

# **Federal Insights from the CEE ENERGY STAR® Household Awareness Survey**

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## **ABSTRACT**

The Consortium for Energy Efficiency (CEE)-sponsored ENERGY STAR® household awareness survey provides valuable insights into the efficacy of the federal ENERGY STAR program strategy of partnering with organizations that administer publicly funded energy-efficiency programs and for examining strengths and weaknesses in reaching consumers through marketing channels they use to make energy-related purchasing decisions. The survey findings are discussed in terms of (1) federal goals to reduce air pollution associated with unnecessary energy use and to make identifying energy-saving products easier for consumers by increasing awareness, understanding, and use of the ENERGY STAR label; and (2) local and regional program goals to reduce energy use particularly during periods of peak demand.

## **Introduction**

ENERGY STAR is a successful government and industry partnership that makes it easy for businesses and consumers to save money and protect the environment. ENERGY STAR was introduced by the US Environmental Protection Agency (EPA) in 1992 as a voluntary labeling program designed to identify and promote energy-efficient products and thereby reduce carbon dioxide and other energy-related air pollution emissions. In 1996, EPA and the US Department of Energy combined efforts to promote the ENERGY STAR label with each agency taking responsibility for particular product categories. ENERGY STAR currently covers more than 33 product categories including residential heating and cooling equipment, major appliances, office equipment, lighting, and consumer electronics, as well as new homes and most of the buildings sectors. This paper focuses on ENERGY STAR qualifying products.

In 1997, the federal ENERGY STAR program began actively cultivating partnerships with distribution utilities, state program administrators, regional market transformation groups, and others involved in administering public funds for energy efficiency programs [hereafter referred to as Regional Program Implementers (RPIs)]. RPIs were considered to be important partners because of their resources, compatible mission, credibility with consumers as a source of objective energy information, and direct reach with local market actors (e.g., retailers).

Over the past two years, the federal program has increasingly aligned its promotional strategy to support and complement the activities of RPIs. The ENERGY STAR household awareness survey sponsored by the Consortium for Energy Efficiency (CEE) provides an opportunity to examine how effective these partnerships have been in educating consumers about the benefits of ENERGY STAR qualifying products. Detailed information on the survey is presented as Paper Number 98 in this proceedings (Goldberg et al. 2001) and in Goldberg, Rosenberg & Pettit 2001.

## Approach

This paper discusses the efficacy of the federal approach to partnering with RPIs in the context of federal goals for ENERGY STAR label awareness, understanding, use, and energy pollution and reduction. Three principal sources of information are used as the basis for discussion:

- The CEE ENERGY STAR household awareness survey. The survey sample frame was stratified to allow comparison between areas that had received (1) a high level of ENERGY STAR publicity through a local or regional energy-efficiency program for at least two years, and (2) minimal publicity and exposure to federal promotions and no local energy-efficiency programming.
- Information on partner promotional activities from the ENERGY STAR Online Partner Information Exchange Database (OPIE), a database and information exchange maintained in support of the federal ENERGY STAR program .
- Lawrence Berkeley National Laboratory energy and pollution reduction estimates for ENERGY STAR qualifying consumer products.

## RPI Participation and Influence

At the time of the ENERGY STAR household survey's fielding (summer 2000), ENERGY STAR qualifying products were being promoted by 91 utilities, market transformation groups, and state administrators representing approximately 40 percent of all U.S. households (see Figure 1) (DOE 2000). Activities are strongest in areas that have enacted electric power restructuring (or alternative) legislation that includes specific provisions mandating funding of energy-efficiency programs. Most often, funding comes from surcharges on customer utility bills collected by the distribution utility, but the funding may be administered by the utility or a state entity, nonprofit entity, or joint initiative. As expected, areas that have enacted legislation without explicitly mandating funding for energy efficiency are unlikely to devote substantial resources to energy-efficiency programming.

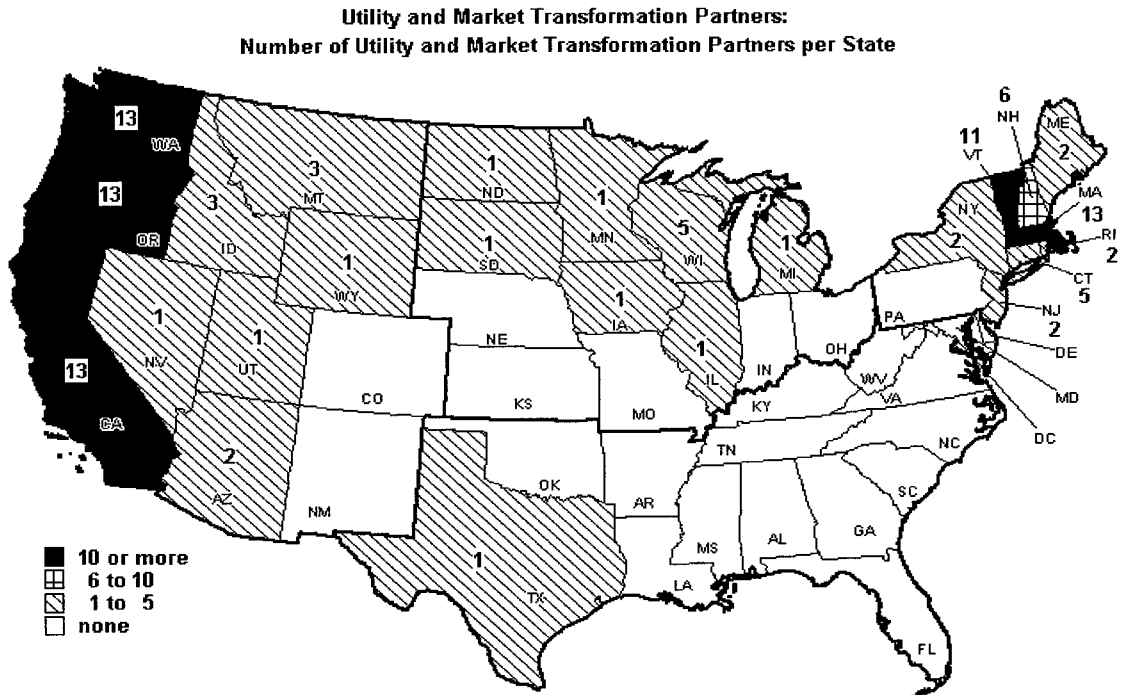
## Label Understanding, Awareness, and Use

The *CEE ENERGY STAR Household Survey Report* revealed a statistically significant difference in ENERGY STAR awareness, understanding, and use between areas with active RPI promotions for two or more years (categorized as "high-publicity" areas in the report) and areas with no active promotion (categorized as "low-publicity" areas):

- Label awareness is much higher in high-publicity areas than in low-publicity areas—52 percent versus 37 percent. The difference is statistically significant at the less than 1 percent significance (better than 99 percent confidence) level.
- In high-publicity areas, a greater number of respondents had a high degree of understanding of the label compared to respondents in low-publicity areas (41 percent versus 34 percent),

and a lower proportion had no understanding. This difference is significant at the 1 percent significance (99 percent confidence) level.

**Figure 1\***



**Table 1**  
**RPI Promotional Activity by ENERGY STAR Labeled Product Category**

<b>ENERGY STAR Labeled Product Category</b>	<b>Number of RPIs</b>	<b>Percent of Total (91) RPIs</b>
Appliances	45	49
Lighting	34	37
Windows	10	11
Central HVAC (Residential)	10	11
Home Electronics	6	7

Readers should note that some RPIs, such as the Northwest Energy Efficiency Alliance and the New England Energy Efficiency Partnership, conduct activities in multiple states; the percentages shown, therefore, are indicative of relative participation in specific ENERGY STAR qualifying product promotions, but do not necessarily reflect the population exposed to a promotion. Figure 2 shows the geographic distribution of RPI appliance promotions (the most highly promoted product category) at the time of the survey.

RPI product-specific promotions correspond well with trends demonstrated in the household survey data between high- and low-publicity categories. As noted in Table 2, products with active RPI promotions were more likely to be cited in high-publicity areas as a source where respondents had seen the ENERGY STAR label.

**Table 2**  
**High-Low Publicity Comparison of ENERGY STAR Awareness by Product Category**

<b>Product Category</b>	<b>Low Publicity</b>	<b>High Publicity</b>
Dishwashers	17%	31%
Refrigerators	34%	55%
Lighting Fixtures	9%	16%
Washing Machines	21%	34%
Compact Fluorescent Lighting	13%	18%

Recognition of products with little or no direct promotion was less likely to differ between high- and low-publicity categories. Computers and monitors remain the product category most often cited by respondents —52% overall—with areas of low publicity reporting slightly higher



## Ranking of Product Savings

The Lawrence Berkeley National Laboratory develops energy savings and pollution reduction estimates for ENERGY STAR qualifying products on behalf of the federal ENERGY STAR program to help determine program priorities and track progress. An examination of savings estimates indicates that while lighting and appliances—the products most widely promoted by RPIs—offer significant savings opportunities, there are other significant opportunities for saving energy and shaving peak demand, as shown in Table 3 (LBNL 2001).

**Table 3**  
**Annual Savings Opportunities Assuming All New Products Purchased are ENERGY STAR Qualifying (Above Current Program Projections) (2001)**

<b>Product Category</b>	<b>Summer Peak Load Savings (GW)</b>	<b>Energy Savings (GWh unless otherwise noted)</b>	<b>Pollution Savings (MtC)</b>	<b>Notes</b>
Residential Lighting Fixtures	4.6	41,000	7.9	37% (34/91 RPIs promoted; during summer 2000)
Clothes Washers	0.2	21 Btu	0.35	49% (45/91 RPIs promoted during summer 2000)
Refrigerators	0.13	790	0.15	49% (45/91 RPIs promoted summer 2000)
Residential CAC	1.2	1,600	0.31	9% (10/91 RPIs during summer 2000 [under ENERGY STAR label])

<b>Product Category</b>	<b>Summer Peak Load Savings (GW)</b>	<b>Energy Savings (GWh unless otherwise noted)</b>	<b>Pollution Savings (MtC)</b>	<b>Notes</b>
Residential Air Source Heat Pumps	0.26	920	0.18	9% (10/91 RPIs during summer 2000 [under ENERGY STAR label])
Traffic signals	0.48	4,200	0.81	Relatively new ENERGY STAR qualifying product
Telephony	0.16	1,400	0.26	New product not yet ENERGY STAR qualifying; estimates may change based on final specifications
Commercial Unitary HVAC	1.3	1,700	0.32	New product not yet ENERGY STAR qualifying; estimates may change based on final specifications
Ceiling fans	0.30	2,800	0.53	New product not yet ENERGY STAR qualifying; estimates may change based on final specifications

<b>Product Category</b>	<b>Summer Peak Load Savings (GW)</b>	<b>Energy Savings (GWh unless otherwise noted)</b>	<b>Pollution Savings (MtC)</b>	<b>Notes</b>
Enabling of installed stock of ENERGY STAR qualifying computer monitors (commercial)	1.6	16,000	3.0	Software being pilot tested to enable Information Technology managers to enable computer monitors

Given the significant pollution, energy, and peak load savings opportunity associated with many of the products and initiatives, RPIs may wish to examine their energy efficiency program portfolio to take advantage of additional product specific opportunities. California's current energy crisis has underscored the need for RPIs to curb peak demand throughout the country. In fact, in terms of summer peak reduction potential, a ranking of the above products shows the following:

1. Residential lighting
2. Enabling existing stock of commercial computer monitors
3. Commercial unitary HVAC
4. Residential HVAC
5. Traffic signals
6. Ceiling fans
7. Clothes washers
8. Telephony
9. Refrigerators

An often missed opportunity is enabling computer monitors that are already installed in offices and homes. This is a particularly attractive opportunity because it requires no additional purchase, the technology is already built into computer monitors, and the power saving features can be activated easily by employees or homeowners through their PC control panels. Additionally, the federal ENERGY STAR program is currently pilot testing a software product that would allow Information Technology managers to poll current power management status on their workstations and to remotely enable and centrally control the power management features of networked computer monitors. Regardless of how the market intervention is structured, this opportunity provides an immediate low-cost opportunity for reducing energy and peak demand.

After educating consumers on the immediate opportunity of power management enabling, RPIs can help "hardwire" future office equipment savings by promoting the sale of ENERGY STAR qualifying computers and monitors. RPIs initially avoided promoting this product category because most computers and monitors were assumed to already qualify for the ENERGY STAR label, and be fully enabled. Now that an updated specification for this product category is available, RPIs may



wish to reconsider promoting this product category to tap into additional savings.

Residential HVAC is another opportunity for RPIs to take advantage of a well-developed federal marketing strategy that includes contractor training, savings calculators, and consumer marketing materials. RPI programs that promote HVAC but do not use the ENERGY STAR label and other marketing resources could be missing out on growing label awareness and synergies with other RPI programs. ENERGY STAR is currently revising air conditioning specifications, which will include a heating seasonal performance factor, which is of importance to reducing peak load.

In assessing emerging product opportunities, RPIs will need to examine factors, such as program delivery mechanisms and product availability when estimating energy and peak load savings and projecting performance milestones.

## **Information Sources for Respondent Purchasing Decisions**

The CEE-sponsored ENERGY STAR household awareness survey also provides useful information about media and information channels, including where consumers had observed or heard about the ENERGY STAR label (hereafter referred to as “sources cited”) and the media and information sources that consumers were most likely to use to obtain product information (hereafter referred to as “sources most likely consulted”). While the survey questionnaire was not designed to facilitate direct comparison between “sources cited” and “sources most likely consulted,” a review of the information may provide useful qualitative marketing insights. Table 4 shows the most frequently cited sources for having “seen or heard about ENERGY STAR.” Table 5 shows the information sources most likely to be used by respondents to obtain information about home heating and cooling products and home appliances, lighting, and home electronics.

For most media, the percentages for sources cited was consistent or higher than the percentage for sources consulted. However, there are a number of notable exceptions:

- 52 percent of respondents who were aware of ENERGY STAR prior to the survey (pre-aware), seek information from a friend or neighbor in their HVAC purchasing decision, and 55 percent do so in making a home appliance, lighting or electronics purchase, whereas only 9 percent of pre-aware respondents reported having heard about ENERGY STAR through a friend or neighbor;
- At least 47 percent of pre-aware respondents consult the Internet in making purchasing decisions for all products, but only 16 percent of pre-aware respondents had heard about ENERGY STAR through this medium;
- 29 percent of pre-aware respondents seek input from contractors when making an HVAC purchase, but only 6 percent of pre-aware respondents had heard about ENERGY STAR from a contractor/salesperson; and
- 39 percent of pre-aware respondents seek input from a retailer when making a home appliance, lighting or electronics purchase, but only 6 percent of pre-aware respondents had heard about ENERGY STAR from a contractor or salesperson (this despite 58 percent of pre-aware respondents reporting having seen the ENERGY STAR label on a store display).

**Table 4**  
**ENERGY STAR Label Sources Cited and ENERGY STAR (Pre-Survey) Awareness**

<b>Sources Cited</b>	<b>Pre-Survey Awareness of ENERGY STAR Label</b>
Newspaper/Magazine	34%
Television	32%
Direct Mail from Utility	41%
Store Display	58%
Internet	16%
Salesperson/Contractor	6%
Friend/Neighbor (Word of Mouth)	7%

**Table 5**  
**ENERGY STAR Label Sources Seen and ENERGY STAR (Pre-Survey) Awareness**

<b>Sources Seen</b>	<b>Pre-Survey Awareness of ENERGY STAR Label</b>	
	<b>HVAC Equipment</b>	<b>Home Appliances, Lighting, and Home Electronics</b>
Consumer Publications	63%	65%
Other Magazines	16%	27%
Newspaper	27%	27%
Radio	11%	12%
Television	21%	22%
Utility Promotion/Program	38%	29%
Retailer	33%	39%
Contractor	29%	20%
Friend/Neighbor (Word of Mouth)	52%	55%
Internet	47%	48%

This information suggests that programs might consider looking into marketing campaigns and interventions that (1) increase word-of-mouth, (2) improve the availability of Internet resources (and ensure that the Web sites are marketed through appropriate channels such as major search engines), and (3) improve contractor and salesperson knowledge and use of ENERGY STAR as a marketing tool to close the sale for ENERGY STAR qualifying products.

## Conclusion

The CEE ENERGY STAR household survey demonstrates that the federal ENERGY STAR strategy of partnering with organizations that administer publicly funded energy efficiency programs is effective in increasing understanding, awareness, and use of the ENERGY STAR label as a way for consumers to identify energy saving products. Areas that have had a local ENERGY STAR program for 2 or more years show higher respondent recognition and understanding. Furthermore, the products promoted by regional programs are more likely to be associated with ENERGY STAR in areas that have been active partners for two or more years than in areas of low promotional activity. These results demonstrate that RPIs are effective allies in spreading the word about ENERGY STAR.

Given the effectiveness of the federal-RPI partnership model, significant additional opportunities for decreasing energy use and peak demand are apparent. There are still substantial opportunities in continued promotion of ENERGY STAR qualifying lighting products and appliances—the product categories most heavily promoted by RPIs. However, power management enabling programs on the existing stock of computer monitors and promotion of ENERGY STAR qualifying residential HVAC products are two opportunities that offer substantial savings for RPIs and are relatively less supported.

In addition, there are a number of significant opportunities presented by other emerging ENERGY STAR product categories, including traffic signals, commercial unitary HVAC, telephony, and ceiling fans.

The CEE survey also suggests that federal- and RPI-sponsored ENERGY STAR initiatives should consider marketing and public relations campaigns that position ENERGY STAR to capitalize on “word-of-mouth” as a way of generating consumer referrals. Marketing initiatives should also seek to focus Internet marketing and intensify the promotion of existing web-based resources. Finally, marketing campaigns should engage contractors and salespeople to improve their knowledge of, and empower them to, further leverage consumer awareness of the ENERGY STAR label.

## Reference List

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