



# Outlining Appliance Specification Revisions

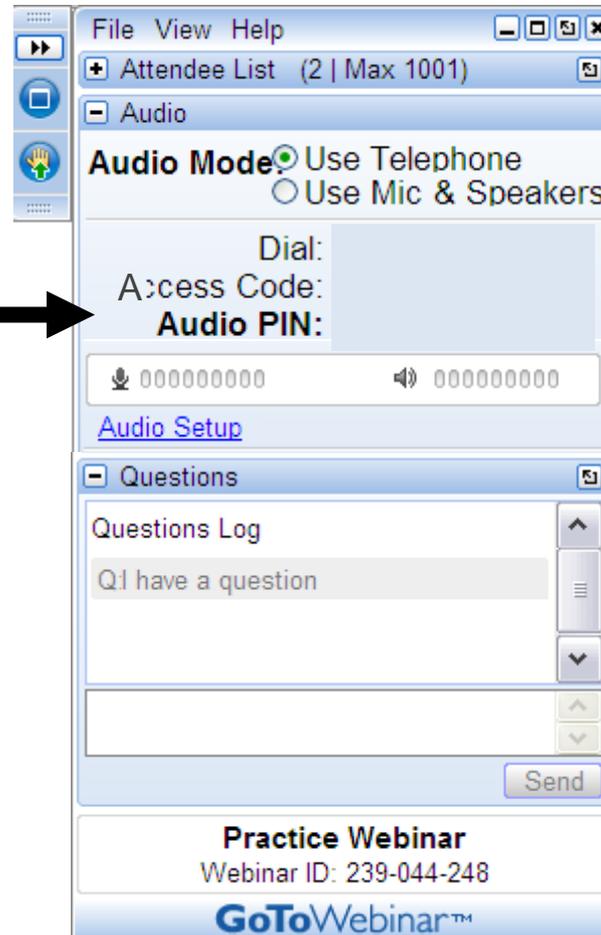
**Melissa Fiffer, U.S. EPA**  
**Roadmapping Webinar**  
January 12, 2016

## Using GoToWebinar

Use this button to expand or minimize your toolbar at any time.

If you are using your telephone:

- Select the “Use Telephone” button.
- Dial in and enter your Access Code.
- Enter your audio PIN and press #.



If you are using the speakers on your computer:

- Select the “Use Mic & Speakers” radio button.
- Unmute your desktop.
- Click on Audio Setup if you’re having any difficulty.

Everyone will be muted, but you can type in questions at any time and we’ll answer them at the end of the presentation.

## Using GoToWebinar cont.



The screenshot shows the GoToWebinar interface with a focus on the audio settings. A black callout box with white text and a black arrow points to the 'Raise Hand' icon in the left-hand toolbar. The callout text reads: "Click here to raise your hand. Doing so will indicate that you would like to be unmuted, and speak to the audience." The main window has a title bar with "File View Help" and standard window controls. The "Audio" section is expanded, showing "Audio Mode: Use Telephone" with a selected radio button. Below this, there are partially visible options for "Access" and "You". The "Talking:" status shows "Nathalie". The "Questions" section is also expanded, showing a text input field and a "Send" button. At the bottom of the window, the webinar title "EHR Reporting with Crystal Report - Dry Run" and "Webinar ID: 850-780-150" are displayed, along with the "GoToWebinar™" logo.



## Agenda

- Outline of Appliance Specification Revisions
  - Technology Advances and Features
- Overview of Roadmapping Process
- Next Steps: Upcoming Webinars and Timeline



## Outline of Appliance Specification Revisions

- At the Oct 2015 ENERGY STAR Products Partner Meeting, we kicked off the Appliance Roadmapping effort with a brief, informal, facilitated brainstorming session.
- The majority of participating partners indicated that, in the interest of increased transparency and collaboration, they would like to see an outline of anticipated specification revisions.
- On Dec 2, 2015, EPA released an outline of potential appliance specification revisions in 2016 and beyond.



# Appliance Specification Development Overview

- ENERGY STAR typically revises every 3 years, or when market share exceeds 35%
- The specification development cycle is iterative, with multiple opportunities for stakeholder input
- A number of additional factors can drive revision:
  - Change in the Federal minimum efficiency standards
  - Technological advancements
  - Product availability limitations
  - Issues with consumers realizing expected energy savings
  - Performance or quality issues
  - Issues with test procedures
- The process begins with stakeholder notification, and continues with supporting analysis on energy/environmental aspects and market/industry research



## Guidelines for New Product Categories

- EPA considers new product categories on a more limited basis.
- New product categories must meet the ENERGY STAR Guiding Principles:
  - Significant energy savings will be realized on a national basis;
  - Product energy consumption and performance can be measured and verified with testing;
  - Product performance will be maintained or enhanced;
  - Purchasers of the product will recover any cost difference within a reasonable time period;
  - Specifications do not unjustly favor any one technology; and
  - Labeling will effectively differentiate products to purchasers.
- At this time, EPA does not anticipate a wide expansion of ENERGY STAR product categories in the appliance sector.



## 2016 Revision Launches: Refrigerators

- ENERGY STAR V 5.0 was finalized in May 2013 and took effect in Sept 2014, aligning with the DOE federal standard change.
- As part of our 3-year review cycle, we anticipate reviewing for a possible revision that would launch in late 2016/early 2017, with an effective date in 2017/2018.
- We will weigh the typical factors mentioned earlier, including technological advances and market trends.



## Highlights of Refrigerator Technology and Features

- Increased insulation thickness
- Low GWP refrigerant (isobutane)
- Vacuum-insulated panels
- Improved compressor efficiency
- Variable speed compressors
- Increased evaporator surface area
- Increased condenser surface area
- Forced convection condensers
- Brushless DC fan motors
- Adaptive defrost
- Variable anti-sweat heater control
- Magnetic refrigeration
- Linear compressors
- Various door configurations to minimize door openings
- Convertible compartments
- Dedicated cooling circuits for each compartment
- Coffee makers

How might these technologies and features impact efficiency? Cost?

Are there other market trends we should be aware of?



# 2016 Revision Launches: Clothes Washers

- An ENERGY STAR Version 8.0 specification would aim for an effective date in alignment with the next DOE federal standards for Residential and Commercial Clothes Washers – Jan 1, 2018.
  - Commercial clothes washer levels were unaffected by the V 7.0 revision.
  - For front loading commercial washers, the 2018 federal standard is more stringent than ENERGY STAR levels.
- In 2016, EPA plans to evaluate aspects of performance most relevant to ENERGY STAR residential clothes washers.
  - EPA welcomes partner participation to identify performance parameters/metrics and share product data/experiences.



## Highlights of Clothes Washer Technology and Features

- Sensors: absorption, load composition, size
- Accelerometers
- Improved motors
- Improved temperature control
- Gray water rinse
- Highest spin speeds
- Water flow meters
- Fuzzy logic
- Recirculation pumps
- More precise chemical dispensing
- Tachometer
- More mechanical action
- More robust suspension system
- Larger capacities
- Connected features for laundry pair
- Added cycle options for fast washing, wool handling, etc.
- Added wash compartments for delicates

How might these technologies and features impact efficiency? Cost?

Are there other market trends we should be aware of?



## Clothes Washer Scope

- Given the addition of an ENERGY STAR category for clothes dryers and adoption of the Appendix D2 test method, EPA anticipates evaluating scope expansions for products with drying functionality that are currently excluded:
  - **Combination all-in-one washer-dryer**
    - A consumer product designed to clean and dry fabrics in a single drum, where **a separate drying cycle** uses electricity or gas as a heat source and forced air circulation.
  - **Washer with optional dry cycle**
    - A residential clothes washer that has an optional add-on dry cycle, where drying is accomplished through use of electricity or gas as a heat source and forced air circulation; **drying cannot be selected independently** from a wash cycle.
- EPA welcomes data to help assess:
  - Market share
  - Energy and water efficiency, and available technologies for improving efficiency
  - Confirmation that energy use of the drying cycle can be accurately measured/reported



## 2016 New Product Efforts: Misc Refrigeration

- If resources allow, EPA will evaluate launching a category for Miscellaneous Refrigeration.
- EPA will monitor the DOE standards development process and seek alignment on:
  - Definitions
  - Product classes
  - Test methods
- With sufficient information, a new specification could take effect in early 2017.
- EPA welcomes information on:
  - Available products
  - Efficient technology advancements

## Misc Ref Technology and Market Trends

- The potential: A 2013 LBNL survey found that approximately 11.1 million households (9.5%) have a wine chiller or beverage center.
- EPA has begun reaching out to individual manufacturers and will be viewing trends in products on the market at the Kitchen & Bath Show/International Builder's Show the week of Jan 18<sup>th</sup>.
- Initial look at potential efficiency improvements (April 2014 Scoping Report):

Design Option	Efficiency Improvement
Increased Insulation Thickness	A few percent to 10% depending on thickness
Isobutane Refrigerant	Up to 10%
Vacuum-Insulated Panels	30%
Improved Compressor Efficiency	Unknown
Variable-Speed Compressor	4-14%
Increased Evaporator Surface Area	Unknown
Increased Condenser Surface Area	1-2%
Brushless DC Evaporator Fan	60-65% reduction in fan power
Brushless DC Condensor Fan	60-65% reduction in fan power
Adaptive Defrost	3-4%



## 2016 and Beyond

- Multiple factors trigger revision of ENERGY STAR appliance specifications.
- We have compiled a table with projected effective dates for upcoming ENERGY STAR revisions, based on our regular 3-year review cycle.
- Factors such as those described earlier may drive a revision earlier, or call for a delay.



Product Category	ENERGY STAR			DOE Standards		Anticipated Effective Date of Next ENERGY STAR Revision
	Current ENERGY STAR Specification	Final Date of Last Spec Revision	Effective Date of Last Spec Revision	Effective Date of Last DOE Standards Change	Effective Date of Next DOE Standards Change	
Refrigerators	V 5.0	2013	2014	2014	TBD	2017/2018
Residential Clothes Washers	V 7.0	2014	2015	2015	2018	2018
Commercial Clothes Washers	V 7.0	2014*	2015	2013	2018	2018
Clothes Dryers	V 1.0	2014	2015	2015	TBD	2018
Dishwashers	V 5.2 (V 6.0 effective Jan 29, 2016)	2015	2016	2013	TBD	2019
Room Air Conditioners	V 4.0	2015	2015	2014	TBD	TBD

\*Commercial clothes washers were unaffected by V 7.0 revision. The last modification to commercial clothes washer criteria was finalized in 2013 in the V 6.1 specification.



# Roadmapping Process



## Appliance Roadmapping Goals

- Build on more than 20 years of partnership to foster the future success of the ENERGY STAR program for appliances
- Look ahead creatively to the next five years, with the goal of maintaining an ENERGY STAR appliance program that delivers on consumer expectations for performance and efficiency
- Establish pathways to further engagement between EPA ENERGY STAR, appliance manufacturers, retailers and energy efficiency program sponsors on an ongoing basis



## Recap of October 2015 Opening Session

- At the 2015 ENERGY STAR Partner Products Meeting, we kicked off the roadmapping effort with a brief, informal, facilitated brainstorming session
- Topics included:
  - The Future of Laundry
  - Leveraging ENERGY STAR in the Context of Customer Satisfaction and Sustainability
- Partners expressed overwhelming interest in continuing the conversation, starting with webinars
  - We left open the possibility of in-person meetings and workgroups



## Upcoming Webinars

- *Connected Appliances: Charting Progress and Identifying Consumer Value*  
**February 4, 2016 from 1:00-3:00pm Eastern**  
During the October session, we heard manufacturer, utility and retail perspectives on the future of connected appliances, in the context of laundry products. Partners highlighted examples of connected functionality and hinted at future technological developments, but also noted challenges associated with defining a value proposition for connected appliances in the U.S. market. This webinar is an opportunity to continue the conversation from both the product development and marketing angles. To register, please follow this [link](#).
- *Clothes Washers: Defining Key Aspects of ENERGY STAR Customer Satisfaction*  
**February 24, 2016 from 1:00-3:00pm Eastern**  
In conversations leading up to the October session and during the session itself, manufacturers noted that customer satisfaction with ENERGY STAR products, including clothes washers, is multi-faceted, and especially relevant as energy and water use decline. This webinar will extend the discussion of partner perspectives on which clothes washer performance attributes are most important to consumers and how they might be assessed. To register, please follow this [link](#).



## Upcoming Webinars

- *Collaborating on Consumer Messaging: Educating on Efficient Product Use and Replacement/Recycling*  
**March 9, 2016 from 1:00-3:00pm Eastern**  
In light of smaller unit savings in some appliance product categories, throughout the October session partners expressed an interest in collaborating across categories (manufacturer, retail and utility) and with ENERGY STAR to enhance and amplify consumer messaging. Two topics that received particular attention were tips on efficient product use, and the opportunity for replacement/recycling across appliance product categories. To register, please follow this [link](#).
- *Dishwashers: Defining Key Aspects of ENERGY STAR Customer Satisfaction*  
**March 23, 2016 from 1:00-3:00pm Eastern**  
Similarly to clothes washers, manufacturers have indicated attributes that may be important to consumers such as drying performance, cycle time, and cleaning performance. This webinar is an opportunity to begin framing the aspects of ENERGY STAR dishwasher performance that are most critical to customer satisfaction. To register, please follow this [link](#).



## Next Steps and Timeline

### Winter/Spring 2016

- We are open to exploring other topics of mutual interest to EPA, utilities, manufacturers, and retailers.
- We are open to forming working groups to continue to conversation on any of the webinar topics where there is more in-depth interest.

### Summer 2016

- We expect to culminate the appliance roadmapping effort with an in-person meeting in summer 2016.
  - Are there any industry meetings or other venues we could use?

### Fall 2016

- We will report highlights and shared accomplishments at the Oct 2016 ENERGY STAR Products Partner Meeting.



## Contacts

### Specification Development:

- Melissa Fiffer, US EPA  
[fiffer.melissa@epa.gov](mailto:fiffer.melissa@epa.gov)
- Justin Capots, ICF International  
[justin.capots@icfi.com](mailto:justin.capots@icfi.com)
- Ryan Fogle, D&R International  
[rfogle@drintl.com](mailto:rfogle@drintl.com)
- [appliances@energystar.gov](mailto:appliances@energystar.gov)

### Test Procedure Development:

- Ashley Armstrong, US DOE  
[ashley.armstrong@ee.doe.gov](mailto:ashley.armstrong@ee.doe.gov)

*Thank you for participating!*

*Check for updates on the  
new [Appliance  
Roadmapping web site](#)*