



ENERGY STAR

Medical Imaging Equipment Webinar

January 29, 2014

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ENERGY STAR Program

Webinar Details



- Webinar slides and related materials will be available on the Medical Imaging Equipment Web page:
 - www.energystar.gov/newspeccs
 - Follow link to “Version 1.0 is in Development” under “Medical Imaging Equipment”
- Audio provided via teleconference:
 - Call in:** +1 (877) 423-6338 (U.S.)
+1 (571) 281-2578 (International)
 - Code:** 773366 #
 - Phone lines will remain open during discussion
 - Please mute line unless speaking
 - Press *6 to mute and *6 to un-mute your line

Introductions



- **Christopher Kent**
U.S. Environmental Protection Agency
- **Bryan Berringer**
U.S. Department of Energy
- **John Clinger**
ICF International
- **Louis-Benoit Desroches**
Lawrence Berkeley National Labs

Webinar Objectives



- Provide overview of the ENERGY STAR program
- Provide an overview of the DOE Test Method for Medical Imaging Equipment
- Provide a possible timeline of the specification development process
- Answer stakeholder questions about this process

Agenda



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ENERGY STAR Program Overview

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Draft Test Method Review

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Next Steps



ENERGY STAR Program Background

What is ENERGY STAR?



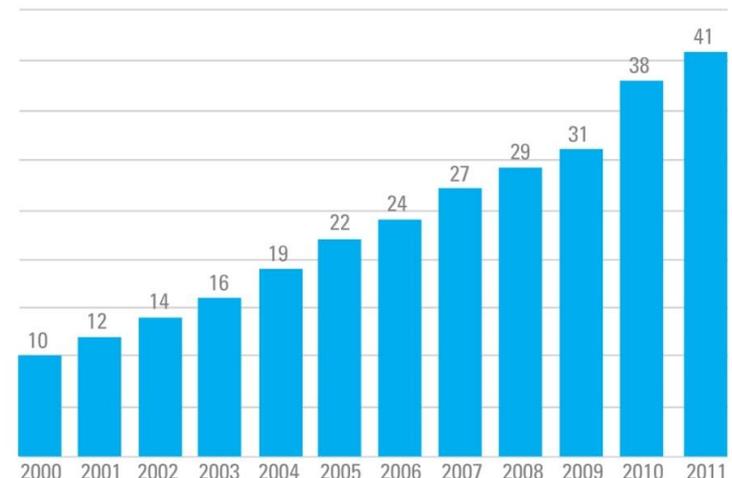
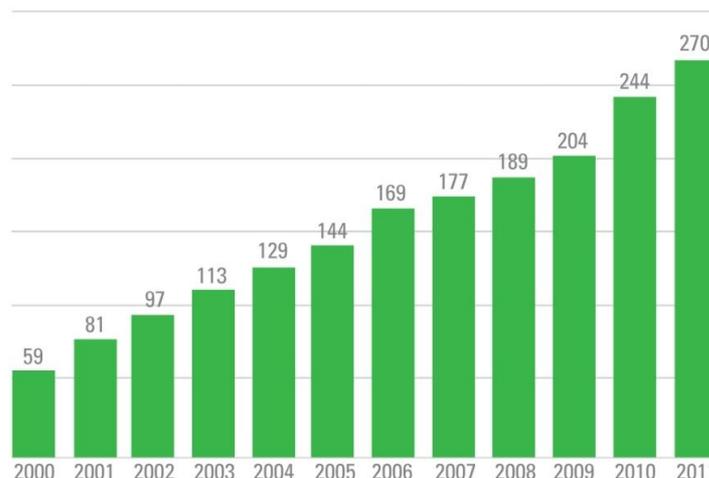
- Established in 1992
- Voluntary climate protection partnership with the U.S. Environmental Protection Agency (EPA)
- Strategic approach to energy management, promoting energy efficient products and practices
- Tools and resources to help save money and protect the environment

Success: 2012 Accomplishments



- Americans with the help of **ENERGY STAR** prevented 242 million metric tons of GHG emissions and saved \$5.8 billion in benefits to society due to reducing damages of climate change.
- Over 1.3 million new homes are ENERGY STAR qualified
- Tens of thousands buildings benchmarked and thousands upgraded

Since 2000, ENERGY STAR Benefits Have More Than Tripled



ENERGY STAR Labeled Products Facts



- More than 40,000 product models carry the ENERGY STAR label
- More than 65 types of products carry the ENERGY STAR label
- ENERGY STAR has over 1,800 manufacturing partners
- ENERGY STAR has more than 2,500 retail partners in the United States and Puerto Rico

Source: ENERGY STAR Data Book 2013

65+ Product Categories Are Covered by ENERGY STAR in the U.S.



Lighting
CFLs
SSL
Integral LED lamps
Residential light fixtures

Home Envelope
Roof products
Windows/Doors

Heating & Cooling
Central AC
Heat pumps
Boilers
Furnaces
Ceiling fans
Room AC
Ventilating fans
Water Heaters

Office Equipment
Computers*
Monitors*
Printers*
Copiers*
Scanners*
Fax machines*
Multi-function Devices*
Servers*
UPS

Commercial Food Service
Dishwashers
Refrigerators
Freezers
Ice Machines
Fryers
Steamers
Hot Cabinets
Griddles
Ovens
Vending machines

Appliances
Clothes washers
Dishwashers
Refrigerators
Dehumidifiers
Air cleaners
Water coolers

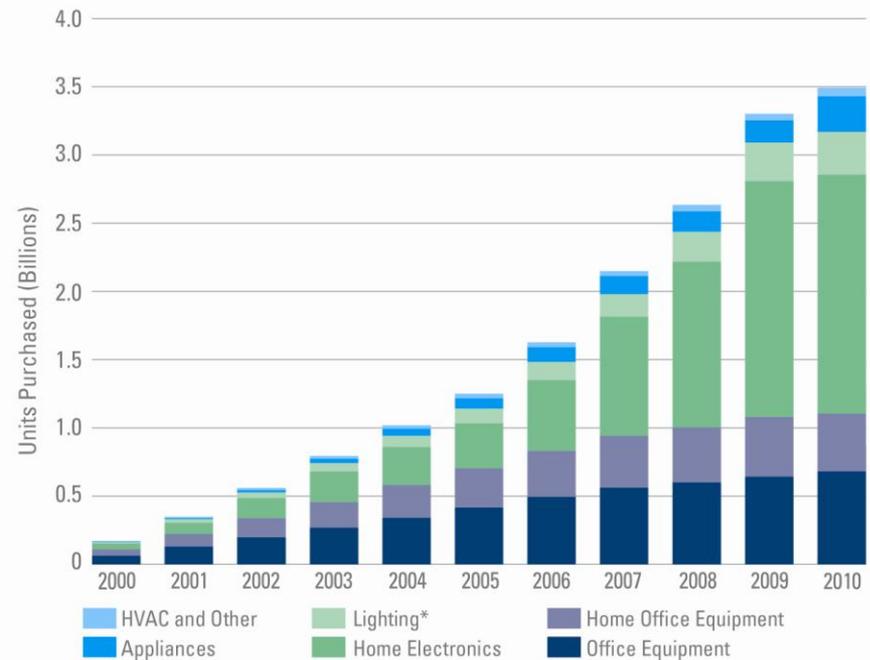
Home Electronics
Battery chargers
Cordless phones
TV
Set Top boxes
Home audio

ENERGY STAR Products



- Americans purchased about 300 Million ENERGY STAR certified products in 2012 in over 65 categories
- Cumulative total of almost 4.5 billion products since 1993
- 85% of the American public recognizes the ENERGY STAR label
- Product range from 20 – 65% more efficient

Almost 3.5 Billion ENERGY STAR Qualified Products Purchased Since 2000



*Lighting category does not include purchases of compact fluorescent bulbs.

Guiding Principles Reaffirmed



- Significant energy savings on a national basis
- Product performance maintained or enhanced with increased efficiency
- Consumers recover investment in efficiency within a reasonable period of time
- Efficiency can be achieved with one or more technologies – products are available from more than one manufacturer
- Energy consumption and performance can be measured and verified with testing
- Labeling would effectively differentiate products and be visible to purchasers

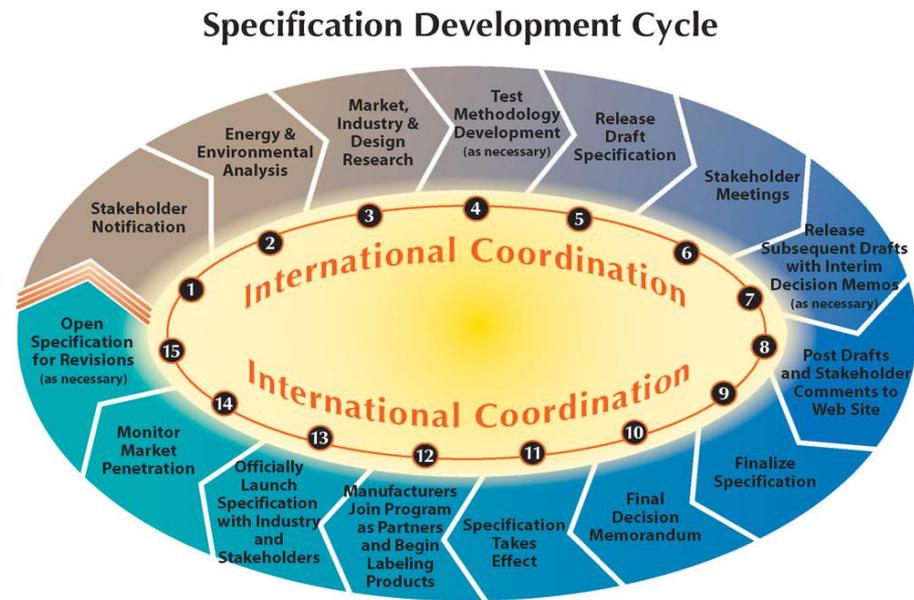
» Update May 2012

How Does ENERGY STAR Maintain Relevancy?

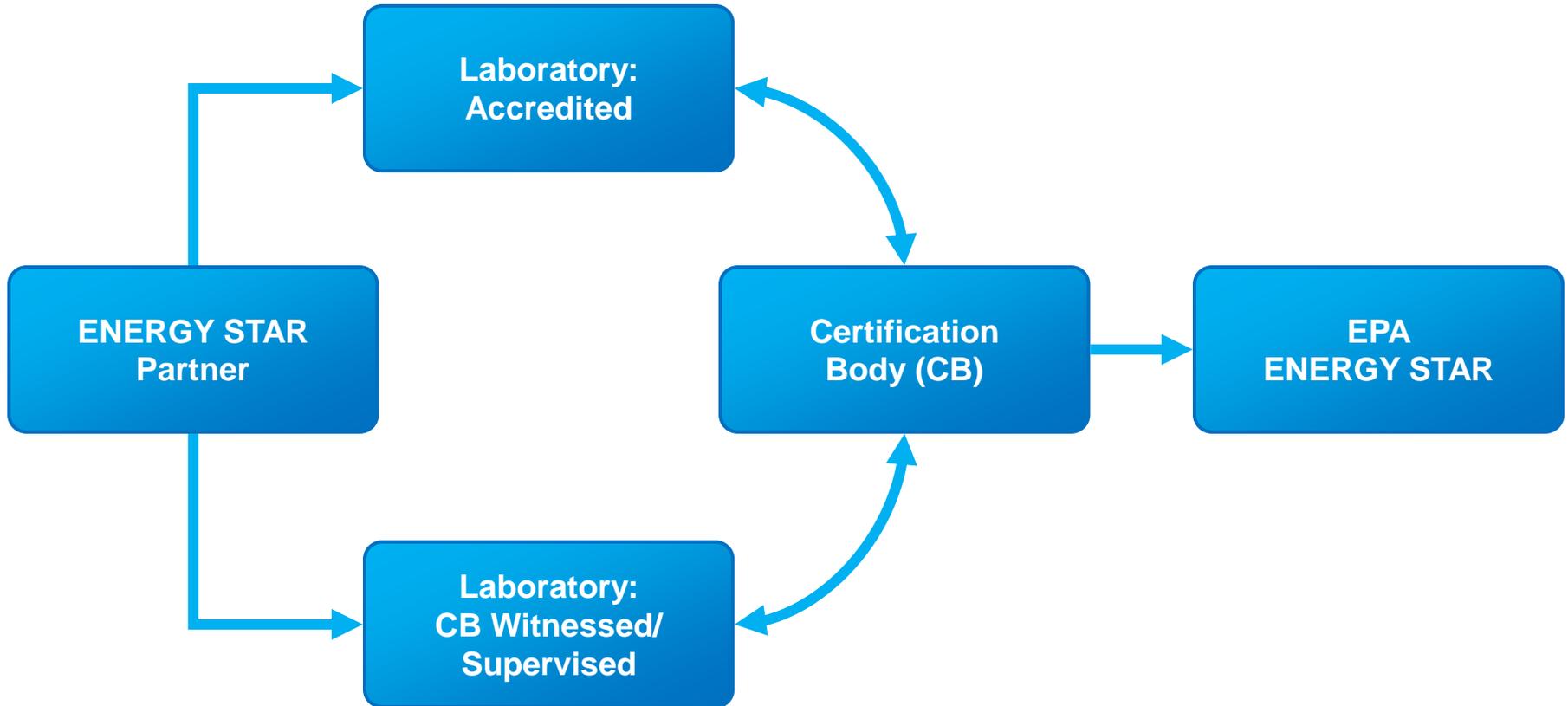


Specifications are updated in response to market changes:

- High market share
- Change in Federal minimum efficiency standards
- Availability, performance, or quality concerns
- Advancements in technology
- Changes in test procedures



Product Qualification Process



Integrity Highlights



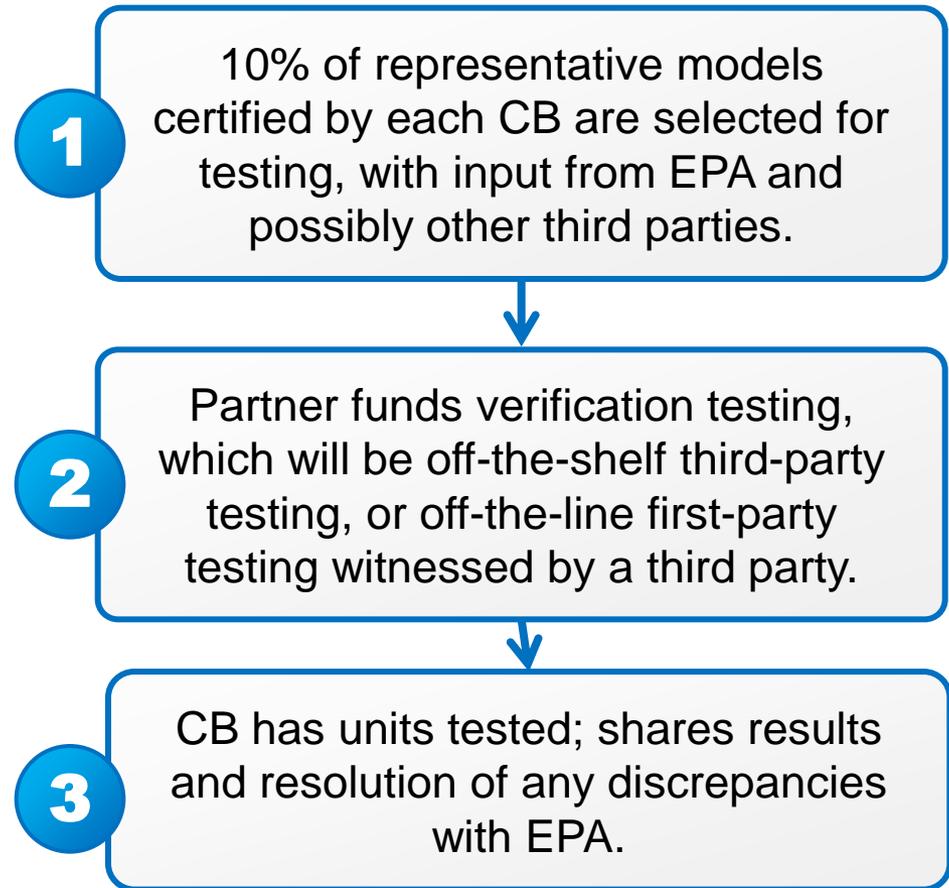
- Since the launch of the third-party certification scheme in Jan 2011, EPA has recognized:
 - 28 accreditation bodies (ABs)
 - 25 certification bodies (CBs)
 - 530 testing laboratories (Labs)
- New applications and applications to expand EPA recognition are processed on a rolling basis and a response is provided typically within one week.
- EPA updates the [online directory of CBs and Labs](#) and maintains a separate listing for [specific lighting categories](#).

www.energystar.gov/3rdpartycert

Verification Testing



- Verification testing ensures models meet ENERGY STAR requirements post-qualification
- U.S. Department of Energy initiated verification testing of ENERGY STAR qualified models in 2010



Unit Shipment Data



- All ENERGY STAR manufacturing partners are required to report annual unit shipment data (USD) for certified products shipped to or within the U.S. Estimates are not accepted. Failure to submit data typically results in the interruption of partner privileges.
- USD is used to determine the market share of ENERGY STAR products and evaluate the overall performance of the program.
- At the conclusion of each annual effort, EPA publishes and posts an [Annual Unit Shipment Data Report](#). The report discusses the data collected, methodology used, response rate, and market share for each product category.

www.energystar.gov/usd

Use of the ENERGY STAR Label



- The ENERGY STAR mark is a valuable asset, and like any asset with appreciable value, it must be properly used and protected.
- Partnering organizations agree to abide by EPA's ENERGY STAR program identity guidelines prior to using the logo.
- EPA monitors the use of the ENERGY STAR label and name in trade media, advertisements, and the internet to ensure they are applied properly and consistently in the marketplace.

Logo Enforcement



- Over 800 incidents of possible misuse have been investigated since January 1, 2010.
 - 253 of these have been confirmed to be cases of label misuse:
 - 97 in 2010,
 - 97 in 2011,
 - 45 in 2012, and
 - 14 to date (August 2013) in 2013, showing a clear decline over time.
- In cases of misuse, EPA works with the responsible party to:
 - resolve the issue in a timely manner; and
 - provide advice and education on appropriate use of the ENERGY STAR label to help avoid future instances of misuse.

Product Finder Tool



- Public-facing tool consumers, retailers, utilities and other stakeholders use to access product data
- www.energystar.gov/productfinder

Partner Benefits:

- Provide better access to EPA product data for all stakeholders
- Improve the ability to find and reconcile product data
- Improve data quality
- Model data updated daily
- Expected product finder tools rollout for all products: Fall 2013

ENERGY STAR Certified Residential Clothes Washers

Access the API, Analyze and Embed Data, Create an Account and more. Switch to Advanced View »

32 Products match your search

Compare up to 4 items

Load Configuration is

- Top Load
- Front Load
- Do not filter

Brand Name is

- Amana
- Ariston
- Asko
- BRADA
- Blomberg

Model	Volume	Compare
LG - WM8000H**	5.16 cu. feet	<input type="checkbox"/>
LG - WM3550H***	4.26 cu. feet	<input type="checkbox"/>
LG - WM3150H**	4.26 cu. feet	<input type="checkbox"/>
LG - WM4070H**	4.26 cu. feet	<input type="checkbox"/>

Main search page for clothes washers product finder tool

ENERGY STAR Certified Residential Clothes...
This list contains all currently ENERGY STAR certified residential

Find in this Dataset

PD_ID	Brand Name	Model Number
1	LG	WM8000H**
2	Kenmore	4108#21#
3	Kenmore	4107#21#
4	Samsung	WF457A*GS**
5	Samsung	WF455A*GS**
6	Frigidaire	F4FS4073**
7	LG	WM3150H**
8	Kenmore	4154#21#
9	Kenmore	4153#21#
10	LG	WM3550H***
11	Frigidaire	F4FS4174**

Filter this dataset based on contents.

Brand Name is

- Samsung

+ Add a New Filter Condition

Advanced view, which will replace Excel-based lists

Product Specification Search Tool



Product Specifications Search

Category

Check all Uncheck all

- Lighting & Fans
- Other
- Heating & Cooling
- Commercial Food Service Equipment
- Building Products
- Electronics and Office Equipment
- Appliances

Product

Check all Uncheck all

- Commercial LED Lighting
- Decorative Light Strings
- Exit Signs
- Lamps
- Fans, Ventilating
- Fans, Ceiling
- Light Bulbs (CFLs)
- Light Bulbs (Integral LED)

Status

- New Product Under Development
- Under Revision
- In Effect**
- Available for Early Certification
- Historical
- Sunsetted

Narrow by Effective Dates

Start E.g., 2013-07-09

End E.g., 2013-07-09

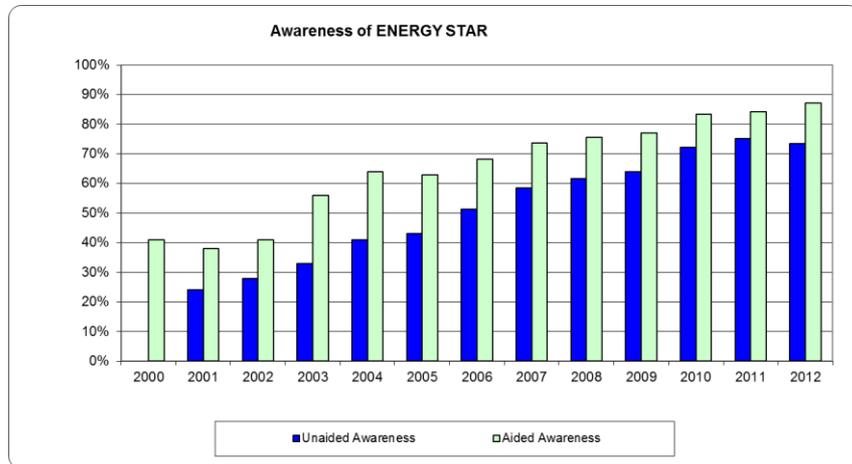
Apply

Product Specification Results

Category	Product	Status	Version	Effective Dates	Notes
Appliances					
	Clothes Washers	In Effect	6.1	02/15/2013	
	Commercial Clothes Washers	In Effect	6.1	02/15/2013	
	Dishwashers	In Effect	5.2	01/20/2012	

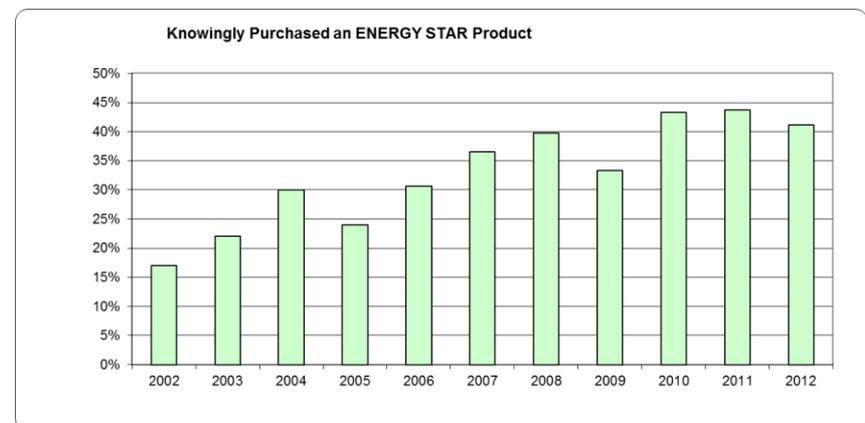
- All ENERGY STAR specifications now listed on one webpage
- www.energystar.gov/specifications

Consumer Awareness

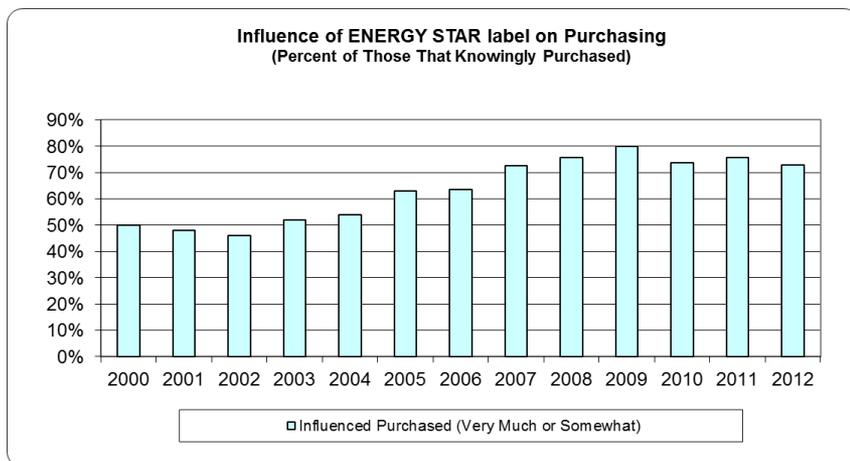


87% of US households recognize the ENERGY STAR label

40% of US households knowingly purchased an ENERGY STAR qualifying product in 2012

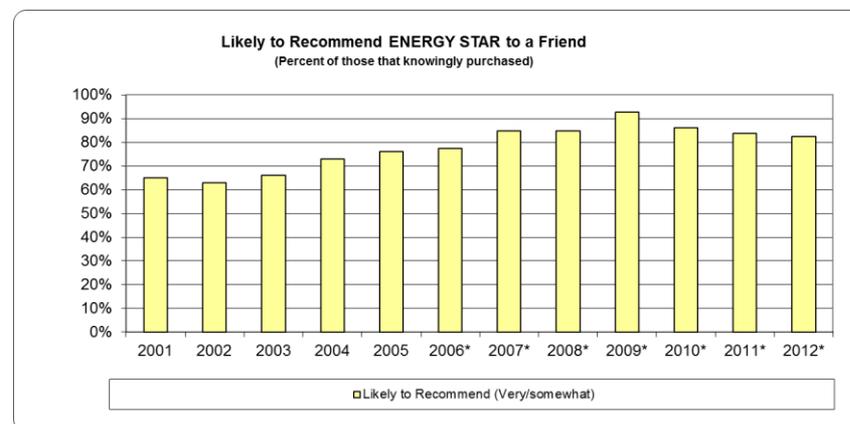


Consumer Awareness



73% reported the ENERGY STAR label as influential to their purchasing decision

82% are likely to recommend ENERGY STAR products to friends



National Campaign Updates



- The Change the World, Start with ENERGY STAR Campaign is a vehicle for individuals and organizations to get involved in protecting the environment through preventing greenhouse gas emissions.
- Some of the ways to participate include:
 - Organizations can become a pledge driver to encourage others to take the pledge and reduce their environmental impact
 - Individuals can:
 - “Share Your Story” on how they are reducing their impact on the environment
 - Take the pledge
 - Join Team ENERGY STAR



National Campaign Updates (cont.)



Additional opportunities to get involved in the campaign include:

- Add an event to the ENERGY STARs Across America map
- Promote ENERGY STAR on Earth Day and ENERGY STAR Day through promotional events and social media
- Encourage youth to join Team ENERGY STAR
- Provide in-kind donations to reward the efforts of Team ENERGY STAR members



National Campaign Updates (cont.)



- ENERGY STAR partners promote their events on the ENERGY STARs Across America Map located on www.energystar.gov/changetheworld

The screenshot shows the top section of the ENERGY STAR website. At the top, a blue banner reads "CHANGE THE WORLD. Start with ENERGY STAR." Below this, a sub-header says "Make a change today to save energy and protect the climate. 2,870,785 individuals already have." There are four light blue buttons: "TAKE THE PLEDGE", "FIND HELPFUL RESOURCES", "BECOME A PLEDGE DRIVER", and "SHARE YOUR STORY". To the right of these buttons are links for "Map View" and "List View". The main part of the image is a map of the United States with various colored pins (green, orange, blue) indicating event locations. A green button labeled "INTERACTIVE MAP FILTERS" is in the top right of the map area. The map shows state names and major cities. At the bottom left are the EPA and Google logos. At the bottom, a green bar displays the "Current ENERGY STAR Activity: Baltimore Gas & Electric Company is holding BGE Lighting Promotion - Walmart on Apr 19, 2013".

Retailer Highlights



- Retailers partner with EPA to promote ENERGY STAR in several ways, including:
 - Labeling certified products in-store and online
 - Integrating ENERGY STAR into promotions across all vehicles, such online, in-store, and direct mail
 - Holding employee- and customer-focused events to promote ENERGY STAR
 - Promoting Team ENERGY STAR and the ENERGY STAR Campaign through in-store events, such as children's workshops
 - Creating innovative ways to educate customers on ENERGY STAR product features and energy and financial savings

Partner of the Year



- Each year, the US EPA ENERGY STAR program honors organizations that have made outstanding contributions to protecting the environment through energy efficiency.
- The [ENERGY STAR Awards](#) are extremely competitive and the criteria are rigorous.
- All organizations participating in the ENERGY STAR program are encouraged to apply for the award.
- To be considered, an organization must meet the specific eligibility requirements in the award application and submit a complete online application package by set date.

International Harmonization of Test Methods



- Policymakers and manufacturers both benefit by leveraging limited resources and sharing valuable knowledge
- Cooperation can lead to one internationally recognized test procedure and potentially one specification for globally-traded products
 - Minimizes manufacturers' cost of participation and compliance
 - Ensures comparability of efficiency claims worldwide
- Government coordination facilitates specification levels based on a global data set
 - Consistency with metrics and requirements, but not necessary dictate exact efficiency levels – market dependent

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Preliminary Test Method for Medical Imaging Equipment



- Guiding Principles
 - Simplicity, repeatability
 - Measure energy consumption in typical use
 - Harmonize with other organizations when feasible
- Preliminary Test Method Overview
 - Focuses only on Low-power and Ready-to-scan modes, as this constitutes majority of total energy consumption
 - Primarily based on existing COCIR test methods for CT and MRI
 - *Computed Tomography Measurement of Energy Consumption (Revision 0)*
 - *Magnetic Resonance Equipment Measurement of Energy Consumption (Revision 1)*

Preliminary Test Method for Medical Imaging Equipment



- Preliminary test method has been developed to seek stakeholder feedback.
- DOE and EPA are interested in comments regarding all aspects of test method, and will make any changes deemed necessary.
- Validation testing has not yet been performed.
- Validation testing will begin after the comment period.

Validation Testing



- Validation testing is typically performed to ensure draft test method is repeatable and reproducible.
- Due to the nature of some medical imaging equipment, DOE and EPA are requesting manufacturer participation with validation testing.
- This approach has been successful with other product categories.

Applicability



- Products included in proposed scope
 - Computed tomography
 - General radiography
 - Magnetic resonance imaging
 - Mammography equipment
 - Nuclear imaging
 - Ultrasound imaging/Sonography
- Product excluded in proposed scope
 - Endoscopy
 - Photoacoustic imaging
 - Thermography

Requests for Feedback



EPA and DOE are seeking feedback on the proposed scope and ways to appropriately identify certain classes of medical equipment as medical imaging equipment.

Definitions



- Definitions primarily based on existing COCIR definitions
- Additional clarity is necessary in some cases
 - Off mode, Low-power mode, Ready-to-scan mode, Scan mode have slightly modified definitions, due to some conflicts between COCIR CT and MRI test method definitions

Definitions



- Off mode: The system is shut down with ac mains off, according to the user manual. The system consumes no energy.
- Low power mode: This mode represents the minimum energy consumption state that the user can select according to the user manual. The power consumption is lower than Ready-to-scan and higher than Off mode (e.g., sleep mode, service/evaluation mode).
- Ready-to-scan mode: This mode represents the state of the system between individual scans, where no scan has been prescribed (e.g., during patient handling, data archiving, examination planning, or contrast agent injection). This mode does not include potential mechanical movements such as X-ray tube rotor or gantry rotation.
- Scan mode: The system is actively scanning the patient to generate images. The computing system interprets the data and generates the image. This mode also includes any potential mechanical movements such as X-ray tube rotor or gantry rotation.

Requests for Feedback



DOE and EPA request comment on the applicability, consistency and clarity of the proposed definitions.

General Test Setup



- General testing conditions, input power, and power meter shall be as specified in IEC 62354 Ed. 2.0 (2009) – General testing procedures for medical electrical equipment
- Additional clarifications
 - Power meter shall be capable of measuring either single or polyphase voltage and current
 - Ambient temperature shall be within 23 °C ± 5 °C
 - Relative humidity shall be within 15% and 80%

As-shipped Condition



- Products shall be tested in their “as-shipped” configuration, which includes both hardware configuration and system settings, unless otherwise specified.

Request for Feedback

EPA generally tests products for ENERGY STAR in the “As Shipped” condition to reflect the real world settings and conditions of the end user. DOE requests stakeholder feedback on whether it is reasonable to expect manufacturers to ship devices in “ready-to-function” state. Specifically, DOE is requesting information and data on initial configuration setup for different types of medical imaging equipment.

Air Flow Management



- The use of external fans or cooling devices to purposefully direct air at, or away from, the UUT during testing is prohibited.

Request for Feedback

An ambient temperature requirement is specified during testing. DOE is requesting feedback on if the ambient temperature requirement is sufficient, or if additional air flow requirement(s) is(are) necessary.

Power Management



- All power management and/or power-saving features available on the UUT shall be disabled during testing.
- The entire Medical Imaging Equipment Test Method may be voluntarily repeated with power management and/or power-saving features enabled.

Request for Feedback

DOE and EPA recognize the energy savings opportunities associated with power management features but also want to provide some comparability of MIE using the same base-line operating mode. DOE and EPA are interested in getting feedback on the proposal to disable power management options during testing.

UUT Preparation



- The MIE system shall be installed and calibrated according to its specification, including all system-critical items needed to perform a basic scan.
- Any equipment and accessories beyond the basic product offering that is not required for a basic scan shall not be included in the measurements.
- Power on the UUT, and let stabilize for 15 minutes

Ready-to-scan Mode Testing



- Ensure that the power meter is on and functioning.
- Prescribe a patient and execute any scan to ensure that the UUT is functioning.
- After the scan completes, record the average power draw (rate of energy consumption), for a period of 12 minutes. Record this value, in kW.

Low-power Mode Testing



- Ensure that the power meter is on and functioning.
- Select the Low-power mode as specified in the user manual.
- Wait to ensure that all applicable system elements of the UUT have adapted to this mode.
- Measure the average power draw (rate of energy consumption), for a period of at least 10 minutes. If the system has a variable power usage in this mode, the measurement duration shall be amended to one complete power usage cycle, which shall be taken to be the cycle from minimum to maximum usage.
- Record this value, in kW.

Request for Feedback



The test methods for Ready-to-scan and Low-power modes are primarily based on COCIR test methods. DOE requests comment on the applicability, consistency and clarity of the proposed test methods.

At this time, DOE and EPA are proposing to only include test methods for Ready-to-scan and Low-power modes for determining product eligibility. However, DOE and EPA are interested in stakeholder input and data on any existing Scan mode testing protocols/procedures currently in use.

Request for Data



DOE and EPA request any data sets that can be submitted to support feedback or comments on the preliminary test method (e.g., data submitted in support of COCIR test method development).

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Test Method Timeline



Topic	Timeframe
Preliminary Draft	January 17, 2014
Stakeholder meeting/webinar	January 29, 2014
Comments due on Preliminary Draft	February 14, 2014
Draft 1 Test method to stakeholder	June 2014
Comments due on Draft 1	July 2014
Complete validation testing *	August 2014
Final Draft Test Method *	October 2014
Comments due on Final Draft	November 2014
Finalized Test method*	December 2014

* Dependent on data and stakeholder involvement

Efficiency Criteria Timeline



Topic	Timeframe
Draft 1 Version 1.0 Efficiency specification to stakeholders*	September 2014
Draft 1 Version 1.0 Efficiency specification comments due	October 2014
Draft 2 Version 1.0 Efficiency specification to stakeholders *	November 2014
Draft 2 Version 1.0 Efficiency specification comments due	December 2014
Final Draft Version 1.0 Efficiency specification to stakeholders *	January 2015
Final Draft Version 1.0 Efficiency specification comments due	February 2015
Final Version 1.0 Efficiency specification *	March 2015

* Dependent on data and stakeholder involvement

Written Comments



In addition to making verbal comments during today's call, stakeholders are encouraged to submit written comments to medicalimaging@energystar.gov.

Comment Deadline

February 14, 2014

Contact Information



Please send any additional comments to medicalimaging@energystar.gov or contact:

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