

Overview

Appliance and equipment efficiency standards have served as one of the nation's most effective policies for improving energy efficiency and saving consumers energy and money. Today, the U.S. Department of Energy's (DOE's) Appliance and Equipment Standards Program (Standards Program) covers more than 50 products, representing about 90% of home energy use, 60% of commercial building energy use, and approximately 29% of industrial energy use. Standards implemented since 1987 saved American consumers \$55 billion on their utility bills in 2013 and have helped the United States avoid emissions of 2.1 billion tons of carbon dioxide, which is equivalent to the annual greenhouse emissions from more than 400 million automobiles.

Since 2009, the Obama Administration has issued 25 new or updated appliance standards across more than 30 products, which will help increase annual savings by more than 75% over the next decade, and could save consumers a total of over \$460 billion dollars off their utility bills between now and 2030.¹

Climate Action Plan

To build upon the energy and environmental savings delivered to American consumers, the Administration set a goal in the President's Climate Action Plan announced in June 2013. Efficiency



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standards for appliances and federal buildings set in the first and second terms combined will reduce carbon pollution by at least 3 billion metric tons cumulatively by 2030—equivalent to nearly one-half of the carbon pollution from the entire U.S. energy sector for one year—while continuing to cut families' energy bills.

As of October 2014, DOE has finalized additional efficiency standards for external power supplies, metal halide lamp fixtures, commercial refrigeration equipment, residential through-the-wall air conditioners and heat pumps, walk-in coolers and freezers, electric motors, and furnace fans. With these standards, DOE is more than two-thirds of the way to achieving the carbon reduction goal.

Consumer Benefits

The Standards Program has helped drive remarkable gains in the energy efficiency of household appliances and equipment, resulting in large energy bill savings.² For example, today, the typical new refrigerator uses one-third the energy than in 1973—despite offering 20% more

storage capacity and being available at half the retail cost. Since 1990, additional efficiency gains in household appliances include the following:

- New clothes washers use 70% less energy
- New dishwashers use more than 40% less energy
- New air conditioners use about 50% less energy
- New furnaces use about 10% less energy.

All told, these efficiency gains translate into large dollar savings. While the more efficient products may cost more at the time of sale, consumers save through lower energy bills year after year and are more than compensated for any higher initial product costs. Today, a typical household saves about \$225 per year off their energy bills, and as people replace their appliances with newer models, they can expect to save more than \$320 annually by 2030.

National Benefits

The Program is highly effective—achieving high bang-for-the-buck in

energy savings. The national energy efficiency standards completed through September 2014 are expected to save 70 quadrillion British thermal units (quads) of energy by 2020 and will amount to more than 120 quads through 2030. The cumulative utility bill savings to consumers of these standards are estimated to be more than \$950 billion by 2020 and growing to more than \$1.7 trillion through 2030.³

The environmental benefits are substantial, as well. Annual carbon dioxide savings will reach more than 275 million tons by 2020, and the cumulative savings by 2030 is estimated to be nearly 7 billion tons.

Manufacturer Benefits

Federal energy efficiency standards benefit manufacturers as well. They reduce the regulatory burden on appliance and equipment manufacturers by pre-empting a potential patchwork of state standards with a single federal standard. This regulatory streamlining enhances industry competitiveness, profitability and its ability to protect and create jobs.

Further, efficiency standards can help lower the costs of innovative energy



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efficient technologies by facilitating their entry into the market and providing economies of scale. Plus, the test procedures that underlay standards enhance the ability to test the performance of newer technologies. The result is higher efficiency products that are more widely available and more affordable to own.

The Standards Program

The Standards Program is authorized by Congress through several statutes—with the earliest in 1975—in part due to manufacturer interest in national solutions to a patchwork of state-by-state standards, which increase manufacturer costs and therefore costs to consumers.

These solutions result in energy bill savings for consumers as the least-efficient product models become ineligible for sale in the United States. Consumers can spend these savings on goods and services other than utility bills, spurring the economy and creating jobs. The Standards Program includes a number of interrelated efforts such as the development of test procedures and standards, enforcement of the standards, work with Federal Trade Commission on the well-known Energy Guide labels on appliances, and technical support for the ENERGY STAR® program. DOE works in an open, transparent manner with stakeholders on these efforts. ■

¹ Represents undiscounted utility bill savings in \$2013. The value accumulates all savings through 2030.

² Data in this section are based on shipment-weighted efficiency data from the Association of Home Appliance Manufacturers for home appliances and the Air-Conditioning, Heating, and Refrigeration Institute.

³ Represents undiscounted utility bill savings in \$2012. The value accumulates all savings through 2020 and 2030, respectively.