



Appliance Standards Program
Buildings Technology Program

Presentation to AMCA
May 7, 2012

1

Program Overview

2

Legislative Requirements

3

Standards Rulemaking Process

4

Fans/Blowers/Fume Hoods

1

Program Overview

2

Legislative Requirements

3

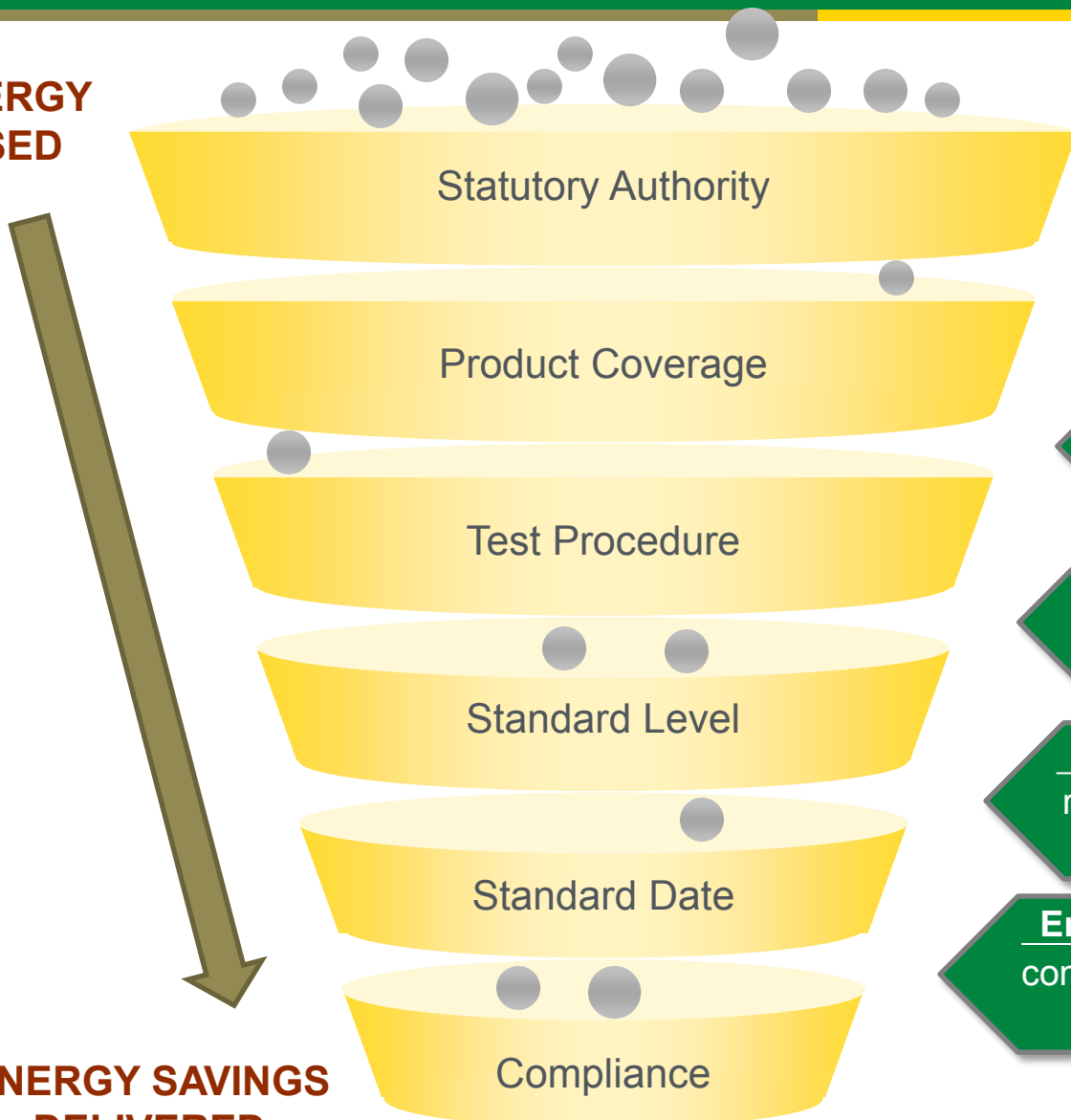
Standards Rulemaking Process

4

Fans/Blowers/Fume Hoods

Appliance Standards Program Maximizes Energy Savings

**ENERGY
USED**



**ENERGY SAVINGS
DELIVERED**

Strategies

Expand

scope by covering new products

Enhance

test procedures to capture all energy and enable innovation

Leverage

DOE R&D and international best practices

Accelerate

rulemaking schedules

Enforce

compliance to standards

- Over 60 products are covered by DOE's appliance standards program. These are known as "covered products."
- Covered products are responsible for 79% of residential building energy consumption, 46% of commercial building energy consumption, and approximately 19% of industrial energy consumption.
 - In 2009, the Nation's 113 million households and 5.4 million commercial buildings consumed approximately 39.2 quadrillion Btu (quads) of energy annually, about 41 percent of the U.S. total.
 - Residential buildings use 22 percent of the U.S. total and commercial buildings use 19 percent. Industrial equipment and processes comprises 29 percent of the national total.
 - Energy use in buildings costs \$413.3 Billion (\$2009).

What does the Program do?

- Establishes test procedures for measuring the energy efficiency of covered products.
 - 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.*
- Establishes the mandatory standard levels for the energy efficiency of covered products.
 - The standard is defined in terms of the test procedures established by the Program.*
 - Manufacturers must test their products using the DOE test procedure, and it must meet the standard level to be sold in the U.S.*

(c) *Dishwashers.* (1) The Estimated Annual Operating Cost (EAOC) for dishwashers must be rounded to the nearest dollar per year and is defined as follows:

(i) When cold water (50 °F) is used,
 (A) For dishwashers having a truncated normal cycle as defined in section 1.15 of appendix C to this subpart,
 $EAOC = (D_e \times S) + (D_e \times N \times (M - (E_D/2)))$.
 (B) For dishwashers not having a truncated normal cycle,
 $EAOC = (D_e \times S) + (D_e \times N \times M)$
 Where,
 D_e = the representative average unit cost of electrical energy, in dollars per kilowatt-hour, as provided by the Secretary,

See the Federal Register, August 29, 2003.

Product class	Standard level	
Residential water heaters*		
Gas-fired Storage	For tanks with a Rated Storage Volume at or below 55 gallons: $EF = 0.675 - (0.0015 \times \text{Rated Storage Volume in gallons})$.	For tanks with a Rated Storage Volume above 55 gallons: $EF = 0.8012 - (0.00078 \times \text{Rated Storage Volume in gallons})$.
Electric Storage	For tanks with a Rated Storage Volume at or below 55 gallons: $EF = 0.960 - (0.0003 \times \text{Rated Storage Volume in gallons})$.	For tanks with a Rated Storage Volume above 55 gallons: $EF = 2.057 - (0.00113 \times \text{Rated Storage Volume in gallons})$.
Oil-fired Storage	$EF = 0.68 - (0.0019 \times \text{Rated Storage Volume in gallons})$.	
Gas-fired Instantaneous	$EF = 0.82 - (0.0019 \times \text{Rated Storage Volume in gallons})$.	

See the Federal Register, April 16, 2010.

What does the Program do?

- Enforces the standards.
 - *DOE can order manufacturers to take corrective action if their products do not meet the standard levels.*
 - *This can include ordering them not to sell the products in the United States.*



U.S. Department of Energy
1000 Independence Ave, SW
Washington, DC 20585

In the Matter of:)
Advanced Distributor Products) Case Number 2010-SE-0304

NOTICE OF NONCOMPLIANCE DETERMINATION

CERTIFICATION

Manufacturers of certain covered products are required to certify compliance with the applicable energy conservation standards through submission of a compliance statement and a certification report. 10 CFR § 430.62. See 42 U.S.C. 6296. The compliance statement is a legal statement by the manufacturer that the information provided in its certification reports is true, accurate and complete, that the basic models certified meet the applicable energy conservation standard, that the energy efficiency information report is the result of testing performed in conformance with the applicable test requirements in 10 CFR part 430, subpart B; and that the manufacturer is aware of the penalties associated with violations of the statute and with making false statements to the Federal Government.

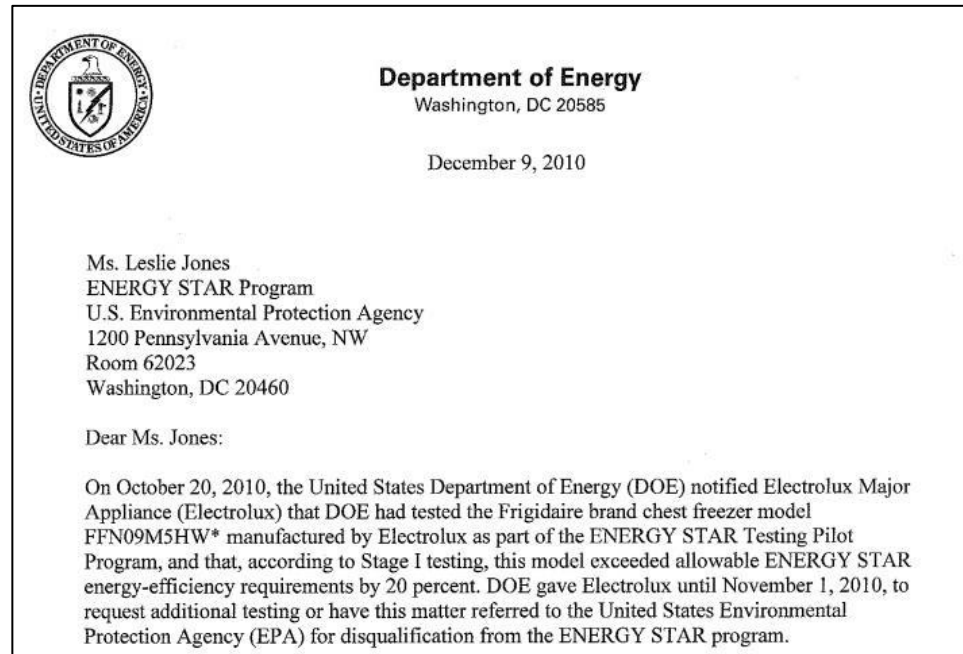
June 3, 2010

DOE Requires Manufacturers to Halt Sales of Heat Pumps and Air Conditioners Violating Minimum Appliance Standards

Today, the Department of Energy announced that three manufacturers -- Aspen Manufacturing, Inc., Summit Manufacturing, and Advanced Distributor Products -- must stop distributing 61 heat pump models and 1 air conditioner model that DOE has determined do not comply with federal energy conservation standards. The manufacturers also must notify all of their customers that have been sold noncompliant units. The Department determined that these models were noncompliant based on certification information submitted to DOE for these manufacturers.

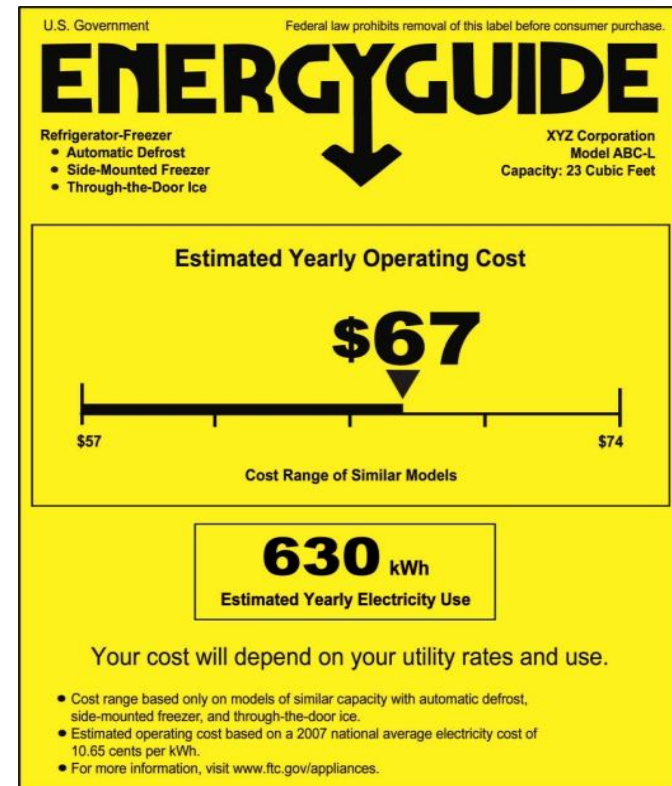
What does the Program do?

- Working with EPA, leads test procedure development and some testing/verification for ENERGY STAR.
 - *DOE generally uses the same test procedure for appliance standards and ENERGY STAR.*
 - *DOE conducts some testing and enforcement for ENERGY STAR products that don't meet the required efficiency levels.*
 - *DOE has tested over 260 products through its pilot verification program to ensure that products bearing the ENERGY STAR logo deliver the energy savings consumers expect.*



What does the Program do?

- Working with FTC, calculates energy-usage values for Energy Guide labels on appliances.
 - *DOE generally bases the calculations on results from DOE test procedures.*
 - *Manufacturers must file data reports with FTC and must contain the ratings for the appliances.*



1

Program Overview

2

Legislative Requirements

3

Standards Rulemaking Process

4

Fans/Blowers/Fume Hoods

Statutory Requirements

- **EPCA (1975)**
 - Energy Policy and Conservation Act set test procedures, conservation targets **(followed by standards if targets were not set) and appliance labeling**
- **EPCA (1978)**
 - Amended EPCA from targets to standards
 - DOE was authorized to set mandatory energy efficiency standards for 13 household appliances and products
- **NAECA (1987)**
 - Set standards and schedule for DOE to conduct rulemakings
- **NAECA Amendment (1988)**
 - Added fluorescent lamp ballasts
- **EPACT 1992**
 - Expanded coverage to certain commercial and industrial equipment
 - Established a labeling program for commercial products and allowed for the future development of standards for many other products.

Statutory Requirements (Continued)

- **EPACT 2005**
 - Expanded the Department's authority to regulate other product areas.
 - Prescribed 18 new energy conservation standards
 - Prescribed test procedures for 11 products
 - Directed DOE to develop standards for 6 products
 - Added semi-annual congressional reporting requirement

- **EISA 2007**
 - Added new covered products
 - Prescribed 14 new energy conservation standards
 - Directed DOE to develop standards for 13 products
 - Requires 19 new or revised test procedures
 - Requires regular rulemaking reviews.
 - Not later than six years after issuance of a final rule establishing or amending a standard, DOE must either publish a notice of proposed rulemaking to amend the standard or a notice of determination that an amended standard is not warranted.
 - DOE must review all test procedures at least once every seven years.
 - Requires consideration of standby power for residential products after July 1, 2010

DOE's Authority on Labeling for Commercial Products

The Energy Policy and Conservation Act, as amended (42 U.S.C. § 6291–6317) directs DOE, subject to certain conditions and after consultation with the Federal Trade Commission (FTC), to prescribe efficiency labeling rules for certain commercial products.

Authority	<p>Under §6315(a) DOE is required to prescribe a labeling rule, if DOE has prescribed a test procedure under §6314.</p> <p>For electric motors and air conditioning and heating equipment, DOE must prescribe a rule no later than 12 months after DOE has established a test procedure.</p>
Covered Products Include	<ul style="list-style-type: none">•“Covered” equipment with an established test procedure under §6314•Specific labeling rules for electric motors and air conditioning and heating equipment (incl. freezers, ice makers, and walk-in coolers and freezers)
Label Requirements	<p>DOE’s rule must include requirements to assist purchasers in making purchasing decisions such as (1) directions for display of label,(2) attachment of label, and (3) information on energy efficiency.</p>
Authority Restrictions	<p>DOE must determine that labeling will likely be technologically and economically feasible, result in significant energy savings, and assist consumers in making purchasing decisions.</p>

NAECA (1975)

1. Refrigerators, Freezers and Refrigerator-Freezers
2. Room Air Conditioners
3. Central Air Conditioners and Central Air Conditioning Heat Pumps
4. Residential Water heaters
5. Pool heaters (Gas Fired)
6. Direct heating equipment
7. Furnaces
8. Residential Boilers
9. Small Furnaces
10. Mobile Home Furnace
11. Dishwashers
12. Residential Clothes washers
13. Clothes dryers
14. Kitchen ranges and ovens
15. Fluorescent lamp ballasts
16. Television Sets

EPACT 1992

1. General service incandescent lamp
2. General service fluorescent lamp
3. Incandescent reflector lamp
4. Electric Motors and Pumps
5. Small commercial package air conditioning and heating equipment
6. Large commercial package air conditioning and heating equipment
7. Single package vertical air conditioners and single package vertical heat pumps
8. Commercial warm air furnaces
9. Packaged boilers
10. Storage water heaters, instantaneous water heaters, and unfired hot water storage tanks
11. Packaged terminal air conditioners and packaged terminal heat pumps
12. Showerheads
13. Faucets
14. Water closets
15. Urinals
16. Distribution Transformers
17. High-intensity discharge lamps
18. Small Electric Motors

EPACT 2005

1. Ceiling Fans
2. Ceiling Fan Light Kits
3. Medium Base Compact Fluorescent Lamps
4. Dehumidifiers
5. Very large commercial package air conditioning and heating equipment (ASHRAE)
6. Unit Heaters
7. Automatic commercial ice makers
8. Commercial refrigerators, freezers, and refrigerator-freezers
9. Refrigerated Beverage Vending Machines
10. Commercial clothes washers
11. Battery Chargers
12. Furnace Fans
13. Illuminated Exit Signs
14. Mercury Vapor Lamp Ballasts
15. Torchieres
16. Traffic Signal Modules and Pedestrian Modules
17. Commercial Prerinse Spray Valves
18. External Power Supplies, Class A

EISA 2007

1. 2,601-3,300 Lumen General Service Incandescent Lamps
2. 3-Way Incandescent Lamps
3. Rough Service Lamps
4. Shatter-Resistant Lamps
5. Vibration Service Lamps
6. Candelabra base incandescent lamp
7. Intermediate base incandescent lamp
8. Metal Halide Lamp Ballasts
9. Metal halide Lamp Fixtures
10. Microwave Ovens
11. Walk-in coolers and walk-in freezers
12. External Power Supplies, non-Class A
13. LED Lamps
14. OLED Lamps

1

Program Overview

2

Legislative Requirements

3

Standards Rulemaking Process

4

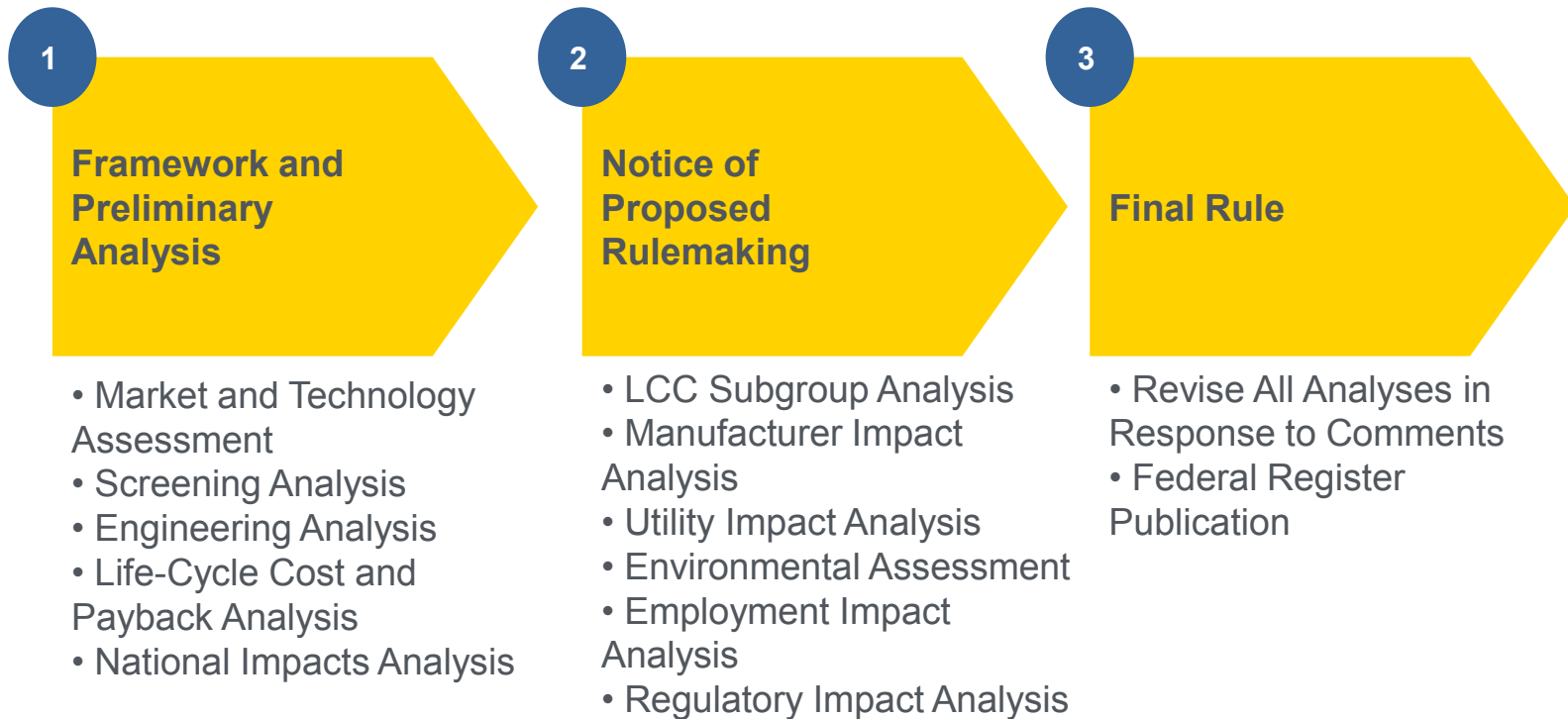
Fans/Blowers/Fume Hoods

Energy Policy and Conservation Act (EPCA) Factors

EPCA directs DOE to consider seven factors when setting standards.

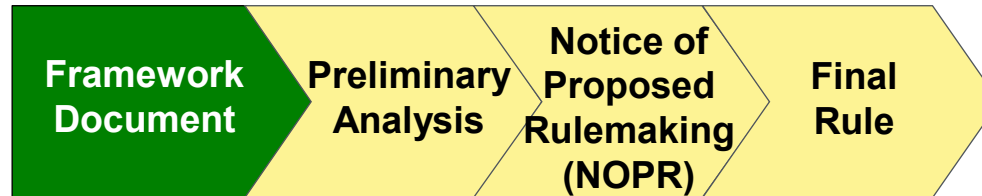
EPCA Factors	DOE Analysis
1. Economic impact on consumers and manufacturers	Life-Cycle Cost Analysis Manufacturer Impact Analysis
2. Lifetime operating cost savings compared to increased cost for the product	Life-Cycle Cost Analysis
3. Total projected energy savings	National Impact Analysis
4. Impact 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

DOE energy conservation standards are established by a three-phase rulemaking process: a framework and preliminary analysis, notice of proposed rulemaking (NOPR), and final rule.



New streamlined process announced by DOE in November aims to reduce rulemaking schedule from 3 years to 2 years.

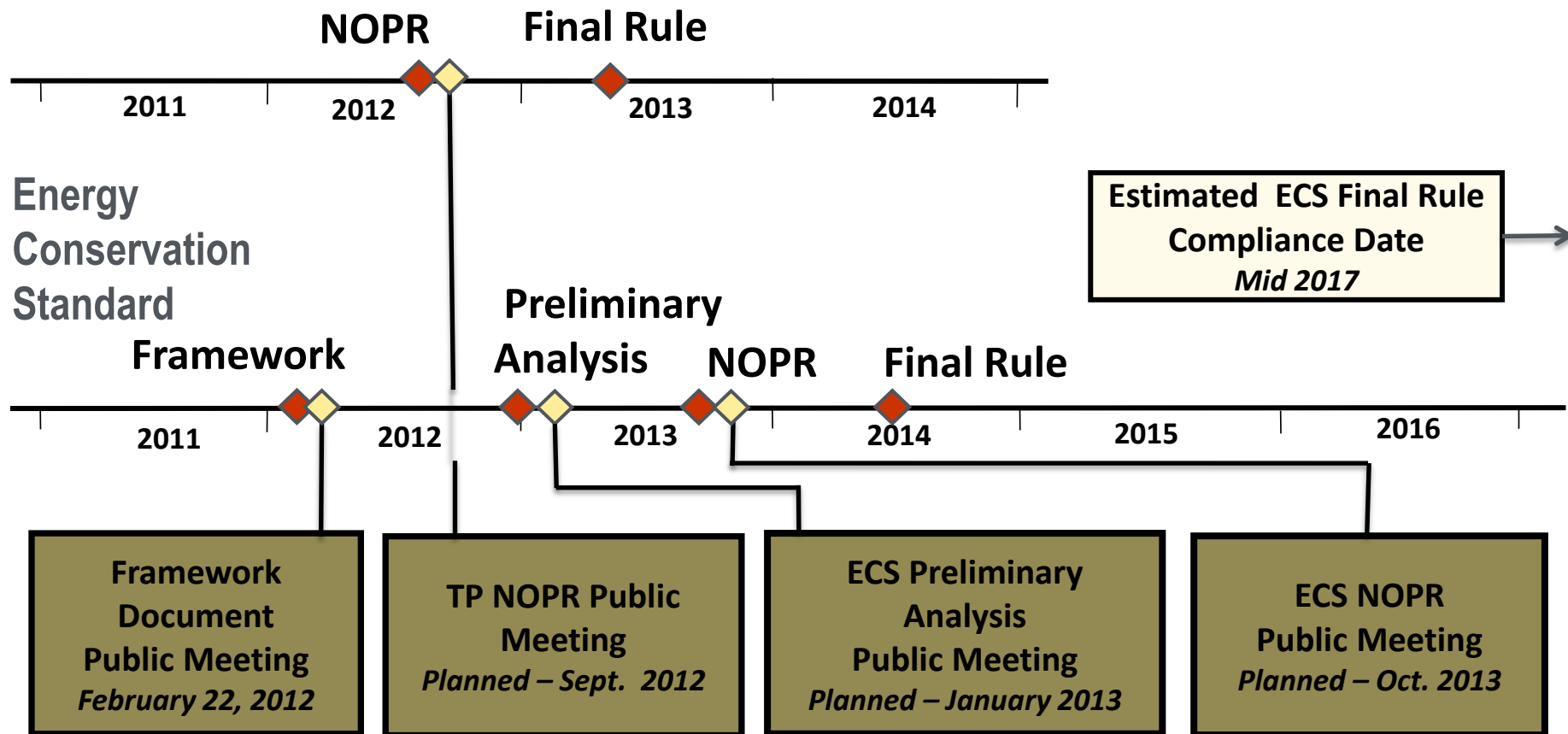
Rulemaking Process Steps



- Framework document provides:
 - Overview of the rulemaking process
 - Describes technical analyses
 - Seeks data to inform rulemaking process
 - Seeks comment on critical issues

Rulemaking Timelines Typically Include Test Procedures

Test Procedure



DOE strives to develop test procedures that are:

- Repeatable;
- Reproducible;
- Representative;
- Not overly burdensome to conduct;
- Applicable to anticipated future technologies;
- Resistant to circumvention;
- Harmonized with related TP; and
- Consistent with legal authority.

The approach to test-procedure development encourages continuous improvement of test procedures.

Rule Initiation

Define Objectives

Address Key Issues

Publish NOPR

Collect Comments

Publish Final Rule

• **Rulemaking Triggers:**

- ✓ Supporting a Standards Rulemaking
- ✓ Periodic Review
- ✓ Mandated Link to Industry Test Procedure
- ✓ Petition
- ✓ DOE Recognition of Need
- ✓ Deferral
- ✓ Stakeholder Comments
- ✓ Waivers

• **A good Test Procedure should:**

- ✓ Be repeatable
- ✓ Be reproducible
- ✓ Be representative
- ✓ Not be overly burdensome
- ✓ Anticipate technology changes
- ✓ Discourage circumvention

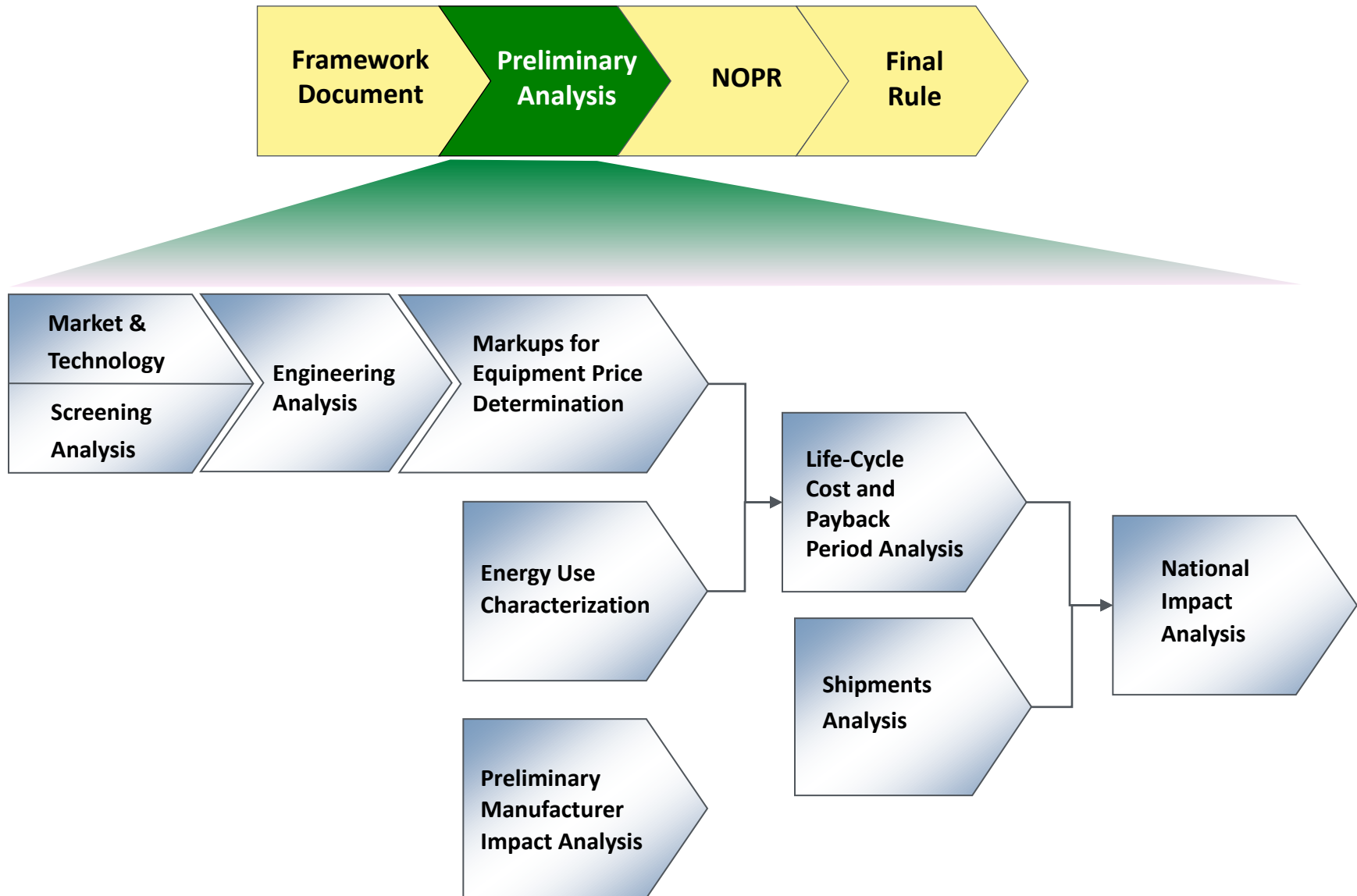
- Reference industry and other test procedures?
- Accurately measure current and future products?
- Compare well with field data?
- Address outstanding waivers?
- Address stakeholder questions?

- Scope of coverage, definitions
- Test set up, test conditions, and output metrics
- Proposed method of testing
- Solicit comments on any significant changes proposed

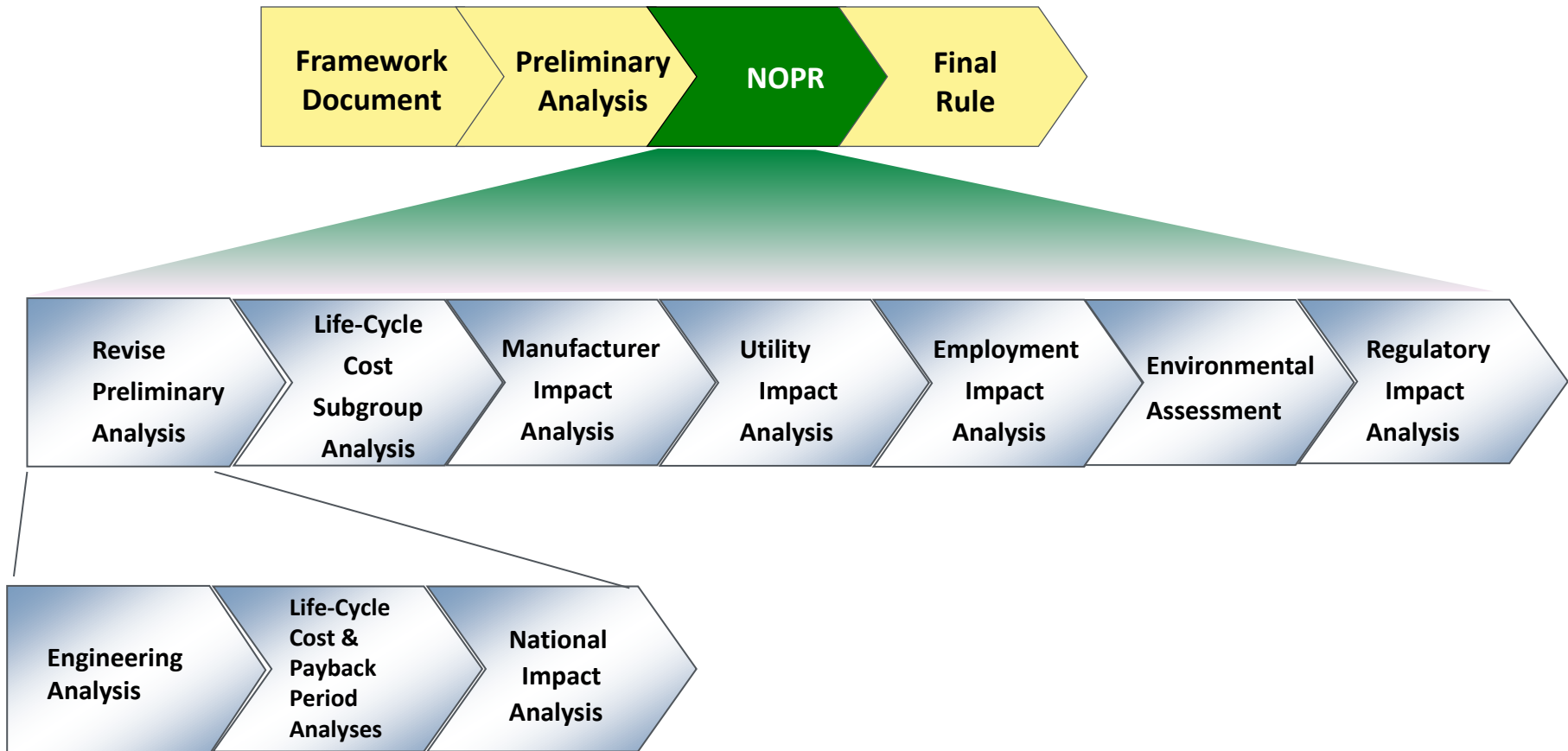
- Prepare and present at Public Meeting
- Review and summarize comments

- Promulgates final test procedure
- Address NOPR comments
- Explain basis for test procedure

Preliminary Analysis & Test Procedure



NOPR Phase



1

Program Overview

2

Legislative Requirements

3

Standards Rulemaking Process

4

Fans/Blowers/Fume Hoods

Recent Activity on Fans, Blowers, and Fume Hoods

- Proposed Coverage Determination Published in Federal Register on June 28, 2011
http://www1.eere.energy.gov/buildings/appliance_standards/commercial/pdfs/fbf_nod_06_28_2011.pdf
- Meeting at DOE with AMCA and Manufacturers on December 19, 2011
http://energy.gov/sites/prod/files/AMCA_Ex_Parte.pdf
- Framework Document Drafting in Progress
 - Public Comment Period and Public Meeting