

# Appliance and Equipment Efficiency Standards: New Opportunities for States

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**Abstract:** This white paper provides an overview on the potential benefits of state energy-efficiency standards for appliances and equipment. Since the 1970s, appliance standards have delivered enormous benefits for consumers, the environment and the economy. Huge energy savings have translated into lower utility bills for consumers and businesses, and reduced pollution—whether from power plants or from direct combustion home appliances such as furnaces or water heaters. States stand to gain significantly by setting efficiency standards. Greater efficiency means siting and building fewer power plants, better air quality, and more of people's income available for other goods and services.

## ***WHY STANDARDS?***

The 1999-2001 energy shortfall in the west, volatile costs of electricity and natural gas, and the threats to foreign energy supplies and domestic energy infrastructure have all heightened public awareness of the important role energy efficiency plays in controlling costs and meeting energy needs reliably.

Efficiency standards complement consumer education and incentive-based programs, such as Energy Star® and tax-credits. Standards also help overcome the market barriers that block cost-effective energy savings. These include:

- Lack of awareness and uninformed decision-makers;
- Third party decision-makers, such as builders or landlords who seek to keep installation costs low without consideration for potential energy bill savings;
- Misinformation about up-front costs vs. operating costs over the life of the product;
- Limited stocking of high-efficiency products, and limited competition which keeps initial costs artificially high.

## ***Saving Energy***

The overall savings from established appliance standards are enormous. The American Council for an Energy-Efficient Economy projects total electricity savings to reach 341 billion kilowatt hours/year by 2020, or 7.8% of total projected U.S. energy consumption. By 2020, savings from already existing standards should reach 4.2 quadrillion British thermal units (quads), equivalent to the annual energy use of about 23 million American households. As consumers and businesses replace appliances and equipment, these savings will continue to grow.

Saving energy and increasing our national energy security is more important than ever. Improving energy efficiency is an inexpensive and surefire way of getting America to greater energy independence.

### *Saving Money*

- Standards save money not just for the purchasers, but for all ratepayers. By reducing overall demand and avoiding the need to build new power plants, utility bills are kept down for everyone.
- Appliance standards already in place in 2001 will provide a net benefit of about \$186 billion to U.S. consumers—about \$1,750 per house hold—by the year 2020.
- Standards are incredibly cost-effective from a government perspective. For a state to develop and enforce standards is a relatively low-cost way to save energy.

### *Fighting Global Warming*

- Standards already adopted will cut U.S. annual carbon emissions 65 million metric tons by 2010. To put these figures into perspective, under the Kyoto protocol, the U.S. would need to reduce carbon emissions by approximately 505 MMT in 2010.
- New appliance standards could provide additional annual carbon emissions reductions of 12.6 million metric tons by 2010 and 31 million metric tons by 2020.

### *Protecting Public Health*

Improving energy efficiency is one of the most effective ways to cut power plant pollution that contributes to respiratory problems. Existing appliance standards reduced nitrous-oxide emissions—a prime ingredient of smog—by 286,000 tons in the year 2000. Standards also reduce soot or small particulate emissions that have been linked to asthma. Other power plant pollution reduced by improved appliance efficiency include sulfur dioxide, a prime cause of acid rain, and mercury, a highly toxic heavy metal.

### *Creating and Protecting American Jobs*

Appliance efficiency standards create jobs in two ways:

- Businesses add jobs to meet increased demand for energy-saving products, and
- Consumers spend savings from lower utility bills on other goods and services.

For example, in order to comply with the new refrigerator standard that became effective in July 2001, Maytag renovated and expanded its Galesburg, IL factory, increasing its workforce to 2,400. Frigidaire and Whirlpool have upgraded existing factories in Michigan, Indiana, South Carolina and Arkansas to produce refrigerators that meet the new standard. In addition to creating manufacturing jobs, existing standards will save consumers about \$160 billion

dollars—over \$1750 per household. These savings will lead to hundreds of thousands of new jobs as consumers spend their increased disposable income. The U.S. Department of Energy (DOE) predicts that just three new standards for lamp ballasts, water heaters and clothes washers, set at levels that maximize consumer savings, will lead to about 120,000 new jobs by 2020.

### ***WHY STATE STANDARDS?***

There are numerous benefits to states that choose to set appliance and equipment efficiency standards. Standards can help reduce the need to construct new power plants, reduce air pollution, keep utility costs down, and save consumers money.

Where no federal standards exist, the field is clear for states, or groups of states, to establish what they deem to be acceptable standards.

Oftentimes when several states come together to set standards, it becomes in the manufacturers' interest to agree on one national standard.

### ***STANDARDS AND MANUFACTURERS***

It is safe to say that in general, manufacturers would prefer not to be regulated. That said, some corporations have supported standards and have even found them advantageous to business. Standards provide manufacturers:

- Clear targets for energy efficiency;
- A level playing field for companies large and small; and
- Incentives to innovate, which has spurred advances beyond anyone's imagination for products such as clothes washers and refrigerators. Some units are 75% more efficient than those in the 1970s.

In some cases, appliance standards have provided benefits to appliance manufacturers as well as consumers. Several manufacturers have listed the National Appliance Energy Conservation Act of 1987 (NAECA) as a positive factor in their business.

For example in its 1990 Annual Report, Mor-Flo, a major water heater manufacturer, stated:

"The benefit of NAECA to Mor-Flo has been threefold. First we no longer have to produce models to address the varying state energy efficiency standards. Second, sales of the approximately 40% of Mor-Flo's water heaters, which were less energy-efficient than those required by new federal standards, have been converted to sales of the new models. Price increases on these minimum standard models have more than offset the corresponding cost increases resulting in an improved gross profit margin. Third, beginning in 1990, the Company has been selling a larger number of the step-up models."

## ***POLICY OPTIONS***

There are a number of ways that states can take advantage of this important and largely untapped opportunity. These include:

- **MINIMUM EFFICIENCY STANDARDS\***—Establishing minimum efficiency standards for products not covered by federal standards;
- **BUILDING CODES**—Incorporating product efficiency standards into state building codes;
- **STATE PURCHASING**—Establishing minimum energy efficiency standards for appliances and energy-using products purchased by or for the state;
- **VOLUNTARY PROGRAMS**—Supporting funding for statewide and regional energy efficiency programs that introduce and increase the availability of high efficiency products and services, which support future codes and standards improvements.

## ***CANDIDATES FOR NEW STANDARDS***

Minimum efficiency standards can help support voluntary programs, by either creating an exit strategy from voluntary programs or raising the efficiency levels required.

Based on a study by the American Council for an Energy-Efficiency Economy (ACEEE) the Appliance Standards Awareness Project recommends new standards for the following equipment and appliances:

- Torchieres (commonly seen as floor halogen lamps)
- Ceiling fans
- Furnace and heat pump fans\*\*
- Standby energy use for electronic equipment and power supplies
- Unit heaters
- Dry-type distribution transformers
- Vending machines
- Commercial refrigerators and freezers
- Traffic lights
- Exit signs
- Commercial coin-operated clothes washers
- Beverage merchandisers
- Ice-makers
- Commercial air-source packaged air conditioners and heat pumps (<20 tons)
- Large packaged commercial air conditioners and heat pumps (>20 tons)

***Please see the attached that explains more about each of these products and the potential for new standards.***

*\*Please see the model legislation included in this packet. It is also available on-line at [www.standardsASAP.org](http://www.standardsASAP.org).*

*\*\*Note: State standards for furnace fans may be preempted by current federal standards. States can support including fans in federal standards, or seek exemption from preemption.*

## ***NOW IS THE TIME FOR STATE STANDARDS***

Recently, there have been developments in several states on appliance and equipment efficiency standards. First, Minnesota and Massachusetts have adopted the National Electrical Manufacturers Association's (NEMA) Standard TP-1 as the minimum efficiency requirement for distribution transformers by building code and/or an equipment efficiency standard. New York and California are currently in the process of adopting a similar standard.

Second, in September 2000, the California Energy Commission was directed by the State Legislature to "adopt and implement updated and cost-effective standards to ensure the maximum feasible reductions in wasteful, uneconomic, inefficient or unnecessary consumption of electricity." This directive was issued in response to power shortages in the summer of 2000, and expected continued shortages over the next few summers. As a result of this directive, the commission has proposed new and revised efficiency standards for 9 new appliances, some of which are not currently covered by state or federal regulations.

Given growing energy use and the public's heightened awareness of the many reasons to conserve energy, there's never been a better time for appliance and equipment standards. Efficiency standards are an extremely cost-effective means of curbing energy demand and reducing the need to build new power plants.

## ***TAKING ACTION***

We hope this packet inspires you to initiate appliance and equipment efficiency standards as a complement to your state's current energy policies. Standards are a very cost-effective means of reducing energy demand, and require a very low investment of resources and personnel.

Included in this packet are model legislation and fact sheets on products we believe are ripe for standards. For more technical information on the proposed new standards mentioned on page 4, consider requesting "Opportunities for New Appliance and Equipment Efficiency Standards: Energy and Economic Savings Beyond Current Standards Programs," publication number A016 of the American Council for an Energy-Efficient Economy, September 2001.

If you would like more information on developing state standards, please contact the Appliance Standards Awareness Project at (617) 363-9101 or visit [standardsASAP.org](http://standardsASAP.org).

*Much of the information in these materials was drawn from work by the American Council for an Energy-Efficient Economy and Northeast Energy Efficiency Partnerships.*