FEMP First Thursday Seminars

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

FEMP FIRST THURSDAY SEMIN@RS 2.0

What you need to know...online, live, and anytime.

Energy Efficient Product Procurement

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Lawrence Berkeley National Laboratory

FEMP Expert: Amanda Sahl

www.femp.energy.gov/training

FEMP Federal Energy Management Program

Learner Objectives

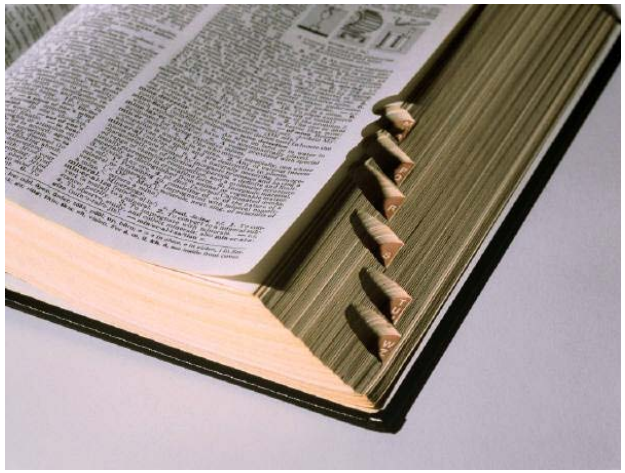
After completing this seminar, the learner will be able to:

1. Discuss the legal basis and benefits of the Energy Efficient Product Procurement programs
2. Explain how FEMP identifies designated product categories and sets efficiency requirements for Federal procurement
3. Describe the FEMP Standby Power program
4. Explain how the ENERGY STAR® program functions and resources available to support you
5. List FEMP resources to support you in making energy efficient product purchases

Agenda

- The Energy Efficiency Programs
- How to Buy Energy Efficient Products
- Other FEMP Tools and Resources

Terminology



- FEMP-Designated Product Categories
  (*aka, Covered Product Categories*)
- FEMP Product Energy Efficiency Requirements
  (*aka, Efficiency Requirements*)
- Acquisition Guidance and Efficiency Requirements
  (aka, Product Overview)
- Life Cycle Cost =
  Purchase Price + Operating Costs

Why Energy Efficient Product Procurement?

1. Required by law
2. Contributes to other goals and requirements
3. Saves money
4. Good for environment
5. Leads by example
6. Transforms markets

1. Authorities

- Energy Independence and Security Act of 2007 (EISA)
- Energy Policy Act (EPAct) of 2005
- EPAct 1992
- Executive Orders 13221, 13423 & 13514
- Federal Acquisition Regulation

2. Contributes to Complementary Goals and Requirements

- Energy Intensity Goal
- GHG Reduction Goals
- Budget

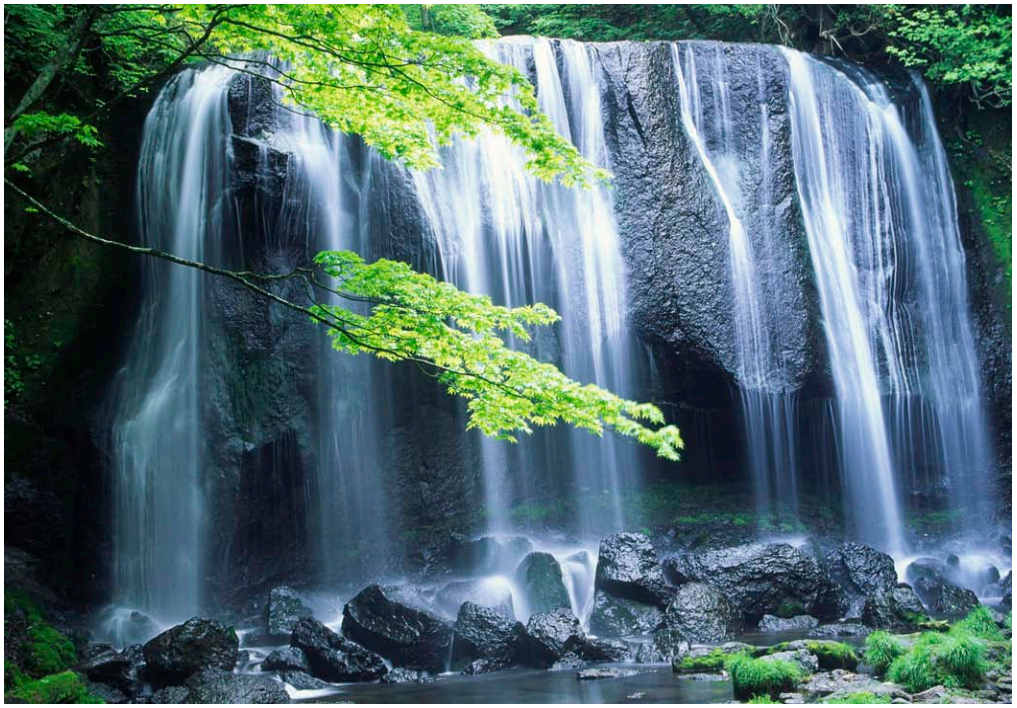
3. Saves Money

Life Cycle Cost = **Purchase +**

3. Saves Money

Life Cycle Cost = **Purchase + Operating Cost**

4. Benefits the Environment



5. Leadership by Example

6. Transforms Markets

First Cell Phone
By Motorola, 1973
12 inches long, 2 lbs, cost $3995

Annual Federal Sector Statistics

- Building Energy Use
  - 390 Trillion BTUs
  - $7 billion
- Product Purchases
  - $5 billion

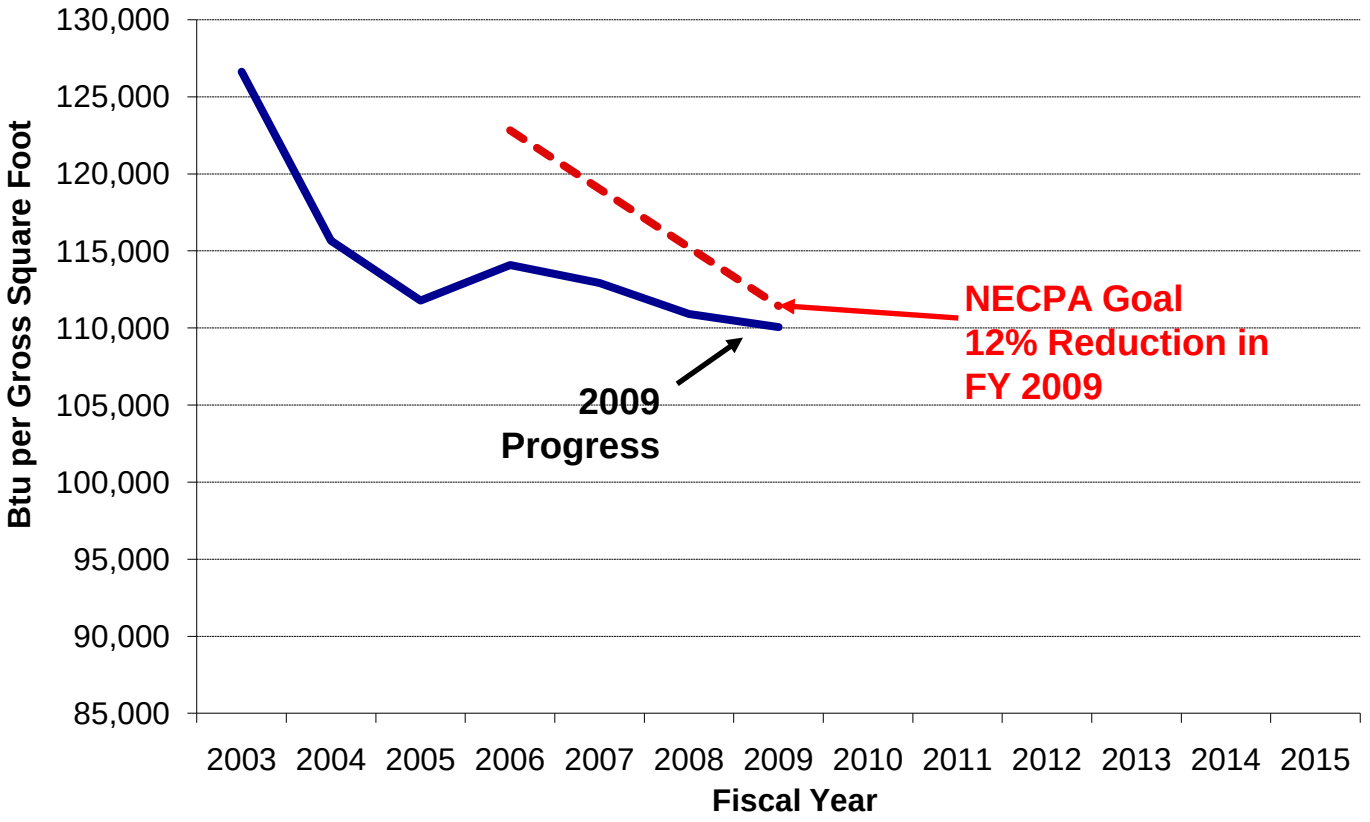
Potential Annual Savings from EEPP

- 15 Trillion BTUs
- $270 million

Federal Building Energy Use

Federal Energy Program

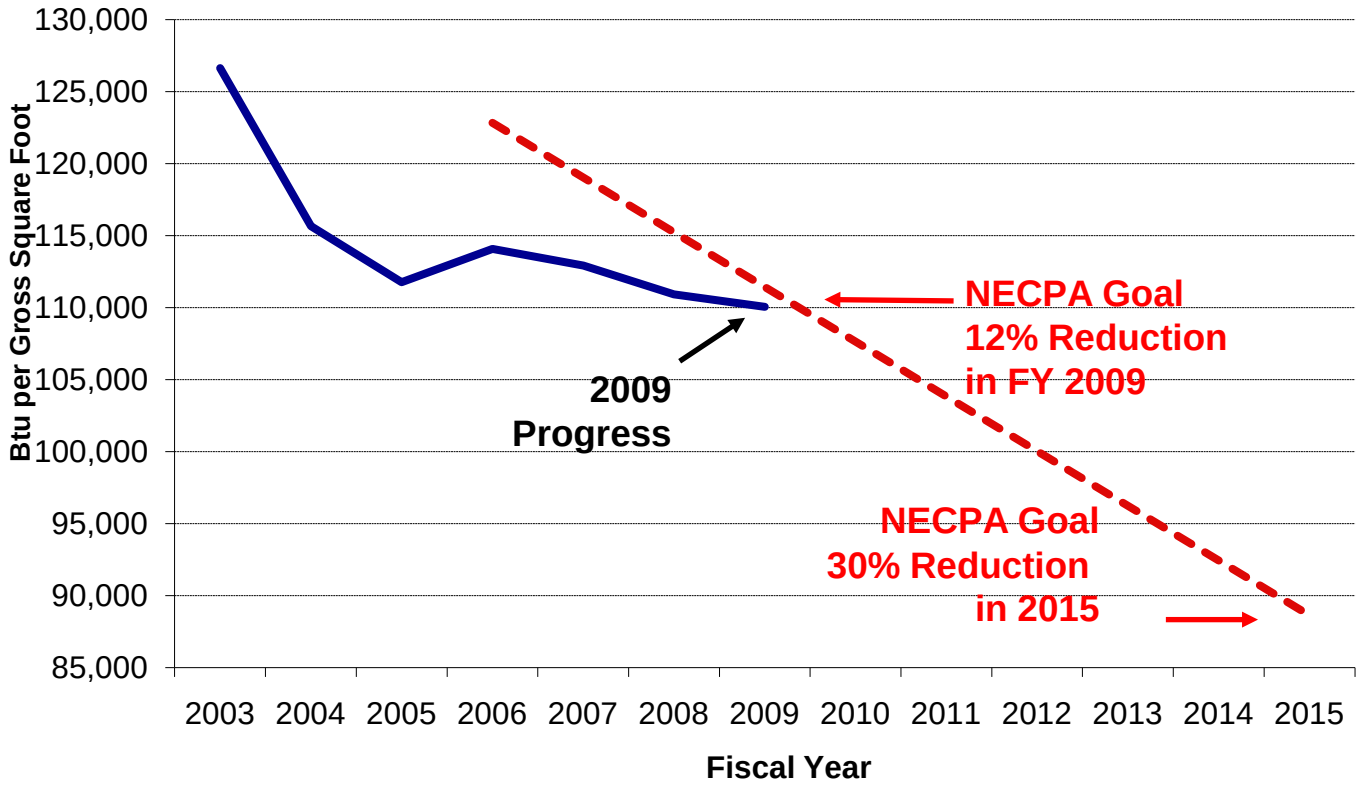
Reductions to date 2003 - 2009



Federal Building Energy Use

Federal Energy Program

Future goals 2009-2015



Efficient Product Categories: Guiding Principles

- Goal of top-25% of market
- Significant energy savings potential
- Life-cycle cost effective
- Non-proprietary technologies
- Industry recognized test standards

ENERGY STAR®

- Joint program of EPA and DOE
- > 60 product categories
- > 40,000 product models
- > 1600 manufacturers

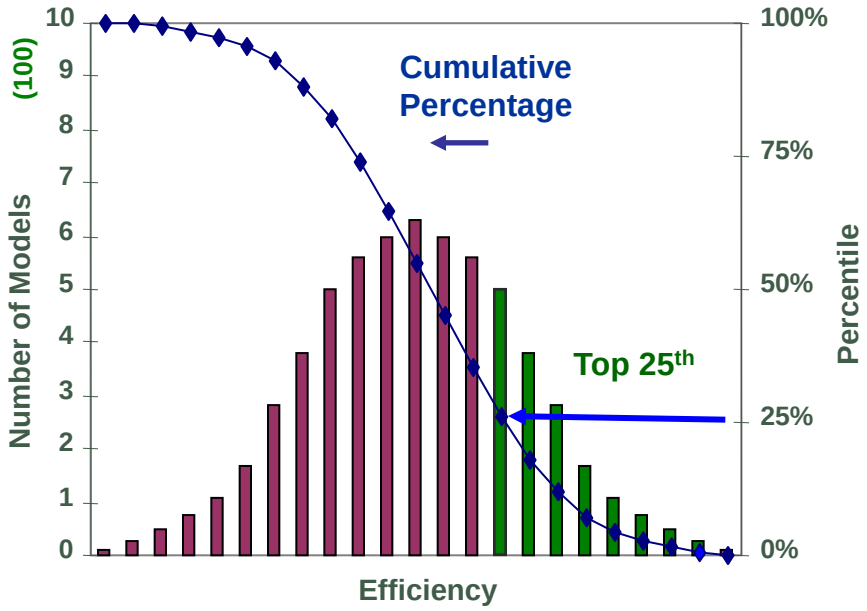
How ENERGY STAR Works

- Voluntary labeling program
- Products that earn the ENERGY STAR® label must meet the energy efficiency requirements in product specifications
- Product's performance must be certified by an EPA-recognized third-party based on testing in an EPA-recognized lab
- Some categories:
  - Appliances
  - Building Products
  - Computers and Electronics

FEMP-Designated Product Categories

- Administered by FEMP
- 15 product categories
- Categories not covered by ENERGY STAR®
- Target audience: Federal sector

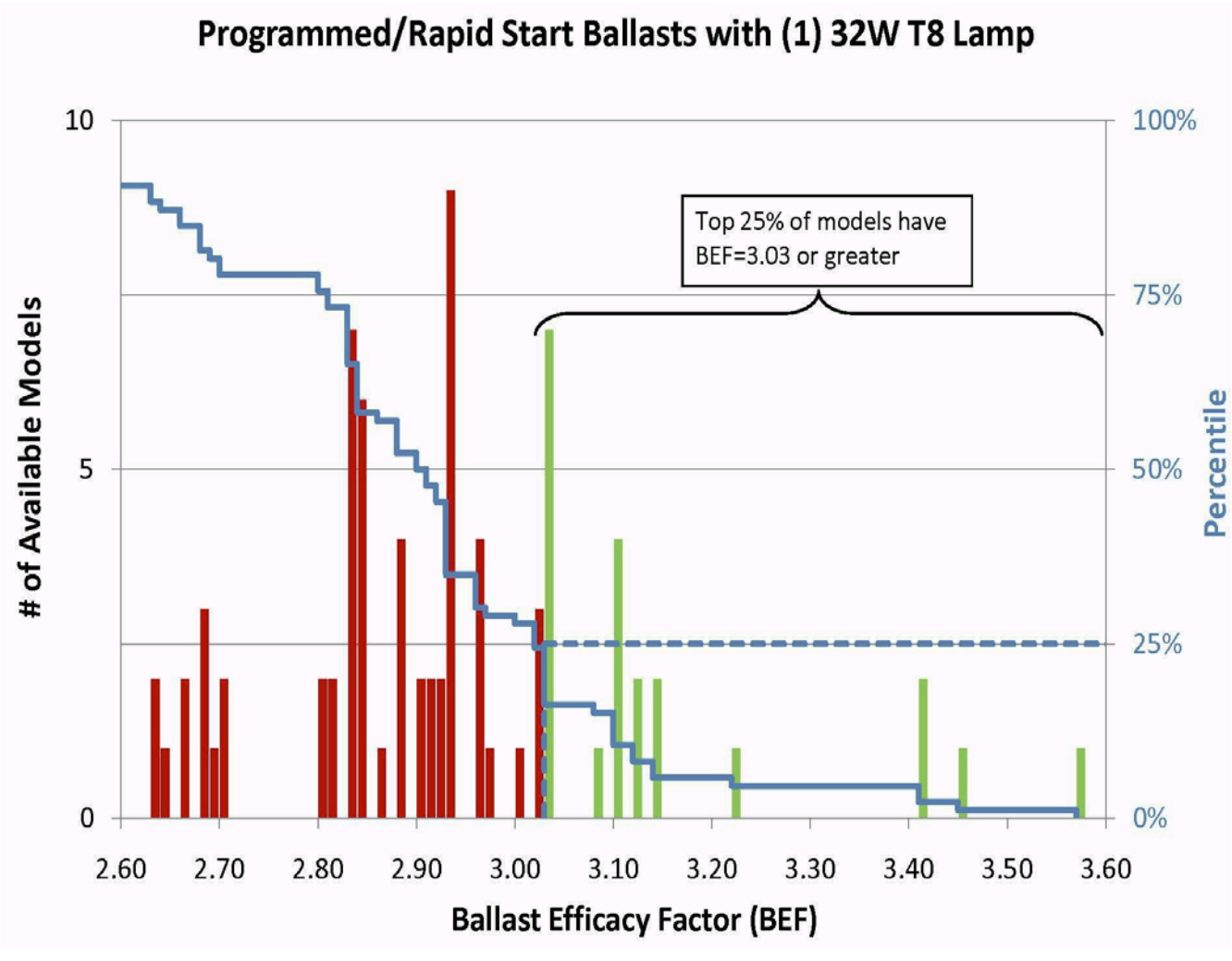
How FEMP Sets Efficiency Requirements



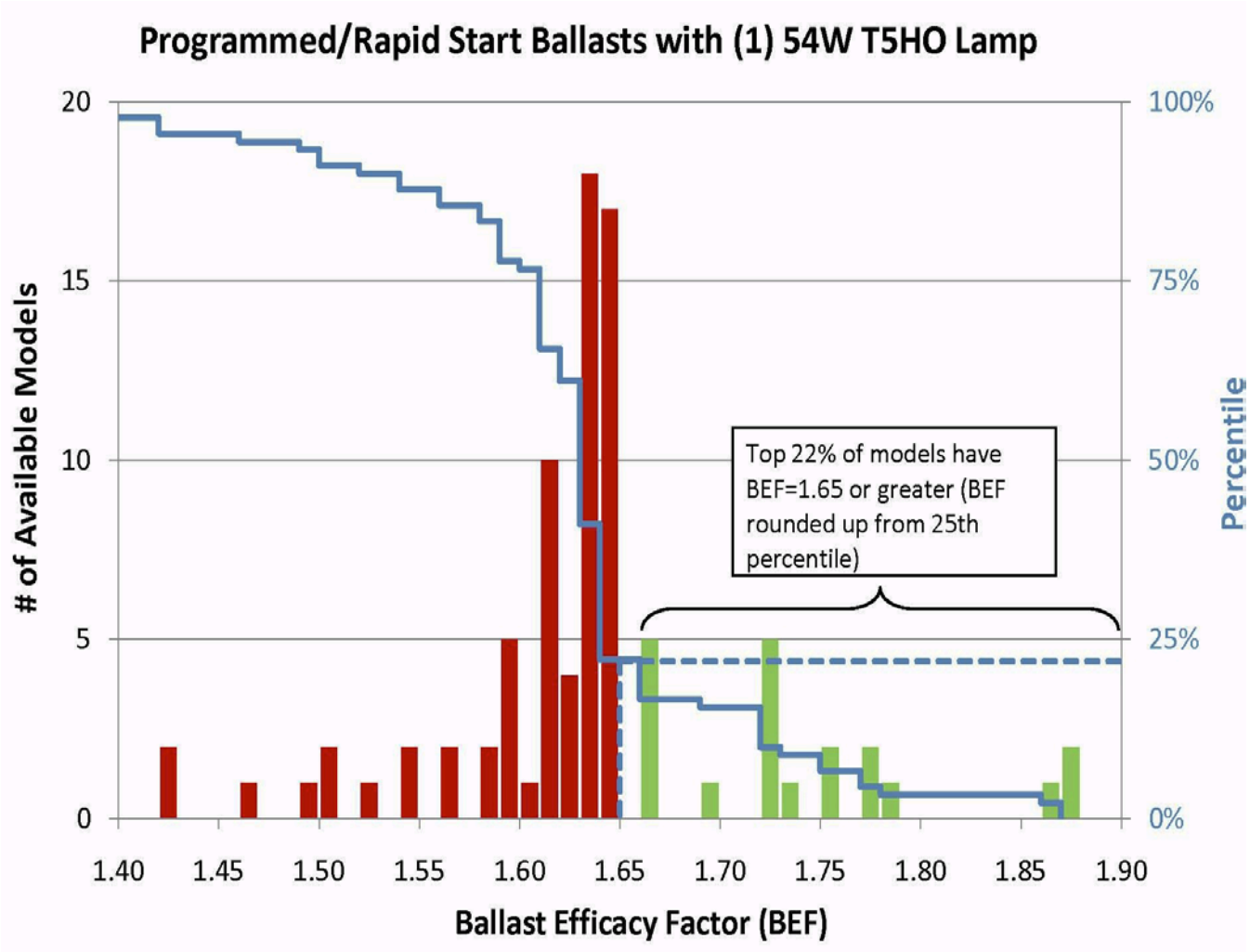
Sets minimum efficiency for purchasing

1) Collect & review data on efficiency
2) Rank products from highest to lowest efficiency
3) Calculate top 25th percentile
4) Check against other recognized programs
5) Confirm 3 or more manufacturers

Determining Efficiency Levels: Ballasts



Determining Efficiency Levels: Ballasts



How Does FEMP Help?

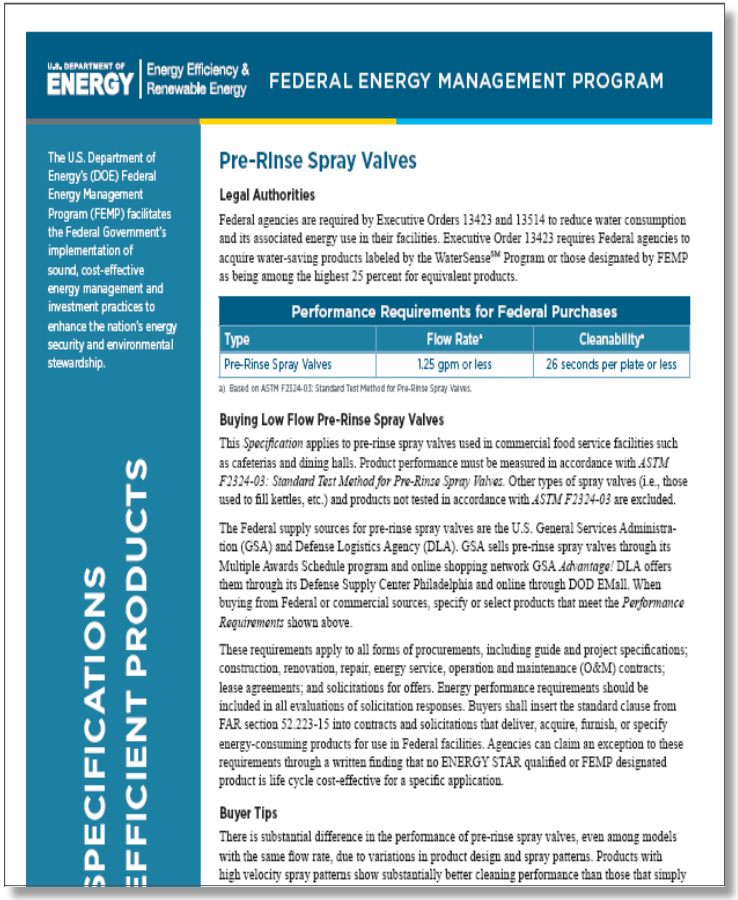
Product Categories Important to Federal Customers

- Including ENERGY STAR®
- Including FEMP-Designated

Acquisition Guidance and Requirements Pages Contain:

- Efficiency Requirements
- Mandates and Legislation
- Purchase, Maintenance, and Operations Tips
- Cost Effectiveness Examples, Assumptions, and Calculators

FEMP Acquisition Guidance and Efficiency Requirements



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

FEDERAL ENERGY MANAGEMENT PROGRAM

The U.S. Department of Energy's (DOE) Federal Energy Management Program (FEMP) facilitates the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.

SPECIFICATIONS
EFFICIENT PRODUCTS

Pre-Rinse Spray Valves

Legal Authorities

Federal agencies are required by Executive Orders 13423 and 13514 to reduce water consumption and its associated energy use in their facilities. Executive Order 13423 requires Federal agencies to acquire water-saving products labeled by the WaterSense℠ Program or those designated by FEMP as being among the highest 25 percent for equivalent products.

Performance Requirements for Federal Purchases

Type	Flow Rate[a]	Cleanability[a]
Pre-Rinse Spray Valves	1.25 gpm or less	26 seconds per plate or less

a) Based on ASTM F2324-03: Standard Test Method for Pre-Rinse Spray Valves.

Buying Low Flow Pre-Rinse Spray Valves

This *Specification* applies to pre-rinse spray valves used in commercial food service facilities such as cafeterias and dining halls. Product performance must be measured in accordance with *ASTM F2324-03: Standard Test Method for Pre-Rinse Spray Valves*. Other types of spray valves (i.e., those used to fill kettles, etc.) and products not tested in accordance with *ASTM F2324-03* are excluded.

The Federal supply sources for pre-rinse spray valves are the U.S. General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells pre-rinse spray valves through its Multiple Awards Schedule program and online shopping network GSA *Advantage!* DLA offers them through its Defense Supply Center Philadelphia and online through DOD EMall. When buying from Federal or commercial sources, specify or select products that meet the *Performance Requirements* shown above.

These requirements apply to all forms of procurements, including guide and project specifications; construction, renovation, repair, energy service, operation and maintenance (O&M) contracts; lease agreements; and solicitations for offers. Energy performance requirements should be included in all evaluations of solicitation responses. Buyers shall insert the standard clause from FAR section 52.223-15 into contracts and solicitations that deliver, acquire, furnish, or specify energy-consuming products for use in Federal facilities. Agencies can claim an exception to these requirements through a written finding that no ENERGY STAR qualified or FEMP designated product is life cycle cost-effective for a specific application.

Buyer Tips

There is substantial difference in the performance of pre-rinse spray valves, even among models with the same flow rate, due to variations in product design and spray patterns. Products with high velocity spray patterns show substantially better cleaning performance than those that simply

Standard Components of Each Overview

Performance Requirement for Federal Purchases		
Type	Rated Capacity (Btu/h)	Thermal Efficiency[a]
Gas / Water	300,000 - 10,000,000	80% E_t
Gas / Steam	300,000 - 10,000,000	79% E_t
#2 Oil / Water	300,000 - 10,000,000	83% E_t
#2 Oil / Steam	300,000 - 10,000,000	83% E_t

Cost-Effectiveness Example (5,000,000 Btu/h Gas-fired Water Boiler)			
Performance	Base Model	Required Level	Best Available[a]
Thermal Efficiency (E_t)	78.0%	80.0%	86.5%
Annual Energy Use (therms)	96,200	93,700	86,700
Annual Energy Cost	$57,700	$56,250	$52,000
Lifetime Energy Cost	$856,000	$835,000	$775,000
Lifetime Energy Cost Savings	–	$21,000	$81,000

FEMP Acquisition Guidance is Continually Updated

- Bi-annual review of existing requirements, revisions and additions as needed
- Reflect changes in DOE standards, ENERGY STAR® specifications, and the marketplace
  - Technology advances, market trends
  - New products

Standby Power

- The power consumed by a product when in the lowest power consuming mode
- This typically occurs when the product is switched off or not performing its primary purpose

Standby Power

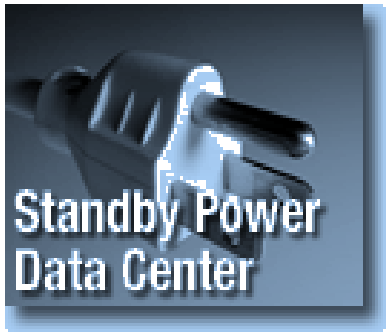
The EISA 2007 requires agencies to purchase products with a standby power level of 1 watt or less

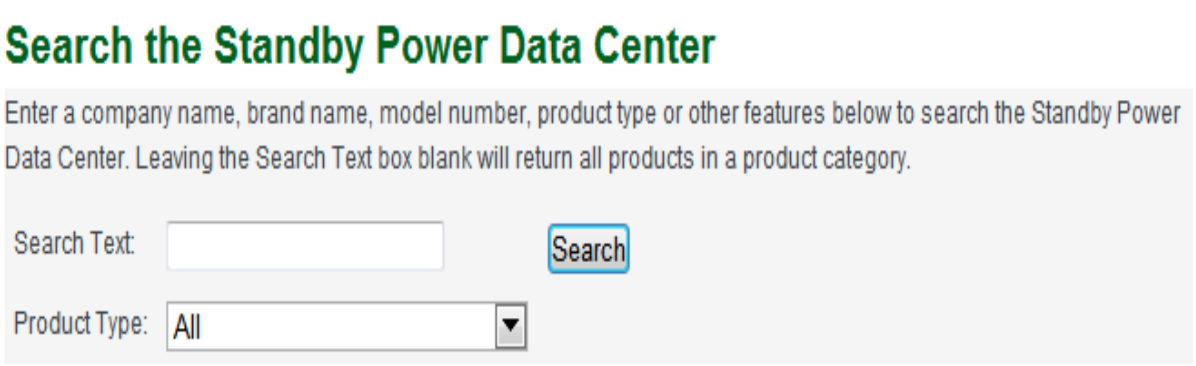
Standby Power: Examples

Product Type	Standby Level
Desktop Computer	2 watts or less
Integrated Computer	2 watts or less
Laptop Computer	1 watt or less
Workstation	2 watts or less
Computer Monitor	1 watt or less
Printer	1 watt or less
Copier	1 watt or less
Scanner	1 watt or less
Fax/Printer	1 watt or less

Standby Power Data Center

Provides a database of products that meet the standby power requirements





femp.energy.gov/standby

Standby Power

Ensure that product is **both** ENERGY STAR® qualified **and** meets the required standby power level

Standby Power Program: Future Direction

- **Short term:** Linking Standby Power requirements with Federal Supply Source databases
  - GSA Advantage!
  - DoD EMALL
- **Mid term:** Working with ENERGY STAR® and EPEAT to integrate Standby Power attributes

Product Categories Across the Programs

(Example)

■ ENERGY STAR®
▲ FEMP-Designated
◆ Standby Power

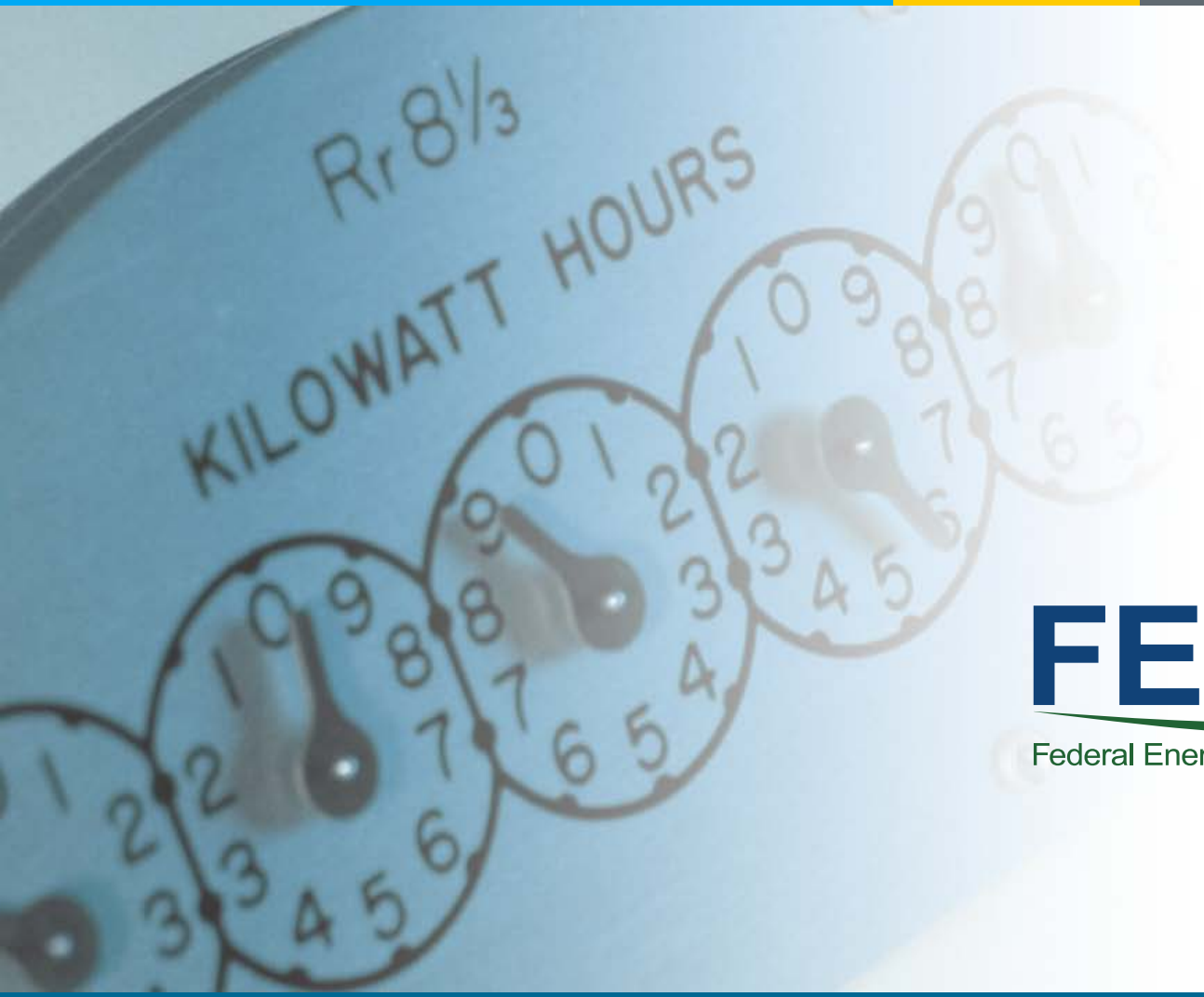
Computers ■ ◆

Water Cooled Electric Chillers ▲

Fluorescent Luminaires ▲

Refrigerators ■

femp.energy.gov/pdfs/eeprod_categories.pdf



FEMP

Federal Energy Management Program

How to Buy Energy Efficient Products

Everyone Shares Responsibility

- Contracting and Procurement
- Program Managers, Construction Managers, Task Managers, Service Coordinators
- All Federal and Federal Contractor Employees

Where to Buy Energy Efficient Products

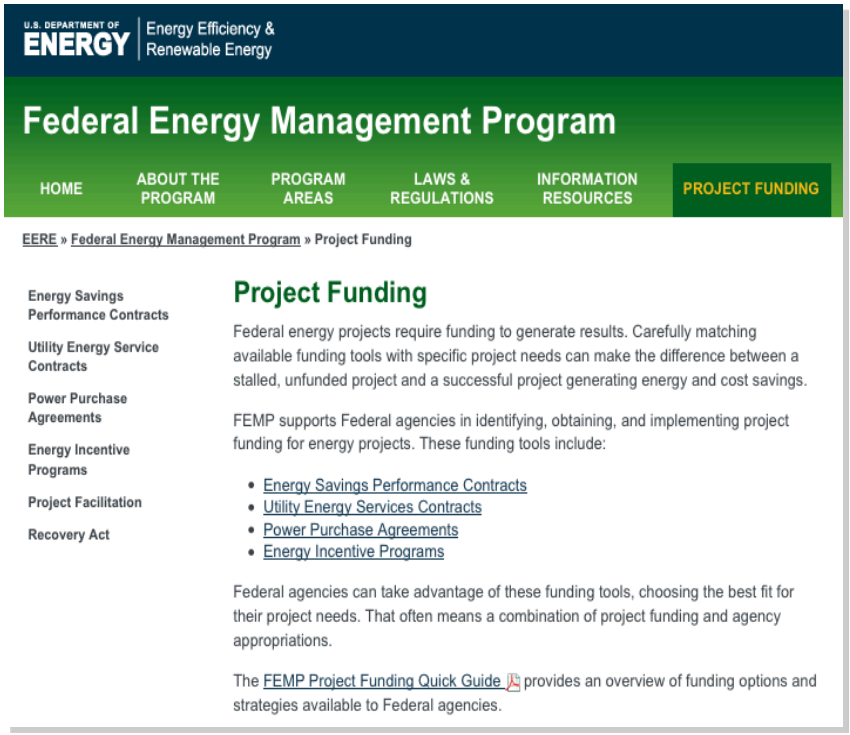
- GSA Advantage!
- DoD EMALL
- Commercial sources

What if the Energy Efficient Product Costs More?

	Low-efficiency	High-efficiency
Purchase Price	$12,590	$42,622
Energy Cost	$572,648	$495,901
Energy Cost Savings		$76,747 (2x first cost premium)

Financing Mechanisms for Larger Projects

- Strategic Sustainability Performance Plans
- ESPCs
- UESCs
- Utility Rebates
- Other Energy Project Incentive Funds



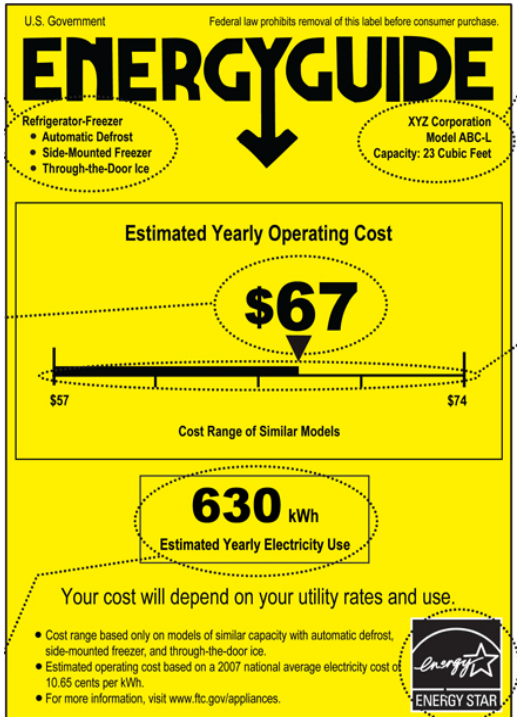
Product Categories in Major Renovation

Energy Conservation Measures

- Lighting
- Building Envelope
- Boilers
- Chillers
- Package Rooftop A/C
- Power Generation
- Water Heating

Other FEMP Tools to Assist You

Energy Information



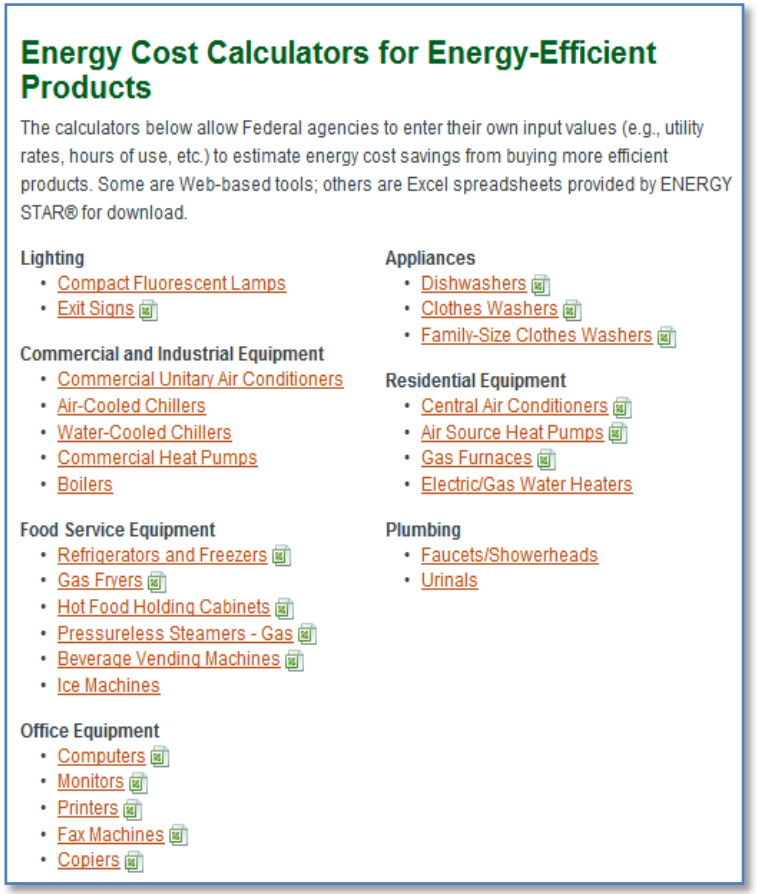
- FEMP always uses efficiency metrics that are publicly available
- Manufacturers and vendors can help identify qualified products

Model Contract Language

- Model Contract Language for:
  - Information Technology
  - Construction
- FAR Language and Clauses
- Source Selection and Evaluation Factors

femp.energy.gov/technologies/eep_modellang.html

Energy Cost Calculators



Energy Cost Calculators for Energy-Efficient Products

The calculators below allow Federal agencies to enter their own input values (e.g., utility rates, hours of use, etc.) to estimate energy cost savings from buying more efficient products. Some are Web-based tools; others are Excel spreadsheets provided by ENERGY STAR® for download.

Lighting
- Compact Fluorescent Lamps
- Exit Signs

Commercial and Industrial Equipment
- Commercial Unitary Air Conditioners
- Air-Cooled Chillers
- Water-Cooled Chillers
- Commercial Heat Pumps
- Boilers

Food Service Equipment
- Refrigerators and Freezers
- Gas Fryers
- Hot Food Holding Cabinets
- Pressureless Steamers - Gas
- Beverage Vending Machines
- Ice Machines

Office Equipment
- Computers
- Monitors
- Printers
- Fax Machines
- Copiers

Appliances
- Dishwashers
- Clothes Washers
- Family-Size Clothes Washers

Residential Equipment
- Central Air Conditioners
- Air Source Heat Pumps
- Gas Furnaces
- Electric/Gas Water Heaters

Plumbing
- Faucets/Showerheads
- Urinals

Training

- Integrated into:
  - Federal Acquisition Institute training
  - Defense Acquisition University training
  - Other agency procurement courses
- GovEnergy, GSA Expo, etc.
- Available upon request pending FEMP resources

Interagency Energy Efficient Product Procurement Working Group (IEEPP WG)

- Part of Interagency Energy Management Task Force (IETF)
  - Open to Agency members who are part of IETF
- Chaired by FEMP
- Working group minutes available on FEMP website

Summary

It's All About Execution

- Make It Policy
- Make It Practice
- Make It Easy
- Make It Effective

Future Direction for FEMP Energy Efficiency Product Programs

- Improved integration with Federal supply sources
- Institutionalizing good procurement practices
- Establishing evidence-based assistance

Conclusion

- Procurement is an essential part of energy policy
- Procurement is a non-capital intensive and effective means of reaching the -3%/year goal
- Energy Efficient Product Purchasing is a proven success in market transformation
- Institutionalization of good procurement practices is necessary for success

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