

ENERGY STAR® Version 1.0 Residential Electric Cooking Products Draft 2 Specification



Stakeholder Webinar
June 21, 2023



Meeting Details

- Slides and related materials will be available on the Cooking Products Product Development Web page:
 - https://www.energystar.gov/products/residential_electric_cooking_products_version_1

- Audio provided via teleconference:

U.S. Phone Number: 877-423-6338

International Phone Number: +1-571-281-2578

Participant Code: 436598

- Phone lines will be muted at the start of the presentation
- Please leave your line on mute unless speaking during the call for questions
- Press *6 to unmute your line and when you are finished with your question or comment, *6 to mute

The screenshot shows a GoToWebinar interface. At the top right is the Energy Star logo. Below it is a window titled 'Audio' with a 'Sound Check' indicator. The audio settings are set to 'Computer audio' and 'Phone call'. A microphone icon is labeled 'MUTED'. Below this are dropdown menus for 'Transmit (Plantronics Savi 7xx-M)' and 'Receive (Plantronics Savi 7xx-M)'. A volume bar is visible. Below the audio controls, it says 'Talking: Liz Davis'. A 'Questions' section is highlighted with a red box, containing a text input field with the placeholder '[Enter a question for staff]' and a 'Send' button. At the bottom, the text reads 'Webinar Housekeeping' and 'Webinar ID: 608-865-371'. The GoToWebinar logo is at the bottom right.



Meeting Agenda

- 1. Introductions**
- 2. Version 1.0 Draft 2 Specification**
 - Scope
 - Efficiency Levels
 - Additional Reporting Requirements
- 3. Savings & Payback**
- 4. Timeline & Open Discussion**



Introductions

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Version 1.0 Specification for Cooking Products: Background and Drivers

- EPA released a Version 1.0 Draft 2 Specification for Residential Electric Cooking Products on May 31, 2023
- Drivers for V1.0 Creation
 - Biden Administration’s focus on efficient electrification
 - DOE published a Final Rule establishing a test procedure for conventional cooking tops on August 22, 2022
- Additional considerations
 - DOE issued a supplemental notice of proposed rulemaking (SNOPR) pertaining to energy conservation standards for consumer conventional cooking products on December 23, 2022



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**ENERGY STAR® Program Requirements
Product Specification for Residential
Electric Cooking Products**

**Eligibility Criteria
Draft 2 Version 1.0**

Following is the Draft 2 Version 1.0 product specification for ENERGY STAR certified residential electric cooking products. A product shall meet all of the identified criteria to earn the ENERGY STAR.

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1. DEFINITIONS:

- A. **Active mode**¹: a mode in which the product is connected to a mains power source, has been activated, and is performing the main function of producing heat by means of electric resistance heating or electric inductive heating.
- B. **Basic model**²: all units of a given type of covered product (or class thereof) manufactured by one manufacturer; having the same primary energy source; and, which have essentially identical electrical, physical, and functional characteristics that affect energy consumption or energy efficiency.
- C. **Combined electric cooking product**³: a household cooking appliance that combines an electric cooking product with other appliance functionality, which may or may not include another cooking product. Combined electric cooking products include the following products: conventional electric range, microwave/conventional electric cooking top, microwave/conventional electric oven, and microwave/conventional electric range.
- D. **Combined low-power mode**³: the aggregate of available modes other than active mode, but including the delay start mode portion of active mode.
- E. **Conventional electric cooking top**²: a category of cooking products which is a household cooking appliance consisting of a horizontal surface containing one or more surface units that utilize electric resistance heating or electric inductive heating. This includes any conventional electric cooking top component of a combined electric cooking product.
- F. **Cooking area**¹: an area on a conventional electric cooking top surface heated by an inducted magnetic field where cookware is placed for heating, where more than one cookware item can be used simultaneously and controlled separately from other cookware placed on the cooking area, and that may or may not include limitative markings.
- G. **Cooking zone**¹: a part of a conventional electric cooking top surface that is either a single electric resistance heating element, multiple concentric sizes of electric resistance heating elements, or an inductive heating element that is defined by limitative markings on the surface of the electric cooking top and can be controlled independently of any other cooking area or cooking zone.
- H. **Inactive mode**³: a standby mode that facilitates the activation of active mode by remote switch (including remote control), internal sensor, or timer, or that provides continuous status display.

¹ Modified from 10 CFR 430, Subpart B, Appendix I1 for ENERGY STAR's purposes.
² Modified from 10 CFR 430 Subpart A, Section 430.2 for ENERGY STAR's purposes.
³ 10 CFR 430, Subpart B, Appendix I1.

ENERGY STAR Program Requirements for Residential Electric Cooking Products – Eligibility Criteria 1



Scope

- **Eligible products for the Version 1.0 specification include electric cooking top components of conventional electric ranges as well as standalone conventional electric cooking tops (including portable cooking tops).**
- Portable conventional electric cooking tops are expected to meet the same integrated annual energy consumption (IAEC) values as standalone products.

Included Products: Products that meet the definition of a conventional electric cooking top are eligible for ENERGY STAR certification. The following product types are eligible for ENERGY STAR certification:

- Electric cooking top component of conventional electric ranges (a combined electric cooking product)
- Standalone conventional electric cooking tops (including portable conventional electric cooking tops)

- EPA is interested in stakeholder feedback on the scope of this specification and if further clarification is necessary to differentiate eligible and ineligible products.

Excluded Products: The following product types are ineligible for ENERGY STAR certification under this specification:

- Commercial or other non-residential products
- Combined cooking products that include a microwave oven component (*i.e.*, microwave/conventional electric cooking top, microwave/conventional oven, and microwave/conventional electric range)
- Gas cooking tops, ranges, or standalone ovens
- Griddles



Proposed Efficiency Levels

Table 1: Energy Use Requirement for Standalone Conventional Electric Cooking Tops

IAEC	≤ 190 kWh/yr
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Table 2: Energy Use Requirements for Combined Electric Cooking Products

IAEC	≤ 190 kWh/yr
$E_{TLP,O}^*$	≤ 7 kWh/yr

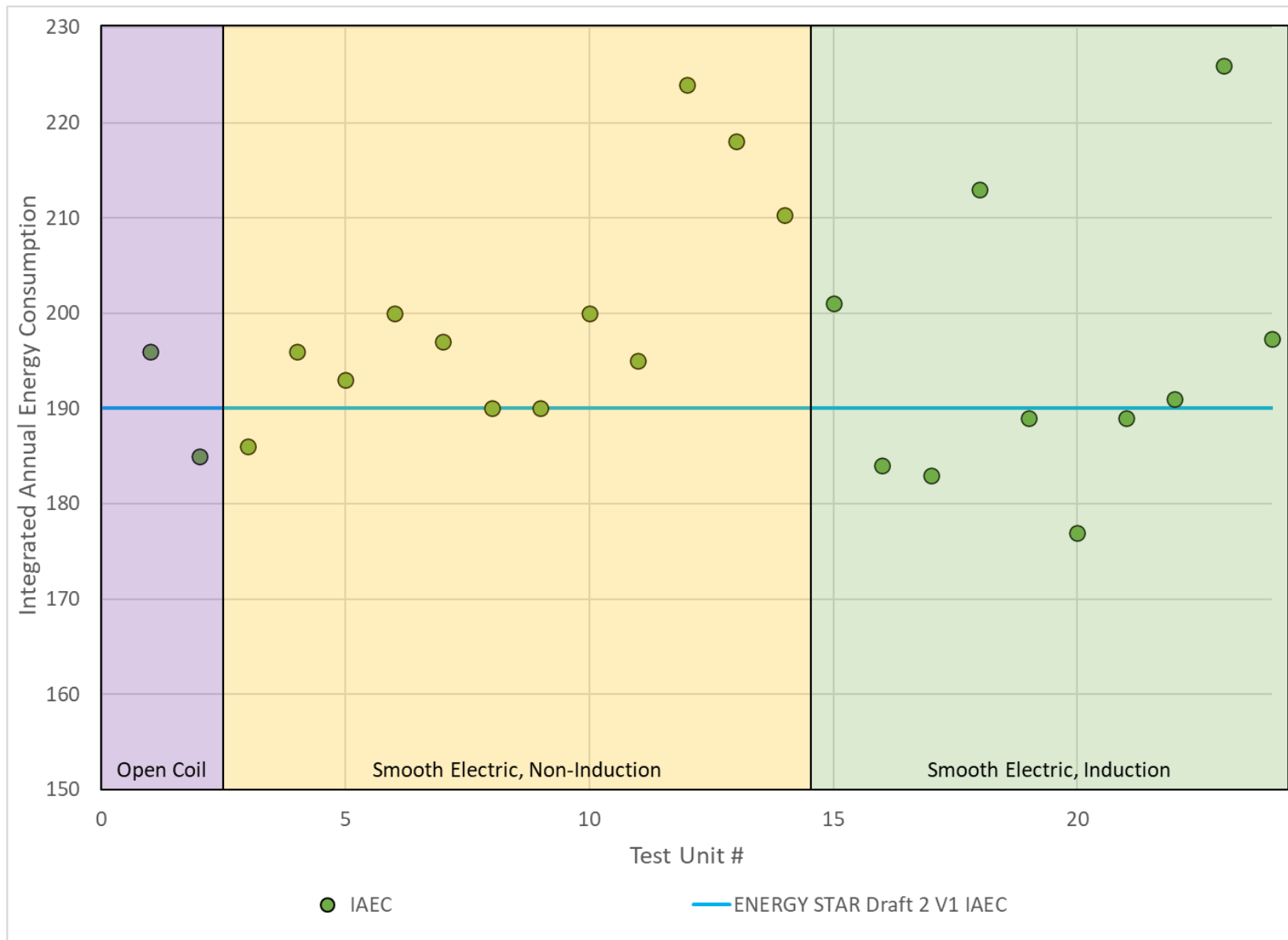
* $E_{TLP,O}$ is the annual combined low-power mode energy consumption of the conventional electric oven component of a combined electric cooking product and is calculated in kWh/year as follows:

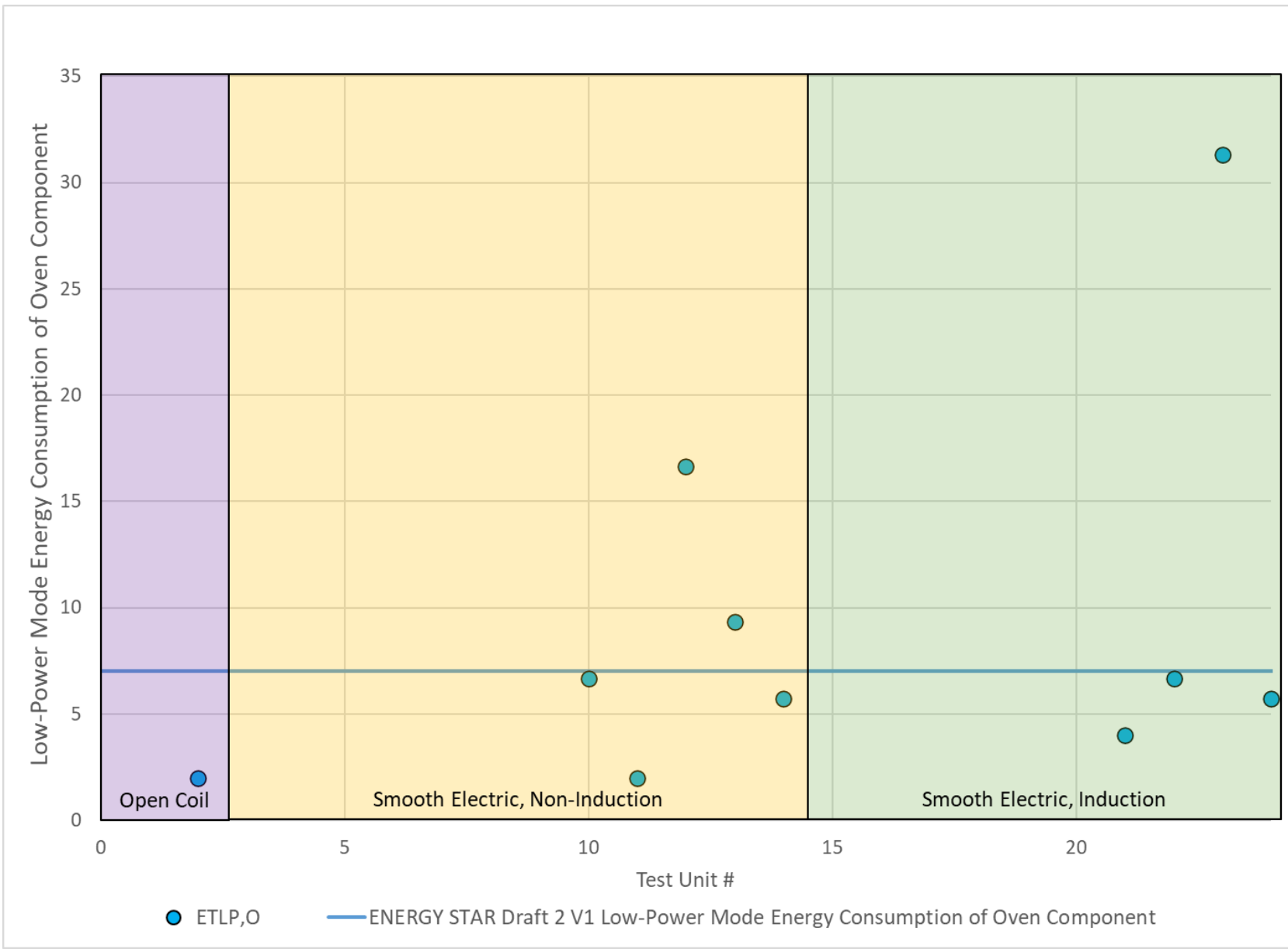
$$E_{TLP,O} = [(P_{IA} \times F_{IA}) + (P_{OM} \times F_{OM})] \times K \times S_{TOT} \times H_0$$

Where:

P_{IA} , F_{IA} , P_{OM} , F_{OM} , K , S_{TOT} are as defined in Section 4.2.2 of 10 CFR 430, Subpart B, Appendix I1

H_0 is equal to 40% for conventional electric ranges.







Additional Reporting Requirements

C. Additional Reporting Requirements:

- 1) The total number of cooking zones in the cooking top.
- 2) The maximum input rate of each cooking zone.
- 3) The size⁹ of each cooking zone.
- 4) Time t_{90} (in seconds) for each cooking zone.
- 5) Annual combined low-power mode energy consumption of the cooking top (E_{TLP})¹⁰
- 6) Cooking top type (*i.e.*, coil, radiant, induction)
- 7) Cooking top configuration (*i.e.*, part of a combined electric cooking product or standalone)

Note: EPA simplified wording for the additional reporting requirement of the annual combined low-power mode energy consumption (E_{TLP}), excluding the following clause: “of the conventional electric cooking top component of a combined electric cooking product,” and replacing it with “of the cooking top.” The reporting requirement is written as follows: “annual combined low-power mode energy consumption of the cooking top (E_{TLP}).” The annual combined low-power mode energy consumption for the combined cooking product (conventional range) and conventional electric oven component can be calculated from the annual combined low-power mode energy consumption of the conventional electric cooking top component.



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Savings & Payback

Table 2: Annual Unit Energy, GHG, and Cost Savings

Residential Cooking Tops	Annual Energy Consumption (kWh/yr)	V1.0 Efficiency Criteria		
		Annual Electrical Savings (kWh/yr)	Annual Operational Savings (\$)	Emissions Reduction (pounds of CO ₂)
Smooth Baseline	250	N/A	N/A	N/A
Coil Baseline	199			
Weighted Baseline	227			
ENERGY STAR Version 1.0	190	37	\$ 5.2	56

Assumptions: (1) The baseline used to calculate savings was the DOE baseline efficiencies for smooth and coil cooking tops weighted by market share; 54% for smooth and 46% for coil found in DOE’s National Impact Analysis for Consumer Conventional Cooking Products, published on December 23, 2022 (2) Elec. Emissions Factor = 1.533 lbs CO₂/kWh, (3) Cost of Electricity = \$0.1414/kWh.

Table 3: Lifetime Unit Energy, GHG, and Cost Savings

Residential Cooking Tops	V1.0 Efficiency Criteria		
	Lifetime Electrical Savings (kWh)	Lifetime Annual Operational Savings (\$)	Lifetime Emissions Reduction (pounds of CO ₂)
ENERGY STAR Version 1.0	616	\$ 87	944

Assumptions: A lifetime of 16.8 years for cooking tops was used, per DOE’s Technical Support Document for Consumer Conventional Cooking Products, published December 23, 2022.



Savings & Payback

Table 4: National Annual Savings Potential

Residential Cooking Tops	V1.0 Efficiency Criteria		
	National Electrical Savings (GWh)	National Annual Operating Savings (millions of \$)	National CO ₂ Emissions Reduction (billions of lbs)
ENERGY STAR Version 1.0	3,017	\$ 416	4.63

Assumptions: Assumes all residential cooking tops in the U.S. are ENERGY STAR at the Version 1.0 criteria over the lifetime, which totals to over 81.8 million units over 17 years. Projected shipments of cooking tops were estimated per DOE and EPA analysis of shipment trends.



Savings & Payback

Table 5: Incremental Cost and Payback

Product Class	Efficiency Level	Oven Low Power Mode Energy Consumption (kWh/yr)	Integrated Annual Energy Consumption (IAEC) kWh/yr	First Year Operating Cost (\$/yr)	Installed Cost (\$)	Average Payback (yrs)
Electric Cooking Top	Baseline	31.3	250	\$ 20	\$ 552	
	Efficiency Level 2*	10.0	189	\$ 13	\$ 568	2.5

Note: EPA considered DOE's payback analysis, including the Baseline efficiency and Efficiency Level 2 for smooth electric products, from Table 8.3.3 in DOE's Technical Support Document* published in December, 2022. DOE's Efficiency Level 2 (189 kWh/yr) approximates the proposed ENERGY STAR level (190 kWh/yr) for IAEC.

In a separate analysis, EPA assessed whether it is reasonable to expect that a variety of major brand models would yield reasonable consumer payback. EPA focused on identifying and comparing like-models (baseline model versus a model near the ENERGY STAR level), with the goal of isolating the incremental cost due to the efficiency improvement. For the Draft 1 and Draft 2 Version 1.0 analysis, EPA gathered pricing information in the fall of 2022 from appliance retailers through online research. EPA identified sets of residential cooking top models with comparable features, one of each pair being induction as a proxy model at or above the ENERGY STAR Version 1.0 levels, and the other not being induction as a proxy model at or near the baseline level. These pairs included models priced as low as \$429 and as high as \$2,000 from Empava, Frigidaire, Ikea, Sharp, and Samsung. EPA notes most induction models are priced at a mid-tier price or higher. EPA found a few induction models from major brands closer to an opening price point. Utilizing this simple analysis, EPA found a payback as low as zero. Given EPA found examples where efficient products were priced similar to baseline products, EPA believes with increasing demand, additional efficient products will be available with a reasonable payback compared to baseline products.



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Timeline

Event	Date
<i>Draft 2 Version 1.0 Specification</i>	<i>May 31, 2023</i>
Draft 2 Version 1.0 Webinar	June 21, 2023
Draft 2 Comments Due	June 30, 2023
Publish Final Draft Version 1.0 Specification	Mid-Summer 2023
Publish Final Version 1.0 Specification, which also marks the Effective Date	Late-Summer 2023



Webinar Wrap-up and Comment Deadline

- EPA appreciates the opportunity to discuss Draft 2 with stakeholders today
- Comments are due on **June 30, 2023**
- Please send all comments to:

appliances@energystar.gov

Unless commenters indicate that written feedback is confidential, all comments will be posted to the Residential Electric Cooking Products development page at https://www.energystar.gov/products/residential_electric_cooking_products_version_1



Open Discussion



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ENERGY STAR[®] 2023

PRODUCTS PARTNER MEETING

Tuesday, September 26 – Thursday, September 28, 2023

https://www.energystar.gov/partner_resources/energy_star_meetings/2023_ESPPM

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Thank you!