



ENERGY STAR Climate Controls

January 18, 2011



Learn more at energystar.gov

Overview



- Introduction & Background
- ENERGY STAR Third-Party Certification Process
- Residential Climate Controls Usability Test Method Development – Process & Status
- Usability Testing Requests for Proposal
- Opportunities for Usability Firms
- Q & A

What is ENERGY STAR?

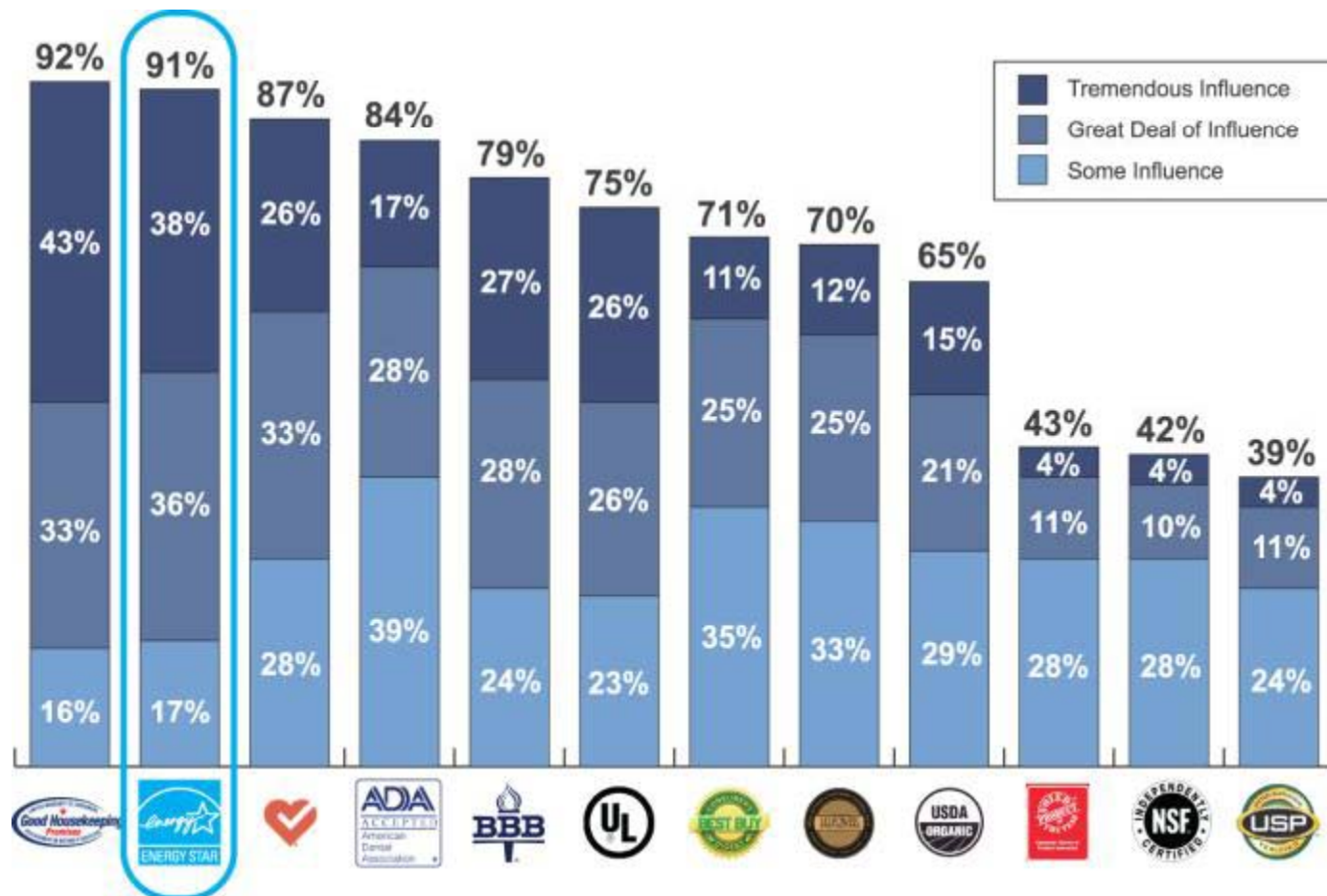


ENERGY STAR is a government-backed program that helps consumers identify energy-efficient products.

ENERGY STAR qualified products:

- Save energy
- Save money
- Save the environment

ENERGY STAR: Recognized Brand



Source: Fairfield Research, July 2009

The ENERGY STAR mark ranks among the highest level of influence on product purchase among all consumer emblems, similar in ranking to the *Good Housekeeping* Seal.

ENERGY STAR Guiding Principles



- ENERGY STAR criteria are designed to balance a varied set of objectives, including:
 - Significant energy and/or water savings
 - Cost effectiveness
 - Energy consumption that can be measured and verified with testing
 - Equivalent or enhanced functionality and performance
 - Efficiency improvements available via several technology options; at least one of which is non-proprietary
 - Meaningful product differentiation through labeling

Specification Revisions



- EPA maintains relevancy of the ENERGY STAR brand by updating specifications regularly
- Programmable Thermostats (PT) program sunset December 31, 2009
 - Limited adoption of energy savings modes
 - Inadequate usability a key factor
 - Energy savings potential not being achieved

3rd Party Certification



- EPA also maintains the integrity of the ENERGY STAR label through Third-Party Certification
 - Effective date: Jan. 1, 2011
- Definitions:
 - *Manufacturer*: makes products and is an ENERGY STAR partner
 - *EPA-recognized laboratory*: tests products from manufacturer (may include manufacturers' internal labs)
 - *EPA-recognized Certification Body (CB)*: ensures product test results are acceptable for a product to earn the ENERGY STAR, and may supervise non-accredited labs
 - *EPA-recognized Accreditation Body (AB)*: Accredits labs and CBs to administer/review product tests
 - *S/WMTLP*: Supervised or Witnessed Manufacturers Testing Lab Program

3rd Party Certification (cont)



- Note: labs cannot partner with ENERGY STAR
 - **ENERGY STAR Partners:** manufacturers, retailers, etc.
 - **EPA-recognized:** labs, CBs, and ABs

3rd Party Certification: Laboratories



- Labs can earn EPA recognition one of two ways:
 - 1) As an EPA-recognized accredited lab
 - Accredited by an EPA-Recognized AB to ISO 17025 with test method(s) for ENERGY STAR product(s) within the scope of accreditation
 - Submit application for EPA recognition
 - 2) Participate in an EPA-recognized CB's S/WMTLP
- Both 3rd party and manufacturer labs must follow one of these two paths.

3rd Party Certification: CBs



- Must be EPA-Recognized
 - Accredited to ISO/IEC Guide 65 by EPA-Recognized AB
 - Verify signed ENERGY STAR manufacturer Partnership Agreement
 - Report certified products and data to EPA
 - Administer verification and challenge testing
- EPA will issue further guidance about verification testing during first quarter 2011

3rd Party Certification: ABs & EPA



ABs will:

- Accredite CBs and Laboratories
- Perform ongoing accreditation audits

EPA may:

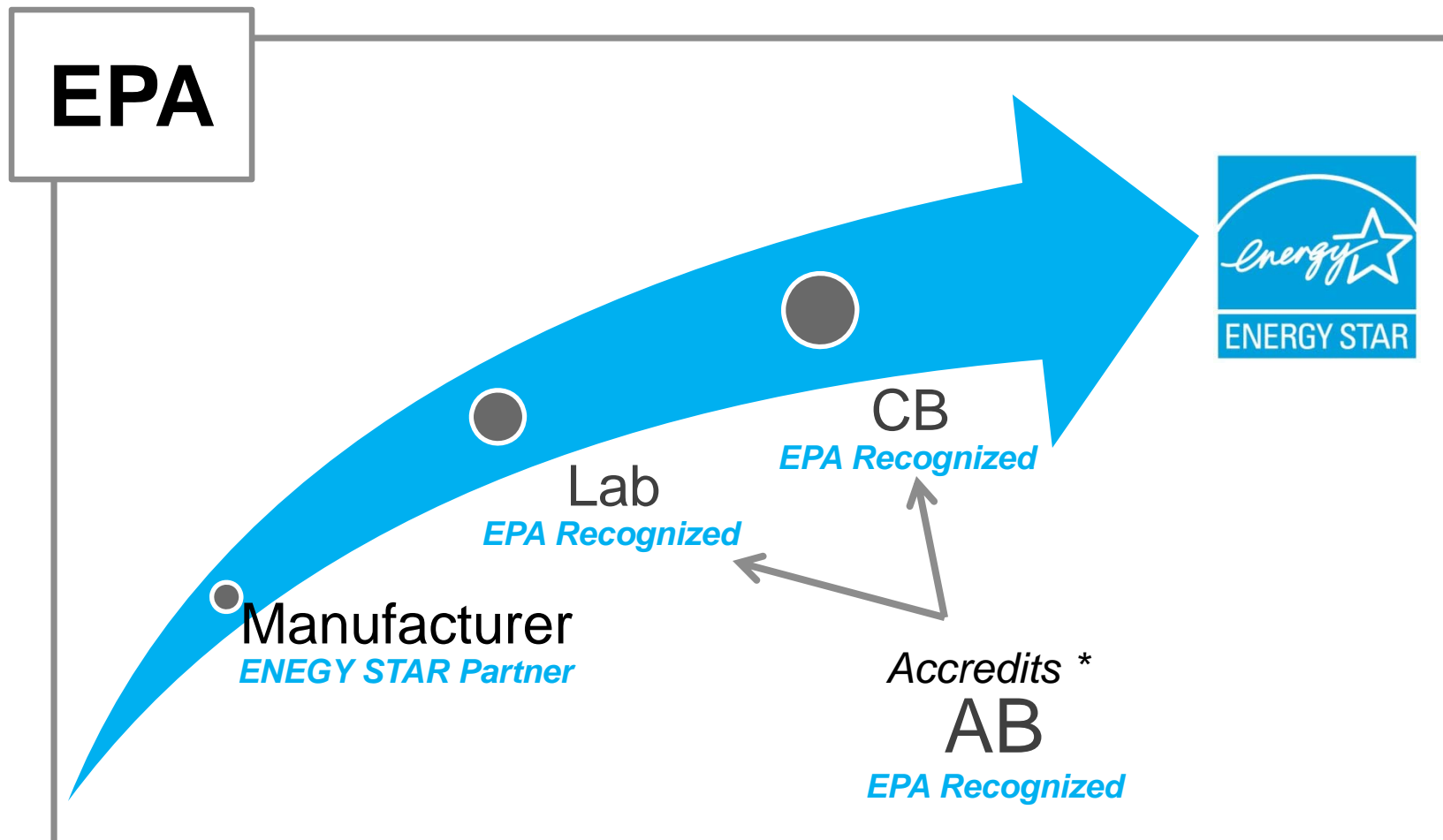
- Withdraw recognition of labs, CBs, and ABs as necessary
- “De-List” Labeled products as necessary

3rd Party Product Qualification Testing



- To earn the ENERGY STAR, product must be tested in either an:
 - 1) EPA-recognized accredited lab
 - 2) EPA-recognized lab in a S/WMTLP
- Test results certified by EPA-recognized Certification Body (CB)

Simplified Process



*Note: non-accredited labs may work directly with a CB in a S/WMTLP

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Usability Test Method: Basis & Goals



- Based on research and lab testing
- Goals:
 - Differentiate climate control usability
 - Reward products with easy to use energy saving modes
 - Minimize test complexity and cost
 - Generate repeatable results
 - Different labs
 - Different panels
 - Predictive of U.S. consumer usage



Usability Framework Overview

- Based on Draft 2 Spec (released July 1, 2010)
- Products can earn the ENERGY STAR two ways
 - Prescriptive path (in Usability Framework document)
 - Usability tested by an EPA-Recognized lab
- Created draft usability test to differentiate “ease of use” between products:
 - 21-person user group (based on U.S. demographics)
 - Six tasks
 - Scoring based on task success & time to complete
 - Compliance criteria based on average scores



Draft Usability Tasks

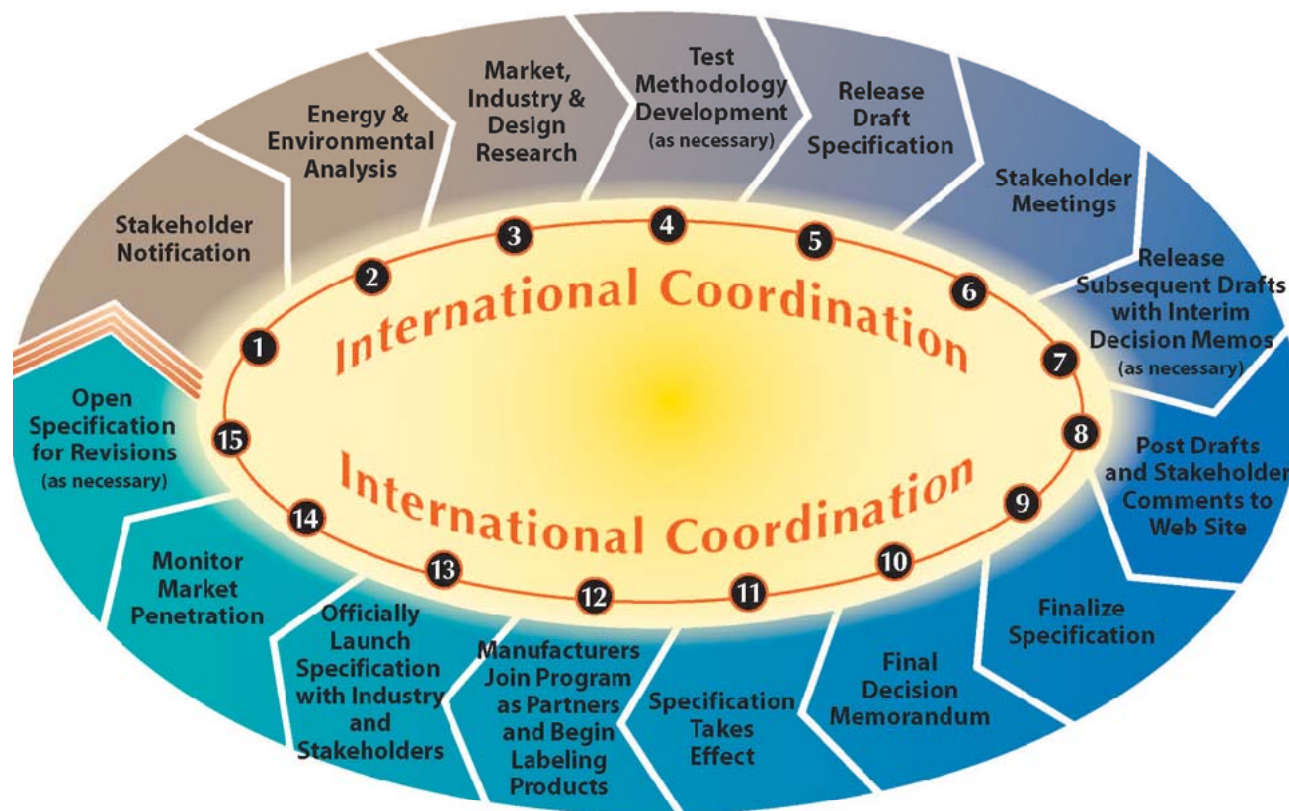
- **Task 1:** Set Date & Time
- **Task 2:** Identify Room Temperature and Setpoint
- **Task 3:** Turn on Heat
- **Task 4:** Activate/Cancel Away Mode
- **Task 5:** Modify Program Schedule
- **Task 6:** Identify Energy Rate Tier

Number and order of tasks are subject to change

Specification Development Process



Specification Development Cycle



Specification Development Process



Specification Development Cycle



Usability Test Method: Future Additions & Revisions



- In the long run, EPA intends to revise the test to include a reference device
- Tested alongside UUT each time a test is run, scoring depends on relative success and time to complete
- Reference device will result in a more robust, repeatable test method.
- Inclusion of a reference device should enable use of smaller user groups
- Reference device will be app-like.

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Stage 1 Request for Proposal (RFP)



- Conduct usability testing of a single residential climate control model and submit report:
 - Determine validity of test procedure and administrative script
 - Determine appropriate user group size
 - Discover how variability of numerical results relate to user group size
 - Suggest improvements to test method
 - Estimate cost for product qualification testing



Stage 1 RFP (cont.)

- For the RFP, user group will be 50 individuals:
- Age group representation
 - Age 21-34: 14 users
 - Age 35-49: 14 users
 - Age 50-64: 14 users
 - Age 65-79: 7 users
 - One additional person of any age
- Gender: 50/50 male/female

Stage 1 RFP (cont.)



- Level of Education
 - Less than High School Education: 7 users
 - High School Graduate but no Bachelor's Degree: 28 users
 - Bachelor's Degree or Higher: 14 users (+ 1 additional person)
- Vision: 2 users must have red-green color vision deficiency



Timing of Stage 1 RFP

- Assessing requirements for government funded human subject testing (paperwork)
- Once resolved, will release RFP
 - Two weeks to respond
 - Two weeks for us to award contract
 - One month to perform work, prepare draft report
 - One month of back and forth to finalize report
- Barring paperwork for the human subjects concerns, does this sound reasonable?

Stage 2 RFP: Round Robin Testing



- Run test method (updated with results of first RFP) on three UUT
- Awarded to three test labs
 - Diversity of types (Academic labs? Manufacturers?)
 - Geographical diversity
- Results compared to assess repeatability
- Similar length of time anticipated.

Climate Control Requirements Development Schedule



- 1-30-2011 Draft Usability Test comments due

———— *Testing the Test* ————

- TBD Draft 3, with usability metric and enhanced testing
- TBD+1 month Final draft specification
- TBD+2 months Final Version 1.0 Residential Climate Controls specification
- TBD+3 months Specification effective

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Opportunities for Usability Firms



- Submit comments for draft usability framework, test method and administrator script
- Respond to the two RFPs
- Coordinate with manufacturers to improve designs
- Test climate control products for ENERGY STAR qualification:
 - Must become EPA recognized
 - Work with CBs

Additional Info: Website Lists & FAQ



www.energystar.gov/3rdpartycert

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Third-Party Certification

The ENERGY STAR program has grown to encompass more than 60 product categories and is used by millions of Americans to identify products that reduce energy costs and protect the environment. To ensure that ENERGY STAR remains a trusted symbol for environmental protection and superior energy efficiency, all ENERGY STAR product partners will be required to follow a new set of Third-Party Certification procedures starting January 1, 2011. To ensure a smooth transition to these new procedures, EPA has provided the following resources:

Resources for Partners, Accreditation Bodies, Certification Bodies, and Laboratories

Current Archived

- [Final ENERGY STAR Partner Commitments and Product Specifications](#)
- [Third-Party Certification Process Flow Diagram \(29110KB\)](#)
- [Frequently Asked Questions](#)

Third-Party Certification Resources

ENTITY	RESOURCE		
	Program Requirements	How To Participate	Current Participants
Accreditation Bodies	Conditions and Criteria for Recognition of Accreditation Bodies for ENERGY STAR Laboratory Accreditation (41KB)	Application for EPA Recognition of an Accreditation Body (132KB)	EPA-Recognized Accreditation Bodies
Certification Bodies	Conditions and Criteria for Recognition of Certification Bodies for the ENERGY STAR program (60KB) ENERGY STAR Resources for EPA-Recognized Certification Bodies	Application for EPA Recognition of a Certification Body (226KB)	EPA-Recognized Certification Bodies
Laboratories	Conditions and Criteria for Recognition of Laboratories for the ENERGY STAR program (32KB) Required Test Methods for EPA-Recognized Laboratories (192KB) Guide to Lab Recognition by Lighting Category (67KB)	Application for EPA Recognition of a Laboratory (367KB)	EPA-Recognized Laboratories

Frequently
Asked
Questions

Lists EPA-
recognized
ABs, CBs, &
Labs

Additional Info: Climate Controls



http://www.energystar.gov/index.cfm?c=new_specs.climate_controls

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Climate Controls

EPA is currently developing a new product specification for climate controls. Partners and other interested parties who would like to participate in this process are encouraged to send their contact information to ClimateControls@energystar.gov to be added to the distribution list for specification development updates. This Web page will be updated periodically as new information becomes available.

December 14, 2010 — ENERGY STAR Climate Controls Usability Metric Webinar

- [Notes — ENERGY STAR Residential Climate Controls Stakeholder Meeting](#) (96KB)
- [Draft 1 Residential Climate Controls Test Method Script with Memo](#) (59KB)
- [Usability Metric Climate Controls Overview Webinar](#) (149KB)
- [Usability Metric Explanation Climate Controls Webinar](#) (180KB)
- [Usability Metric Research](#) (1.7MB)
- [Usability Research: LBNL Video 1](#)
- [Usability Research: LBNL Video 2](#)
- [Usability Metric Test Results](#) (60KB)

November 30, 2010 — Release of Usability Test Method and Framework for ENERGY STAR Climate Controls

- [Residential Climate Controls Stakeholder Memo](#) (45KB)
- [Residential Climate Controls Draft Specification Framework - Usability Requirements](#) (110KB)
- [Residential Climate Controls Draft Usability Test Method](#) (215KB)
- [Residential Climate Controls Sample Data Sheet](#)

November 17, 2010 — ENERGY STAR Climate Controls Usability Metric Announcement

- [ENERGY STAR Climate Controls Usability Metric Announcement](#) (25KB)

September 17, 2010 — ENERGY STAR Climate Controls Schedule Update

- [ENERGY STAR Climate Controls Schedule Update Memo](#) (24KB)

December 14,
2010
Stakeholder
Meeting

Usability Test
Method, Draft
Spec, etc.



Questions?

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