Appliance and Equipment Standards Program

An Overview of the Appliance Standards Program



ENERGY Energy Efficiency & Renewable Energy

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Context within BTO

- Where does this Program Fit within BTO Ecosystem?
 - Codes & Standards
 - Provides cost-effective energy savings through national appliance and equipment standards.



- The Appliance and Equipment Standards Program's mission is to fulfill its statutory obligation by:
 - Developing and amending energy conservation standards that achieve the maximum energy efficiency that is technologically feasible and economically justified.
 - Developing and amending test procedures that are repeatable, reproducible, representative, and enforceable.
 - Enforcing its certification and compliance regulations to ensure consumer savings and manufacturer adherence to DOE requirements.



Program Elements and Goals

- What are the major program elements?
 - Update and establish test procedures needed to support DOE Standards and ENERGY STAR;
 - Update and establish energy conservation standards;
 - Ensure compliance with DOE Standards and ENERGY STAR; and
 - Improve linkages to BTO technology development programs.
- The Appliance and Equipment Standards Program's current priority is to realize, by 2030, energy savings from appliance standards avoiding at least 3 billion metric tons of carbon emissions in support of the President's Climate Action Plan. Specifically, the current schedule includes:
 - 2014-2016: Complete 26 standards rulemakings, covering 30 products
 - 2017-2020: Complete 10 standards rulemakings, covering 12 products



\$63 Billion

The annual utility bill savings to consumers from standards promulgated to date in 2015. This amounts to nearly \$320 per household per year in energy bill savings.

\$2 Trillion

The cumulative utility bill savings to consumers from standards are estimated to be over \$1 trillion through 2020, growing to nearly \$2 trillion through 2030.

132 Quadrillion Btu

The cumulative energy savings of standards promulgated to date will be about 70 quadrillion British thermal units (quads) of energy through 2020, and will amount to nearly 132 quads through 2030 – more than 1 year's worth of US energy use.



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OBAMA ACCOMPLISHMENTS – CAP GOAL PROGRESS

40 Final Rules Issued

Includes a variety of products and Federal Building Codes.

\$545 billion

The cumulative utility bill savings to **consumers** from standards issued since January 2009 are estimated to be \$545 billion through 2030.

2.5 billion metric tons

The cumulative carbon emissions savings through 2030 – equivalent to the emissions of 524 million passenger cars in one year.



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Budget and Key Performers

Budget Fluctuates from year-to-year

(Dollars in Thousands)	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017 Request
Equipment and Buildings Standards	58,302	56,080	48,840	53,359	40,812	53,217

• Key Performers:

- Navigant Consulting
- LBNL
- PNNL
- ORNL
- NIST





Appliance & Equipment Standards Program Logic Model

OBJECTIVE	ACTIVITIES	KEY OUTPUT	SHORT-TERM OUTCOME	MID-TERM OUTCOME	LONG-TERM OUTCOME
Develop					Jpdated Dec. 2015
test procedures	Develop test procedures*	Test procedures*	Procedures available to industry	Improved test methods used	Higher energy efficient
	Develop standards*	Standards*	Products redesigned Increased int'l alignment		products are produced, reducing energy intensity in buildings nationwid
Develop standards	Negotiate with stakeholders	developed with stakeholder input		New efficient products Products comply with standards	
	Collaborate internationally	Shared best practices			
Enforce regulations	Check products for compliance	Test results	Corrective actions taken		
		Non-compliance warnings			
* New or am years	nend(ed) existing; Review o	 EXTERNAL INFLUENCES DOE Budget Energy Prices Market Incentives Legislation / Regulation Real Estate Market 			

The Appliance & Equipment Standards Program promulgates energy conservation standards and test procedures in a rulemaking process to reduce energy consumption across residential, commercial, and industrial buildings.

2015

by 2030

Dec. External Influences: DOE budget, Energy prices, Real estate market, Market incentives, Legislation / Regulation Long Term Objectives Activities / Partners Outputs Short Term Outcome Mid-Term Outcome Outcome Develop new or amend test Manufacturers rate & certify Develop test procedures through formal Manufacturers have the energy efficiency of their New or amended test procedures that rulemakings & engage access to amended test products using the new test procedures are repeatable, stakeholders through public procedures procedure reproducible, meetings & comment periods representative, Manufacturers & enforceable Develop new or amend standards New or amended produce Once standard takes effect. Manufacturers aware of through formal rulemakings & mandatory energy progressively manufacturers meet or amended or new impact analyses & engage conservation standards. more energy exceed the energy efficiency standards & redesign their Develop stakeholders through public derived from DOEefficient products level of their products products to meet the meetings & comment periods technologically developed proposals or as energy standard feasible & stakeholder agreements, conservation Convene stakeholders in formal economically and supported by required standards are justified negotiations to develop impact analyses Manufacturers comply with introduced & standards, & standards, or consider consensus aligned international Increased international routinely expand scope agreements when petitioned by standards, & continue to technical exchanges & amended. Compilation of best of covered manufacturers & advocates research & develop more greater harmonization of reducing energy practices, analyses, & products efficient products test procedures & intensity across stakeholder feedback in Collaborate with other countries standards across the residential. coordination with for international alignment of participating countries Enforce commercial, & international community standards & test procedures (e.g. Manufacturers produce industrial certification & Canada Regulatory Cooperation products with a high level of markets. compliance Council) compliance that meet regulations to Product test results Manufacturers aware of minimum energy ensure consequences of nonconservation standards. Test covered products to ensure manufacturer compliance & necessary resulting in energy savings compliance & take enforcement Notifications of nonadherence to corrective actions in the buildings sector action as appropriate requirements compliance Reduce avg. Impact Regularly develop Reduce avg. EUI in all bldgs. by at least 20% by Ensure reliable test Ensure compliance with EUI in all cost-effective federal minimum standards bldgs. 30% procedures 2025

standards

Appliance Standards Program's Interim Market Goal

By 2025, the energy use intensity (energy use per square foot of the buildings sector will be least 20% lower than in 2010.

- Connections Between Interim Goal and Program Strategy
 - Federal Minimum Standards cover over 85% of residential energy use and more than 75% of all commercial energy use so program activities directly translate into efficiency improvements.
- Current Status:
 - EIA's most recent estimate of EUI in the buildings sector for 2015 was:
 139 kBtu per sq. ft. which is about 6% lower than the EUI in 2010.

This goal is inline with the Appliance and Equipment Standards Program's contribution to the President's Climate Action Plan through enacting standards between 2008 and 2016 that reduce carbon pollution by at least 3 billion tons of CO_2 by 2030.



Key Activities for Program Performance

Ensuring availability of reliable test procedures:

 Establish and update, as needed, test procedures that reliably rate the efficiency of all covered products

Establishing/updating minimum standards:

 Develop (or update) standards for covered products that maximize the energy efficiency that is technologically feasible and economically justified

Ensuring full compliance:

 Support the verification of product efficiency by the testing of covered products



The Standards Cycle:

A continuous process with new standards being developed according to statues established in law. The Standards Program reviews test procedures and revises minimum efficiency standards in a process that is open to the public. Once a standard is adopted, the program ensures compliance through product testing.



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