Meeting Information

• Meeting slides and other specification development materials will be available on the Commercial Coffee Brewers Web page:
  – www.energystar.gov/newspecs
  – Follow link to “Version 1.0 is in Development” under “Commercial Coffee Brewers”

• Audio provided via conference call in:

  Call in: +1-877-423-6338 (in the US, Canada)
  Code: 654291

• Phone lines will remain open during the presentation to allow for open discussion
• Please keep phone lines on mute (*6) unless speaking
Introductions

• Christopher Kent
  U.S. Environmental Protection Agency

• Adam Spitz
  ICF International

• Rebecca Duff
  ICF International

• Meredith Ledbetter
  ICF International
Meeting Objectives

• Provide overview of the ENERGY STAR program
• Provide an overview of the ASTM Test Method for Coffee Brewers
• Provide a summary of data
• Provide a possible timeline of the specification development process
• Answer stakeholder questions about this process
Agenda

1. ENERGY STAR Program Overview
2. ASTM Test Method Review /Data Reports Template
3. Data Review
4. Timeline
What Is ENERGY STAR?

- Established in 1992
- Voluntary climate protection partnership with the U.S. Environmental Protection Agency (EPA)
- Strategic approach to energy management, promoting energy efficient products and practices
- Tools and resources to help save money and protect the environment
Success: 2013 Accomplishments

• Americans with the help of ENERGY STAR prevented 277 million metric tons of GHG emissions and saved $10 billion in benefits to society due to reducing damages of climate change.

• Over 1.5 million new homes are ENERGY STAR qualified

• 40% of the nation’s commercial space (350,000 buildings) have been benchmarked

Since 2000, ENERGY STAR Benefits Have More Than Tripled
ENERGY STAR Portfolio

• Define and educate on energy performance through a single designation: ENERGY STAR
  – Product Efficiency
  – New/Existing Home Efficiency
  – Commercial Building Efficiency
ENERGY STAR Products

• Americans purchased about 300 Million ENERGY STAR certified products in 2013 in over 70 categories

• Cumulative total of almost 4.9 billion products since 1993

• 85% of the American public recognizes the ENERGY STAR label

• Product are 20 – 65% more efficient depending on type

*Lighting category does not include purchases of compact fluorescent bulbs.
ENERGY STAR Labeled Products Facts

- More than 40,000 product models carry the ENERGY STAR label
- More than 65 types of products carry the ENERGY STAR label
- ENERGY STAR has over 1,800 manufacturing partners
- ENERGY STAR has more than 2,500 retail partners in the United States and Puerto Rico

Source: ENERGY STAR Data Book 2013
70 Product Categories Are Covered by ENERGY STAR in the US

- **Lighting**
  - Lamps
  - Fixtures
  - Decorative light string

- **Heating & Cooling**
  - Central AC
  - Heat pumps
  - Boilers
  - Furnaces
  - Ceiling fans
  - Room AC
  - Ventilating fans
  - Water Heaters

- **Office Equipment**
  - Computers*
  - Displays*
  - Printers*
  - Copiers*
  - Scanners*
  - Multi-function Devices*
  - Servers*
  - Storage
  - SNE
  - UPS

- **Commercial Food Service**
  - Dishwashers
  - Refrigerators
  - Freezers
  - Ice Machines
  - Fryers
  - Steamers
  - Hot Cabinets
  - Griddles
  - Ovens
  - Coffee

- **Home Envelope**
  - Roof products
  - Windows/Doors

- **Appliances**
  - Clothes washers
  - Dryers
  - Dishwashers
  - Refrigerators
  - Dehumidifiers
  - Air cleaners
  - Water coolers

- **Other**
  - Lab grade refrigeration
  - Vending
  - Pool Pumps

- **Home Electronics**
  - Cordless phones
  - TV
  - Set Top boxes
  - Home audio
GHG Savings by Product Type

The chart shows the GHG emissions reductions (MMTCO2e) from 2000 to 2013, categorized by product type:

- **Appliances**
- **Lighting**
- **Home Electronics**
- **HVAC and Other**
- **Office Equipment**

The data indicates a significant increase in emissions reductions over the years, with the highest reduction in 2013.
Benefits of ENERGY STAR Qualified Products

• Consume less energy
  – Reduced kWh – reduced CO2 emissions
  – Reduced kWh – less heat – reduced A/C expenses
• Equivalent or better quality
• Annual and life cycle cost savings
  – Additional funds for programmatic uses
• Publicly demonstrate commitment to environment
• Third-party certification procedures bolster the integrity of the program and ensure energy-efficient performance
Partnership Benefits

- Use of the certification mark to differentiate top energy efficient products
- Leveraging ENEREGY STAR marketing resources
- Access to Utility incentive programs
- Preferential purchasing by Federal programs
How does ENERGY STAR Drive the Market?

- ENERGY STAR specifications change over time to ensure:
  - Certified products are industry leaders
  - Transforms the market to greater energy efficiency*

* 2011 data is draft data from a preliminary version of ENERGY STAR computer specification
What is ENERGY STAR Purchasing?

• ENERGY STAR Purchasing helps organizations identify, specify, and purchase ENERGY STAR® qualified products as part of an overall energy management strategy.

BUY PRODUCTS THAT MAKE A DIFFERENCE
U.S. Environmental Protection Agency • U.S. Department of Energy
ENERGY STAR Purchasing Requirements for Federal Agencies

- The Energy Policy Act of 2005
  - Purchase either ENERGY STAR products or Federal Energy Management Program (FEMP) designated products

- Executive Order 13423 (2007)
  - Activation of ENERGY STAR power management features on computers and monitors
  - Purchase of EPEAT registered products

- Executive Order 13514 (2010)
  - Sets sustainability goals for Federal agencies
  - Ensure that 95 percent of new contracts include products that are energy-efficient (ENERGY STAR qualified or Federal Energy Management Program (FEMP) designated)
  - Promote electronics stewardship
Guiding Principles Reaffirmed

• Significant energy savings on a national basis
• Product performance maintained or enhanced with increased efficiency
• Consumers recover investment in efficiency within a reasonable period of time
• Efficiency can be achieved with one or more technologies – products are available from more than one manufacturer
• Energy consumption and performance can be measured and verified with testing
• Labeling would effectively differentiate products and be visible to purchasers

• Update May 2012
ENERGY STAR Program Principles

• Requirements based on sound data
  – Proposed requirements are reflective of real product performance, rewarding true leadership products, and deliver of energy saving promise

• Support and adopt vetted testing metrics/standards
  – Reduced development cost, reduce partners compliance cost

• Open and transparent stakeholder process
  – Enhanced understanding of products, market, and impact of proposed requirement, Open and transparent doesn’t mean consensus
Important Process Elements

- Consistency
- Transparency
- Inclusiveness
- Responsiveness
- Clarity
Builds on Intersection of Interests

- Consumer Preferences
- Environmental Protection
- Manufacturer/Retailer Interests
- Utility Program Sponsor Interests

- Cost-effective
- No Sacrifice in Performance

Consumer is Key
How Does ENERGY STAR Maintain Relevancy?

Specifications are updated in response to market changes:

- High market share
- Change in Federal minimum efficiency standards
- Availability, performance, or quality concerns
- Advancements in technology
- Changes in test procedures
Product Qualification Process

1. ENERGY STAR Partner
2. Laboratory: Accredited
3. Laboratory: CB Witnessed/Supervised
4. Certification Body (CB)
5. EPA ENERGY STAR
Integrity Highlights

• Since the launch of the third-party certification scheme in Jan 2011, EPA has recognized:
  – 28 accreditation bodies (ABs)
  – 25 certification bodies (CBs)
  – 530 testing laboratories (Labs)

• New applications and applications to expand EPA recognition are processed on a rolling basis and a response is provided typically within one week.

• EPA updates the online directory of CBs and Labs and maintains a separate listing for specific lighting categories.

www.energystar.gov/3rdpartycert
Verification Testing

- Verification testing ensures models meet ENERGY STAR requirements post-qualification
- U.S. Department of Energy initiated verification testing of ENERGY STAR qualified models in 2010

1. 10% of representative models certified by each CB are selected for testing, with input from EPA and possibly other third parties.

2. Partner funds verification testing, which will be off-the-shelf third-party testing, or off-the-line first-party testing witnessed by a third party.

3. CB has units tested; shares results and resolution of any discrepancies with EPA.
Unit Shipment Data

- All ENERGY STAR manufacturing partners are required to report annual unit shipment data (USD) for certified products shipped to or within the U.S. Estimates are not accepted. Failure to submit data typically results in the interruption of partner privileges.

- USD is used to determine the market share of ENERGY STAR products and evaluate the overall performance of the program.

- At the conclusion of each annual effort, EPA publishes and posts an Annual Unit Shipment Data Report. The report discusses the data collected, methodology used, response rate, and market share for each product category.

www.energystar.gov/usd
Use of the ENERGY STAR Label

• The ENERGY STAR mark is a valuable asset, and like any asset with appreciable value, it must be properly used and protected.

• Partnering organizations agree to abide by EPA’s ENERGY STAR program identity guidelines prior to using the logo.

• EPA monitors the use of the ENERGY STAR label and name in trade media, advertisements, and the internet to ensure they are applied properly and consistently in the marketplace.
Logo Enforcement

• Over 800 incidents of possible misuse have been investigated since January 1, 2010.
  – 253 of these have been confirmed to be cases of label misuse:
    • 97 in 2010,
    • 97 in 2011,
    • 45 in 2012, and
    • 14 to date (August 2013) in 2013, showing a clear decline over time.

• In cases of misuse, EPA works with the responsible party to:
  – resolve the issue in a timely manner; and
  – provide advice and education on appropriate use of the ENERGY STAR label to help avoid future instances of misuse.
Product Finder Tool

• Public-facing tool consumers, retailers, utilities and other stakeholders use to access product data
• www.energystar.gov/productfinder

Partner Benefits:
• Provide better access to EPA product data for all stakeholders
• Improve the ability to find and reconcile product data
• Improve data quality
• Model data updated daily
• Expected product finder tools rollout for all products: Fall 2013
Product Specification Search Tool

Product Specifications Search

Product Specification Results

- All ENERGY STAR specifications now listed on one webpage
- www.energystar.gov/specifications
Consumer Awareness

About 87% of US households recognize the ENERGY STAR label

More than 40% of US households knowingly purchased ENERGY STAR qualifying product in 2012
73% reported the ENERGY STAR label as influential to their purchasing decision.

About 83% are likely to recommend ENERGY STAR products to friends.
National Campaign Updates

• The Change the World, Start with ENERGY STAR Campaign is a vehicle for individuals and organizations to get involved in protecting the environment through preventing greenhouse gas emissions.

• Some of the ways to participate include:
  – Organizations can become a pledge driver to encourage others to take the pledge and reduce their environmental impact
  – Individuals can:
    • “Share Your Story” on how they are reducing their impact on the environment
    • Take the pledge
    • Join Team ENERGY STAR
Additional opportunities to get involved in the campaign include:

- Add an event to the ENERGY STARs Across America map
- Promote ENERGY STAR on Earth Day and ENERGY STAR Day through promotional events and social media
- Encourage youth to join Team ENERGY STAR
- Provide in-kind donations to reward the efforts of Team ENERGY STAR members
National Campaign Updates, cont.

- ENERGY STAR partners promote their events on the ENERGY STARs Across America Map located on www.energystar.gov/changetheworld
Retailer Highlights

- Retailers partner with EPA to promote ENERGY STAR in several ways, including:
  - Labeling certified products in-store and online
  - Integrating ENERGY STAR into promotions across all vehicles, such online, in-store, and direct mail
  - Holding employee- and customer-focused events to promote ENERGY STAR
  - Promoting Team ENERGY STAR and the ENERGY STAR Campaign through in-store events, such as children’s workshops
  - Creating innovative ways to educate customers on ENERGY STAR product features and energy and financial savings
Partner of the Year

- Each year, the US EPA ENERGY STAR program honors organizations that have made outstanding contributions to protecting the environment through energy efficiency.
- The ENERGY STAR Awards are extremely competitive and the criteria are rigorous.
- All organizations participating in the ENERGY STAR program are encouraged to apply for the award.
- To be considered, an organization must meet the specific eligibility requirements in the award application and submit a complete online application package by set date.
ENERGY STAR is International

• U.S. EPA has arrangements with agencies in other countries regarding **ENERGY STAR** for office equipment
  – Japan
  – Taiwan
  – Switzerland
  – Australia: also includes home electronics and others
  – New Zealand: also includes home electronics and others
  – Canada: also includes most other product categories

• U.S. Government has a formal agreement with the European Union on **ENERGY STAR** for office equipment
Agenda

1. ENERGY STAR Program Overview
2. ASTM Test Method Review /Data Reports Template
3. Data Review
4. Timeline
ASTM Test Method

  - Finalized and approved in 2012
  - Applicable for single-cup (Type I) and batch (Type II) brewers
    - Excludes residential, urns and satellite coffee brewers; espresso and other specialty coffee brewers
  - Evaluates energy consumption along with brewing and holding temperatures
    - Preheat energy consumption and time
    - Heavy use brewing energy test
    - Stand-by (Ready to brew) energy test
    - Energy saving mode energy test (if applicable)
• Heavy-Use Brew Test
  – Type I: Requires one stabilization brew event and **ten** consecutive brew events (includes recovery energy)
  – Type II: Requires one stabilization brew event and **three** consecutive brew events (includes recovery energy)
  – Test results’ reported values include:
    • Energy rate (kW)
    • Production capacity (gall of coffee brewed/hour)
• Stand-by (Ready to brew) Test
  – Type I and II: Requires one hour of stabilization in stand-by and *two* consecutive hours in stand-by
  – All accessories (i.e., lights/warming plates, etc.) shall remain “ON”
  • Subsequent idle tests shall be performed with each accessory in the “OFF” mode

• Energy Saving Mode Test
  – Same as the stand-by test but operating in a reduced energy mode (if applicable)
# Test Report Measurement

## ENERGY STAR® Coffee Brewer Test Reporting Template - Test Measurements

<table>
<thead>
<tr>
<th>Test Setup Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>V</td>
</tr>
<tr>
<td>Average ambient temperature</td>
<td>Degrees Fahrenheit</td>
</tr>
<tr>
<td>Maximum Energy Input Rate</td>
<td></td>
</tr>
<tr>
<td>Manufacturer nameplate input rate</td>
<td>kW</td>
</tr>
<tr>
<td>Measured energy input rate</td>
<td>kW</td>
</tr>
<tr>
<td>Preheat Energy Consumption and Time</td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>Minutes</td>
</tr>
<tr>
<td>Electric energy consumption</td>
<td>kWh</td>
</tr>
<tr>
<td>Incoming water temperature</td>
<td>Degrees Fahrenheit</td>
</tr>
<tr>
<td>Pre-heat rate</td>
<td>Degrees Fahrenheit/Min</td>
</tr>
<tr>
<td>Water consumed during preheat test</td>
<td>Gal</td>
</tr>
<tr>
<td>Heavy Use Brewing Energy Test</td>
<td></td>
</tr>
<tr>
<td>Total elapsed time during Heavy Use</td>
<td>Minutes</td>
</tr>
<tr>
<td>Total energy consumed during Heavy Use</td>
<td>kWh</td>
</tr>
<tr>
<td>Average incoming water temperature</td>
<td>Degrees Fahrenheit</td>
</tr>
<tr>
<td>Maximum brew volume temperature</td>
<td>Degrees Fahrenheit</td>
</tr>
<tr>
<td>Calculated average energy rate</td>
<td>kW</td>
</tr>
<tr>
<td>Calculated production capacity</td>
<td>Gal/hr</td>
</tr>
<tr>
<td>Energy Save Mode Energy Rate</td>
<td></td>
</tr>
<tr>
<td>Average total energy consumed during Energy Save Mode</td>
<td>kWh</td>
</tr>
<tr>
<td>Average tank temperature (if applicable) during Energy Save Mode</td>
<td>Degrees Fahrenheit</td>
</tr>
<tr>
<td>Ready-To-Brew (Standby) Energy Rate</td>
<td></td>
</tr>
<tr>
<td>Average total energy consumed during Standby</td>
<td>kWh</td>
</tr>
<tr>
<td>Calculated Standby Energy Rate</td>
<td>kW</td>
</tr>
<tr>
<td>Average tank temperature during Standby</td>
<td>Degrees Fahrenheit</td>
</tr>
<tr>
<td>Number of warmers activated during Standby</td>
<td></td>
</tr>
</tbody>
</table>
Additional Test Methods

• ASTM F2990-12 is the only existing test method for commercial coffee brewers
• EPA is interested in learning more about the energy performances of other types of coffee brewers (i.e., espresso, bean-to-cup, etc.)
• Strong interest in the development of espresso machines test method
Agenda

1. ENERGY STAR Program Overview
2. ASTM Test Method Review / Data Reports Template
3. Data Review
4. Timeline
Performance Data

• Data Overview:
  – Type I: 0 data points
  – Type II: 4 data points

• More performance test data is needed for both Type I and Type II brewers before proposing any draft levels

• Performance test data may originate from OEM labs and others but data for certification must be done in an EPA recognized CB/lab
Agenda

1. ENERGY STAR Program Overview
2. ASTM Test Method Review / Data Reports Template
3. Data Review
4. Timeline
## Efficiency Criteria Timeline

<table>
<thead>
<tr>
<th>Topic</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft 1 Version 1.0 Efficiency specification to stakeholders *</td>
<td>August 2014</td>
</tr>
<tr>
<td>Draft 1 Version 1.0 Efficiency specification comments due</td>
<td>September 2014</td>
</tr>
<tr>
<td>Draft 2 Version 1.0 Efficiency specification to stakeholders *</td>
<td>November 2014</td>
</tr>
<tr>
<td>Draft 2 Version 1.0 Efficiency specification comments due</td>
<td>December 2014</td>
</tr>
<tr>
<td>Final Draft Version 1.0 Efficiency specification to stakeholders *</td>
<td>January 2015</td>
</tr>
<tr>
<td>Final Draft Version 1.0 Efficiency specification comments due</td>
<td>February 2015</td>
</tr>
<tr>
<td>Final Version 1.0 Efficiency specification *</td>
<td>February 2015</td>
</tr>
</tbody>
</table>

* Dependent on data and stakeholder involvement
Contact Information

Please send any additional comments to coffeebrewers@energystar.gov or contact:

Christopher Kent
EPA ENERGY STAR Program
Kent.Christopher@epa.gov

Adam Spitz
ICF International
Adam.Spitz@icfi.com

Thank you for participating!

www.energystar.gov/productdevelopment