

AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY
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January 13, 2006

Hampton Newsome
Federal Trade Commission
Office of the Secretary
Room H-135 (Annex O)
600 Pennsylvania Avenue, NW
Washington, DC 20580

RE: Energy Labeling, Project No. R511994

Dear Mr. Newsome:

Please find attached the comments of the American Council for an Energy-Efficient Economy (ACEEE) in response to the ANOPR regarding the Appliance Labeling Rule as announced in the Federal Register of November 2, 2005.

Thank you for your consideration.

Sincerely,



Jennifer Thorne Amann
Senior Associate

Enc: ACEEE Comments on Energy Labeling, Project No. R511994

American Council for an Energy-Efficient Economy
Comments to the FTC on the Appliance Labeling Rule
Energy Labeling, Project No. R511994

Introduction

This document presents the comments of the American Council for an Energy-Efficient Economy (ACEEE) with respect to Energy Labeling, Project No. R511994. We appreciate this opportunity to provide comments on the appliance labeling rule.

About ACEEE

The American Council for an Energy-Efficient Economy is a nonprofit organization dedicated to advancing energy efficiency as a means of promoting both economic prosperity and environmental protection. ACEEE fulfills its mission by conducting in-depth technical and policy assessments; advising policy makers and program managers; working collaboratively with businesses, public interest groups, and other organizations; publishing books, conference proceedings, and reports; organizing conferences and workshops; and educating consumers and businesses.

ACEEE has worked on appliance efficiency issues for 25 years. We were involved in consensus negotiations leading to the legislation establishing minimum efficiency standards and remain active in standards rulemakings at the federal and state level. We also work to develop and evaluate information and incentive programs to support the adoption of energy-efficient appliances and equipment.

Organization of this Document

We begin by summarizing our overall comments on the Appliance Labeling Rule and then address specific questions raised in the ANOPR.

General Comments

As noted in the FTC's request for comments, ACEEE conducted a multi-method, sequential research project to evaluate the effectiveness of the current EnergyGuide label and alternate label designs. Seven studies were conducted in total, the first with supply side actors, and the remainder with consumers. Supply-side actors (e.g., manufacturers, contractors, and retail sales staff) were interviewed to uncover opinions regarding program efficacy and the optimal label format. Primary research with consumers sought to determine the best label format and informational elements for U.S. consumers. The consumer studies culminated in a quasi-real world shopping experience. ACEEE staff and contractors conducted interviews with supply-side actors and consumers; an independent market research firm conducted the remainder of the qualitative research and all quantitative research.

Our research found that, although each group of market players are used to and familiar with the current EnergyGuide label, there appears to be a low level of use and, on the supply side, perceived value. Most importantly, the current label also appears to have minimal impact on consumer, manufacturer, and contractor comparisons and choices. Indeed, when the current label was not identified as such, most consumers were unable to identify it or correctly select it from a group of different label designs despite the fact that most had recently purchased an appliance or were currently shopping for one. Findings provide strong evidence that the EnergyGuide can be redesigned to improve consumer comprehension, encourage wider use of the label, and motivate consumers to consider energy use when purchasing a labeled appliance.

ACEEE tested multiple label formats and graphical designs, including several modeled on designs used in other countries. Among the alternate labels tested, a clear preference among consumers emerged for categorical labels, particularly a stars-based rating system (Figure 1). Most consumers found the stars rating easiest to understand and most motivating. The use of a stars-based system was also recognizable and intuitive. Furthermore, consumers found the stars rating system complementary with the ENERGY STAR certification. Importantly, the stars label was not found to mislead consumers by implying quality or other characteristics beyond energy consumption.



Figure 1: Recommended Stars-Based Label with ENERGY STAR

ACEEE recommends a set of changes to the labeling program that together will help the program meet its objectives of informing consumers and improving energy efficiency. Specifically, we recommend that the EnergyGuide label for all appliance/equipment types be redesigned in the following ways:

Switch from a continuous to a categorical, 5-star scale.

This single change will have a significant positive impact on the use, effectiveness, and equity of the EnergyGuide label. Our research indicates that a stars-based label is more easily understood than the current label, thereby enabling shoppers to more quickly and easily compare the energy performance of multiple models. Furthermore, consumers reported that they are more likely to use the stars-based label and more likely to consider energy efficiency in their purchase decisions. Thus, the stars-based label has the potential to increase the number of shoppers who use the label in product selection, including consumers with limited literacy, difficulty processing numerical concepts, and those who have difficulty reading English. In summary, a stars-based label will help extend the benefits of the EnergyGuide program to a broader group of American consumers.

Other advantages of a categorical label include the consistency and coherence of the star rating across products types; the ability of the rating scheme to build on and leverage other market transformation activities such as ENERGY STAR; and the positive reinforcement it will provide to manufacturers of energy-efficient products.

Require that ENERGY STAR logo, if applicable, appear in lower right corner.

Since 2000 manufacturers have been permitted to include the ENERGY STAR logo on the EnergyGuide labels accompanying ENERGY STAR qualified products. Manufacturers are required to place the logo immediately above the scale graphic on the EnergyGuide label. In our research, consumers reacted negatively to this placement indicating that it cluttered the graph making it more difficult to read and interpret. Some consumers found the placement confusing because it was unclear whether the label was an indicator corresponding to a point on the line graph. Placement of the ENERGY STAR logo in the lower right corner of the label, instead, eliminates this confusion without diminishing the visibility of the endorsement. Indeed, consumers not only stated a clear preference for this placement, many indicated that the ENERGY STAR would be more effective in this location because it is clear, at a glance, whether the product has the ENERGY STAR.

Make other modifications to the content, organization and layout of label text.

A number of smaller modifications to the EnergyGuide label will improve the label's visual appearance and ease of use. First, the label is easier to read and understand when informational elements are clearly grouped together and blocked off using the same text style and color. For example, operating cost information and the explanatory text ("Estimated Yearly Operating Cost") should be in the same box with the same color text. Second, a slight reduction in the level of explanatory text provides all the necessary information without appearing so cluttered and overwhelming.

Reconsider product classifications to provide comparison among functional equivalents.

Consumers purchase home appliances and equipment for the services they provide. The objective of the appliance labeling program is to provide consumers with the information to compare the energy performance of products offering the same service or utility. Products offering the same service should be compared on the same label regardless of differences in technology or design to avoid consumer confusion and diminished

credibility of the label. Based on this logic, in 2000 the FTC amended the appliance rule to include comparison of top-loading and front-loading washers on the same label.

Develop and implement a consumer education campaign.

A consumer education campaign is needed to improve consumer awareness of the EnergyGuide label and the information it provides and to assist consumers in using the label when making appliance purchases. Such a campaign is needed regardless of how (or whether) the label is redesigned. An education and outreach campaign could leverage resources from other stakeholder groups interested in encouraging the purchase of energy-efficient appliances including utilities and other energy efficiency program sponsors, consumer advocacy groups, environmental organizations, and trade associations.

Responses to Questions in the ANOPR of November 2, 2005

Effectiveness of the Labeling Program

As discussed above, ACEEE conducted extensive primary research to evaluate the effectiveness of the current EnergyGuide label and alternate label designs. Our research reveals the limited impact that the current EnergyGuide label has on the product choices made by U.S. consumers. Although consumers are familiar with the “yellow energy label,” use of the label appears to be low. Findings also provide strong evidence that the EnergyGuide can be redesigned to improve consumer comprehension, encourage wider use of the label, and motivate consumers to consider energy use when purchasing a labeled appliance.

Studies from the European Union (EU) and Australia attribute a significant improvement in appliance energy efficiency to adoption of appliance labeling programs in these jurisdictions. For example, an evaluation of the EU labeling scheme demonstrated a 10% improvement in the sales-weighted average efficiency of refrigerators between 1994 and 1999 due to the label (an additional 16% improvement was due to efficiency standards).¹ A more recent analysis estimates average efficiency improvements of 37% for refrigerators, 21% for clothes washers, and 35% for dishwashers between 1994 and 2004; efficiency trends prior to the label’s introduction were relatively flat.² In Australia, the success of the appliance labeling program in improving the efficiency of products on the market led to a thorough revision and ratcheting upward of the efficiency categories in 2000. This revision was necessary because product star ratings were clustered among the top categories. The success of Australia’s program is further evidenced by high levels of awareness and reported use among consumers—more than 85% of consumers report using the label in their purchasing decision.³ For more information on labeling programs in these regions and throughout the world, the Collaborative Labeling and Appliance

¹ Bertoldi, P. 2000. *European Union Efforts to Promote More Efficient Equipment*. European Commission. Directorate General for Energy.

² Waide, P. 2004. Energy labeling around the globe. Presented at Energy Labels: A Tool for Energy Agencies. 19 October. Brussels.

³ Numerous studies and reports on the Australian labeling program can be found on the Australian Greenhouse Office website at: www.energyrating.gov.au/library.

Standards Program (CLASP) has published an informative guidebook on program design, implementation, and evaluation and also maintains a comprehensive website.⁴

The effectiveness of the FTC appliance labeling program should be measured according to its success in meeting the program's objectives and those of the enabling legislation. The appliance labeling rule was established under the Energy Policy and Conservation Act of 1975 (EPCA) and codified in U.S. Code, Title 42, Chapter 77, Subchapter III, Part A, Section 6294. According to 42 U.S.C. 6201, Congressional Statement of Purpose, the purposes of Chapter 77 include:

- “(4) to conserve energy supplies through energy conservation programs, and, where necessary, the regulation of certain energy uses;” and
- “(5) to provide for improved energy efficiency of motor vehicles, major appliances, and certain other consumer products.”

Within the original appliance labeling rule, the FTC is directed to prescribe labeling to “assist purchasers in making purchasing decisions.” Amendments to EPCA set forth in the Energy Policy Act of 2005 direct the FTC to initiate a rulemaking to consider the effectiveness of the appliance labeling program “in assisting consumers in making purchasing decisions and improving energy efficiency.”

To comply with the original purpose of the appliance labeling rule and the instructions set out in the 2005 Act, the FTC should consider consumer comprehension and preferences, the impact of the label on product selection, and the ability of the label to motivate consumers to use the label and to consider energy efficiency in their purchase decisions. More broadly, the effectiveness of the label in impacting manufacturers and retailers should be considered as this can have a large impact on improving energy efficiency. Similarly, the ability of the label to leverage the efforts of utility and other energy efficiency programs should be considered. In other words, the effectiveness of the appliance labeling program should measure not only the effectiveness of each label, but of the labeling program as a whole.

Changes to Current EnergyGuide Label

As discussed above, ACEEE research has identified several changes to the current label design and format that would improve the effectiveness of the EnergyGuide label. In general, an improved label would retain the yellow label format and current EnergyGuide logo; clearly group and block off each informational element using the same text style and color; slightly reduce the level of explanatory text; and reposition the ENERGY STAR to the bottom right-hand corner of the label. More specifically, an improved label would incorporate a categorical rating system based on 1 to 5 stars. Figure 1 incorporates each of these changes into the optimal design developed and tested through our research.

⁴ CLASP. 2005. *Energy Efficiency Labels and Standards: A Guidebook for Appliances, Equipment and Lighting*. February. www.clasponline.org.

Implementation of a Stars-Based Categorical Label

As outlined above, ACEEE strongly supports adoption of a stars-based categorical design for the EnergyGuide label. We recognize that this represents a major shift for the appliance labeling program that will entail significant upfront implementation efforts. However, we believe the benefits of the new label design to consumers, manufacturers, efficiency programs, and other stakeholders justify the investment. Furthermore, experience from other regions where categorical labels have been successfully implemented along with the expertise of stakeholder groups in the U.S. can greatly inform and assist the FTC with implementation. Of the more than 50 countries with energy labeling programs, all but a few (most notably the U.S., Canada, and Mexico) use categorical label designs.⁵ The experience of these countries—including fellow OECD member countries such as EU member states, Australia, and Japan as well as developing economies such as Brazil, South Africa, Thailand, Iran, and Columbia—will be of great value to U.S. efforts to design and implement a categorical label that meets the needs of consumers, manufacturers, retailers, efficiency programs, and the federal government.⁶

ACEEE recommends that the FTC establish a technical review group composed of key stakeholders to provide input and advise the Commission as it establishes the appropriate category thresholds. The technical review group should include representatives of:

- Department of Energy (DOE);
- Environmental Protection Agency (EPA);
- National laboratory (e.g., Lawrence Berkeley Lab has extensive experience with the covered products through their analyses for minimum efficiency standards and product test procedures);
- Manufacturer trade association (e.g., Association of Home Appliance Manufacturers, Air-Conditioning and Refrigeration Institute, Gas Appliance Manufacturer Association, as appropriate for given product);
- Energy-efficiency organization;
- Environmental advocacy organization;
- Consumer organization; and
- Electric and/or gas utility (as appropriate).

We also recommend the following general criteria for setting category thresholds. First, categories should be established based on the range of product energy performance rather than the distribution of products in the market. Second, the base of the energy use range (i.e., the low-end of the efficiency scale) should correspond to the minimum efficiency standard. Third, the highest category (e.g., 5 stars) should include a few existing products, but should also allow for improvement. This will encourage manufacturers to introduce new 5-star products while providing for a longer interval between category

⁵A useful snapshot of current labeling programs is Harrington, L. and M. Damnic. 2004. Energy labeling and standards programs throughout the world. Report to the National Appliance and Equipment Energy Efficiency Committee, Australia. July.

www.energyrating.gov.au/library/details200404-internatlabelreview.html.

⁶ CLASP 2005 (previously cited) contains useful guidance on the design and implementation of categorical labels. Chapter 5 of the guidebook is attached to these comments (Attachment 1).

revisions. The high end of the efficiency range would reflect a reasonable expectation of energy use by the most efficient products when the categories are next revised (i.e., in approximately 5 years).

As this implies, we do not recommend that range endpoints or category thresholds be revised on an annual basis. By establishing an endpoint for the most efficient products beyond that of products currently on the market, the label provides a cushion for the introduction of new, more efficient products and eliminates the need for short-term revisions. This may help offset the initial costs to develop and launch the new label. Stakeholder input into the revision process and a longer lead time before implementation (e.g., 1 to 2 years) will allow for planning and adjustment of product development and program implementation cycles. Finally, the FTC and the technical review group should consider breakpoints that are already in use in the market when setting category thresholds (e.g., ENERGY STAR levels, Consortium for Energy Efficiency tiers, etc.). As an example, one goal could be to set the four star level equivalent with the ENERGY STAR specification whenever feasible.

For some products, energy use tends to fall more or less on a continuum between the most and least efficient products, although models may cluster in several points along the scale. Examples include refrigerators, clothes washers, and other white goods. Other products tend to fall in discrete categories corresponding to specific technologies or technical constraints. An example is furnaces where energy performance is differentiated by condensing and non-condensing models. To illustrate, potential categorical rating schemes for one class of refrigerators and for gas furnaces are provided below. ACEEE has developed proposed rating schemes for most of the products currently covered by the appliance labeling program. While it is premature to include all of these mock-ups at this time, we plan to introduce them in future comments or make them available upon request from the FTC.

Sample rating scheme for refrigerators

Top-mounted refrigerator-freezer with automatic defrost (18.5 to 20.4 cubic feet)

Star rating	% above national standard	Range endpoints
1 star	0% to 4.99%	491 kWh/year (min. standard)
2 star	5% to 9.99%	
3 star	10% to 14.99%	
4 star	15% to 19.99%*	
5 star	20% or higher	344 kWh/year (30% above standard)

* This level corresponds to the current ENERGY STAR spec (15% above standard)

Sample rating scheme for gas furnaces

Star rating	AFUE	Range endpoints
1 star	Less than 82.0	78.0 (min. standard)
2 star	82.0 to 87.9	note: virtually no models on market
3 star	88.0 to 91.9	
4 star	92.0 to 94.9*	
5 star	95.0 or higher**	98.0

* This level corresponds to the proposed ENERGY STAR spec (92.0 AFUE)

** This level corresponds to the federal tax credit

As mentioned above in our general comments, ACEEE recommends that the FTC reconsider product classifications to better provide consumers a basis for comparison of energy use among functional equivalents. Such action was taken with regard to clothes washers in 2000. ACEEE recommends the FTC adopt similar changes to the labeling rules for water heaters. Under this change, gas water heaters using different technologies or configurations (e.g., storage units, instantaneous units) would be included on the same comparison label. Similarly, all electric water heaters would use the same label (e.g., electric-resistance storage, heat pump water heaters, instantaneous, solar). As part of our research on the EnergyGuide label, we included electric resistance water heaters and heat pump water heaters on the same EnergyGuide label as part of a simulated shopping experiment. Consumers had no difficulty comparing the performance of these water heaters. In fact, the heat pump model was the second most popular product selected for “purchase” (after the most efficient resistance model) during the experiment despite a substantial incremental cost. Participants indicated that their reason for purchasing the heat pump unit was its high efficiency—they recognized that the unit offered an attractive payback based on its superior energy performance. Further, we recommend the FTC investigate other product types where the product classes should be combined to ensure that consumers are provided with the appropriate basis for comparison.

The FTC raises the question of whether a categorical rating scheme would be interpreted as an indicator of product quality rather than energy performance or energy efficiency. ACEEE investigated this question and determined that this concern is unfounded. In qualitative research, most consumers stated clearly that the EnergyGuide label—including categorical label designs—related solely to the product’s energy performance. Further research in a simulated shopping environment found that a stars-based categorical label had no systematic impact on consumer perceptions of appliance quality or value, although our findings did suggest that the stars label helped respondents distinguish poor value among the less efficient models with higher operating costs.

Interaction of the ENERGY STAR with the EnergyGuide Label

Since 2000, when the FTC first allowed inclusion of the ENERGY STAR logo on the EnergyGuide label, limited research has specifically addressed the impact of the ENERGY STAR program on the effectiveness of the current EnergyGuide label. ACEEE’s research addressed the use of the ENERGY STAR logo in the placement currently allowed under the appliance labeling rule and explored alternate placements of

the ENERGY STAR on the EnergyGuide. Our findings demonstrate that consumers are in favor of having the ENERGY STAR displayed on the EnergyGuide label, but find the current placement confusing. Typical comments from consumers include “it gets lost,” “you can’t see it when it’s in the graph,” and “it doesn’t belong there.” Preferred placement of the ENERGY STAR is in the bottom right-hand corner of the EnergyGuide label, so that it does not interfere with the label’s graphical rating scheme for the labeled appliance. This placement is not only preferable, many consumers indicated that it would be more effective stating, “it stands out more,” and “you’re going to be drawn to that spot.”

Furthermore, consumers easily distinguished the ENERGY STAR from the categorical rating scheme, recognizing ENERGY STAR as an endorsement that the appliance has met prescribed standards, while the categorical rating is a scale for the comparison of energy use among models. Indeed, there appeared to be a mutually reinforcing relationship between the ENERGY STAR and both the categorical and continuous EnergyGuide designs tested. Consumers stated that the ENERGY STAR “gives it [the EnergyGuide] credibility,” “would be a plus,” “enhances it,” and “they reinforce each other.”

The findings of our research are supported by efforts to integrate endorsement labels into mandatory categorical comparison labels in Australia and the European Union. Findings from these efforts bolster our conclusions that it is possible to design an integrated label that is mutually reinforcing and leverages prior investments to benefit consumers and all other stakeholders. While this process takes care and coordination, it is doable. Indeed, the flexibility of the ENERGY STAR program can allow for greater energy savings—as new products cluster in the top categories, ENERGY STAR may be revised to include only five-star products.⁷

ACEEE is aware of concerns that a stars-based label may not work well with ENERGY STAR and other energy efficiency programs. We are confident that with adequate discussion and input from key stakeholder groups, a stars-based EnergyGuide can be designed and implemented to complement and reinforce efforts by manufacturers and efficiency program sponsors to improve overall product efficiency.

While the ENERGY STAR endorsement label and the EnergyGuide can work well together, the comparative information provided by the EnergyGuide serves several unique purposes. It is an important information tool for consumers that are interested in a finer level of detail about the appliances they are considering or for those who want to differentiate between multiple products that qualify for the endorsement label. It also serves to inform consumers that want to avoid the worst-performers, but may need to purchase products that don’t qualify for the endorsement label to meet other needs (cost, size, other constraints). The EnergyGuide also provides information on product categories currently not covered by the ENERGY STAR program and to products manufactured by companies that choose not to participate in the voluntary ENERGY

⁷ Chapter 5 of the CLASP guidebook (see Attachment 1) provides more information on the interaction of comparison and endorsement labels and experience in the EU and Australia.

STAR program. Finally, the EnergyGuide can be integrated into other efficiency programs including educational campaigns, public and private procurement programs, financing and incentive schemes, and so on, thereby increasing the effectiveness of both programs. A simplified, easier-to-use categorical design could make integration of the label a more attractive option.⁸

Other Label Formats to Consider

As noted above, ACEEE tested a range of continuous-and categorical-style labels as part of its research. Through our research, we identified an optimal continuous label design dubbed the “bar graph label” (Figure 2). This label retains the continuous-style label graphic, but the graphical element has been redesigned to enhance its visual appeal, message communication, and information organization. This label contains the same improvements in level of text, arrangement of informational elements, and relocation of the ENERGY STAR logo as the preferred stars-based label. The bar graph label represents a marked improvement to the current EnergyGuide label; however results show that it does not rate as well as the stars-based categorical label for visual appeal, attention-grabbing ability, ease of understanding and use, and motivating ability.

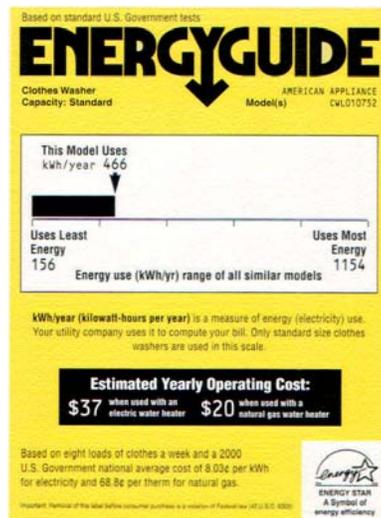


Figure 2: Bar Graph Label with ENERGY STAR

Energy Descriptors for Various Products

According to ACEEE research, annual operating cost is considered to be one of the most important pieces of information on the EnergyGuide label. However, consumers are also interested in seeing annual energy use data. In particular, the operating cost and energy use data should be displayed in separate, clearly labeled blocks on the label so they are easy to find. Consumers expressed little interest in replacing annual energy use with operating cost as the basis for the comparative graphic.

⁸ CLASP 2005 (previously cited) includes a discussion of policies and programs that complement labeling efforts. Chapter 10 of the guidebook is attached to these comments (Attachment 2).

ACEEE does not recommend that FTC change the energy descriptors for existing products at this time. While it might be useful to use an efficiency rating to set category thresholds for some products (e.g., MEF for clothes washers), we do not recommend changing the descriptor used on the label since MEF is an unknown measure for the vast majority of consumers. For other products, such as heating and cooling equipment, the use of efficiency ratings is more widely recognized by consumers.

Disclosures for Central Air Conditioning, Heat Pumps, and Furnaces

There is a role for the EnergyGuide in providing information on installed appliances, including central air conditioners, heat pumps, furnaces, and boilers. While most consumers do not see the EnergyGuide at the time of purchase for these products, our research indicates that the label provides useful verification of the product's efficiency upon installation. The label is also used by energy auditors and by consumers purchasing an existing home to determine the energy efficiency of equipment installed by previous owners. Nevertheless, it would be useful for the FTC to investigate additional means for sharing label information with consumers so it can better impact their purchase decisions.

Conclusions

ACEEE appreciates the opportunity to participate in this process. We respect the efforts of the FTC to assess the effectiveness of the appliance labeling program and to consider changes to the labeling program and the EnergyGuide label itself. As outlined in our research report and the comments above, ACEEE strongly supports the EnergyGuide as a tool to inform consumers and improve energy efficiency. We believe changes to the label will improve the effectiveness of the program and offer benefits to consumers, manufacturers, efficiency programs, and other stakeholders.

Based on our research and international experience with appliance labeling, a categorical label design is the preferred approach. A stars-based categorical label has the potential to greatly improve the appliance labeling program's effectiveness in informing consumers and improving energy efficiency. While implementation of a categorical label will require a significant effort upfront, less frequent revisions to the product ranges and other label features will offset some of these costs to manufacturers and the FTC. From our discussions with manufacturers, we do not anticipate any significant increase in compliance costs (printing, labeling, etc) with a stars-based label relative to the current EnergyGuide design. For the estimated 52 million labeled products sold each year, annual direct program costs total approximately \$52 million.⁹ The benefits of the program, however, would be significant. ACEEE estimates energy savings on the order of 0.25 quads of primary energy per year once the current appliance stock has turned over for an overall program benefit-cost ratio of benefit of well over 50 to 1.¹⁰ While this rough

⁹ Estimated product sales based on published shipment data from AHAM, ARI, and GAMA. Based on our interviews with manufacturers, the cost of the labeling program ranges from pennies per product to \$0.50 per product. We very conservatively assume costs of \$1.00 per product.

¹⁰ For this rough "order of magnitude" estimate of potential annual energy savings, we use Annual Energy Outlook 2006 (www.eia.doe.gov/oiaf/aeo) estimated energy consumption for labeled products in 2004, 13

estimate does not take into account any incremental costs for more efficient products or the program's administrative costs to the FTC, it is illustrative of the strong cost-effectiveness of the labeling program.

To fully realize the potential savings from the EnergyGuide program, however, a consumer education campaign should be developed and implemented to improve consumer awareness of the label and the information it provides. Such a campaign will be important regardless of the changes, if any, made to the label design.

quads. If we estimate that a revised label affects purchase decisions by 20% of consumers, and that each affected consumer saves 10%, then nationwide energy savings would amount to roughly 0.25 quads per year, once the existing appliance stock has turned over.