

**AN EVALUATION OF THE FEDERAL TRADE COMMISSION'S
ENERGYGUIDE APPLIANCE LABEL:
FINAL REPORT AND RECOMMENDATIONS**

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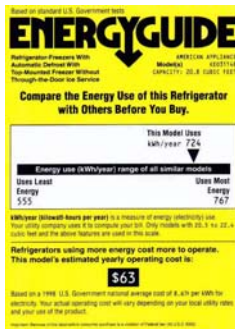
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EXECUTIVE SUMMARY¹

In the United States, the Energy Policy and Conservation Act of 1975 and the National Energy Conservation Policy Act of 1979 directed the U.S. Federal Trade Commission (FTC) to develop a labeling program for certain home appliances and energy-using equipment. The program was launched in 1980 with two legislated goals: to improve energy efficiency and assist consumers in making purchase decisions. In fact, the ability or inability to assist consumers is listed as a primary criterion for deciding to label specific products. The current U.S. label is shown in Figure ES-1.

Figure ES-1. U.S. EnergyGuide Label



Over the last twenty years, no systematic evaluation of the program or the efficacy of the current label design was undertaken. However, through small-scale studies and anecdotal evidence, prior researchers have found that the U.S. label may not be living up to this legislative mandate. In addition, over the last five years, alternative approaches to appliance labeling have been developed and implemented elsewhere in the world with impressive results in terms of consumer awareness, market impacts, and energy savings.

In this context, ACEEE, with input from other organizations, decided it would be useful to evaluate the efficacy of the EnergyGuide label and determine the best label format and graphical element for U.S. consumers.

Project Findings

Primary research with consumers sought to determine the best label format and informational elements for U.S. consumers. In addition, supply-side actors (e.g., manufacturers, contractors, and retail sales staff) were interviewed to uncover opinions regarding program efficacy and the optimal label format. A multi-method, sequential research design was constructed to elicit consumer feedback. An initial round of consumer focus groups was conducted to gather “broad-brush” and directional feedback on the current label in side-by-side comparison with alternate displays. Overall, label preferences and opinions of various informational elements were emphasized. The groups led to improved graphical designs that were then tested in semi-structured interviews, which focused on testing comprehension and interpretation of the various labels and specific informational elements along with the reasons behind reported preferences. Various interpretive enhancements to the labels emerged from the interviews and were incorporated in the label designs used in a second round of focus group testing. Additional rating concepts were evaluated in a third set of focus groups; the interaction of the ENERGY STAR[®] label with various categorical rating schemes was also explored. This final round of focus groups was intended to select the optimal designs of labels for testing in a consumer survey.

¹ This report incorporates much of the content of an earlier ACEEE interim report on project findings (Egan 2000).

The quantitative consumer survey was used to determine, with statistical precision, which of the lead label concepts had the highest rate of comprehension and motivating ability. Finally, the most promising design of each label type—categorical and continuous—was tested with consumers in a simulated shopping environment to evaluate the impact of each design on consumer purchase decisions, determine whether either design had an impact on consumer perceptions of appliance quality and value, and observe how the labels performed in a real-world shopping environment.

Overall research findings are discussed according to label element below.

Graphical Elements

Overall, the research tested multiple types of graphical comparisons of energy use including two broad labeling approaches: categorical versus continuous scales. Stars emerged as the most preferred categorical rating element. Consumers are familiar with star ratings and believe they are easiest to use and comprehend quickly from a distance. Stars were also found to be most motivating to encourage consumers to use the label and consider energy use in their appliance purchase. Other categorical rating schemes, including letters and check marks, have confusing meanings and other associations (e.g., school grades, checklists) for consumers.

The bar graph with scale marks represented the most significant improvement over the current line graph. Although respondents liked the use of continuous-scale device images (e.g., speedometer and thermometer) and often preferred them to the simple bar graph, these images raised questions about the relevance of the device to energy use. These concerns outweighed the visual appeal of the device images in favor of the bar graph.

Informational Elements

In the first focus groups, consumers were asked for feedback on the use and presentation of informational elements on the EnergyGuide label, specifically annual operating cost and annual energy use data. Annual operating cost was considered one of the most important informational pieces on the label. Consumers were also interested in annual energy use data. In both cases, participants suggested that operating cost and energy use information be highlighted and each clearly blocked off and labeled so it can easily be picked out from other label information. Taking this suggestion into account, all of the designs except for the current EnergyGuide were modified prior to the consumer interviews in order to more clearly identify the operating cost figure. While a few of the interviewees mistook the operating cost figure for an annual savings figure, this comprehension problem was less than expected based on earlier research. Like the focus group participants, interviewees felt that operating cost was of great importance with a few suggesting that operating cost be the basis of the comparative graphic.

Level of Explanatory Text

Early focus groups and consumer interviews revealed a common perception that the current label is too wordy, cluttered, and complex. As a result, consumers were unlikely to read the label text, and some stated that they ignored the label altogether because there is too much text. Many respondents recommended cutting the amount of text on the label to make it more visually appealing and less intimidating. However, participants also liked getting the maximum amount of information from the label. These findings highlight some of the conflicting demands that study respondents placed on the label.

In subsequent research tasks, two levels of text were tested (“high” corresponding to the current label content and “low” with a minimal amount of text). Respondents were asked which level of text they preferred, what specific content was essential to the label, and what text, if any, was not useful and could be eliminated. Despite the view that the label was too busy, respondents were reluctant to have information taken away. In the end, a medium-high level of text, including most of the original content, emerged as the preferred variation. This design provided the information consumers believed the label needed to convey but eliminated the one sentence that was found to be obvious and of little value, thereby slightly reducing the amount of text.

Perceptions of Product Quality

Based on comments from a few focus groups participants and survey respondents, there was some concern that a categorical rating system, particularly the stars-based rating, might mislead consumers by implying a rating of product quality in addition to energy efficiency. The simulated shopping experiment tested the impact of the stars label and the bar graph label—the optimal categorical and continuous label designs identified through earlier research tasks—on consumer purchase decisions and on perceptions of product quality and value. Overall, there were no systematic differences in the products most likely to be purchased based on the label displayed. Furthermore, label design 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 with Endorsement Label

Respondents easily distinguished the ENERGY STAR from the categorical rating schemes, recognizing that ENERGY STAR is 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 the categorical and continuous labels with some improvement in comprehension of the labels with the ENERGY STAR relative to labels of the same graphical design displayed without it.

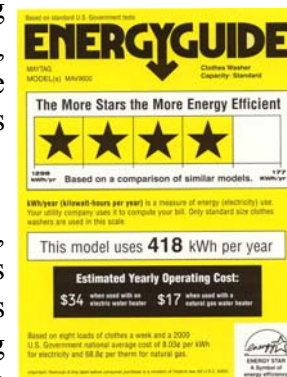
In general, respondents reacted negatively to the current placement of the ENERGY STAR within the box containing the line graph. This placement was confusing because it was not clear whether the label was an indicator corresponding to a point on the line graph. Furthermore, the ENERGY STAR cluttered the graph, making it more difficult to read and interpret. Placement of the ENERGY STAR in the bottom right corner of the EnergyGuide was vastly preferred and many respondents indicated it would be more effective in this location.

Discussion and Recommendations

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 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.

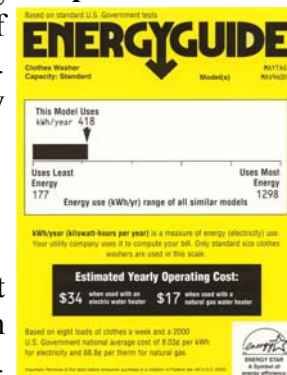
Overall, most consumers preferred a categorical rating system to a continuous-scale graphical design. Categorical ratings are easy to use and quick to decipher. Among the categorical rating systems tested, a clear preference for a stars-based rating emerged. Letters and check marks often had confusing meanings to consumers, whereas stars are familiar and intuitive. The stars rating also proved easiest to understand and most motivating. Furthermore, consumers found the stars rating system complementary with the ENERGY STAR certification. Figure ES-2 shows the optimized stars label.

Figure ES-2. Stars Label



Of the continuous label designs tested, a bar graph with scale marks, as shown in Figure ES-3, appears most promising. This label was preferred to the current label design but failed to test as well as the stars label for visual appeal, attention-grabbing ability, ease of understanding and use, and motivating ability. Both of the optimized labels provide the necessary informational elements and preferred level of text with each informational element clearly grouped together and blocked off using the same text style and color. Similarly, the ENERGY STAR is set off from the label graphic in accordance with consumer preferences. Importantly, neither of these labels was found to mislead consumers by implying quality or other characteristics beyond energy consumption.

Figure ES-3. Bar Graph Label



Next Steps

As the discussion above demonstrates, there is strong evidence that improvements to the current EnergyGuide label are possible. In particular, a categorical system based upon stars is most promising.

Based on our research findings, the stars label builds on the familiar yellow EnergyGuide format, incorporating the well-recognized stars-based rating system, enhanced presentation of key informational elements, preferred ENERGY STAR placement, and an optimized level of explanatory text.

ACEEE is drafting a petition requesting that the FTC incorporate the project findings in a redesign of the EnergyGuide label. The petition will recommend adoption of a stars-based categorical label as the best design for informing U.S. consumers and motivating their consideration of energy efficiency when purchasing appliances. A less preferred option for FTC consideration is to retain a continuous-style label that's redesigned to enhance its visual appeal, message communication, and information organization.

Whatever the outcome of the petition process, an education campaign should be developed and implemented to improve consumer awareness of the label and the information it provides and to assist consumers in using the label when making appliance purchases.