U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Saving Energy and Money with **Appliance and Equipment Standards in the United States**

Overview

Appliance and equipment efficiency standards have served as one of the nation's most effective policies to improve energy efficiency and to save consumers energy and money. The Program was initially authorized to develop, revise, and implement minimum energy efficiency standards by the Energy Policy and Conservation Act (EPCA) in 1975. Several subsequent legislative amendments have required regular updates to amend these standards and expanded the list of products subject to standards. DOE is currently required to periodically review standards and test procedures for more than 60 products, representing about 90% of home energy use, 60% of commercial building energy use, and 30% of industrial energy use.

The Program's core components include the following activities:

- *Developing and updating test procedures to ensure they remain technologically relevant and provide manufacturers with a level playing field and a platform to bring to market new product innovations:* For consumers, the Program's periodic review of test procedures lays the foundation for reliable and comparable operating cost information for the most common household and business appliances.
- *Establishing national minimum energy efficiency standards based on DOE's prescribed test procedures:* While saving consumers and businesses on their utility bills, the Program's Federal standards preempt product efficiency regulations at the state and local level, reducing regulatory burden for manufacturers and providing them with a larger national marketplace.
- *Enforcing the energy conservation standards:* The Program's enforcement against inferior-quality products prevents any manufacturer from undercutting those playing by the rules.

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- *Supporting the Federal Trade Commission's (FTC's) EnergyGuide labeling program with test procedure calculations, which leads to reliable, product performance data for consumers.*
- *Developing test procedures and conducting verification testing for the ENERGY STAR program, in coordination with EPA.*

Program Benefits

Program benefits extend to the Nation, individual consumers and businesses and to the manufacturing industry.

National Benefits

The Program is highly effective — achieving high bang-for-the-buck energy savings. The national energy efficiency standards completed through 2016 are expected to save 71 quadrillion British thermal units (quads) of energy by 2020 and nearly 142 quads through 2030—more energy than the entire nation consumes in one year. The cumulative utility bill savings to consumers are estimated to be more than $1 trillion by 2020 and more than $2 trillion by 2030.

These savings create jobs when they are redeployed into sectors of the economy that are more labor-intensive than the utility sector. The Program's enforcement efforts protect industry competitiveness by lowering the risk of investing in energy efficient technologies and ensuring importers of foreign-made products play by the same rules as domestic manufacturers.

Consumer Benefits

The Standards Program has driven remarkable efficiency gains in household appliances and equipment, resulting in large energy bill savings for consumers. For example, today, the typical new refrigerator uses one-quarter 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. Today, a typical household saves about $321 per year off their energy bills as a result of standards. As consumers replace their appliances with newer models, they can expect to save over $529 annually by 2030.

Beyond the costs and energy savings, the Program's test procedures ensure consumers receive accurate energy

performance information on the products they purchase. DOE's statutory obligation to update test procedures at least every seven years enables the Program to keep pace with rapid technological change. Manufacturers must use DOE's test procedures to rate and certify the efficiency of their products, so consumers—meaning households, businesses, and even factories and utilities—have reliable and comparable information to make the choices that best fit their household or business needs.

In addition to governing representations of product performance, DOE's test procedures are used for the FTC's EnergyGuide labeling program and the ENERGY STAR program, ensuring consumers have the best possible information to support their purchase decisions.

Manufacturer Benefits

The Program works closely with manufacturers of covered products to reduce regulatory burden. DOE's statutory rulemaking obligations are rooted in Congress' intent to lower regulatory burden by instituting one uniform Federal standard, thereby preempting a costly patchwork of conflicting state and local standards. This doctrine of "Federal preemption" is a cornerstone of—and a primary rationale for—DOE's Appliance Standards Program: No state or local authority may regulate the products already covered by DOE efficiency standards unless DOE specifically grants a waiver exempting the state's regulation from preemption.

A uniform national standard assures manufacturers—and their distributors and retailers—a larger market, lower compliance costs, and better economies of scale.

Benefits Resulting from Appliance and Equipment Standards

The Appliance Standards Program provides benefits for the nation, individual consumers and businesses, and manufacturers.

- Saves billions of dollars on energy costs to put back into the economy
- Reduces energy waste by increasing energy efficiency
- Creates and protects manufacturing jobs in the U.S.
- Spurs innovation and competition in the marketplace

- Generates significant utility bill savings for households and businesses
- Increases the availability and affordability of energy efficient products
- Disseminates reliable and comparable product operating cost information
- Provides access to improved products with new features and comfort attributes

- Reduces regulatory burden by pre-empting a potential patchwork of state standards with a single Federal standard
- Protects manufacturers of quality products from those manufacturing inferior products, including imports
- Creates economies of scale which decrease costs to develop and produce innovative energy efficient technologies
- Facilitates market introduction of energy efficient technologies by validating product performance

Beyond underpinning product standards, test procedures help facilitate manufacturers' introduction of higher-value energy efficient technologies into the marketplace. Test procedures lower testing costs and provide a neutral platform upon which manufacturers can compete to differentiate and market the performance of their products. But manufacturers are in no way constrained by what the test procedure can test: the Program's flexible waiver system accommodates product innovations that lie outside the test procedures' parameters. Utility rebate and other 'market pull' programs that incentivize efficient products are critical to achieving economies of scale, and driving cost down, for advanced technologies. These programs typically require energy ratings that are based on DOE test procedures.

Rulemaking Schedule and Process

The program's predictable rulemaking schedule is almost entirely driven by statutory deadlines DOE must meet to comply with EPCA, as amended by subsequent energy legislation, and reflects the program's obligation to review all standards and test procedures at intervals of 6 and 7 years, respectively.

DOE considers transparency and stakeholder participation to be essential and encourages all stakeholders to participate in the rulemaking process. Stakeholders include consumers, manufacturers, trade associations, utilities, energy efficiency advocates, and the general public. The Program has established the Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) as means of facilitating deeper stakeholder engagement by allowing for negotiated rulemakings under the guidelines set forth in the Federal Advisory Committee Act.

The process culminates in a Final Rule in which DOE is required to set efficiency standards that maximize energy savings while being technologically feasible and economically justified. DOE must consider the impact on consumers, manufacturers, and small businesses in determining whether any new or amended standard is economically justified. ■