Energy Policy & Planning Consultants - Energy Efficiency & Renewable Energy

Energy Efficient Strategies

13 January, 2006

Federal Trade Commission
Title: Advance Notice of Proposed Rulemaking
Subject Category: Energy Policy and Conservation Act - "Appliance Labeling Rule"
CFR Citation: 16 CFR Part 305

Submission from Energy Efficient Strategies, Australia

Dear Sir/Madan

Please find attached our submission on the above notice of proposed rule making. Please note that we are technical consultants to the Australian government on energy labelling and efficiency standards for appliances and equipment. We are a small consulting company with more than 20 year experiences in these issues. While we do not purport to represent the views of the Australian government, we have worked closely with them for many years and have vast experience in the issues which you are addressing in the notice of proposed rulemaking.

We also have extensive international experience on energy labelling issues and we hope that our views may be of some assistance to you.

This submission is complementary to the submission from Artcraft Reearch, also from Australia.

Please contact us if you require further information or advice on any of the comments contained in this document. My email address is <Lloyd@energyefficient.com.au> You can obtain more detail about us from our corporate profile on www.energyefficient.com.au

Yours faithfully

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On

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This submission is from Energy Efficient Strategies and attempts to provide information and responses on the points requested by the FTC on the above issue.

General Comments

Energy is one of the major environmental consequences of appliance use and is (usually) the most significant ongoing cost of operating an appliance. However, energy is an abstract concept for most people and the energy attributes (energy consumption or energy efficiency) cannot be determined by visual inspection of the product by the consumer (unlike some attributes, for example, refrigerator volumes). Therefore for consumers to be able to minimise the energy impacts resulting from an appliance purchase, it is necessary that energy be declared. The US were one of the first countries in the world to introduce an energy label, and this needs to be applauded.

However, to minimise energy consumption, the USA needs to maximise energy efficiency. The current US energy label fails in this respect - it is a label that shows only energy consumption. The current US label is not about efficiency at all, which makes it difficult for consumers to use.

To most people energy is a difficult concept and keeping complex information on energy consumption in your head while choosing an appliance is not easy.

Hence there is an urgent need for a categorical label in the US - this helps consumers to choose the most efficient product without the need for complex calculations or detailed information. A categorical label provides simple information that people can keep in their head when they look at and compare possibly ten's of different products when considering a purchase.

It is important to note that for the more that 50 countries around the world that use an appliance energy label, nearly all of these (except the US and Canada and possibly Mexico and to some degree Japan) use a categorical system to assess energy efficiency for their consumers. Countries that use categorical labels include Australia, NZ. Korea, Tailand, Hong Kong and China, Europe (25 countries), Brazil and India. So the US is unusual in this regard and, some would argue, somewhat behind the times.

The FTC have posed the following questions as part of the NOPR. The responses by Energy Efficient Strategies to some of these are noted below.

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?

There are a number of reports and documents regarding evaluation of the Australian labelling system that may be of interest to your inquiry. The following website links provide details and a link to an electronic copy of the relevant report:

www.energyrating.gov.au/library/details1991-wilkenfeld-reslabel.html - 1991 labelling review for Australia (first review after 5 years of operation)

www.energyrating.gov.au/library/detailsgwa-labelv1996.html - 1996 assessment of costs of benefits of labelling

www.energyrating.gov.au/library/detailsfocus298.html - 1998 focus group studies on aspects of the energy label design

www.energyrating.gov.au/library/detailsfocus898.html - 1998 focus group studies on aspects of the energy label design (second part)

www.energyrating.gov.au/library/details2003-applabelreview.html - 2003 review of label design approaches in Australia

www.energyrating.gov.au/library/details2003-gw-labellingstrategy.html - 2003 review of product labelling strategies in Australia

www.energyrating.gov.au/library/details200405-labeltransition.html - 2004 documentation of the label transition for 2000

The other reference that is likely to be of interest is:

www.energyrating.gov.au/library/details200404-internatlabelreview.html - international review of labelling and efficiency standards programs around the world.

CLASP also have a handbook on energy labelling issues: see www.clasponline.org

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?

This question is an interesting one. The most critical thing for a label is to be able to tell consumers unequivocally whether one product is more efficient than another (how much more efficient is another question). Therefore an energy label must be able to tell a consumer which product is more efficient - this needs to be done in a way that is simple, easy to interpret and cannot be misunderstood. That should be the initial basis for evaluation: if consumers can't differentiate efficiency from the label, the label itself has failed the first hurdle. So comprehension to a very high level is critical. The only way to measure this is to try labels out on real consumers and refine them until you get something that works well for the majority of consumer. It is also critical that the label stand alone in terms of interpretation - it should be intuitive and should not need a great deal of coaching to be understood. Remember that most consumers may only purchase a new appliance every 3 or 5 years - it is not something that they

use every day. It should not be a complicated system that needs to be learned or which requires special training.

The next thing is whether consumers actually use the label (assuming they can understand it) in the purchase process. This aspect has been covered in detail by the Artcraft submission.

The ultimate measure for any program is assessment of its impact. This certainly needs to be done for an energy label. However, the longer a label has been in place the more difficult this is to assess (the no label case becomes only theoretical - labelled appliances becomes the base case). It is very difficult to develop a scenario in the USA, for example, to estimate product efficiency now if the energy label had not been introduced in 1979. Evaluating an alternative scenario is now difficult.

There is also an effect on the supply chain and on manufacturers which is more difficult to quantify. The main influence is with the manufacturers. With a categorical labelling system, the efficiency categories are well defined and remain stable for substantial periods (typically 5 to 10 years). During this time, the manufacturers can review their product design and performance and can make improvements to their products where this results in an improvement in their efficiency rating or category. Manufacturers are prepared to invest in product development to improve their efficiency because they know that they will enjoy the benefits for an improved rating for some time. Under the current US system there is virtually no incentive for manufacturers to improve their energy consumption as the US label end points are changed each year and manufacturers are uncertain where their product will lie relative to others from year to year. Also the US system generally creates very narrow product ranges for comparison (eg 20.5-22.4 cu ft side by side refrigerators with an icemaker) - this limits the possibility for simple comparisons (eg compared to a slightly smaller or larger product, or against a top mounted refrigerator for example, or without an icemaker, which can be done, but only by remembering a series of 3 digit energy numbers).

In fact, in our view, many US manufacturers "like" the current US label because it is difficult to use and does not allow products to be easily compared by consumers with respect to efficiency. This is an area of competition that some manufacturers do not want to open up.

A secondary aspect of the categorical label is that some retailers will seek out and promote products that are higher efficiency. Under a categorical label these can be easily distinguished and more easily promoted. Manufacturers will also be more sensitive to the efficiency ratings and will seek to promote high efficiency products to that segment of the market that has a strong interest in efficiency.

If there are lists of products on the web that can be sorted by efficiency, this will encourage manufacturers to ensure that they have at least some products with the best ratings.

So there are impacts at a number of levels and some of these are long term and cannot be assessed immediately.

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?

Does the current US label really work? We are not in a position to comment on the effectiveness of the current US label but there are studies in the US would appear to suggest that a revised label design could be far more effective and could have benefits.

It is important to reiterate here that the current US label is an energy label and does not make any statement or judgement about energy efficiency and that we believe an indication of efficiency (as opposed to energy) would vastly improve its effectiveness in product comparisons for consumers.

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

As per the response to Question 3 above, as the current US energy label does not indicate efficiency, it is likely to have a very limited impact on energy efficiency (because product comparisons are difficult based only on energy data and consumers cannot readily make efficiency estimates and corrections for differences size and features).

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

Endorsement labels like Energy Star have some use but they are not a mainstream indicator of efficiency for the masses, if only because a limited sub-segment of the market is eligible. The presence of an endorsement label is good, but the absence of a label is inconclusive. Such a system only works if a small proportion of the market is eligible. Endorsement labels can be useful for procurement and corporate purchasers. However, we believe that while these programs are complementary, there are not really strong linkages.

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 use of a categorical system of indicating energy efficiency would improve the US appliance energy label. As stated above, most other energy labels in use around the world today are categorical energy labels that show efficiency grades.

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

There will always be some segments of the market that cannot be reached by energy labelling and there will always other factors that may diminish the label's impact, such as the involvement of third party purchasers. However, this does not detract from the need for a well designed and effective energy label (accepting that there will always be some consumers that are not interested). The magnitude of these segments and the impact of other factors varies by product and even region.

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

The US need to develop a label that is suitable for US consumers. We cannot comment on what the best system is for the USA. It is probably important to build on the current recognition of the current US energyguide label (colour, layout and fonts) to maintain a familiarity but to

redesign the label elements to be the most effective in allowing consumers to compare product efficiency. The ACEEE study has made some good progress on this front but the process needs to be refined and completed before it could be considered for implementation. Ultimately any new label has to be designed by the US for the US (but you could consult Canada and Mexico in the process as there are some undertakings for common regulatory approaches to product efficiency).

The most critical element is a system that can be used to differentiate efficiency - ACEEE have proposed stars which seems to be well understood by US consumers based on the work done to date.

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?

We believe that a categorical label is essential. We have no assessment of the costs and benefits – these would have to be estimated internally for the USA.

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

We have no particular views on these points other than designs have to be developed and tested in the USA.

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

We believe that there would be an improvement in energy efficiency resulting from such a change and that this would be ongoing, although we are not in a position to quantify this improvement.

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

We believe that consumers are generally able to understand that an energy label is about energy and not other issues. This is part of a communication strategy. The same concern applies to the current label to some extent.

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 criteria required is firstly an assessment of absolute product efficiency (against some agreed metric) and then to set a rating scale which categorizes products against this metric. The categories need to be set so that least efficient products are at the lower end and the most efficient products are at the mid to higher end. It is important to have some of the most efficient categories empty initially to encourage manufacturers to improve product efficiency over time.

Some judgement is required to set the highest efficiency categories at a level that is technically difficult but achievable in the next 3 to 8 years. It is also important that manufacturers understand that the efficiency categories will remain unchanged for at least 5 years and perhaps longer. It is also important to ensure that differences in the rating scale (eg 1 star versus 2 star) are in fact a significant and meaningful difference in product efficiency to warrant a rating. Our experience suggests that at least 15% energy reduction per star is necessary and that up to 25% energy reduction per star can be workable (for a given product size - this translates into an efficiency change as well once size is taken into account).

Setting the categories requires care and skill in the negotiation process with manufacturers. Some product categories may have few products with a low rating and some may have many. Conversely, some categories may have few products with a low rating. It is important to construct an energy efficiency metric that can be used across product sizes and features so that as far as possible all products that can provide a similar energy service are rated on the same basis. This is very different to how the label is implemented in the US at the moment.

Such a system means that that annual changes to the energy label are not required. This is a significant saving in administration costs for government and manufacturers. But it does mean that a significant effort is required when the categorical system is reviewed (which is relatively infrequently).

The basis of energy efficiency is energy service delivered per unit of energy consumption. Therefore to have an effective assessment of efficiency, a suitable metric of energy service needs to be determined. For many products this already exists (eg volume of a refrigerator, output of an air conditioner) but in the US, this may be a bit more difficult for some products like clothes washers, clothes dryers and dishwashers - the amount of load processed needs to be assessed (kg of clothes and place settings) but the performance is more difficult (what are clean clothes and dishes, or how clean?). US test procedures have traditionally not dealt with these issues very well.

As a general rule, US DOE efficiency standards (where they exist for a product) may be a suitable basis for setting a 1 star level (as technically no product can be sold that has a higher energy consumption). However, where there are many different product categories with different standards (eg for refrigerators), it may be advisable to have a single system to classify all comparable products. For example, all products with a refrigerator should be rated on the same basis - top and bottom mount, all refrigerators, side by sides, with or without icemakers etc. In this case the energy service is adjusted volume - this is an attribute that is already used to set efficiency standards. This would mean that some efficiency standards may in fact be more than the 1 star level for some product categories.

This is important because inherently less efficient configurations (eg side by sides) and features (through the door icemakers) should achieve a lower efficiency rating because they use more energy to deliver a comparable service. Makers of side by side models usually strongly oppose this approach because these configurations are very expensive and probably have a good profit margin.

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?

For a label that shows categories of efficiency, a determination of the relative efficiency will be necessary. As noted in Question 11 above, this is neither simple nor trivial and the success of such a system requires careful and objective assessments to be made. It is critical that government retain ownership of this process while undertaking extensive consultation with stakeholders.

All of the data required to undertake assessments of efficiency of the current market will be already available for products regulated for energy efficiency (energy labelling or efficiency standards). However, evaluations of the likely technical improvements over the next 5 to 10 years may take some additional research, although this is usually undertaken as part of the technical assessment for new or revised efficiency standards in any case.

It is also useful to undertake an international review of product efficiency as part of the future assessment of trends in efficiency. This could provide early warning of new technologies and developments in other parts of the world that may not have yet made it onto the US market. Such studies are usually modest in terms of resources required.

This raises an important additional issue - where a product is subject to both energy labelling and efficiency standards, there needs to be careful coordination on the timing of changes to both systems under a categorical labelling system. For example, bringing in a new star rating system in say 2006 which is then followed by new efficiency standards in 2007 or 2008 which then eliminates say all 1 to 3 star products makes no sense at all.

Transition from one rating scale to a new one has to be planned carefully and requires some resources. However, this is a relatively infrequent occurrence. Some communication with consumers is also necessary during such a transition (to explain why most products are now a lower rating under the new rating scale).

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?

Energy Star as a brand name is well recognised in the US and a star rating scale for energy efficiency on an Energyguide label is unlikely to cause any confusion at all. These systems are complimentary and should be able to work well together.

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)?

We have no strong views other than we think that embedding the Energy Star label into the EnergyGuide label is messy, especially when there are changes to Energy Star tiers.

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?

The consumer testing to date appears to show that stars work well in the US. However, the US should do additional testing to ensure that the label design and configuration chosen is the best one for US consumers. The energy current bar design has severe inherent limitations in terms of communicating energy efficiency so it is unlikely to be the best option. The bar system is about energy and not efficiency so it is intrinsically handicapped at depicting efficiency in a simple fashion.

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?

The key point here again is that energy is a difficult and abstract concept for consumers and that energy efficiency needs to be shown on the energy label.

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 current US energy label shows 1 year costs – we believe that this under-emphasises the importance of energy in the overall cost equation. However, the period of time shown is somewhat arbitrary, and there is variation in annual usage as well for many product types.

Costs on the energy label have a great deal of potential to confuse consumers and any statement of running costs could be mixed up with appliance costs or possibly even energy cost savings. It is impossible to show a single representative cost for a country like the USA.

The original energy labels for the US had cost as the primary indicator on them and they were very cluttered and confused and that this was changed about 7 years about because of documented confusion about the meaning and interpretation.

Costs are best left to a website where consumers can add their own tariff and usage data (or alter the default values provided – see the Australian system on www.energyrating.gov.au

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?

Providing consumers with detailed technical descriptors of efficiency or energy on an energy label is not appropriate. Consumers may look at and compare 10's of products and a simple category like a star rating is simple and easy to remember. Of course existing efficiency descriptors can be used as the basis for setting efficiency categories (eg star ratings), but this may be done in a complex manner (eg there may be offsets, geometric scales or other factors that adjust for other features and size) and the consumer is not in a position to use this data directly. However, the basis of how categories are calculated could be disclosed on a website listing of products for those with a technical interest in the details. We find that a simple web listing of the main attributes (brand model energy size operating cost etc) sorted by efficiency is adequate. Some people seek more detail in more comprehensive versions of the listings or

from downloadable files which provide more information on each product. All this merely improves the credibility of the rating system.

However, it is critical that some key data be disclosed on the energy label. For example, for refrigerators and freezers, volume should be stated (it already is on the current label), for clothes washers and dryers - the capacity in lbs or kg, for dishwashers - place settings, for air conditioners - cooling and/or heating output. The current system of sizing for clothes washers and dryers and dishwashers is not terribly adequate (standard vs compact for example)

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?

We have no particular comments on this issue for the USA.

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?

We have no particular comments on this issue for the USA.

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

We have no particular comments on this issue for the USA.

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?

A website listing of all products is essential to enable consumers to seek the most efficient products. This empowers people to seek products other than the ones that happen to be stocked in the local appliance store. To operate this an electronic and up to date listing system needs to be implemented that can be updated daily (or at worst weekly) as well as a widely known website to access the listing. The website address should be on the energy label.

D. Reporting Requirements

We have no particular comments on this issue for the USA, except that manufacturers should be required to indicate whether a model is still current. This should be done annually as the least frequent interval. Current product reporting requirements are probably adequate but these would need to be assessed on a case by case basis as detailed equations to determine star categories are analysed for each product.

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?

If a categorical label is used, it is critical that the scales are not updated on a regular basis. The whole concept relies on a stable system of gradings that do not change from year to year. So this would be a large change for the US. The following points are related and important:

- fixed categories are intended to remain unchanged for at least 5 years so the label remains the same for this period of time as does all of the information on the label for a product that does not change.
- listings of products on a website can provide a full list of the available product efficiency on the market, as well as the range of products.
- typical product efficiency improvements are of the order of 1% (slow) to 5% (fast) per annum. With an efficiency category step representing a difference of say at least 15%, product efficiency is likely to move fairly slowly in the general scheme of things. Even under a fast efficiency improvement, a review of the efficiency categories is unlikely to be needed before 5 years (if the original is well designed) and could be as long as 10 years and more typical situations.
- introduction of stringent new efficiency standards will have an impact on the rating of available models and careful coordination is required between these programs.

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?

See response to Question 1 above. The rating categories should be examined every 3 to 5 years. Planning an implementing a new rating system can take several years. The whole process typically results in a new rating system each 10 years (±5 years), depending on the product and rate of improvement.

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?

For a categorical label, the data on the energy label should remain fixed for a substantial period (ie should not include cost data and relative energy data) so the potential for confusion only occurs during a category re-rating change every 5 to 10 years - there are visual elements that can be used to overcome this. Refer to the transition report for 2000 in Australia which details the process for when the rating system and label design was changed for all products in that year: www.energyrating.gov.au/library/details200405-labeltransition.html

Australia is also proposing to alter the refrigerator rating system for 2007 and the discussion paper provides an example of the analysis required. See www.energyrating.gov.au/library/details200601-rf-algorithm.html

F. Lighting and Plumbing Products

We have no particular comments on this issue for the USA.

End of Submission