



ENERGY STAR[®] Medical Imaging Equipment

Discussion Guide

Stakeholder Meeting

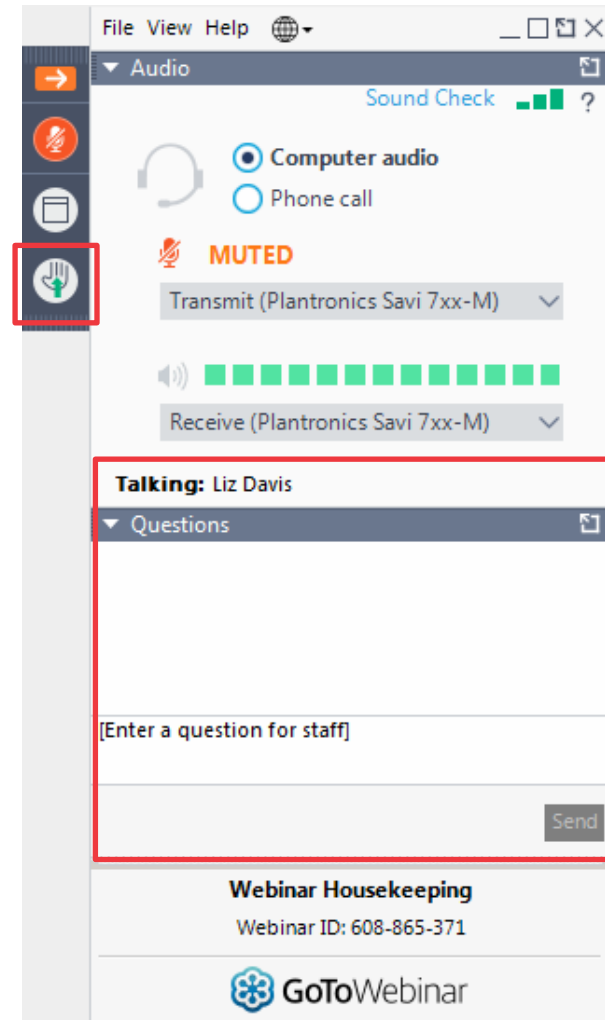
December 6, 2022



Webinar Participation

- Please mute yourself when you are not speaking (use local mute or dial *6)
- Feel free to ask questions at any time

Submit written comments to
medicalimaging@energystar.gov by
January 20, 2023





Meeting Agenda

1. Introductions
2. Overview of ENERGY STAR Program
3. Scope
4. Ready to Scan and Low Power Modes
5. Potential Savings Impact
6. Stakeholder Support for Energy Efficiency Features
7. Testing Considerations
8. Potential Program Structure / Process
9. Final Questions



Introductions

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What is ENERGY STAR?

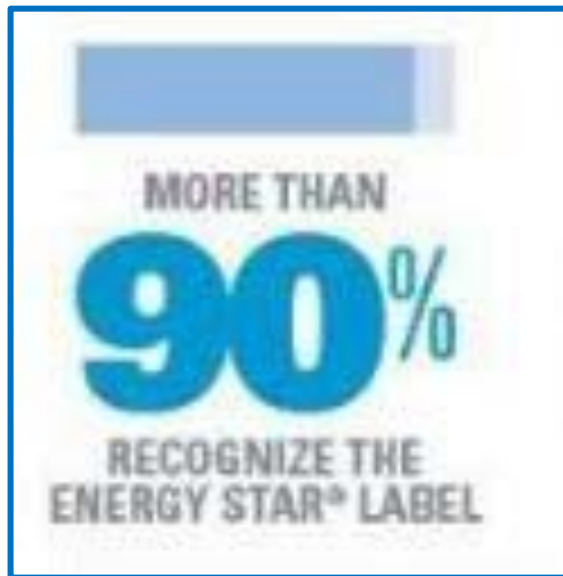


The simple choice for energy efficiency.

- Influential and trusted symbol of **energy efficiency**
- Available across **75+ product categories**
- Since 1992, a voluntary **partnership** among government, business, and consumers
- Products are independently certified to meet strict energy-efficiency guidelines set by the **U.S. EPA**
- **Utilities** offer **rebates** on ENERGY STAR certified equipment
- **Saves** end-users **energy, water,** and **money**
- Helps protect the **climate**



Benefits to joining ENERGY STAR



Source: CEE's 2019 Household Survey
<https://www.energystar.gov/awareness>

- Access a network of over 700 utilities
- Leverage the label recognition
- Access customer support teams at EPA
- Use co-brandable materials
- Participate in promotional events
- Get listed on publicly-available ENERGY STAR search tools
- Apply for the ENERGY STAR Partner of the Year Award
- Receive email notifications about program activities



ENERGY STAR Partnership Types



The simple choice for energy efficiency.

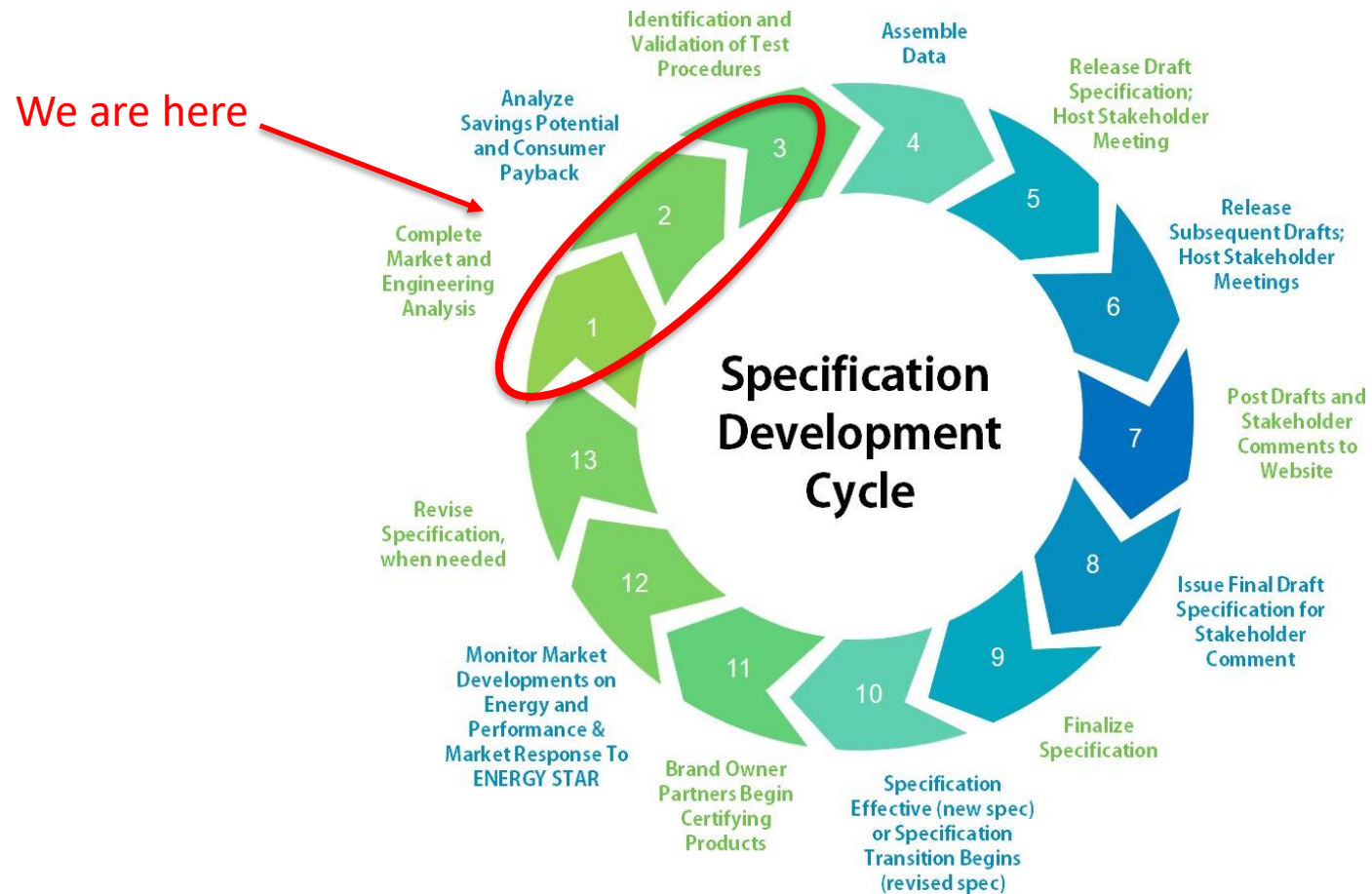
- Brand owner
- Retailer
- Residential building
- Commercial building, service, product, or association
- Industrial plant, service, product, or association
- Energy Efficiency Program Sponsor

For more information on joining as an ENERGY STAR partner visit this webpage

https://www.energystar.gov/partner_resources/join-energy-star



ENERGY STAR Specification Development Process



Proposed Scope (Included)

- Magnetic Resonance Imaging (MRI)
- Computed Tomography (CT scan)
- General Radiography (X-ray)
 - Cyberknife
 - Fluoroscope
 - Linear Accelerator
- Mammography Equipment
- Nuclear Imaging
- Ultrasound Imaging / Sonography



Proposed Scope (Excluded)

- Contrast Media Injectors
- C-arms
- Bone Densitometers
- Angio Suites
- Endoscopy
- Photoacoustic Imaging
- Thermography



Scope inclusions and exclusions align with the scope of the draft ENERGY STAR and COCIR test methodology.



Proposed Scope Questions

1. Are there products listed within the including scope section above that should not be including in Version 1.0, and if so, why?
2. Are there products either listed out of scope or not listed at all that should be considered in scope, and if so, why?
3. Should EPA adopt the definitions listed in the ENERGY STAR draft test method, or is there a different used and accepted by industry that EPA should consider?



Ready to Scan and Auto-Power Down Mode

- EPA would like to reduce energy consumption in ready to scan and low power modes, primarily through:
 - Driving manufacturers to automate power down processes
 - Identifying opportunities to spur innovation in the reduction of ready to scan power



Ready to Scan and Auto-Power Down Mode Questions

4. For each category that auto-power down functionality is present, is it enabled as shipped and/or configured for customers on-site?
5. What challenges, if any, complicate the use of auto-power down modes in the product types proposed for scope inclusion?
6. Are there other requirements EPA should consider beyond ready to scan and lower power modes in Version 1.0 to highlight best energy practices and/or new energy efficiency features present in these products?



Potential Savings Impact

- EPA is focusing on ready to scan and low power modes as data shows certain product types can save significant amount of energy when powering down to some degree when not in active use.
 - MRI alone show a reduction of 50% below ready to scan mode energy when entering lower power modes.
 - A single MRI machine that enters a low power mode for 6 hours overnight can save 17,500 kWh/year or over \$2,000/year in electricity costs vs. the same machine never being powered down

Table 1: Electrical Energy Consumption of Modalities

Modality	Kilowatts/Hour
CT Scan (operating)	21
CT Scan (off)	1.7
MRI (operating)	33
MRI (ready)	16
MRI (off)	8
X-ray (operating)	5
X-ray (off)	2

Sources: “+” – Nakota, 2010 , “**” – TIAX, LLC, 2006, 2010 power estimates



Potential Savings Impact Questions

7. Can stakeholders share measured product energy data, ideally measured using the ENERGY STAR draft method or COCIR test method to help EPA better understand energy usage both in ready to scan and low power modes across the various product types proposed for scope inclusion?
8. Are there specific technologies and/or functionalities that EPA should highlight that drive lower energy use during non-active state operation of these various product types?



Stakeholder Support for Energy Efficiency Features

- EPA has spoken with numerous medical facilities regarding how they use their medical imaging equipment and most of these groups have expressed their interest in being able to identify products that are more energy efficient.
- EPA and these groups share the goal of providing the best patient care possible while finding room to save energy when products are not in use for longer periods of time.
- Some of the medical facilities that support focusing on energy efficiency in these products include but are not limited to:
 - Kaiser Permanente
 - UC San Francisco
 - UC Davis
 - University of Michigan
 - Memorial Herman Health System
 - Vanderbilt University



Testing Considerations

- The current ENERGY STAR Draft Medical Imaging Equipment test method was developed in partnership with the U.S. Department of Energy (DOE) and is based on the existing COCIR test method for medical imaging equipment.
 - This method has been used to generate data for the EU's medical imaging SRI over the past decade
 - The method generates data on ready to scan and low power modes.
- DOE and EPA share a goal in harmonizing test methodology across the product types proposed for coverage in Version 1.0, and COCIR's existing methodology provides a great opportunity to achieve that goal.



Testing Considerations Questions

10. Are there any recent or upcoming updates to the COCIR test method that EPA and DOE should consider when adjusting the current ENERGY STAR draft test method?

Bonus Question:

11. Are there any common components (e.g., power supplies, inverters, etc.) within any of the product types listed for scope inclusion that can be measured independently to support potential energy efficiency requirements for those specific components?
 - EPA is interested in exploring efficiency criteria that provide tangible savings to these products that will impact all users regardless of their use or lack of use of power management features. Internal power supply efficiency is an example of this used in many other ENERGY STAR specifications.



Potential Program Structure / Process

- An ENERGY STAR specification for medical imaging equipment would follow the layout shown below:
 - Definitions
 - Scope
 - General Requirements
 - Energy Efficiency Requirements
 - Testing Considerations
- In addition, DOE will finalize the accompanying test method for use to certify equipment to the ENERGY STAR specification.



Potential Program Structure / Process

- The development process for the specification will likely follow the following milestones:
 - Discussion Guide (now)
 - Draft 1 specification
 - Draft 2 specification
 - Final Draft specification and test method
 - Final specification and test method
- The process between Draft 1 and the final specification typically takes 6 – 12 months but will depend on the type of feedback received during the development process.



Questions

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Stakeholders are encouraged to provide written comments for consideration to medicalimaging@energystar.gov by January 20, 2023.