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# The U. S. Appliance Standards Program for Lighting

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Lucy deButts, United States Department of Energy



SEAD

SUPER-EFFICIENT EQUIPMENT AND  
APPLIANCE DEPLOYMENT INITIATIVE



## Lucy deButts, United States Department of Energy

Lucy deButts is a product manager for the U.S. Department of Energy's Appliance and Equipment Standards program, which issues regulations for appliance and equipment standards and test procedures, provides guidance to aid in the implementation of certain regulations, seeks public participation in rulemakings, and supports the Federal Trade Commission and Energy Star program. Ms. deButts develops and implements program plans to promulgate Federal minimum efficiency standards, test procedures and waivers for lighting products. Ms. deButts began her career working in fossil energy and has held real estate and telecommunications project management roles. She has been active in promoting energy efficiency since 2009.

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# The U.S. Appliance Standards Program



U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy

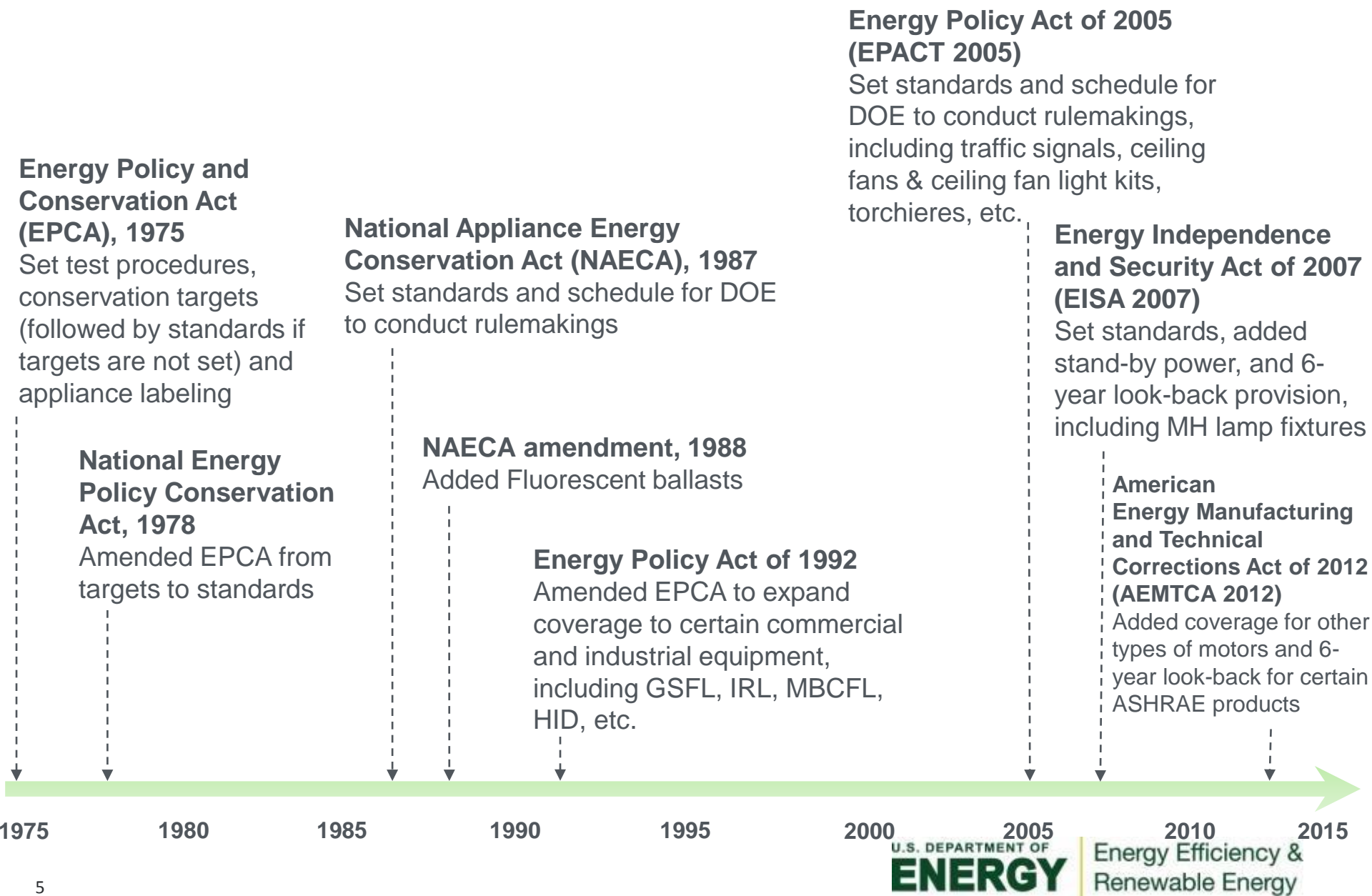
Building Technologies Office  
Energy Efficiency and Renewable Energy  
United States Department of Energy

# AGENDA

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- 1** PROGRAM HISTORY AND OBJECTIVES
- 2** PROGRAM ELEMENTS AND STAKEHOLDER ENGAGEMENT
- 3** UNDER DEVELOPMENT
- 4** IMPACT OF APPLIANCE STANDARDS

# LEGISLATIVE HISTORY



# LEGISLATIVE REQUIREMENTS

DOE must follow specific statutory criteria for prescribing new and amended standards for covered equipment

- 42 USC 6295(o)(2)(A) requires that any new or amended energy conservation standard prescribed by the Secretary for any type (or class) of covered product shall be designed to achieve the maximum improvement in energy or water efficiency, which the Secretary determines is technologically feasible and economically justified.
  - In deciding whether a proposed standard is economically justified, DOE must determine whether the benefits of the standard exceed its burdens.
  - DOE must make this determination after receiving comments on the proposed standard.
- DOE may not adopt any standard that would not result in the significant conservation of energy.
- DOE may not prescribe a standard if no test procedure has been established for the product.

# FACTORS TO DETERMINE ECONOMIC JUSTIFICATION

42 U.S.C. 6295(o)(2)(B)(i) directs DOE to consider seven factors when determining whether a standard is economically justified:

EPCA Factors	DOE Analysis
1. Economic impact on consumers and manufacturers	Life-Cycle Cost Analysis Manufacturer Impact Analysis
2. Lifetime operating cost savings compared to increased cost for the product	Life-Cycle Cost Analysis
3. Total projected energy savings	National Impact Analysis
4. Impact on utility or performance	Engineering Analysis Screening Analysis
5. Impact of any lessening of competition	Manufacturer Impact Analysis
6. Need for national energy conservation	National Impact Analysis
7. Other factors the Secretary considers relevant	Environmental Assessment Utility Impact Analysis Employment Impact Analysis

# PRODUCT PROFILE

Over **60** covered products

Consumer



Commercial and Industrial



Lighting



Plumbing



**90%** of residential  
energy use covered

**60%** of commercial  
energy use covered

**30%** of industrial  
energy use covered



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**1** PROGRAM HISTORY AND OBJECTIVES

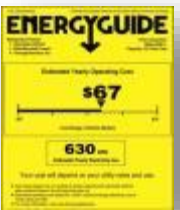
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# PROGRAM ELEMENTS

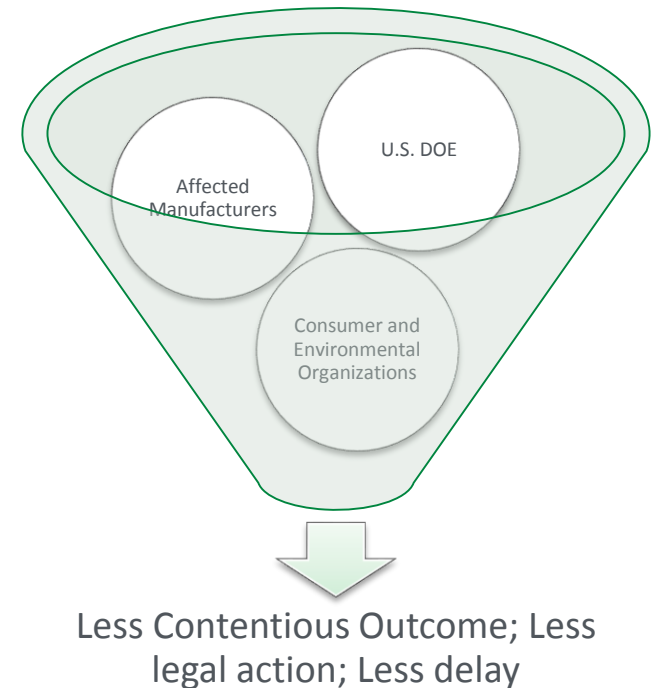
- Test Procedures
  - *Energy efficiency is often difficult to define, and requires different metrics for different products.*
  - *Test procedures must be carefully developed, so they can't be gamed.*
- Standards
  - *The standard is defined in terms of the test procedures established by the Program.*
  - *Manufacturers test their products using the DOE test procedure; products must meet the standard level to be sold in the U.S.*
- EPA Partnership on ENERGY STAR
  - *DOE leads test procedure development, testing/verification, and identify ENERGY STAR MOST EFFICIENT appliances*
- Work with FTC on Energy Guide labels on appliances
  - *Results are based generally on calculations resulting from DOE test procedures.*
  - *Manufacturers file ratings for each appliance with FTC; FTC allows manufacturers to submit data to DOE via CCMS.*



# STAKEHOLDER ENGAGEMENT

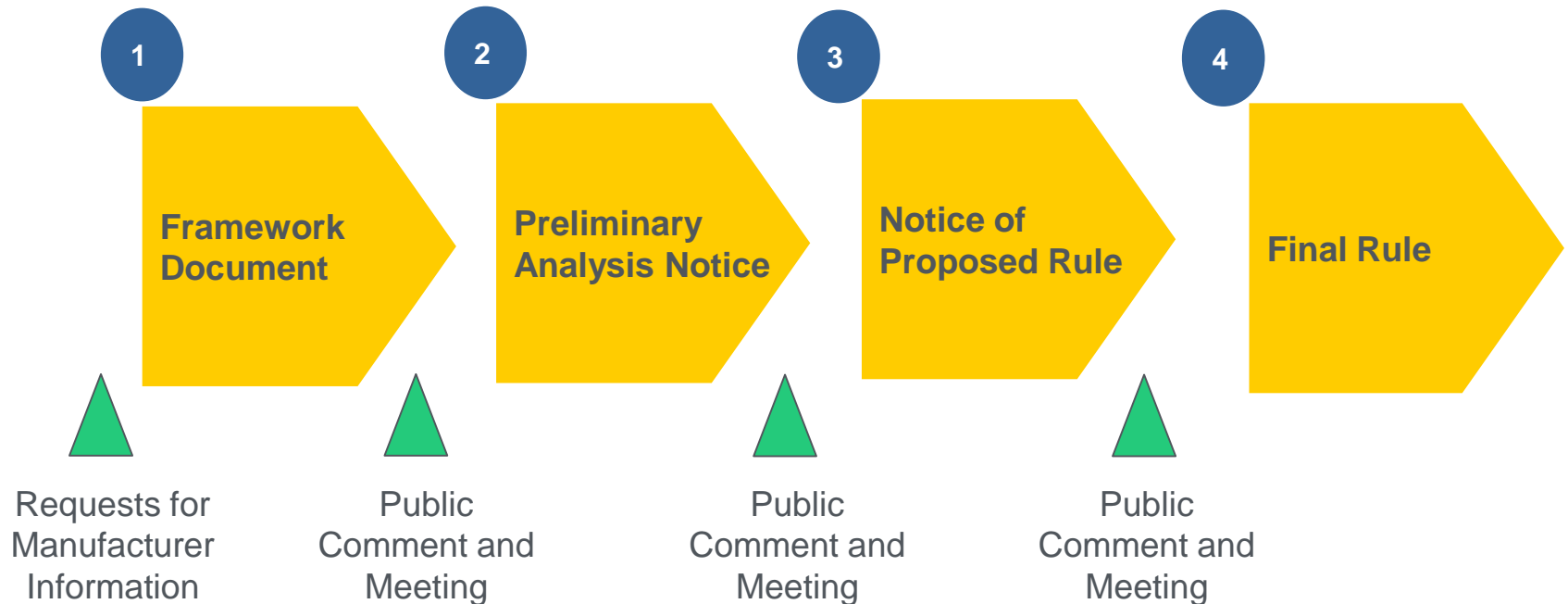
- Approaches to Standards Development
  - Regulatory process with stakeholder engagement throughout
  - Negotiated through Federal Advisory Committee with industry and other stakeholder representatives (e.g., pumps)
  - Consensus agreements by stakeholders brought to DOE (e.g. motors)
  - Industry voluntary agreements (e.g. set-top boxes)

DOE supports collaborative approaches.



# STANDARDS RULEMAKING PROCESS

DOE energy conservation standards are generally established by a four-phase rulemaking process which includes three public meetings



Requests for information, notices of comment extension, notices of data availability, and notices of public meeting can be issued throughout the process.



# EXAMPLES OF DOE APPLIANCE STANDARDS RULEMAKING DOCUMENTS

- ***Coverage Determination:*** Notice to add a product to DOE's portfolio of products to be considered for standards.
- ***Request for Information:*** Notice requesting data from stakeholders on particular issues relevant to rulemaking.
- ***Notice of Data Availability:*** Notice to announce availability of data relevant to rulemaking (usually spreadsheets).
- ***Notice of Public Meeting:*** Notice to announce an open public meeting.
- ***Notice of Comment Extension:*** Notice to extend the public comment period for specified rulemaking document.
- ***Framework Document:*** Lays out the scope of coverage for the specified product.
- ***Preliminary Analysis:*** Provides stakeholders with DOE's initial analysis for engineering and consumer impacts of potential efficiency increases without proposing any new standards.
- ***Notice of Proposed Rulemaking:*** Notice that provides stakeholders DOE's proposal for a new or amended Federal standard or test procedure.
- ***Final Rule:*** Notice that provides stakeholders DOE's final action.

# APPLIANCE STANDARDS MATERIAL ONLINE

Electronic Code of Federal Regulations (e-CFR )

Part 429—certification, compliance, and enforcement for consumer products and commercial and industrial equipment <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=e9e62f91b27f8342292eb9252b37dbca&mc=true&r=PART&n=pt10.3.429>

Electronic Code of Federal Regulations (e-CFR )

Part 430—energy conservation program for consumer products <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=e9e62f91b27f8342292eb9252b37dbca&mc=true&r=PART&n=pt10.3.430>

Electronic Code of Federal Regulations (e-CFR )

Part 431—energy efficiency program for certain commercial and industrial equipment <http://www.ecfr.gov/cgi-bin/retrieveECFR?gp=&SID=e9e62f91b27f8342292eb9252b37dbca&mc=true&r=PART&n=pt10.3.431>

DOE's Standards and Test Procedures Webpage

<http://www.energy.gov/eere/buildings/standards-and-test-procedures>

Appliance Standards Guidance Database

<http://www1.eere.energy.gov/guidance/default.aspx?pid=2&spid=1>

# APPLIANCE STANDARDS MATERIAL ONLINE

Request a Test Procedure Waiver:

DOE's regulations allow manufacturers to apply for a waiver when a manufacturer determines that a given basic model contains one or more design features that prevent testing in accordance with DOE's test procedure. Email: [AS\\_Waiver\\_Requests@ee.doe.gov](mailto:AS_Waiver_Requests@ee.doe.gov)

Report an appliance regulation violation:

<http://energy.gov/gc/action-center-office-general-counsel/report-appliance-regulation-violation>. Email: [energyefficiencyenforcement@hq.doe.gov](mailto:energyefficiencyenforcement@hq.doe.gov) or call 202-287-699. The Office of Enforcement will protect the identity of complainants to the maximum extent permitted by law.

DOE's Certification, Compliance, and Enforcement Website:

<http://www.energy.gov/eere/buildings/implementation-certification-and-enforcement>

DOE's Online Certification System:

<https://www.regulations.doe.gov/ccms/>

Enforcement Information:

<http://energy.gov/gc/services/litigation-and-enforcement-resources/office-assistant-general-counsel-enforcement>

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# STANDARDS AND TEST PROCEDURES UNDER DEVELOPMENT

Lighting Product Standards	Stage
Fluorescent Lamp Ballasts	Preliminary Analysis
General Service Lamps	NOPR
Ceiling Fan Light Kits	NOPR
High-Intensity Discharge Lamps	Final Rule

Lighting Product Test Procedures	Stage
LED lamps	Final Rule
CFL lamps	NOPR
Ceiling Fan Light Kits	Final Rule
Traffic Signals Modules and Pedestrian Modules	NOPR
Illuminated Exit Signs	NOPR

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# STANDARDS SAVE *BIG*: MONEY AND ENERGY

## \$60 Billion

The annual utility bill savings to **consumers** from standards promulgated to date in 2014. This amounts to nearly \$255 per household per year in energy bill savings.

## \$1.9 Trillion

The cumulative utility bill savings to **consumers** from standards are estimated to be over \$988 billion through 2020, growing to nearly \$1.9 trillion through 2030.

## 128 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 128 quads through 2030 – more than 1 year's worth of US energy use.

## 2014 ACCOMPLISHMENTS - STANDARDS

# 10 Final Rules

The number of final rules issued by DOE in 2014 – the most ever in one calendar year. DOE also issued 8 final rules for test procedures.

# \$60 billion

The cumulative utility bill savings to **consumers** from standards issued in 2014 are estimated to be \$60 billion through 2030.

# 336 million metric tons

The cumulative carbon emissions savings through 2030 – equivalent to the emissions of electricity use of 46 million homes in one year.



# MANUFACTURER BENEFITS FROM STANDARDS

## Benefits to Manufacturers of Federal energy efficiency standards include:

- Reducing the regulatory burden on appliance and equipment manufacturers by pre-empting a potential patchwork of state standards with a single Federal standard.
- Regulatory streamlining enhances industry competitiveness, profitability and its ability to protect and create jobs.
- Lowering the costs of innovative energy efficient technology by facilitating their entry into the market and providing economies of scale.
- Providing repeatable and enforceable test procedures that enhance the ability to test the performance of newer technologies and create a level playing field for all manufacturers, foreign and domestic.

# APPLIANCE EFFICIENCY GAINS DUE TO STANDARDS

**The Standards Program has helped drive remarkable gains in the energy efficiency of household appliances and equipment, resulting in large energy bill savings.**

- A 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.
- A typical new clothes washer uses 70% less energy than the typical 1990 model.
- A typical new dishwasher uses more than 40% less energy than the typical 1990 model.
- A typical new air conditioner uses about 50% less energy than the typical 1990 model.