Energy Efficiency Testing

ENERGY STAR®

2010 APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA ENERGY COMMISSION

www.tuv.com TÜVRheinland ID:0000012345

Verified Energy Performance

Énergie Performance Vérifié

ErP Directive 2009/125/EC

CE

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General Introduction

What is ENERGY STAR® ?

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) aiming to protect the environment through energy efficient products and practices.

Details on proposed new scheme under
www.energystar.gov/testingandverification

Note:
The ENERGY STAR® logos are here shown for training purposes only.

Neither accepted Certification Bodies nor Laboratories are permitted to use ENERGY STAR® Logos or marks in any of their marketing materials or upon anything that they distribute. Use of the Mark by non-partners (including recognized CBs, Abs and Labs) will be treated as a logo violation by the Agency (EPA)

History

1992-2010

Self-Certification

- Partner tests product, confirm compliance to ENERGY STAR specification and label with the ENERGY STAR
- Partner submits test data to EPA for product qualification
- EPA reviews and lists product if found compliant
- EPA verified energy performance on select models

History

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Starting in 2011

Third-Party Certification

- Partner has product tested in EPA recognized lab prior to labeling
- Test data is submitted to an EPA recognized Certification Body (CB) to certify all program and specification requirements have been met
- CB authorizes labeling
- CB uploads product certified data to ENERGY STAR website
- CB conducts verification and challenges testing after qualification
- Significant product modifications require retest and recertification

History

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Why the change to Third-Party Certification?

"ENERGY STAR is for the most part a self-certification program vulnerable to fraud and abuse, says the nine-month study (begun in June 2009) by GAO"

"A Congressional report stated the ENERGY STAR program approved 15 bogus products, including a gas-powered alarm clock and an air purifier that looked like a space heater with a feather duster on top…"

Scope of ENERGY STAR

ENERGY STAR Product Groups

Appliances
- Clothes Washers
- Dishwashers
- Freezers
- Refrigerators

Building Products
- Seal and Insulate
- Roof Products
- Windows, Doors and Skylights

Computers & Electronics
- Audio/Video
- Battery Chargers
- Uninterruptible Power Supplies
- Computers
- *[Data Center Storage]*
- Displays
- Enterprise Servers
- *[Game Consoles]*
- Imaging Equipment
- Set-top Boxes & Cable Boxes
- Telephony
- Televisions
- *[Small Network Equipment]*

Heating & Cooling
- Air Conditioning, Central
- Air Conditioning, Room
- Boilers
- Fans, Ventilating
- Furnaces
- Heat pumps, Air Source
- Heat pumps, Geothermal
- Ductless Heating & Cooling
- Dehumidifiers
- Room Air Cleaners & Purifiers

Other
- Pool Pumps
- Vending Machines
- Water Coolers

Lighting and Fans
- Decorative Light Strings
- Fans, Ceiling
- *[Light Bulbs]*
- Light Fixtures / Luminaires
- Lamps

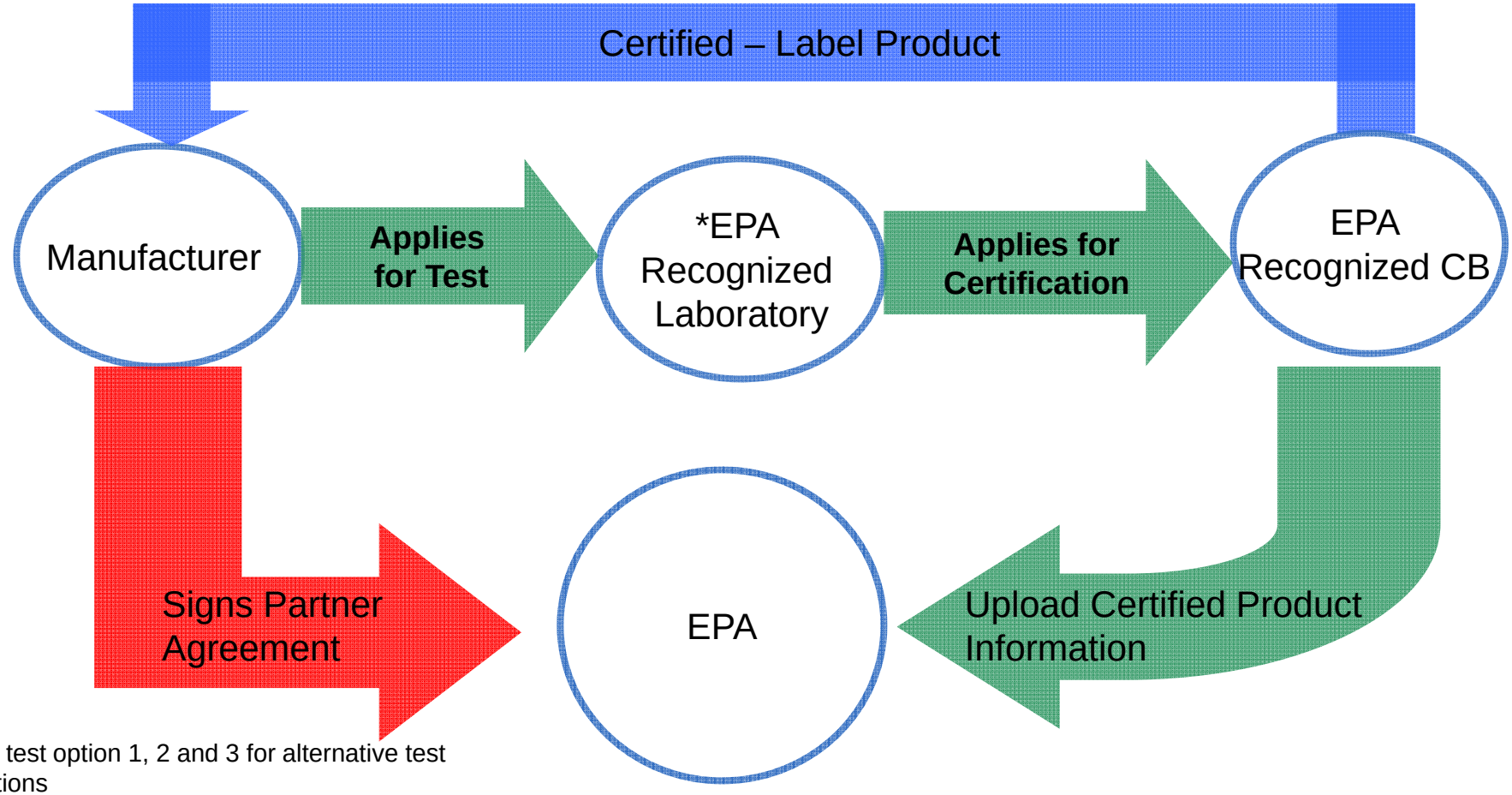
Water Heaters
- High Efficiency Electric Storage Water Heaters
- Water Heater, High Efficiency Gas Storage
- Water Heater, Solar
- Water Heater, Whole Home Gas Tankless
- Water Heaters

In Scope of TUV Rheinland of North America CB Accreditation / Lab recognition

-> in this context 'CB' = EPA ES Certification Body, not to be confused with IECEE Certification Body

ENERGY STAR Process

Basic Process



*see test option 1, 2 and 3 for alternative test locations

ENERGY STAR Process

<u>Witnessed Manufacturer's Testing Laboratory (WMTL)</u> - A manufacturer's laboratory being used to test specified products of which the manufacturer has production responsibility. The CB witnesses all tests done by a manufacturer's laboratory which uses its own test equipment.

<u>Basic Steps:</u>

- Manufacturer applies to the **<u>CB</u>** to become a WMTL
- The CB evaluates suitability of laboratory to ISO/IEC 17025 cl. 5.2-5.8 prior to witnessing testing
- The CB will report recognized WMTL to EPA for registration purposes
- Upon successful evaluation of the WMTL all subsequent test shall be witnessed by the CB

ENERGY STAR Process

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Test Option 2 – Supervised Manufacturer's Testing

<u>Supervised Manufacturer's Testing Laboratory (SMTL)</u> - A manufacturer's laboratory being used to test products for which the manufacturer has production responsibility, under the supervision of a CB. The manufacturer's laboratory uses its own personnel and test equipment and takes responsibility for and signs the test data. Some part of each agreed testing program must be witnessed by the CB on site.

<u>Basic Steps:</u>

- Manufacturer applies to the **<u>CB</u>** to become a SMTL
- The CB evaluates suitability of laboratory to ISO/IEC 17025 prior to witnessing testing or accepting test data
- EPA is very particular with Impartiality of SMTs. Be sure to have ISO/IEC 17025, cl. 4.1.5 fully covered!
- The CB will report accepted SMTLs to EPA for registration purposes
- Upon successful evaluation of the SMTL some part of each agreed testing program must be witnessed by the CB on site. Test data not witnessed can only be accepted after a confidence building period between the CB and SMT.

ENERGY STAR Process

Test Option 3 – 1st Party Laboratory Recognition

1st Party Laboratory - Are accredited by EPA-recognized Accreditation Bodies and owned by or associated with an ENERGY STAR Manufacturing Partner that uses the lab to test its products.

Basic Steps:

- 1st Party Lab applies to a EPA recognized Accreditation Body (AB) for the desired ENERGY STAR Specifications
- The AB audits the laboratory to ISO/IEC 17025. Upon successful audit the AB will issue a formal accreditation
- 1st Party Lab applies to EPA for recognition based upon the AB accreditation.
- After EPA recognition the 1st Party laboratory may submit test data directly to the CB for certification with no laboratory oversight of the laboratory

First-party labs without accreditation should contact an EPA-recognized CB to inquire about enrolling in an W/SMTL program

Measurements

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Example: Audio / Video Equipment

- **On Mode:**
  - **Active state:** product is performing a primary function.
  - **Idle state:** product is not performing a primary function and no content is actively being delivered to the end-user..
- **Sleep Mode:** defined as the time when the product is connected to a power source, produces neither sound nor picture, neither transmits nor receives program information and/or data, and is waiting to be switched to On Mode by a direct or indirect signal from the consumer (e.g., with the remote control). Common term "Standby" may also describe this mode.
- **Off Mode:** product is connected to a mains power source, is not providing any On Mode or Sleep Mode functions, and cannot be switched into any other mode except by user actuation of a manual power switch.

Measurements

Measurement Uncertainty

Instrument Accuracy

Spec acc. User Manual:

- Current Ranges
  = internal shunt **[A]**: 100, 25, 6.25, 1.6, 0.4, **0.1**

  = external shunt (not shown in manual) **[mA]**: 1250, 313, 78, **20, 5, 1**

- Voltage Ranges [Vpk]: 900, 215, 46, 10
- Accuracy (AC) = 0.2%*Read + 0.1%*Range + 4mW + (0.05/PF*f/1000)% of reading

Measurements

Instrument Accuracy

Example: Reading = 0.5W @ 240V => I = 2mA, f=50Hz, (with PF=1)

Accuracy (AC) = 0.2%*Read + 0.1%*Range + 4mW + (0.05/PF*f/1000)%

Accuracy (0.5W) without Breakout Box (internal shunt)

$$= 0.2\% * 0.5W + 0.1\% * 0.1A * 900\,V + 0.004\,W + \left(\frac{0.05}{1} * \frac{50}{1000}\right) / 100 * 0.5W$$

$$= 0.001\,W + 0.09\,W + 0.004\,W + 0.0001\,W = \underline{\underline{0.096\,W \approx 19.2\%}}$$

Instrument Setup not suitable for IEC 62301

Power Measurement Range:

$$Range_{Power} = Range_{Voltage} * Range_{Current}$$

Measurements

Instrument Accuracy

Example: Reading = 0.5W @ 240V
=> I = 2mA, f=50Hz, (with PF=1)

Accuracy (0.5W) with Breakout Box (external shunt)

$$= 0.2\% * 0.5W + 0.1\% * 0.005\ A * 900\ V + 0.004\ W + \left(\frac{0.05}{1} * \frac{50}{1000}\right) / 100 * 0.5W$$

$$= 0.001\,W + 0.005\,W + 0.004\,W + 0.0001\,W = \underline{\underline{0.011\,W \approx 1.9\%}}$$

Instrument Setup suitable for IEC 62301

Conclusion:
Also correct Instrument can deliver wrong results

ENERGY STAR Process

What does the CB review for certification?

- Test Laboratory EPA recognized (Third party, WMTL, SMTL or 1st Party)
- Test report/Test Data – Correct conclusions, results and test methods
- Measurement and Testing Instrument list with calibration dates
- Declaration about difference of construction – Family Models (as applicable)
- Photo documentation, catalog or picture of the product
- User manual / Instructions comply with ENERGY STAR specification and program requirements
- Valid ENERGY STAR Partner ID
- ENERGY STAR® Certification submission form is complete and accurate
- ENERGY STAR® Certification Body Agreement

ENERGY STAR Process

EPA data submission

- Substantial product details are required to complete the submission form
- CB uploads information to EPA website
  [XML-based qualified product exchange (QPX) system]
- ENERGY STAR qualified products will not be displayed on the ENERGY STAR website until the “date available on market” date is reached

Verification Testing

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What is Verification Testing?

Verification testing is a Partner funded program, which ensures products on the market continue to meet all product performance parameters as described in the relevant ENERGY STAR product specification

What is subject to Verification Testing?

- Annually 10% of certified products on the U.S. market in each product category and subtype
    - [e.g.] Category: Imaging Products
        - Subtypes: copiers, digital duplicators, fax machines, mailing machines, multi-function devices, printers, scanners

- All members of a certified product family are subject to verification testing
    - A product with multiple brands is treated as one product

Verification Testing

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Product selection

- All unique models on EPA's qualified products lists (QPLs) - *products currently available for sale in the US* -are candidates for verification testing

- At least 50% of models to be tested are randomly selected from the certification database of the CB
- The remaining models shall be comprised of referrals provided by the EPA, and models selected in consideration of the following factors:
- - Product classes from ENERGY STAR partners for which previous models failed verification testing
- - Referrals from third parties such as consumers, consumer groups or regulatory agencies regarding the accuracy of ratings
- - Models with high sales volumes if this data is available

Verification Testing

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Product procurement

- The unit(s) for verification testing shall be procured or obtained by prioritizing the source of those units in the following order (from most to least favored)
  - Off-the-shelf (i.e., from the open market);
  - Warehouse (i.e., from a storage depot or distributor); or
  - Off-the-line (i.e., from the manufacturing facility).

Notes:
1) Off-the-line testing is only appropriate where pulling products from the shelf or from a warehouse is not feasible. Examples include where the selected product is prohibitively expensive to purchase and/or transport, is made-to-order, or is otherwise unavailable through normal retail channels.
2) The Energy Star partner shall not be allowed to choose the testing sample.

ENERGY STAR Process

Test Location

Verification testing shall be performed at an EPA-recognized, third-party laboratory; or,

By exception, the verification testing may be performed at an EPA-recognized, first-party laboratory provided that qualified CB personnel witness the test.

Pass/Fail Criteria

PASS

$$Consumption_{Test} \leq ESTAR\ consumption\ specification$$

$$Efficiency_{Test} \geq ESTAR\ efficiency\ specification$$

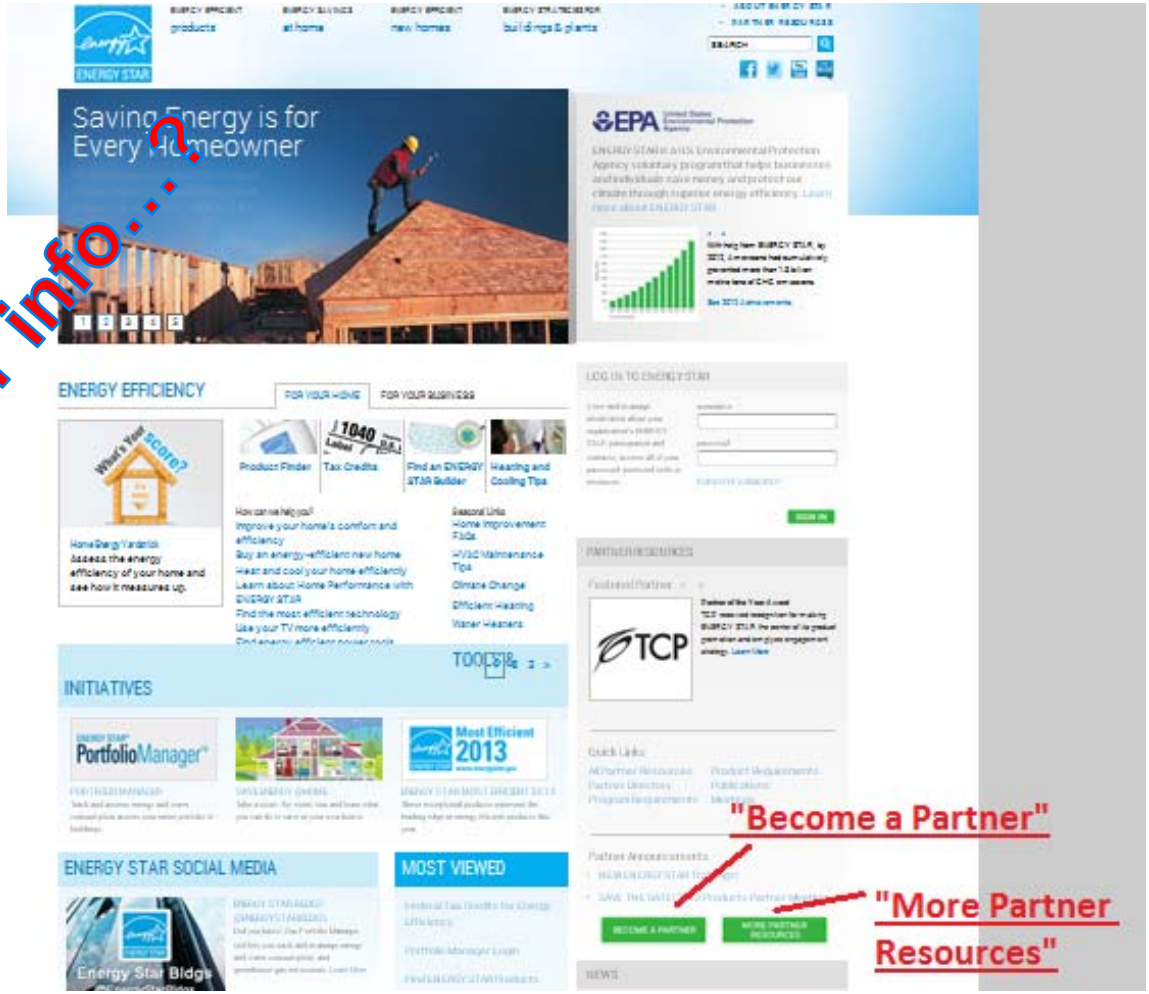
Challenge Testing

Challenge Testing Initiation

The challenge testing will not be initiated and the challenged not notified until:

- Confirmed identification of the challenged model number; and,
- Confirmed identification of the challenged parameters and the basis for the challenge. This basis may be but is not limited to marketing material that claims better performance than the data the CB has on record, or the results from a product test the challenger performs on its own
- Confirm the challenge valid based on factors such as information provided by challenger, comparing challenged parameter with certification data and other factors relevant to the product performance requirements of the relevant ENERGY STAR program requirements

www.energystar.gov



How to get further info…?

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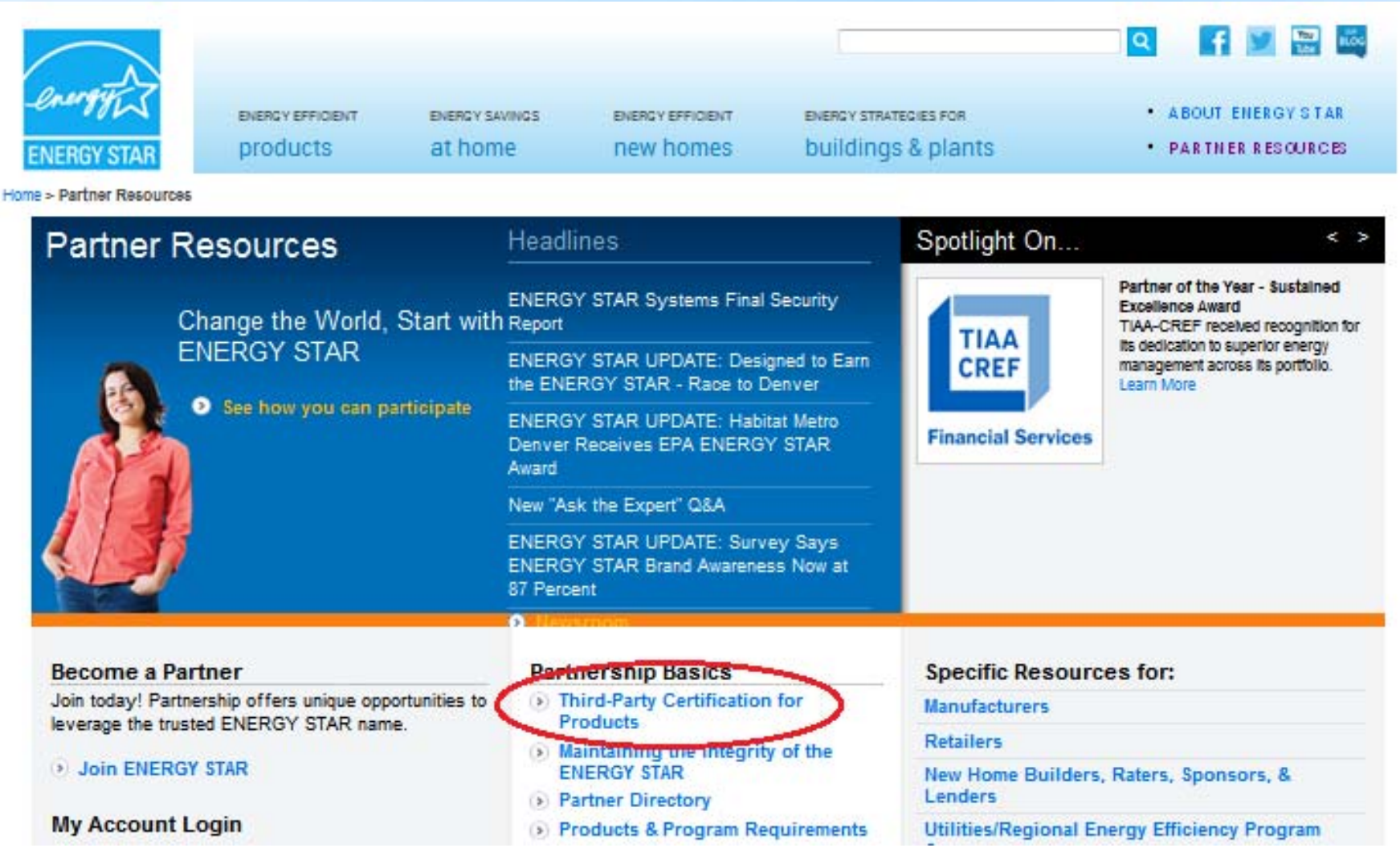
www.energystar.gov => "More Partner Resources"



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Other Information

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http://www.energystar.gov/index.cfm?c=third_party_certification.tpc_index

PRODUCTS | HOME IMPROVEMENT | NEW HOMES | BUILDINGS & PLANTS | PARTNER RESOURCES

Partner Resources

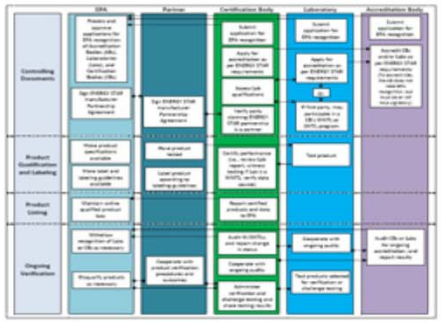
- Manufacturers
- Retailers
- New Home Industry
- Utilities/EEPS
- Service & Product Providers
- Buildings & Plants
- Small Businesses
- Congregations
- For Contractors
- For Federal Agencies

Join ENERGY STAR

Home > Partner Resources > Third-Party Certification

Third-Party Certification

To ensure consumer confidence in the ENERGY STAR label and to protect the investment of ENERGY STAR manufacturing partners, EPA requires all ENERGY STAR products to be third-party certified. This requirement includes product testing in an EPA-recognized laboratory that meets international standards for quality and competency, review of the product by an EPA-recognized certification body to determine ENERGY STAR eligibility, and ongoing testing to ensure that products continue to deliver superior energy efficiency and performance. The specific roles of these third-party organizations are described in the ENERGY STAR Process Flow Diagram (97KB).



In addition to the specific conditions and criteria for these organizations, EPA also publishes directives to clarify and elaborate on the responsibilities of EPA-recognized accreditation bodies (ABs), certification bodies (CBs), and laboratories.

ENERGY STAR manufacturing partners must have products tested in EPA-recognized laboratories and certified by an EPA-recognized CB prior to labeling. All certified products will also be subject to ongoing verification testing and challenge testing as described in the Conditions and Criteria for Recognition of Certification Bodies (60KB), as well as directives 2011-04 (80KB) and 2011-06 (52KB). As part of EPA's activities to maintain the integrity of ENERGY STAR, products that fail to meet ENERGY STAR requirements will be subject to EPA's disqualification procedures (59KB).

Manufacturers who label products as ENERGY STAR without obtaining third-party certification put the integrity of the program at risk and undermine the investment of those who honor their commitment. Companies found to be labeling products without obtaining the necessary certification will be required to remove the label from these products and institute other corrective actions as appropriate.

Information on the development of the ENERGY STAR third-party certification procedures have been archived.

EPA-recognized Organizations

Third-Party Certification

- Third-Party Certification
- Guidance (Directives)
- Documentation (Archives)
- Accreditation Bodies Resources
- Laboratory Resources
- Certification Bodies Resources

Additional Resources

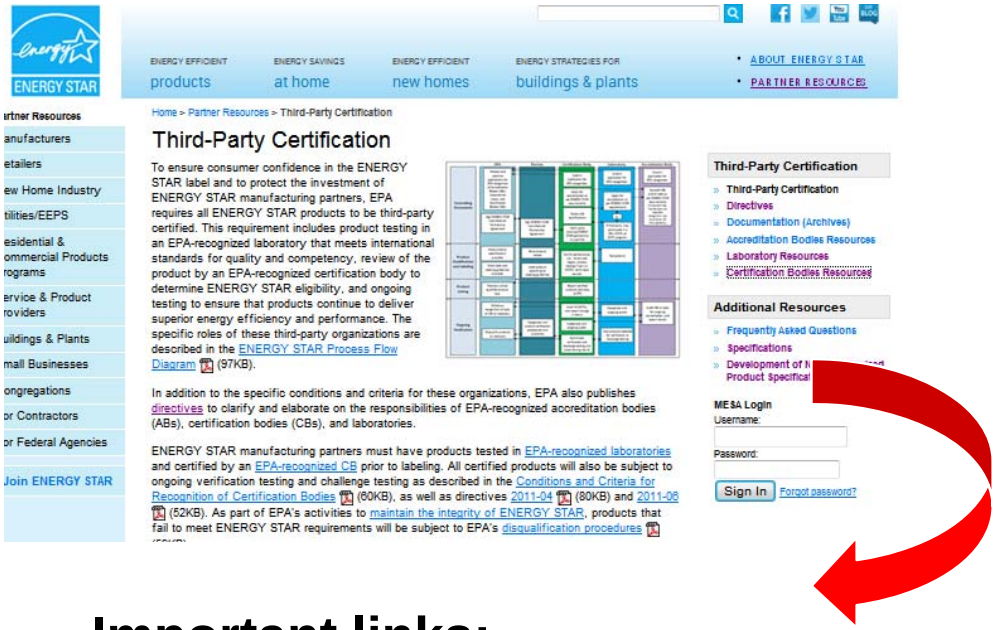
- Frequently Asked Questions
- Specifications
- Development of New and Revised Product Specifications

MESA Login

Username:

Password:

Sign In Forgot password?



Important links:

- Laboratory Resources
- Certification Body Resources
- Specifications
- Development of new and revised product specifications
- Standard Operating Procedures *[-> part of Cert. Body Resources]*

Other Information

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Power Supply Requirements

- If the product uses an ***internal power supply***, the submittal must include a certificate of compliance issued by an EPA-recognized laboratory that covers the internal power supply, and the certification body must accept this certificate of compliance in lieu of a lab report.
  *[see also **80 PLUS** certified power supplies which can be found at:*
  http://www.plugloadsolutions.com/80PlusPowerSupplies.aspx#]

- If the product uses an ***external power supply*** with integral fan cooling or multi-output external power supply (that is not covered by the International Efficiency Marking Protocol), the certification body may accept either a certificate of compliance from an EPA-recognized laboratory or a laboratory report that covers the external power supply.

- If the product uses an external power supply covered by the International Efficiency Marking Protocol, the certification body must obtain documentation, or affirmation from the test laboratory of visual inspection that confirms the external power supply is marked as Level V. The certification body must not require a full lab report or certificate of compliance from the manufacturer.

Note: On July 19, 2010 EPA announced to sunset the ES programs for EPSs and End-Use Products Using EPSs (details see next slide)

Other Information

Power Supply Requirements

EPA's sunset decision:

"…..
EPA will continue to recognize EPSs, End-Use Products Using EPSs and their manufacturers at www.energystar.gov until December 31, 2010.

- *Manufacturers must stop using the ENERGY STAR name and ENERGY STAR mark or EPS graphic in association with all products manufactured on or after December 31, 2010. (Qualified products manufactured before that date are allowed to carry the ENERGY STAR mark or EPS graphic on their packaging and product literature, as applicable. Retailers and distributors will be allowed to sell off their existing inventory.)*

- *No new promotional materials for EPSs and End-Use Products Using EPSs (printed and electronic) featuring the ENERGY STAR mark or EPS graphic may be produced after December 31, 2010. (Manufacturers are allowed to use up existing printed material, including packaging, in order to minimize waste.)*

- *To minimize the cost of labeling changes and be in compliance by December 31, 2010, manufacturers of EPSs and End-Use Products Using EPSs may remove ENERGY STAR references on websites or in other collateral materials as these materials are reprinted or changed in the coming months.*
….”

Other Information

Battery Charger Systems

US EPA proposal *"…to sunset the ENERGY STAR specification for Battery Charging System (BCS) products effective June 3, 2014...."*:

- *limited additional, cost-effective savings*
- *the presence of a California Energy Commission (CEC) standard which is more stringent than the current ENERGY STAR level (-> serve as a back-stop for these globally traded products)*

ENERGY STAR label would be misleading to consumers, who expect the label to represent meaningful savings compared to standard models on the market.

Thus, EPA proposes to sunset the ENERGY STAR BCS product program.

General Introduction

Canada Energy Efficiency Verification (EEV)

What **is the EEV mark ?**

The EEV mark indicates that the product meets the energy efficiency regulations of Canada, which is regulated by Natural Resources Canada (NRCan). A certification body must be accredited by the Standards Council of Canada (SCC).

General Introduction

Why **the EEV mark ?**

Regulated energy-using products must bear an EEV mark before the product is sold or leased in Canada.

Who **is affected by the Regulations…?**

….a dealer who imports or ships a regulated energy-using product

What do the Regulations do?

- define energy efficiency standards for prescribed products;
- establish energy efficiency labeling (includes EEV);
- prescribe reporting and importing requirements for a number of energy-using products.

Regulated Products

In Scope of TUV Rheinland of North America Accreditation

- automatic ice-makers
- chillers
- ceiling fans and ceiling fan light kits
- clothes dryers & clothes washers (residential and commercial)
- compact audio products
- compact fluorescent lamps – CFLs
- electric water heaters
- dehumidifiers
- digital TV adaptors
- dishwashers
- dry-type transformers
- electric motors, 1 to 200 HP (0.746 to 150 kW)
- electric ranges
- electric water heaters
- exit signs
- external power supplies
- fluorescent lamp ballasts
- freezers
- gas boilers, -fireplaces, -furnaces, -ranges, -unit heaters, -water heaters
- general service lamps (fluorescent, incandescent reflector, ER and BR)
- ground- or water-source heat pumps
- integrated over/under washer-dryers
- internal water-loop heat pumps
- large air conditioners, heat pumps and condensing units
- oil-fired boilers, -furnaces, -water heaters
- packaged terminal air conditioners and heat pumps
- refrigerators, refrigerator-freezers and wine chillers
- refrigerated beverage vending machines
- room air conditioners
- self-contained commercial freezers, -refrigerator-freezers, -refrigerators
- single-package central air conditioners and heat pumps: single- and three-phase
- single package vertical air conditioners and heat pumps
- split-system central air conditioners and heat pumps: single- and three-phase
- snack and refrigerated beverage and vending machines
- televisions
- traffic and pedestrian signal modules
- torchiere lamps
- video products

Pre-Publiction of Regulations Amending Canada's Energy Efficiency Regulations, Forward Regulatory Plan 2013-2015 – (Amendment 13 & 14)

- mercury vapour lamp ballasts used in outdoor applications
- Metal halide ballasts
- Commercial boilers
- line voltage thermostats
- pre-rinse spray valves
- tankless gas water heaters
- commercial water heaters
- Commercial refrigeration with remote condensing unit
- Battery charging systems
- small electric motors

TUV Rheinland of N.A. capabilities

Testing for the EEV-mark can be handled in any TUV Rheinland laboratory in the U.S.

- **CAN/CSA-C654-M91 (amended 2001)**
  Fluorescent Lamp Ballast Efficacy Measurements; Performance of Electrical Products – General Instruction No 1-3
- **CAN/CSA C802.2-00 and C802.2-06**
  Minimum Efficiency Values for Dry-Type Transformers
- **CAN/CSA-C62301-07**
  Household electrical appliances - Measurement of standby power
- **CSA-C381.1-08**
  Test method for calculating the energy efficiency of single-voltage external ac-dc and ac-ac power supplies

Other acceptable test methods cover the testing performed under the ***WMTL*** & ***SMTL*** procedures

Regulated Products

2010 APPLIANCE EFFICIENCY REGULATIONS
CALIFORNIA ENERGY COMMISSION

- Refrigerators, Refrigerator-Freezers, and Freezers
- Air Conditioners
- Spot Air Conditioners, Evaporative Coolers, Ceiling Fans, Ceiling Fan Light Kits, Whole House Fans, Residential Exhaust Fans, and Dehumidifiers
- Gas and Oil Space Heaters and Electric Residential Boilers
- Water Heaters
- Pool Heaters, Portable Electric Spas, Residential Pool Pump and Motor Combinations, and Replacement Residential Pool Pump Motors
- Plumbing Fittings
- Plumbing Fixtures
- Fluorescent Lamp Ballasts
- Lamps
- Emergency Lighting
- Traffic Signal Modules and Traffic Signal Lamps
- Luminaires and Torchieres
- Dishwashers
- Clothes Washers
- Clothes Dryers
- Clothes Dryers
- Electric Motors
- Distribution Transformers
- Power Supplies
- Televisions, and Consumer Audio and Video Equipment
- Battery Charger Systems

In Scope of TUV Rheinland of North America CEC Lab approval program

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….For example Battery Charger Systems

2010 APPLIANCE EFFICIENCY REGULATIONS
CALIFORNIA ENERGY COMMISSION

Appendix Y to Subpart B of Part 430—Uniform Test Method for Measuring the Energy Consumption of Battery Chargers

Clause 3., 'Standard Test Conditions', table 3.1:

1. Duration of the charge and maintenance mode test
2. Battery Discharge Energy
3. Initial time and power (W) of the input current of connected battery
4. Active and Maintenance Mode Energy Consumption
5. Maintenance Mode Power
6. 24 Hour Energy Consumption
7. Standby Mode Power
8. Off Mode Power

- ***Test samples need to be taken apart to connect an external resistor directly into the 'battery circuitry' for discharging, discharging according to manufacturer's recommendation***
- ***Then the testing is done in 'charging mode' over a period of 24hrs if not otherwise stated***

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Other Information

2010 APPLIANCE EFFICIENCY REGULATIONS

CALIFORNIA ENERGY COMMISSION

California's Appliance Efficiency Program:

http://www.energy.ca.gov/appliances/

Approved Testing Laboratories:

http://www.energy.ca.gov/appliances/database/forms_instructions_cert/approved_test_laboratories/

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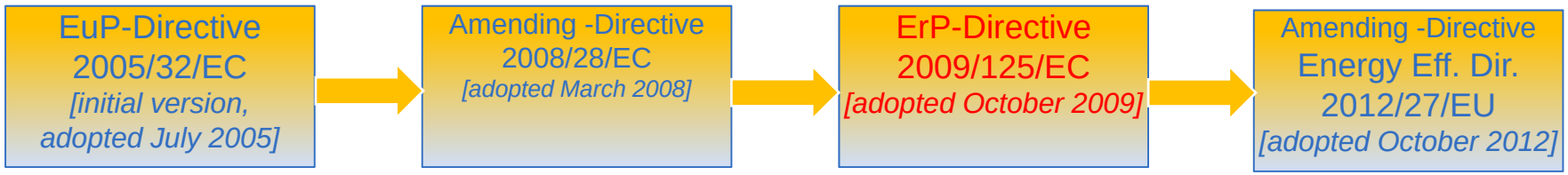
Ecodesign / ErP Directive 2009/125/EC

Directive 2009/125/EC for ErP (Energy-related-Products), *previously EuP-Directive 2005/32/EC for 'Energy using Products'),* establishes a framework directive for the setting of eco-design requirements for all energy using products except in the transport sector. It also covers products outside the electrical area.

It is the first directive to cover a product's total life cycle:

- Raw Material Acquisition
- Manufacturing
- Transport and Trade
- **Use/ Maintenance**
- Reuse/ Recycling/ End of Life Treatment



ErP Directive 2009/125/EC

The ***Directive 2009/125/EC*** is a recast of the EuP-Directive and is largely the same in content.
Same products are covered:

- Standby and Off Mode Consumption for Household and Office Equipment
- External Power Supplies
- Simple Set Top Boxes
- TVs
- Domestic Lighting
- Tertiary Lighting
- Domestic Cold Appliances
- Electric Motors 0.75 – 375kW
- Circulators

The levels to be met are specified in the regulations

Amendment Directive 2012/27/EU on energy efficiency:

- Establishing a common framework of measures for the promotion of the Union's 2020 20 % headline target on energy efficiency
- paving the way for further energy efficiency improvements beyond that date
- Laying down rules designed to remove barriers in the energy market and overcome market failures
- Providing the establishment of indicative national energy efficiency targets for 2020

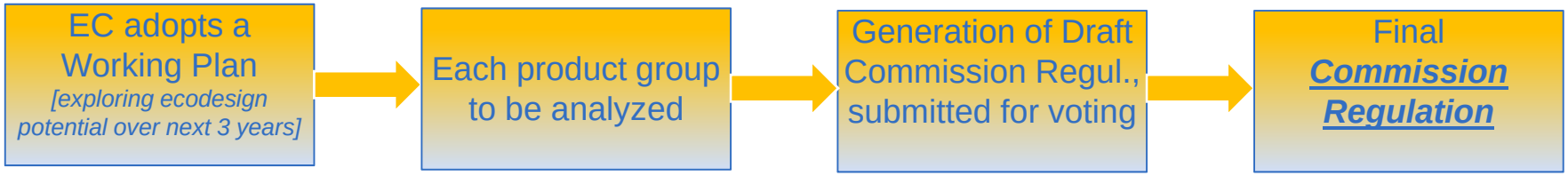
ErP Directive 2009/125/EC

The *'Ecodesign Directive'* does not create binding requirements on products by itself: product requirements are set in Commission Regulations

The *'Ecodesign Directive'* foresees two types of mandatory product requirements:

- **Specific requirements** (=> maximum energy consumption or minimum quantities of recycled material)
- **Generic requirements** (=> product is "energy efficient" or "recyclable", may entail information requirements, may require the manufacturer to perform a lifecycle analysis)

How are **mandatory** product requirements **decided?**



ErP Directive 2009/125/EC

Implementing Measures / Regulations:

Products covered	Eco Design	Energy Labelling
Air conditioners and comfort fans	(EU) No 206/2012	EU No 626/2011
Hot-water boilers	92/42/EEC	
Computers	(EU) No 617/2013 [June 2013]	
Circulators and glandless circulators integrated in products	(EC) No 641/2009 No 622/2012, which is amending regulation 641/2009	
Household dishwashers	(EU) No 1016/2010	(EU) No 1059/2010
Electric motors	(EC) No 640/2009	
Fans driven by motors	(EU) No 327/2011	
Heaters and Water Heaters	(EU) No 813/2013 [Aug 2013]	
Household tumble driers	(EU) 932/2012 [Oct 2012]	

[Status: 09/19/2013
Eco-design legislation]

ErP Directive 2009/125/EC

Implementing Measures / Regulations [cont.]:

Products covered	Eco Design	Energy Labelling
Imaging Equipment	“Industry Voluntary Agreement”	
Directional lamps, light emitting diode lamps and related equipment	(EU) No 1194/2012	(EU) No 874/2012
Non-directional household lamps (including amendment on ultraviolet radiation)	(EC) No 244/2009 (EC) No 859/2009	(EU) No 874/2012
Fluorescent lamps without integrated ballast, for high intensity discharge lamps and for ballasts and luminaries able to operate such lamps (including amendment)	(EC) No 245/2009 (EU) No 347/2010	(EU) No 874/2012
External power supplies	(EC) No 278/2009	
Household refrigerating appliances	(EC) No 643/2009	(EC) No 1060/2010

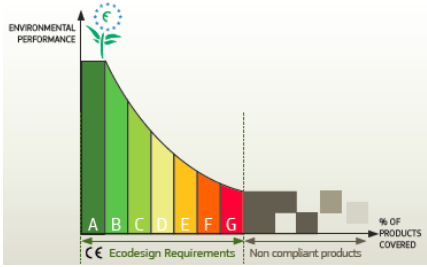
ErP Directive 2009/125/EC

Implementing Measures / Regulations [cont.]:

Products covered	Eco Design	Energy Labelling
Simple set-top boxes	(EC) No 107/2009	
Electric power consumption standby and off mode of electrical and electronic household and office equipment	(EC) No 1275/2008 EC/801/2013' for Network Standby (August 2013), which is amending the regulation 1275/2008	
Television	(EC) No 642/2009	(EU) No 1062/2010
Household tumble driers	(EU) No 932/2012	(EU) No 392/2012
Vacuum cleaners	(EU) No 666/2013 [July 2013]	
Household combined washer-driers		96/60/EC
Household washing machines	(EU) No 1015/2010	(EU) No 1061/2010
Water pumps	(EU) No 547/2012	
Water heaters and hot water storage tanks	(EU) No 814/2013 [Aug 2013]	

ErP Directive 2009/125/EC & 2010/30/EU

The Ecodesign Directive is meant to be used together with other policy tools, in particular the Energy Labelling Directive.



2010/30/EU ***=> labelling and standard product information***
[adopted May 2010]

The effects of mandatory requirements under these two Directives can be significantly reinforced if combined with other voluntary schemes such the EU Ecolabel, Green Public Procurement (GPP) and financial incentives.

[EPA Note dated 12/05/2011]

Dear ENERGY STAR® Office Equipment Stakeholder,

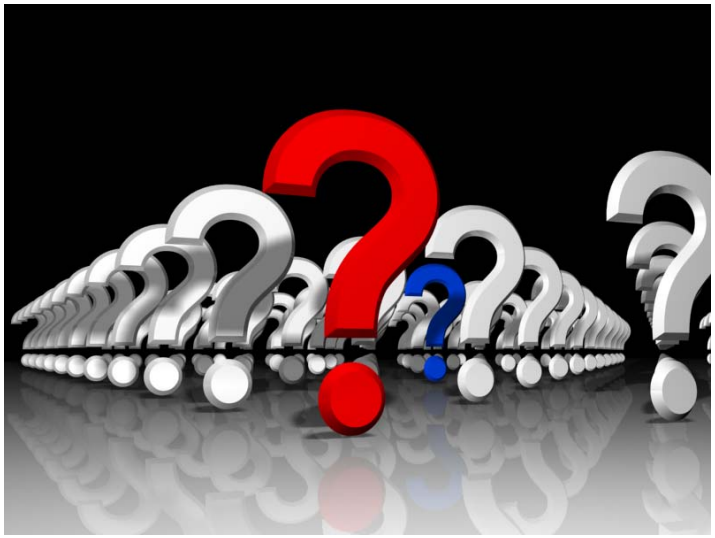
As many of you know, the United States and the European Union share a bilateral agreement on the ENERGY STAR program specific to Office Equipment. This agreement reflects the two regions' commitment to collaborating on and making use of harmonized ENERGY STAR requirements for Office Equipment. In place since 2000, the most recent renewal of the agreement is scheduled to expire in December 2011.

Recognizing the important value this agreement offers to our Office Equipment partners, EPA is writing today to share the good news that negotiation of the next five-year renewal of this agreement is now complete. On November 29, 2011, U.S. EPA Administrator Jackson and EU Energy Commissioner Oettinger initialed the agreement before being distributed to EU Member States for their concurrence. EPA expects this administrative process to be complete in the first half of 2012. The new agreement continues harmonization on computers, imaging equipment, displays, and servers and will be updated with enterprise storage, small network equipment, and uninterruptible power supplies as these ENERGY STAR specification development efforts are completed.

The success of this collaboration is extraordinary, and it is a testament to the continuing commitment of partners like you to develop and market energy efficient Office Equipment. Estimates show that in the last 5 years the U.S. ENERGY STAR program for Office Equipment resulted in savings of more than 223 TWh and energy bill savings of $22 billion. For the EU market, estimates show that in the last 3 years the EU ENERGY STAR Office Equipment program resulted in savings of more than 10 TWh and energy bill savings of 2 billion euros.

Thank you for your continued support of the ENERGY STAR program.

Thank You!



…..Questions?

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