



Appliance and Equipment Efficiency Standards: One of America's Most Effective Energy-Saving Policies

One of a Series of ACEEE Fact Sheets

What Are Efficiency Standards?

Efficiency standards require products such as refrigerators, electric motors, and air conditioners to meet specific energy requirements. Minimum-efficiency standards apply to new equipment sold in the United States, removing inefficient products from the market. Consumers still have a range of efficient products to choose from, with desired attributes and features.

A History of Consistent Federal Support — Across Four Administrations

Minimum-efficiency standards for appliances and other equipment were adopted by the federal government in order to address market failures, replace a patchwork of state standards, save consumers money, and reduce energy use and peak electrical demand.

- In 1986, appliance manufacturers and energy efficiency supporters agreed to support uniform national standards on an array of products. In 1987, President Reagan signed the National Appliance Energy Conservation Act (NAECA). Standards for fluorescent lamp ballasts were added by Congress in 1988, and in 1992 President Bush signed the Energy Policy Act that included efficiency standards for certain types of lamps, electric motors, and commercial heating and cooling equipment.
- In 1989 and 1991, the first Bush Administration issued improved standards for refrigerators, clothes washers and dryers, and dishwashers, and began work on several additional standards, laying the groundwork for the Clinton Administration to set new standards for refrigerators, room air conditioners, ballasts, clothes washers, water heaters, and residential central air conditioners and heat pumps. Recently, the new Bush Administration reaffirmed the Clinton clothes washer and water heater standards but announced its intention to weaken the new air conditioner standard to a Seasonal Energy Efficiency Ratio (SEER) of 12, down from SEER 13.

Efficiency Standards Overcome Market Failures

Minimum-efficiency standards are needed to overcome market failures that restrict the use of more efficient products. Among these failures are:

- *Third-party decision makers* (e.g., landlords and builders) who purchase appliances but do not pay the operating costs of the products they purchase;
- *Panic purchases* that leave little time for consumers to become educated;
- *Inadequate and misleading information* about the relative energy performance of products; and
- *High first costs* for efficient equipment due to small production quantities and the fact that manufacturers frequently combine efficiency features with extra non-energy features in expensive “trade-up” models.

Energy Efficiency Standards Provide Substantial Public Benefits

Standards enacted to date are having a significant impact on U.S. energy use while saving consumers and businesses billions of dollars. Appliance standards rank with automobile fuel economy standards as the two most effective federal energy-saving policies.

- In 2000, according to analyses by the U.S. Department of Energy and ACEEE, standards reduced U.S. electricity use by approximately 88 billion kWh and reduced U.S. total energy use by approximately 1,200 trillion Btus. These savings are 2.5% and 1.3% of U.S. electricity and energy use in 2000, respectively.
- In 2000, standards reduced peak generating needs by approximately 21,000 MW — equivalent to displacing seventy 300 MW power plants. Without these savings, current electricity shortages would be significantly worse.
- Over the 1990–2000 period, standards have reduced consumer energy bills by approximately \$50 billion. Under standards, equipment prices have risen modestly, but estimates by the Lawrence Berkeley National Laboratory and ACEEE indicate that the benefits are more than 3 times the costs on a net present value basis.
- As old appliances and equipment wear out and are replaced, savings from existing standards will steadily grow. By 2010, savings will total more than 250 billion kWh (6.5% of projected electricity use) and reduce peak demand by approximately 66,000 MW (a 7.6% reduction). Over 1990–2030, consumers and businesses are projected to save approximately \$186 billion (1997 dollars) from standards already adopted.
- To meet standards, manufacturers often make investments in improving products but fiscal impacts on manufacturers are generally modest. For example, in its 1990 Annual Report, Mor-Flo (a major water heater manufacturer) noted that since NAECA: (1) “we no longer have to produce models to address the varying state energy efficiency standards;” (2) “price increases on ... minimum standard models have more than offset the corresponding cost increases resulting in an improved gross profit margin;” and (3) since the standards took effect, “the Company has been selling a larger number of ‘step-up’ models.”

Recommended Next Steps

- Adopt standards for products not currently covered including residential torchiere lighting fixtures, building transformers, commercial unit heaters, traffic lights, illuminated exit signs, commercial refrigeration equipment, residential furnace fans, residential ceiling fans, vending machines, and consumer electronic products that “leak” electricity when not in use.
- Standards on the above-listed products would save approximately 73 TWh of electricity in 2010 and 164 TWh in 2020. The savings in 2020 amount to about 5% of the projected residential and commercial electricity use for that year, and would reduce peak electrical demand by the equivalent of approximately two hundred power plants (300 MW each). These standards would also result in substantial economic savings to consumers and businesses with discounted net benefits (benefits minus costs) of more than \$80 billion and a benefit-cost ratio of more than 5:1.
- Finalize a new residential air conditioner standard at the SEER 13 level. Relative to a SEER 12 standard, SEER 13 will displace the need for sixty new 300 MW power plants and save consumers billions of dollars.
- Continue current rulemakings to set appropriate new standards for commercial cooling and heating equipment, and residential furnaces and boilers.