



# ENERGY STAR® Water Cooler Webinar: Test Procedure Discussion

U.S. DOE and EPA  
June 7, 2011

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# ENERGY STAR Water Cooler History



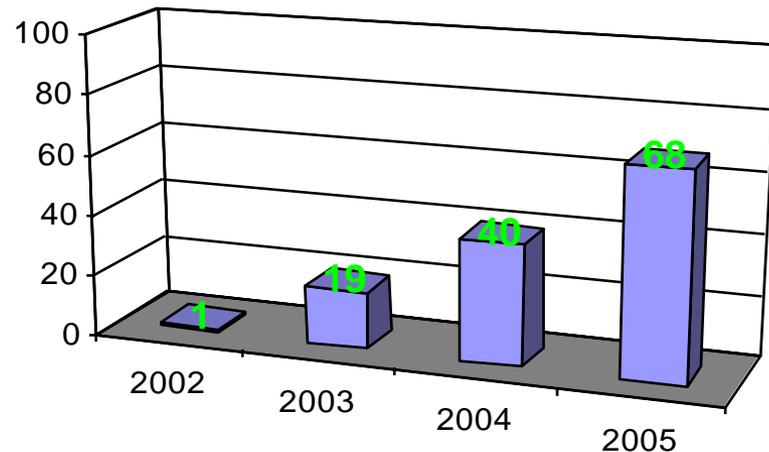
- First specification launched September 2000
- Specification updated May 2004 to include coolers with refrigerated compartments (V 1.1)
- Specification updated January 2010 to include POU coolers (V 1.2)
- Specification updated January 2011 to align with new 3<sup>rd</sup> Party testing requirements (V 1.3)

# ENERGY STAR Program Results



- Rapid increase in market penetration from 1% in 2002 to 68% in 2005
- Substantial savings for hot & cold water coolers (up to \$50/yr)
- Worked with Intl Bottled Water Assn (IBWA) to promote ENERGY STAR qualified products

Water Cooler Market Penetration



[Click here for more information on Energy Star](#)



Many bottled water companies give consumers the option to choose an ENERGY STAR bottled water cooler. ENERGY STAR is the government-backed symbol for energy efficiency sponsored by the U.S. EPA and U.S. Department of Energy. ENERGY STAR products are more efficient and save you money on your electric bills.

For more information, please visit [www.energystar.gov](http://www.energystar.gov)

# Drivers for Specification Revision

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- High ENERGY STAR market penetration
- New types of water coolers have entered the market that may need special consideration
- Need to address gaps in current test procedure

# EPA/DOE MOU Defines Roles for Products



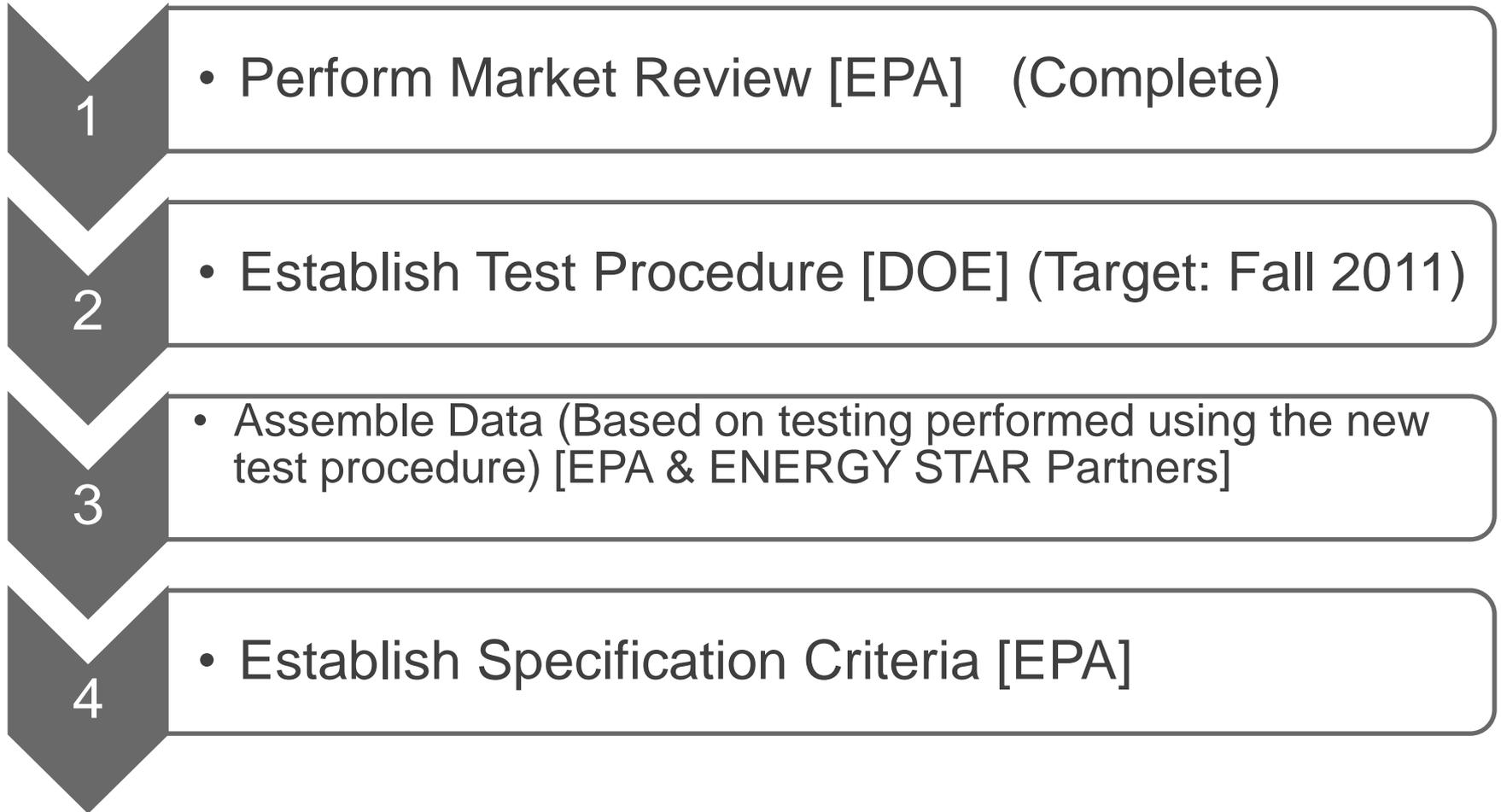
- EPA is brand manager for ENERGY STAR
- EPA will establish the performance levels for the ENERGY STAR products programs, with technical support from DOE.
- DOE leads the development of product testing procedures and metrics, with assistance from EPA where necessary.
- DOE provides technical support for product testing and verification.
- EPA/DOE MOU also calls for
  - All *new* product submittals as of Jan 1 required to be 3<sup>rd</sup> party certified
  - *Existing* qualified products must be 3<sup>rd</sup> party certified by effective date of new specification (V 2.0)

# ENERGY STAR Roles for Water Coolers



- U.S. EPA
  - Lead revision of Water Cooler specification
  - EPA Lead: Paul Karaffa
  - Support: David Beavers, Cadmus; Rebecca Duff, ICF
- U.S. DOE
  - Review, revise, validate Water Cooler test method
  - DOE Lead: Bryan Berringer
  - Support: Nadav Singerman, Navigant

# Steps For Specification Revision



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# Scope of Specification



The ENERGY STAR Program Requirements for Water Coolers defines a number of different water cooler configurations.

## Operation Method

- Storage
- On Demand

## Water Source

- Bottle
- Point of Use (POU)
- Air

## Water Temperature

- Hot and Cold
- Cook and Cold
- Cold Only

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# Current Test Procedure Refinement



The ENERGY STAR Water Cooler test procedure will produce more consistent and reliable results with added precision and refinement.

Opportunities include:

- Standby Energy
  - Ensure units' standby energy consumption is accurate for purposes of testing and qualification.
- As-Shipped Temperature Differences
  - Assess need for consistent temperature settings for testing and comparison under use.
  - Consider alternative that is not sensitive to temperature settings.
- Water Delivery
  - Consider testing for on demand units: does test fairly address units that maintain hot and cold water 24 hours per day vs those that do not?
  - Add test for units without an internally heated or cooled reservoir.
  - Address water withdrawal to include consideration of water preparation time

# Current Test Procedure Refinement



DOE and EPA are proposing the following revisions to the ENERGY STAR test procedure.

- Improve Test Precision
  - Enable improved differentiation of units that pass the test, and those that don't
- Universally Applicable Test Approach
  - Include water withdrawal and preparation time to fairly test all units in the specification scope.
  - Measure all operations including active and standby mode.

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# Planned Testing



A revised test procedure will be tested on real units in a lab.

- Revision Validation Testing
  - Ensure the revised test method is fully applicable, is fair and adequately precise, is repeatable, and does not increase test burden.
- Validation Tests
  - Standby Test
  - Energy Capacity Test
  - Heat/Cool Fixed Amount of Water
  - Replenish and Heat/Cool Fixed Amount of Water

# Planned Testing - Standby



- Standby Test
  - Standard 24 hour test.
  - No water withdrawal.

## Questions

1. Do water coolers have a standby mode that is entered after an appropriate time has elapsed with no water withdrawal?
2. Is 24 hours an accurate period of time for standby consumption testing?  
Would a 12 hour “night” test be more applicable?

# Planned Testing - Capacity



- Energy Capacity Test
  - BTUs delivered over a set period of time.
  - Necessary test for creating comparable unit classes based on capacity and time until water delivery.

## Questions

1. Are there any apparent concerns with this approach for classifying units?
2. Will different default temperatures reduce the relevance and universality of this test?
3. Is five minutes a reasonable amount of time to measure the BTU delivery for all types of units?

# Planned Testing – Active



- Heat/Cool Fixed Amount of Water
  - Energy consumed when heating/cooling and delivering a specified amount of water at a fixed temperature.
- Replenish and Heat/Cool Fixed Amount of Water
  - Energy consumed to replenish a specified amount of water to a fixed temperature.

## Questions

1. How has active mode testing been performed in the past? Is there an alternate method utilized by manufacturers?
2. Is one gallon of water a sufficient amount of water to properly test the heating and cooling energy usage?

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# Timeline



- Test Procedure Development..... June 2011
- Stage 1 Stakeholder Meeting..... June 2011
- Test Procedure Validation..... July 2011
- Publication of Draft Test Procedure..... August 2011
- Stage 2 Stakeholder Meeting.....September 2011
- Publication Final Test Procedure..... November 2011
- EPA Assembles Data Using Test Procedure..... Oct/Nov 2011
- Tentative Revision Completion..... January 2012

# Contact Information

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# Questions?

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