
**Consumer Federation of America**

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# PUBLIC ATTITUDES TOWARD ENERGY EFFIENCY AND APPLIANCE EFFICIENCY STANDARDS:

## CONSUMERS SEE THE BENEFITS AND SUPPORT THE STANDARDS

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## EXECUTIVE SUMMARY

The consumption of energy by household appliances, which we refer to as home energy, does not receive the same level of attention as the fuel economy of vehicles. This is surprising since in 2009, home energy consumption for heating, cooling, lighting, cooking and hot water, took just as large a bite out of household budgets as does expenditures for gasoline. The 2009 Bureau of Labor Statistics consumer expenditure survey puts total expenditures for home energy (electricity, natural gas and fuel oil and other fuels) at $2,000 per year, exactly the same as gasoline expenditures. This observation and the commitment to energy policy that benefits consumers led the Consumer Federation of America (CFA) to conduct a nationwide survey in January 2011, to learn about the public's knowledge and opinions about appliance energy efficiency. The survey results revealed that the consumer attitudes toward home energy consumption and efficiency are quite similar to the attitudes that consumers had expressed about vehicle fuel economy in prior CFA studies of that issue.

The data revealed the following:

- Nearly all Americans (95%) think it "beneficial for appliances like refrigerators, clothes washers, and air conditioners to become more energy efficient," with 78% believing this increased efficiency to be "very beneficial."

- Nearly all Americans (96%) think improved appliance efficiency is important for personal financial reasons – "lowering your electric bills" – with 80% considering this to be very important. However, large majorities also believe improved appliance efficiency to be important for environmental reasons – because it reduces the nation's consumption of electricity "to reduce air pollution" (92% important, 77% very important) and "to reduce greenhouse gas emissions" (84% important, 66% very important).

- Substantial majorities also favor improved energy efficiency of appliances even when this increases the purchase price of appliances. This support predictably varies with the payback period: 3 years (79% favor, 35% favor strongly), 5 years (73% favor, 32% favor strongly), and 10 years (60% favor, 29% favor strongly).

- Only about two-thirds of Americans (68%) are aware that the "government requires new appliances like refrigerators, clothes washers, and air conditioners to meet minimum energy standards." Awareness is highly correlated with income (53% below $25k, 81% $100k and above) and education (50% no high school degree, 84% college degree).

- But nearly three-quarters of Americans (72%) support "the government setting minimum energy efficiency standards for appliances," with strong support from 28%.

- Respondents who are aware of the minimum standards are more likely to support then (74% to 64%).

**The conclusion is clear: The public overwhelmingly believes that improving appliance energy efficiency is beneficial and strongly supports appliance efficiency standards. Those people who are aware of minimum efficiency standards set by the**

**government support them. They are willing to pay more for the product knowing that the additional cost will be made up over time in lower energy bills, and in fact, that they will ultimately save money.**

## BACKGROUND

Although the fuel economy of the vehicle fleet receives a great deal of attention, the consumption of energy by households appliances, which we refer to as home energy, does not. This is surprising since in 2009 home energy consumption for heating, cooling, lighting, cooking and hot water, took just as large a bite out of household budgets as does expenditures for gasoline. The 2009 Bureau of Labor Statistics consumer expenditure survey put total expenditures for home energy (electricity, natural gas and fuel oil and other fuels) at $2,000 per year, exactly the same as expenditures on gasoline.

Over the past six years, the Consumer Federation of America has conducted a dozen surveys that examine public knowledge about and attitudes toward the fuel economy of cars and trucks. We have found that the public: is concerned about oil consumption for several reasons, including cost and dependence on imported oil; believes that lowering consumption is good for consumers and the nation; is willing to spend more on more efficient vehicles as long as the investment has a reasonable payback period; supports minimum fuel economy standards, and the better informed they are about fuel economy, the more they support minimum standards.

Since home energy home energy consumption deserves as much attention as gasoline consumption from the point of view of the impact of energy policy on the consumer pocketbook,[1] it should come as no surprise that a recent survey we conducted found that consumer attitudes toward home energy consumption and efficiency are quite similar to the attitudes about vehicle fuel economy. A large majority believe it is beneficial for appliances to become more energy efficient for several different reasons, among them is lowering electric bills as well as reducing pollution; they are willing to pay more for the product with a reasonable payback period, and they support the government setting minimum efficiency standards for appliances.

The remainder of this report examines the underlying pattern of attitudes toward appliance energy efficiency and minimum energy efficiency standards to gain further insight into public opinion about this important area of consumer spending and energy policy. A key goal is to provide policy makers with a deeper understanding of the nature of support for minimum appliance efficiency standards.

## METHODOLOGY

[1] Home energy consumption and appliances efficiency standards have acquired another link to gasoline consumption. As concern about gasoline expenditures and Mideast oil vulnerability grows in the wake of recent turmoil in the region, electric vehicles have become a focal point for efforts to reduce oil consumption. Reducing electricity consumption in the home could free up electricity for use in the vehicle fleet, thereby allowing the U.S. to meet its national energy policy goals without putting excess pressure on the electricity sector.

In January 2011, the Consumer Federation of America commissioned a survey of public attitudes toward energy consumption of household appliances and support for government standards that set minimum levels of energy efficiency for appliances like refrigerators, clothes washers, and air conditioners. The national random sample survey of 1,000 people was conducted by Opinion Research Corporation (ORC).

The survey posed five questions about appliance energy efficiency and minimum standards.

**Benefit:** Do you think it is beneficial or harmful for appliances like refrigerators, clothes washers, and air conditioners to become more energy efficient, that is, to use less electricity?

**Specific benefits:** In your view, how important is each of the following reasons to improve the energy efficiency of appliances?

Lowering your electric bills
Reducing the nation's consumption of electricity to avoid building new power plants
Reducing the nation's consumption of electricity to reduce air pollution
Reducing the nation's consumption of electricity to reduce greenhouse gas emissions

**Payback:** Now, suppose improvements in the energy efficiency of appliances increased their purchase price but reduced the cost of using them. If these price increases were offset by reduced electricity costs over the following time periods, would you say you would strongly favor this, somewhat favor, somewhat oppose or strongly oppose?

Three years
Five years
Ten years

**Awareness of Standards:** Are you aware that the government requires new appliances like refrigerators, clothes washers, and air conditioners to meet minimum energy efficiency standards, that is, to use no more than a certain amount of electricity?

**Support for minimum standards:** In principle, do you support or oppose the idea that the government should set minimum energy efficiency standards for appliances?

The survey gathered data on the standard set of demographics that are typically included in survey research – gender, age, education, income, household tenure, region, – as well a question on summer electricity bills.

After examining the data, several summary indices were created for specific analyses.

Recoded variables:

**Sum of benefits**: All very important..... mixed... none very important.

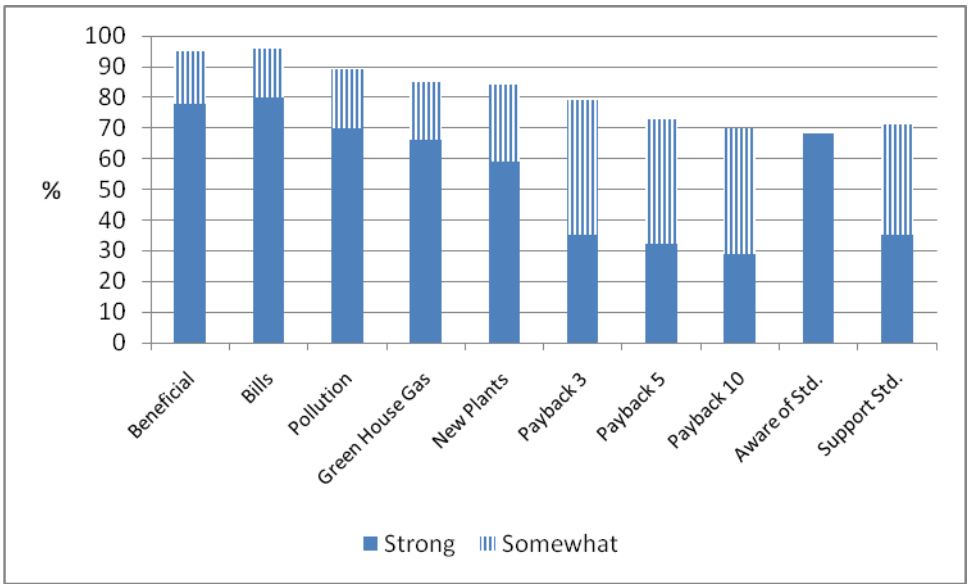
**Payback sum:** Strongly favors both 3-year and 10-year…. Mixed…. Strongly opposes both 1-year and 10-year

## FINDINGS

### Attitudes toward Appliance Efficiency and Standards

As shown in Figure 1, nearly all Americans (95%) think it "beneficial for appliances like refrigerators, clothes washers, and air conditioners to become more energy efficient," with 78% believing this increased efficiency to be "very beneficial."

**Figure 1: Perception of Benefits of Efficiency, Awareness and Support for Standards**

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Only about two-thirds of Americans (68%) are aware that the "government requires new appliances like refrigerators, clothes washers, and air conditioners to meet minimum energy standards." Awareness is highly correlated with income (53% below $25k, 81% $100k and above) and education (50% no high school degree, 84% college degree).

But nearly three-quarters of Americans (72%) support "the government setting minimum energy efficiency standards for appliances," with strong support from 28%.

We next examine how these basic responses relate to each other and the demographic characteristics of respondents. In the following discussion, we examine all of the variables for which we have data that show a statistically significant relationship with support for minimum standards in both bivariate analyses and a multivariate analysis. All of the relationships discussed in this section are statistically significant by a Chi Square test with $p < .01$. The following analyses also exclude the respondents who refused to answer questions, or said they did not know. Therefore, the percentages vary slightly from the overall percentages cited above.

## Perception of Benefits and Support for Minimum Standards

Table 1 shows that there is a statistically significant relationship between perceived benefits of energy efficiency and support for minimum standards. Those who perceive benefits are more likely to support minimum standards and the more benefits perceived to be very important, the greater the support. Thus, 83 percent of those who think that all four benefits are very important support minimum standards. This percentage declines steadily as the number of perceived benefits declines. Among those who find none of the benefits very important, only 44 percent support efficiency standards, the program, while 56 percent oppose it.

**TABLE 1: PERCEIVED BENEFIT AND SUPPORT FOR MINIMUM STANDARDS**

| Efficiency Benefit | N | Support For Standards (% of Respondents) | | | |
|---|---|---|---|---|---|
| | | Very Strong Support | Somewhat Support | Somewhat Oppose | Strongly Oppose |
| **Sum of Benefits** | | | | | |
| All 4 very Important | 393 | 52 | 31 | 8 | 7 |
| 3 very Important | 203 | 49 | 34 | 6 | 10 |
| 2 very Important | 115 | 27 | 38 | 19 | 16 |
| 1 very important | 133 | 16 | 32 | 16 | 37 |
| 0 very Important | 110 | 8 | 36 | 14 | 42 |
| **Bills** | | | | | |
| Very important | 775 | 42 | 32 | 12 | 15 |
| Somewhat important | 189 | 28 | 37 | 12 | 23 |
| Somewhat unimportant | 19 | 21 | 21 | 15 | 48 |
| Very unimportant | 12 | 17 | 33 | 0 | 50 |
| **Plants** | | | | | |
| Very important | 548 | 51 | 31 | 8 | 10 |
| Somewhat important | 270 | 27 | 44 | 15 | 14 |
| Somewhat unimportant | 82 | 26 | 28 | 17 | 29 |
| Very unimportant | 79 | 8 | 18 | 11 | 63 |
| **Pollution** | | | | | |
| Very important | 680 | 50 | 32 | 10 | 8 |
| Somewhat important | 204 | 17 | 43 | 17 | 24 |
| Somewhat unimportant | 53 | 11 | 19 | 17 | 53 |

| | | | | | |
|---|---|---|---|---|---|
| Very unimportant | 51 | 4 | 16 | 10 | 71 |
| **Greenhouse Gases** | | | | | |
| Very important | 617 | 52 | 33 | 8 | 8 |
| Somewhat important | 201 | 24 | 40 | 14 | 21 |
| Somewhat unimportant | 61 | 11 | 30 | 33 | 26 |
| Very unimportant | 93 | 4 | 20 | 10 | 66 |

## Attitudes toward Payback Periods and Minimum Standards

Results for the response to the payback questions parallel those for the perception of benefits question (see Table 2). We have observed a high level of support for energy efficiency, even with a ten year payback period, but there is stronger support with shorter payback periods. While the difference between the distribution of responses based on the three year payback and the five year payback is not statistically significant, the difference between the distribution of responses based on the three year payback and the ten year payback is statistically significant, as is the difference between the distribution of responses based on the five year payback and the ten year payback is statistically significant.

**TABLE 2: PAYBACK AND SUPPORT FOR MINIMUM STANDARDS**

| | N | Support for Standards (% of Respondents) | | | |
|---|---|---|---|---|---|
| | | Very Strong Support | Somewhat Support | Somewhat Oppose | Strongly Oppose |
| **Payback Sum** | | | | | |
| Support All | | 54 | 24 | 8 | 14 |
| Mixed | | 35 | 39 | 13 | 13 |
| Oppose All | | 9 | 27 | 9 | 55 |
| **3-Year** | | | | | |
| Favor strongly | 404 | 56 | 27 | 6 | 10 |
| Favor somewhat | 405 | 27 | 43 | 15 | 15 |
| Oppose somewhat | 109 | 25 | 22 | 20 | 33 |
| Oppose strongly | 65 | 21 | 23 | 5 | 17 |
| **5-years** | | | | | |
| Favor strongly | 327 | 57 | 26 | 5 | 11 |
| Favor somewhat | 408 | 32 | 42 | 14 | 12 |
| Oppose somewhat | 140 | 22 | 31 | 19 | 258 |
| Oppose strongly | 94 | 28 | 21 | 11 | 40 |
| **10-year** | | | | | |
| Favor strongly | 265 | 56 | 27 | 6 | 11 |
| Favor somewhat | 324 | 34 | 42 | 11 | 12 |
| Oppose somewhat | 175 | 31 | 31 | 19 | 18 |
| Oppose strongly | 285 | 29 | 33 | 11 | 38 |

The more favorable the respondent is to the payback period, the stronger the support for minimum standards. The response patterns are similar for each of the payback periods.

Those who find any payback unacceptable are three times as likely to strongly oppose minimum standards. We have used the responses to the three and ten year payback questions to develop a general index of "willingness to pay." Respondents who strongly favor the three and ten year periods have the higher score of 8. Those who oppose both the one and 10 year periods have a score of 1. This captures the strong difference between the extremes. Sixty four percent of those who find any payback period unacceptable oppose both of the payback periods strongly oppose minimum standards; whereas 64% of those who strongly favor both the 3 and 10-year payback periods strongly support the standards.

## Demographic Variables

Table 3 shows several background characteristics that exhibit significant relationships to support for minimum efficiency standards in addition to education. It starts with the data that show awareness of minimum standards is associated with support for them. Forty-two percent of those who are aware of the standards strongly support them, while only 31 percent of those who are not aware, do not support them.

Among the demographic variables, only education exhibits a statistically significant relationship to support for minimum standards in both the bivariate and multivariate analyses (income drops out in the multivariate analysis, since education is a stronger predictor). Education also exhibits a relationship to awareness that minimum efficiency standards exist. To be clear, gender, region, marital status, age and housing tenure (owner v. renter) do not exhibit significant relationships to support for minimum standards in either the bivariate or multivariate analysis.

**TABLE 3: BACKGROUND CHARACTERISTICS AND SUPPORT FOR MINIMUM EFFICIENCY STANDARDS**

| | N | Support for Standards (% of Respondents) | | | |
|---|---|---|---|---|---|
| | | Very Strong Support | Somewhat Support | Somewhat Oppose | Strongly Oppose |
| Awareness of Standard | | | | | |
| Unaware | 284 | 31 | 34 | 11 | 20 |
| Awareness | 714 | 42 | 33 | 10 | 16 |
| | | | | | |
| Education | | | | | |
| LT 8th Grade | 35 | 27 | 27 | 20 | 27 |
| 8th Grade | 55 | 40 | 29 | 13 | 18 |
| High School | 254 | 32 | 36 | 12 | 20 |
| Associate Coll. | 83 | 27 | 45 | 11 | 18 |
| Some College | 196 | 43 | 28 | 14 | 15 |
| College Grad | 213 | 42 | 34 | 9 | 15 |
| Post Doc. | 170 | 45 | 33 | 9 | 16 |

The multivariate model including five variables – education, political leaning, payback attitude, perceived benefit and awareness – explains about 15% of the variance, which is high for attitudinal variables such as these.

## Appliance Efficiency Standards Compared to Fuel Economy Standards

The public attitudes toward appliance efficiency standards are quite similar to their attitudes toward fuel economy standards, as shown in Table 4. They perceive the importance of reducing energy consumption as both an important personal benefit and a benefit to the nation. There is strong majority support for standards and the better informed the respondents are, the stronger their support.

**TABLE 4: COMPARISON OF ATTITUDES TOWARD APPLIANCE EFFICIENCY STANDARDS AND FUEL ECONOMY STANDARDS**

| | Appliances | Fuel Economy |
|---|---|---|
| Benefits/Concerns | | |
| Overall benefit of Efficiency | 78 | 79 |
| Price | 80 | 72 |
| Greenhouse Gasses | 66 | 57 |
| Payback | | |
| 1-year | na | 81 |
| 3-year | 79 | na |
| 5-Year | 78 | 72 |
| 10-year | 60 | na |
| Support for Standards | | |
| General | 71 | na |
| 27 to 35 mpg (current) | na | 78 |
| 35 to 50 mpg by 2025 | na | 65 |
| 35 to 60 mpg by 2025 | na | 59 |
| Awareness & Support for Standards | | |
| Aware | 74 | 72 |
| Unaware | 64 | 66 |

**http://www.consumerfed.org/elements/www.consumerfed.org/file/Gas_Oil_Survey_Oil_Spill_PR_5_18_10.pdf, http://www.consumerfed.org/pdfs/MVFE-Survey-PR092810.pdf**

## Conclusion

The conclusion is clear: The public overwhelmingly believes that improving appliance energy efficiency is beneficial and strongly supports appliance efficiency standards. Those people who are aware of minimum efficiency standards set by the government support them. They are willing to pay more for the product knowing that that the additional cost will be made up over time in lower energy bills, and in fact, that they will ultimately save money. The public recognition of the benefits of efficiency and support for performance standards is consistent across products and across time.