



ENERGY STAR® Products Enhanced Testing and Verification

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Background and Purpose



- Through over 15 years of shared effort, EPA and partners have built something of real value – the ENERGY STAR brand
- Maintaining the value of this brand requires ensuring products labeled with the ENERGY STAR deliver on their promise to the consumer
- This presentation will focus on enhancements to the ENERGY STAR program through testing and verification efforts

Historic Approach to ENERGY STAR Qualification and Testing



- EPA enters into Partnership Agreements with product manufacturers and issues program identity guidelines
- Manufacturing partners submit test data to EPA to qualify their products within a designated timeframe; lab accreditations required for certain product categories
- EPA reviews test data and adds products to list of qualified products
- EPA verifies energy performance through its compliance audit program

Why Enhanced Testing?



- Increased scrutiny of voluntary programs
 - Proliferation of green standards – national, international, media, retail
 - Concern over “greenwashing”
 - OIG Reports at EPA and DOE
 - GAO ENERGY STAR Investigation
- New EPA-DOE Partnership Agreement
 - “Verification of compliance with program requirements will be increased and efforts will be enhanced to identify and address product performance issues.”
 - “Verification of ENERGY STAR Qualifying Products will be enhanced in two ways:
 - All products will be required to be tested in an accredited laboratory and qualifying product information be submitted to the government before the product can be qualified as ENERGY STAR
 - Enhanced ‘off-the-shelf’ product testing will be instituted across the full suite of ENERGY STAR covered product categories through a combination of EPA/DOE testing, manufacturer funded/EPA-DOE administered testing, or other third party testing.”

Key Elements of Enhanced Testing Requirements



- Testing and reporting prior to qualification
 - Ensure that EPA has testing information on all products prior to labeling
 - Require test data from accredited labs that is representative of the product in the marketplace
- Continued testing after qualification
 - Verify that products continue to meet the ENERGY STAR requirements regardless of changes in the production process
 - Provide consumers with confidence that ENERGY STAR products are delivering the savings they expect

Comments: General support for qualification testing submitted prior to labeling, but concern about costs and time to market; Overall support for verification testing; Requests for more details

ENERGY STAR Enhanced Testing and Verification Overview



TESTING ENHANCEMENT

Qualification Testing

Verification Testing

PURPOSE

Ensure each product meets ENERGY STAR specification prior to being labeled with the ENERGY STAR

Ensure that products continue to meet ENERGY STAR requirements

KEY APPROACHES

- Require test data for each product from approved, accredited lab
- Data may be provided to EPA through approved third-party certification system

- Require ongoing verification testing as a condition of ENERGY STAR logo use
- Verification testing administered through third-party testing program
- *DOE has initiated verification testing through Testing Pilot Program*
- *DOE to provide ongoing quality assurance for verification testing*

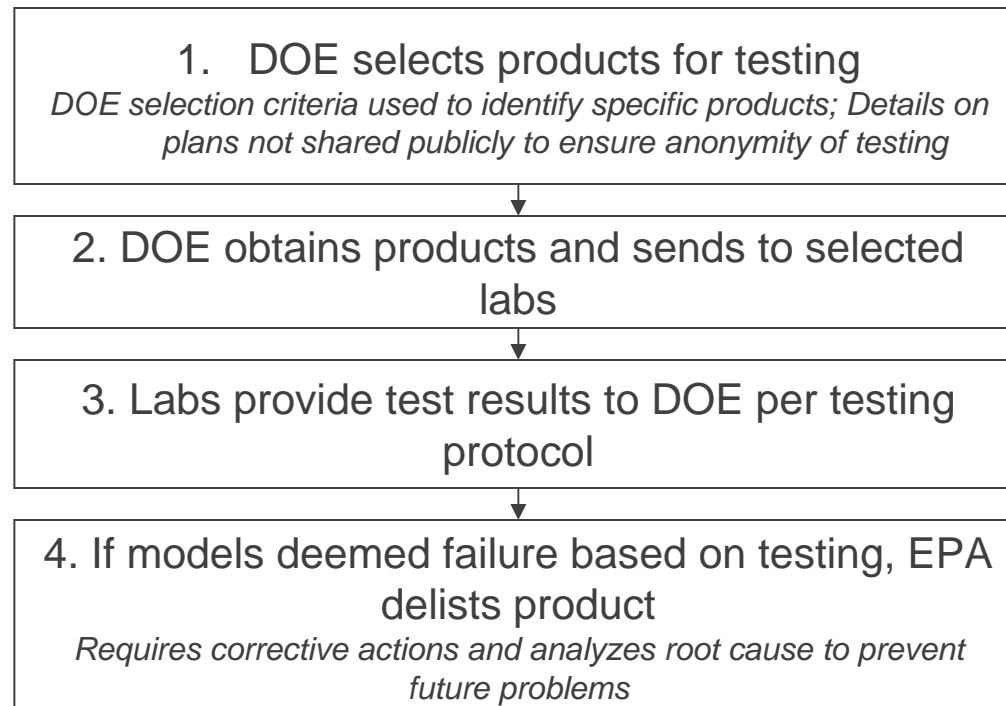
ENERGY STAR Enhanced Testing and Verification – Government Testing Program



DOE Verification Testing Program Scope: All ENERGY STAR Product Categories

Process

Purpose: Ongoing government testing program to verify energy performance of product in the market against reported energy performance data



ENERGY STAR Enhanced Testing and Verification – Market-Based Testing Program

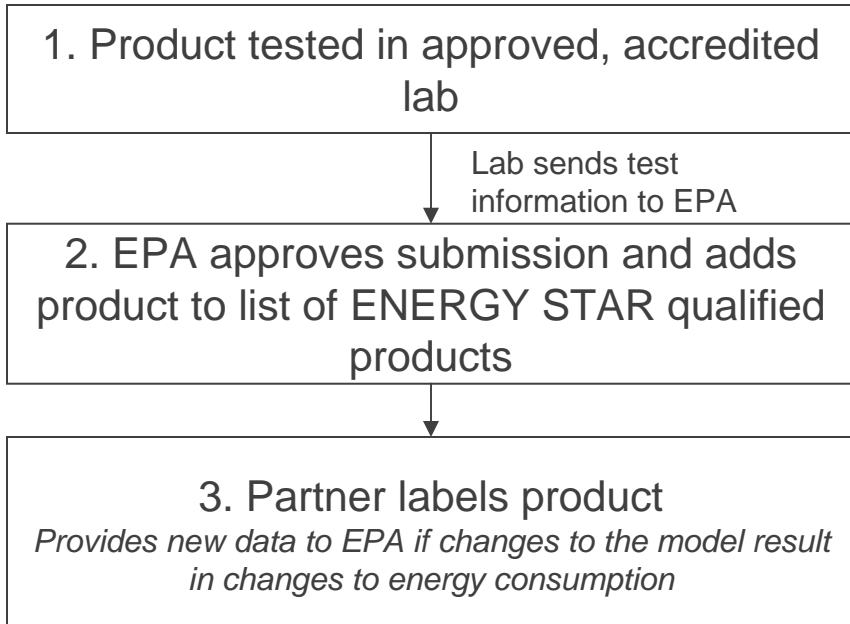


Market-Based Testing

Scope: All ENERGY STAR Product Categories

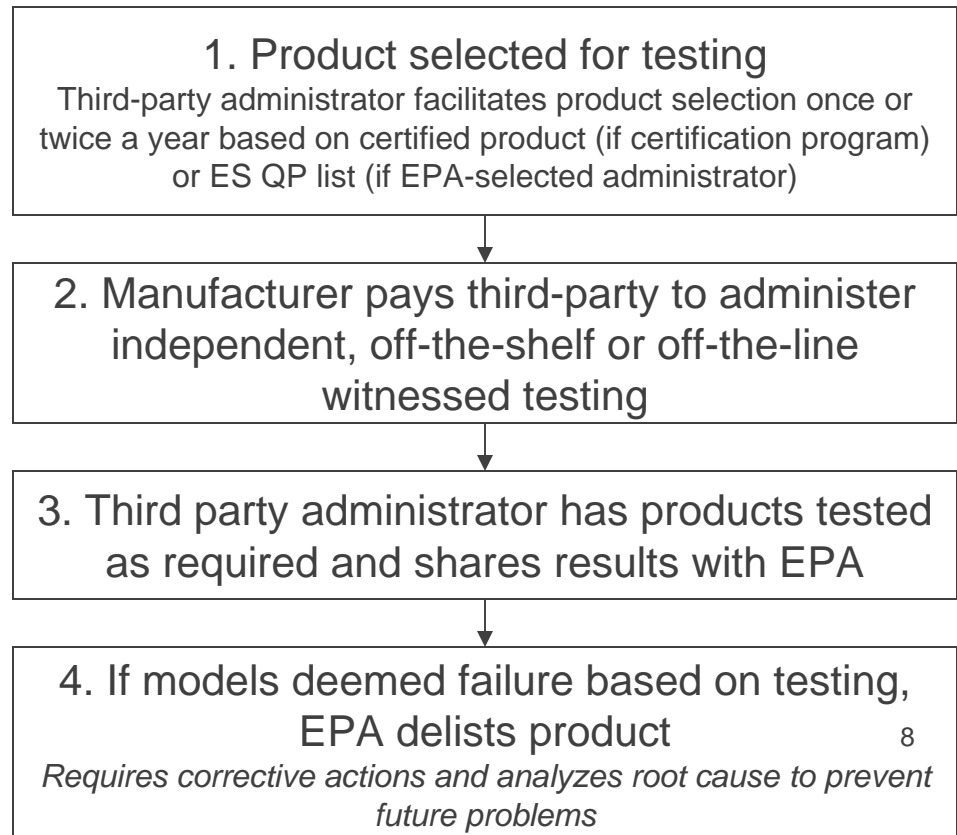
Qualification Testing

Purpose: Ensure that testing is conducted as required by ENERGY STAR specification and that lab submits test results to EPA that are representative of products sold to customer



Verification Testing

Purpose: Ensure that products continue to meet ENERGY STAR requirements



Process for Finalizing Testing and Verification Requirements



- Conference calls with specific product categories to discuss requirements in more detail
- Conference call with accreditation bodies and laboratories
- Requesting comments on both broad requirements and product-specific requirements
- Incorporate comments and distribute guidance documents outlining testing requirements for further review
- Host additional calls as appropriate

Agenda for Proposed Requirements for all ENERGY STAR Products



- Implementation Issues
 - Process for implementing and reporting on new testing requirements
- Qualification and Quality Assurance Testing
 - Consumer Electronics and IT Equipment
 - Lighting Products
- Third Party Certification and Verification Testing
 - HVAC Products
 - Building Products: Windows, Roofing, Insulation
 - Appliances
 - Commercial Food Service

Comments: Recommendations to model requirements after existing programs, including current industry third-party verification programs and safety testing programs

Implementation Issues – Proposed Approaches



- New partner commitments
- Lab accreditation
- Verification program administrators
- Submission of test data
- Compliance protocols
- Communication of test results

New Partner Commitments



- Incorporate requirement for testing in accredited labs prior to qualification for all ENERGY STAR products
 - Products qualified after X date will need to be tested in accredited labs. X date will allow sufficient time for labs to receive accreditation.
 - In the case of no specification change, products qualified before X date will need to be requalified after Y date, allowing a reasonable period for products to be retested.
- Incorporate requirement for qualification prior to labeling
- Explicitly require models to be retested if changes in components are made after qualification that will impact testing results
- Require products to meet ES requirements for conditions in all markets where they are sold
- Require verification testing – verification testing requirements will not be integrated into the specification
- Ensure consistent commitments across products as appropriate

Lab Accreditation



- Requirements for accreditation bodies
 - Need to register with ENERGY STAR and provide information about lab accreditations, including applications in process and list of accredited labs
 - Conduct round robin testing of accredited laboratories if appropriate
 - Signatory, in good standing, to the International Laboratory Accreditation Cooperation ILAC, APLAC, or NACLA Mutual Recognition Arrangement (MRA)
 - Verifies, by evaluation and peer assessment, that its signatory members are in full compliance with ISO/IEC 17011
 - Verifies that accredited laboratories comply with ISO/IEC 17025.
- Labs will need to be accredited by an approved accreditation body
 - ISO/IEC 17025 or equivalent, including appropriate and current ENERGY STAR test procedures within the scope of accreditation
 - Accreditation shall not be set to expire within the time necessary to complete verification testing and follow-up. Or, if set to expire within that period, confirmation of pending renewal of accreditation will be required.
- Use of in-house labs will be considered on a product-level basis
- Interim approval of labs will be considered on a short-term basis for new specifications that are effective immediately to allow time for labs to secure appropriate accreditation

Comments: Requests to use the ILAC and IAF infrastructure for accreditation bodies; Requests for more details to define accreditation; Concern about costs and need for accreditation

Verification Program Administration



- Manufacturing partners will work with verification program administrators to have products tested in accredited labs. Administrators will share test data with EPA/DOE
- Third parties providing certification and verification testing for ENERGY STAR must meet certain requirements to be approved and listed by ENERGY STAR
- Third parties will be selected by EPA/DOE to administer verification testing for products not covered by certification programs

Submission of Test Data



- Goal is for ENERGY STAR to have access to test reports for qualification and auditing purposes for all ENERGY STAR qualified products
- Submission of test report or certified test results by accredited and approved laboratory will be required to qualify ENERGY STAR products
- If test results are not certified, ENERGY STAR will audit test reports to ensure accurate representation of testing to qualify products

Enforcement Protocol



- EPA will publish a standard protocol for responding to product testing failures
 - Process for disputing test results
 - Typical corrective actions

Failing testing, refusing to participate in testing and/or using the ENERGY STAR label on non-qualified products will be a violation of the partnership agreement and may result in termination of the ENERGY STAR partnership

Communication of Verification Test Results to Specific Audiences



- US government and partner countries
 - A list of products tested each year with a summary of test results
 - Detailed test reports for products that fail testing
- Retailers and energy efficiency program sponsors
 - The total number of models tested
 - Delisted models
 - Models that failed, but not delisted, including reason for not delisting
- General public
 - Annual summary of testing, including the total number of products tested and the number of models delisted.
 - Post failed and delisted products

Verification testing should be conducted in a transparent manner, plans and results should be shared in various forms to meet needs of specific product categories.

Applicability of Testing Approaches



- Qualification and Quality Assurance Testing
 - Consumer Electronics
 - IT and Office Equipment
 - Lighting Products
- Third-Party Certification and Verification
 - HVAC
 - Appliances
 - Commercial Food Service
 - Home Envelope
 - **Windows – Different approach that focuses on upfront certification and quality of manufacturing facilities – covered in separate document**
 - Roofing
 - Insulation
 - Water Heaters
 - Other: Vending Machines, Water Coolers
 - Component Products: EPS, BCS

Products covered by quality assurance testing may also be covered by third-party certification and verification programs as an option

Qualification and Quality Assurance Testing



- Product categories covered
 - Consumer Electronics
 - IT and Office Equipment
 - Lighting Products

Qualification and Quality Assurance Testing (*cont.*)



- Qualification testing
 - Laboratory requirements
- Verification testing program administration
- Verification testing
 - Laboratory requirements
 - Process for identifying and selecting products
 - Process for obtaining products
 - Number of units to be tested
- Partner responsibilities

Qualification Testing



- Third-party independent lab will be required by default; in-house labs may be allowed on a product-specific basis

Comments: Concern about costs, capacity, and time-to-market associated with third-party labs; Recommendation to consider testing programs that allow for testing at manufacturers labs with oversight.

Existing Lab Accreditation Requirements



- Residential Light Fixtures
 - Lab accredited by a signatory to one of the ILAC, APLAC, or NACLA MRAs required for qualification
 - Third-party, NVLAP accredited lab required for verification testing
- CFLs
 - Third-party accredited lab required for qualification testing
 - Independent, Third-party, NVLAP accredited lab required for verification testing

Quality Assurance Testing: Program Administration



- One third-party entity will be selected to administer testing program for a product category (the same third party may be selected to administer testing for more than one product category)
 - Selection criteria will include cost of testing as well as ability to satisfy qualification criteria
- Qualifications
 - Proficiency in measurement testing or statistics
 - Demonstrated impartiality regarding the outcome of testing
- Responsibilities
 - Identify and select qualified laboratories for testing
 - Work with manufacturers to obtain funds and information for required testing
 - Ensure testing remains on schedule
 - Provide detailed test reports and summaries of results to DOE/EPA

Quality Assurance Verification Testing: Laboratory Requirements



- Third-party independent accredited lab will be required by default
- Witness testing may be allowed on a product-specific basis

Comments: Requests to use in-house labs with appropriate accreditation; Support for independent testing in third-party labs

Quality Assurance Verification

Testing: Selecting Products



- Selected by panel with final approval by EPA/DOE
 - Panel should be comprised of members from industry, EEPS, and DOE/EPA
- For 50% of models selected, basic models will be randomly selected from the list of ENERGY STAR products
- For 50% of models selected, additional basic models will be selected using the following factors:
 - Basic models and product classes from manufacturers for which previous basic models were not compliant
 - Third party referrals regarding the accuracy of ratings from third parties such as competitors, consumers, consumer groups or regulatory agencies will be considered
 - Models new to the market, particularly from brands or manufacturers which are new market entrants
 - Models with high sales volumes

Quality Assurance Verification

Testing: Selecting Products



- Need to ensure that products available on market and determine applicability of current requirement based on date of manufacturer.
- Confirm product selection with manufacturer and request list of at least three places to obtain the product.
- Limitations for how many products selected per manufacturer allowing flexibility to test more products if necessary (e.g., manufacturer product failures).

Quality Assurance Verification

Testing: Obtaining Products



- Preferred option is to obtain products from the marketplace
 - If more than one sample is required for testing, must obtain products from different locations and at least two of the samples may not be from the same geographic area
- Other option for prohibitively expensive items or for items not available “off-the-shelf”
 - Random selection of product off production line
 - Testing at manufacturer laboratory under supervision

Comments: General support for off-the-shelf testing

Quality Assurance Verification Testing: Sample Size



- The number of units to be tested should be the same as required for qualification – dependent on individual product specification
- Additional testing triggers will also be applicable per product specification requirements
 - e.g., imaging equipment
 - if tested unit is within 10% of the TEC criteria one additional unit should be tested
 - if tested unit is within 15% of the OM criteria two additional units should be tested

Quality Assurance Verification Testing: Partner Responsibilities



- Partner is required to pay the third-party administrator for testing of selected products
 - Testing will occur once or twice a year depending on the product

Third Party Certification and Verification Testing



- HVAC
- Appliances
- Commercial Food Service
- Building Products
 - Windows – Different approach that focuses on upfront certification and quality of manufacturing facilities – to be addressed on window conference call
 - Roofing
- Water Heaters
- Other: Vending Machines, Water Coolers
- Component Products: EPS, BCS

Comments: Broad support for NFRC certification program despite the costs associated with the program.

Third Party Certification and Verification Testing



- Certification and verification testing program administration
- Qualification testing
 - Laboratory Requirements
- Verification testing
 - Laboratory Requirements
 - Process for identifying and selecting products
 - Process for obtaining products
 - Number of units to be tested
- Challenge testing
- Partner responsibilities

Third Party Testing – Program Administration



- Third-party entity will administer certification and verification testing program (more than one third-party may offer such programs as long as they meet the qualification criteria)
- Qualifications
 - Proficiency in measurement testing or statistics
 - Demonstrated impartiality regarding the outcome of testing
 - Quality control measures (e.g., ISO/IEC Guide 65:1996)
 - May not require membership for product to be certified
 - Need to be approved by EPA
- Responsibilities
 - Identify and select qualified laboratories for testing
 - Work with manufacturers to test ENERGY STAR products for both initial qualification and verification purposes
 - Ensure testing remains on schedule
 - Provide detailed test reports and summaries of results to EPA/DOE

Third Party Qualification Testing



- Third-party independent lab will be required by default; in-house labs may be allowed on a product-specific basis
- Products may not be certified based on the rating of another product unless differences do not impact the energy performance of the product
- To certify product, manufacturer must provide information on the distribution of product (for purposes of conducting verification testing)

Comments: Requests to use in-house labs with appropriate accreditation; Support for independent testing in third-party labs

Existing Lab Accreditation Requirements



- Ventilating Fans
 - Independent, Third-party lab by a signatory to one of the ILAC, APLAC, or NACLA MRAs required for both qualification and verification testing
- Commercial Refrigeration
 - CEC approved lab or data verified by a certification body accredited to Standards Council of Canada required for qualification

Comments: Request to make use of existing mechanisms such as the accreditations under the Standards Council of Canada

Third-Party Verification Testing: Laboratory Requirements



- Third-party independent accredited Lab will be required by default
- Witness testing may be allowed on a product-specific basis

Comments: Requests to use in-house labs with appropriate accreditation; Support for independent testing in third-party labs

Third-Party Verification Testing: Selecting Products



- Selected by third-party program, allowing for input from EPA/DOE and other stakeholders
- Must test all certified products at least every three years
- Need to ensure that products still available on market and that the current specification applies

Third-Party Verification Testing: Obtaining Products



- Preferred option is to obtain products from the marketplace
- Other option for prohibitively expensive items or for items not available “off-the-shelf”
 - Random selection of product off production line
 - Testing at manufacturer laboratory under supervision

Third-Party Verification Testing: Sample Size



- The number of units to be tested should be at least the same as required for qualification

Third-Party Verification Testing: Challenge Testing



- Challenge should be conducted in a manner similar to other verification testing
- Challenge provisions may be structured in a way that puts the financial burden on the two companies involved
- Test results for confirmed failures should be shared with EPA immediately

Comments: General support for challenge testing programs in addition to or in lieu of other testing.

Third Party Testing: Partner Responsibilities



- Partner is required to pay for third-party certification of product
 - Verification testing will be included in the fee
 - Testing will occur at least annually

Next Steps



- Product Specific Discussions – March/April 2010 – See www.energystar.gov/mou for schedule of calls
 - Third party certification
 - HVAC: ASHP, GSHP, CAC, Boilers, Furnaces, LCHVAC, Ceiling Fans, Room Air Conditioners, Ventilating Fans
 - Windows
 - Roofing
 - Insulation (to be scheduled)
 - Appliances: Clothes Washers, Dishwashers, Refrigerators/Freezers, Dehumidifiers, Room Air Cleaners
 - Commercial Food Service: Dishwashers, Fryers, Griddles, HFHC, Ice Machines, Ovens Refrigerators/Freezers, Steam Cookers
 - Water Heaters
 - Other: Vending Machines, Water Coolers
 - Component Products: EPS, BCS
 - Quality Assurance Programs
 - Consumer Electronics: AV products, DTA, STB, TV, Telephony, Decorative Light Strings
 - IT and Office Equipment: Enterprise servers, Enterprise storage, Computers, Imaging Equipment, Displays, Small Network Equipment, UPS
 - Lighting Products: CFL bulbs, Integral LED lamps, SSL, Residential Light Fixtures
 - General call for accreditation bodies, laboratories and certification programs

Next Steps (*cont.*)

- Comments on general approach (this slide deck) due April 30, 2010
- Complete draft including product-specific requirements – May 2010
- Finalize Requirements – July/August 2010
- Phase-in verification testing requirements allowing adequate time for certification programs to be developed and lab accreditation to occur

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