 2003 onwards
- **Water Efficiency Labelling:** Research among recent and intending water-using appliance purchasers to refine label design and content for a mandatory water efficiency rating and labelling scheme – Environment Australia – October 2003 onwards
- **Water Resources Strategy:** A monitoring study of community behaviour and attitudes concerning water use in the ACT, after some communications activity – Environment ACT, on DUS0903 – September 2003
- **Water Resources Strategy:** A benchmark study of community behaviour and attitudes concerning water use in the ACT – Environment ACT, on DUS0603 – June 2003
- **Energy Efficiency Labels in NZ:** A study in Auckland, New Zealand, exploring specific aspects of various efficiency rating labels as they relate to NZ consumers – Energy Efficiency and Conservation Authority (EECA) NZ – May 2003
- **Resource Efficiency Labelling – Phase I:** A Major Research-Based Review and Scoping of Future Directions for Appliance Efficiency Labels (Electricity, Gas, Water) in Australia – Australian Greenhouse Office (AGO) – May 2003
- **Water Efficiency Labelling:** Research among recent and intending water-using appliance purchasers to develop guidelines for a mandatory water efficiency rating and labelling scheme, in conjunction with George Wilkenfeld & Associates and Energy Efficient Strategies – Environment Australia – January 2003 onwards
- **Instantaneous Gas and Solar Water Heaters:** Various studies on cost effectiveness, payback periods, energy efficiency and so on – for an Australian manufacturer of water heaters – 1998 to 2002

- **Instant Boiling Water Heaters:** Various studies in Australia, UK and US looking at customer expectations and preferences regarding safety, economy, efficiency, energy efficiency, and so on – for an Australian manufacturer of instant boiling water units – 1995 to 2002
- **Energy Efficiency Best Practice – Workshop:** Advice and participation in a workshop for prospective consultants on the Energy Efficiency Best Practice innovation workshops and Big Energy Projects – Department of Industry, Tourism and Resources – April 2002
- **Energy Efficiency Best Practice – Big Energy Projects:** A study among technical specialists to develop and write an article for Australian Energy News on the Energy Efficiency Best Practice innovation workshops and Big Energy Projects – Department of Industry, Tourism and Resources – Feb 2002
- **Energy Efficiency Best Practice – Training Modules:** An evaluation of the Energy Efficiency Best Practice pilot training modules in the brewing industry – Department of Industry, Tourism and Resources – Dec 2001
- **Australian Energy News:** A third study among subscribers and readers to evaluate the effectiveness of the publication – Department of Industry, Science and Resources – Sept 2001
- **Residential Contestability of Electricity Supply:** A study to examine factors that might convince high-value residential electricity customers to switch suppliers when the market becomes contestable – for an energy consultancy and possible new market entrant – March 2001
- **Home Energy Rating:** A study to determine the impacts of mandatory energy Performance Disclosure requirements for dwellings in the ACT, in conjunction with George Wilkenfeld and Associates – Australian Greenhouse Office and ACT Department of Urban Services – July 2000
- **Australian Energy News:** A second self-completion study among the distribution list to evaluate the effectiveness of the publication – Department of Industry Science and Resources – June 2000
- **Australian Water Technologies-TransWater:** A major quantitative study to monitor the opinions and views of internal Sydney Water customers on a wide range of issues – AWT Maintenance, Aug 1999
- **Energy Efficiency Victoria's 'Green Power' Program Benchmarking Study:** A qualitative and quantitative study to evaluate awareness and attitudes concerning the role of coal-fired power stations and the greenhouse effect, and to investigate interest in participating in the 'Green Power' scheme in which households can pay a premium to enable investment in power generation from new renewable sources such as wind and solar – Energy Efficiency Victoria, Mar 1999
- **Redesign of Energy Efficiency Appliance Label:** Research among recent and intending appliance purchasers to develop and assess new

labels designs in line with revisions to the labelling scheme in the light of improvements in appliance technology since the introduction of labelling – Energy Victoria, on behalf of NAEEEEC, August 1998 - ongoing

- **Green Power Marketing Evaluation:** Research among residential customers to evaluate efforts to market Green Power – Integral Energy, August 1998
- **Review of Appliance Labelling:** Research among recent and intending appliance purchasers to examine the effectiveness of the current energy efficiency labelling of household appliances, and implications for revisions to the labelling scheme in the light of improvements in appliance technology since the introduction of labelling – Energy Victoria, on behalf of NAEEEEC, Feb 1998
- **Energy Efficiency Programs:** Study assessing energy efficiency and energy conservation programs across Australia -- SRC International, 1997.
- **SEDA's 'Green Power' Direct Mail Monitoring Study:** A study to evaluate the effectiveness of a direct mail piece on Green Power mailed with electricity bills to non-metropolitan customers in NSW – Sustainable Energy Development Authority (SEDA) – Nov/Dec 1997
- **Marketing SEDA's 'Green Power' and 'Energy Star' Programs:** Market assessment and a major marketing consultancy role in assisting SEDA with the marketing of Green Power to the 'Top 500' companies in NSW, and marketing Energy Star among office equipment and IT manufacturers, distributors and retailers, in conjunction with Energetics Pty Ltd and George Wilkenfeld & Associates – Sustainable Energy Development Authority (SEDA) – Nov/Dec 1997
- **Sydney Water Industrial/Commercial Customer Satisfaction Survey:** A major quantitative study to monitor the opinions and views of industrial and commercial customers towards the Sydney Water Board on a wide range of issues to do with provision of product and service, and an examination of some trade waste issues – Sydney Water, Jul 1997
- **SEDA's 'Green Power' Program Benchmarking Study:** A quantitative study to evaluate awareness and attitudes concerning the role of coal-fired power stations and the greenhouse effect, and to investigate interest in participating in the 'Green Power' scheme in which households can pay a premium to enable investment in power generation from new renewable sources such as wind and solar – Sustainable Energy Development Authority (SEDA), Jul 1997
- **Australian Energy News:** A self-completion study among the distribution list to evaluate the effectiveness of the publication – Department of Primary Industries and Energy – June 1997
- **The 'Energy Star' Energy Efficiency Program for Office Equipment:** A qualitative study among small office and SOHOs to assist with the

development and implementation of the 'Energy Star' Program in Australia  
— Dept of Primary Industries and Energy — October 1996

- **Green Heating Quest:** Involvement in workshops and other activities concerning the Green Heating Quest -- Royal Melbourne Institute of Technology (RMIT), 1996.
- **Sydney Water Industrial/Commercial Customer Survey:** A major quantitative study to monitor the opinions and views of industrial and commercial customers towards the Sydney Water Board on a wide range of issues to do with provision of product and service, and an examination of some trade waste issues – Sydney Water, Jul 1996
- **A Second Qualitative Research on the Macarthur Water Filtration Plant:** A second qualitative study to monitor the awareness, opinions and views of residential customers towards the introduction of the Macquarie Water Filtration Plant, several months after its commissioning – Sydney Water Corporation, Oct 1995
- **Sydney Water Industrial/Commercial Customer Survey:** A major quantitative study to monitor the opinions and views of industrial and commercial customers towards the Sydney Water Board on a wide range of issues to do with provision of product and service, and an examination of some trade waste issues – Sydney Water, Jul 1995
- **Qualitative Research on the Macarthur Water Filtration Plant:** A qualitative study to uncover and investigate in-depth the awareness, opinions and views of residential customers towards the introduction of the Macquarie Water Filtration Plant, and issues related to Sydney Water provision of product and services – Sydney Water Corporation, Jun 1995
- **Electricity Supply Industry Marketing Research Strategy Development:** A review of the ESI's Industrial and Commercial previous market research strategy and marketing plans, and development of recommendations for design and implementation of an appropriate marketing research strategy to meet its goals in these markets – Pacific Power, Jun 1995
- **Analysis of Issues from Public Submissions on Stormwater Matters:** A desk research and analysis study to place some perspective on the wide range of issues raised and comments and suggestions made to do with management and improvement of stormwater and sewage overflows – Sydney Water Corporation, Jun/Jul 1995
- **Qualitative Research on Choices for Clean Waterways:** A qualitative study to uncover and investigate in-depth the awareness, opinions and views of residential customers towards issues raised in the consultation process on Choices for Clean Waterways, a publication put out by the then Sydney Water Board to aid the public consultation process – Sydney Water, Feb 1995

- **Analysis of Issues from Public Submissions on Clean Waterways:** A desk research and analysis study to place some perspective on the wide range of issues raised and comments and suggestions made to do with management and improvement of waterways – Sydney Water, Dec 1994
- **Water Board Residential Customer Satisfaction Survey:** A major quantitative study to monitor the opinions and views of residential customers towards the Sydney Water Board – Water Board, Sydney, Sept 1994
- **Water Board Industrial/Commercial Customer Satisfaction Survey:** A major qualitative and quantitative study to establish the opinions and views of industrial and commercial customers towards the Sydney Water Board, in conjunction with Energetics Pty Ltd – Water Board, Sydney, Jun 1994
- **Residential energy efficiency information programs:** A study in conjunction with SRC International assembling and reviewing residential energy efficiency information programs and labelling programs throughout Australia – ANZMEC, Dec 1993
- **Solar water heaters:** A study in conjunction with Economic & Energy Analysis and George Wilkenfeld & Associates evaluating several initiatives for the future marketing of solar water heaters – ANZMEC, Oct 1993
- **National Energy Management Program:** A major study in conjunction with George Wilkenfeld & Associates and Energy Strategies, evaluating the National Energy Management Program (NEMP) – Dept of Primary Industries and Energy, Feb-Aug 1993
- **Electricity residential end-use:** A study among households in NSW to establish patterns of household appliance usage in conjunction with metering of appliances – Pacific Power (formerly Elcom), Sept-Nov 1992
- **Appliance labelling:** Research among recent and intending appliance purchasers to assist with revision of the label design of energy efficiency labelling of household appliances – State Electricity Commission of Victoria (SECV), Mar 1992
- **Electricity Market Shares in the NSW New Home Market:** A major quantitative study designed to identify market segments and measure electricity industry market shares by major energy end use in new homes constructed in NSW – Electricity Commission of NSW, Jun/Jul 1991
- **Appliance Labelling and New Appliance Technology:** Research among recent and intending appliance purchasers to examine the effectiveness of energy efficiency labelling of household appliances, and implications for improvements in appliance technology, in association with George Wilkenfeld and Associates – State Electricity Commission of Victoria (SECV), May/Jun 1991

- **Energy Conservation Initiatives:** A major study into transport energy management issues with particular reference to communicating fuel consumption information and its relevance to new car buyers and fleet managers. The study also included liaison and consultation with senior opinion leaders from government, the motor vehicle industry and consumer and media groups – NSW Dept of Energy & Fed Dept of Primary Industries and Energy, May 1988
- **The Sydney Water Board:** Assessment of ad concepts for a proposed change in advertising direction – Water Board, Feb 1988
- **The Sydney Water Board:** Assessment of creative concepts (logos, slogans) for a name change for the then Metropolitan Water Sewerage and Drainage Board (MWSDB) – Water Board, Jun 1987
- **The Baseline Initiative:** Evaluation of a policy initiative to assist low income households to pay electricity bills via a voucher system – NSW Dept of Energy, Apr 1987
- **Solar Water Heaters:** Various studies on cost effectiveness, payback periods, energy efficiency and so on – for an overseas manufacturer of solar panels seeking an Australian partner – 1984
- **Towards an Appliance Energy Efficiency Label:** A qualitative research project to evaluate a series of possible designs for an appliance energy efficiency label, Energy Authority of NSW, Les Winton, 1982
- **Household Appliance Energy and Use:** A major quantitative study to establish patterns of household use of a wide range of domestic electrical appliances, to assist in developing algorithms for an appliance labeling scheme, Energy Authority of NSW, Les Winton, 1981