ENERGY STAR® Program Requirements for Commercial Ovens

Partner Commitments

Following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacture and labeling of ENERGY STAR qualified products. The ENERGY STAR Partner must adhere to the following partner commitments:

Qualifying Products

1. Comply with current ENERGY STAR Eligibility Criteria, which define performance requirements and test procedures for commercial ovens. A list of eligible products and their corresponding Eligibility Criteria can be found at www.energystar.gov/specifications.
2. **Prior to associating the ENERGY STAR name or mark with any product**, obtain written certification of ENERGY STAR qualification from a Certification Body recognized by EPA for commercial ovens. As part of this certification process, products must be tested in a laboratory recognized by EPA to perform commercial oven testing. A list of EPA-recognized laboratories and Certification Bodies can be found at www.energystar.gov/testingandverification.

Using the ENERGY STAR Name and Marks

3. Comply with current ENERGY STAR Identity Guidelines, which define how the ENERGY STAR name and marks may be used. Partner is responsible for adhering to these guidelines and ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance. The ENERGY STAR Identity Guidelines are available at www.energystar.gov/logouse.
4. Use the ENERGY STAR name and marks only in association with qualified products. Partner may not refer to itself as an ENERGY STAR Partner unless at least one product is qualified and offered for sale in the U.S. and/or ENERGY STAR partner countries.
5. Provide clear and consistent labeling of ENERGY STAR qualified commercial ovens.

    5.1. The ENERGY STAR mark must be clearly displayed on the front of the product, in product literature (i.e., user manuals, spec sheets, etc.), and on the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed.

    5.2. It is also recommended that the mark appear on the product packaging.

Verifying Ongoing Product Qualification

6. Participate in third-party verification testing through a Certification Body recognized by EPA for commercial ovens, providing full cooperation and timely responses. EPA/DOE may also, at its discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These products may be obtained on the open market, or voluntarily supplied by Partner at the government's request.

Providing Information to EPA

7. Provide unit shipment data or other market indicators to EPA annually to assist with creation of ENERGY STAR market penetration estimates, as follows:

7.1. Partner must submit the total number of ENERGY STAR qualified commercial ovens shipped in the calendar year or an equivalent measurement as agreed to in advance by EPA and Partner. Partner shall exclude shipments to organizations that rebrand and resell the shipments (unaffiliated private labelers).

7.2. Partner must provide unit shipment data segmented by meaningful product characteristics (e.g., type, capacity, presence of additional functions) as prescribed by EPA.

7.3. Partner must submit unit shipment data for each calendar year to EPA or an EPA-authorized third party, preferably in electronic format, no later than March 1 of the following year.

Submitted unit shipment data will be used by EPA only for program evaluation purposes and will be closely controlled. If requested under the Freedom of Information Act (FOIA), EPA will argue that the data is exempt. Any information used will be masked by EPA so as to protect the confidentiality of the Partner.

8. Report to EPA any attempts by recognized laboratories or Certification Bodies (CBs) to influence testing or certification results or to engage in discriminatory practices.

9. Notify EPA of a change in the designated responsible party or contacts within 30 days using the My ENERGY STAR Account tool (MESA) available at www.energystar.gov/mesa.

Performance for Special Distinction

In order to receive additional recognition and/or support from EPA for its efforts within the Partnership, the ENERGY STAR Partner may consider the following voluntary measures, and should keep EPA informed on the progress of these efforts:

- Provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR and its message.
- Consider energy efficiency improvements in company facilities and pursue benchmarking buildings through the ENERGY STAR Buildings program.
- Purchase ENERGY STAR qualified products. Revise the company purchasing or procurement specifications to include ENERGY STAR. Provide procurement officials' contact information to EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product information to employees for use when purchasing products for their homes.
- Feature the ENERGY STAR mark(s) on Partner website and other promotional materials. If information concerning ENERGY STAR is provided on the Partner website as specified by the ENERGY STAR Web Linking Policy (available in the Partner Resources section of the ENERGY STAR website), EPA may provide links where appropriate to the Partner website.
- Ensure the power management feature is enabled on all ENERGY STAR qualified displays and computers in use in company facilities, particularly upon installation and after service is performed.
- Provide general information about the ENERGY STAR program to employees whose jobs are relevant to the development, marketing, sales, and service of current ENERGY STAR qualified products.
- Provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the program requirements listed above. By doing so, EPA may be able to coordinate, and communicate Partner's activities, provide an EPA representative, or include news about the event in the ENERGY STAR newsletter, on the ENERGY STAR website, etc. The plan may be as simple as providing a list of planned activities or milestones of which Partner would like EPA to be aware. For example, activities may include: (1) increasing the availability of ENERGY STAR qualified products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrating the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) providing information to users (via the website and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products; and (4) building awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event.

- Join EPA's SmartWay Transport Partnership to improve the environmental performance of the company's shipping operations. The SmartWay Transport Partnership works with freight carriers, shippers, and other stakeholders in the goods movement industry to reduce fuel consumption, greenhouse gases, and air pollution. For more information on SmartWay, visit www.epa.gov/smartway.
- Join EPA's Green Power Partnership. EPA's Green Power Partnership encourages organizations to buy green power as a way to reduce the environmental impacts associated with traditional fossil fuel-based electricity use. The partnership includes a diverse set of organizations including Fortune 500 companies, small and medium businesses, government institutions as well as a growing number of colleges and universities. For more information on Green Power, visit www.epa.gov/greenpower.

ENERGY STAR® Program Requirements
Product Specification for Commercial Ovens

Eligibility Criteria
Version 1.1

Following is the **Version 1.1** product specification for ENERGY STAR qualified commercial ovens. A product shall meet all of the identified criteria if it is to earn the ENERGY STAR.

1) Definitions: Below are the definitions of the relevant terms in this document.

A. Commercial Oven: A chamber designed for heating, roasting, or baking food by conduction, convection, radiation, and/or electromagnetic energy.[1]

B. Product Family: Variations of one model offered within a single product line based on the same engineering design with differences limited to door options (e.g., solid, glass).

Oven Types

C. Combination Oven: An oven that combines the function of hot air convection (oven mode) and saturated/superheated steam heating (steam mode), or both (combi mode), to perform steaming, baking, roasting, rethermalizing, and proofing of various food products. Also referred to as a combination oven/steamer, combi or combo.

D. Convection Oven: A general-purpose oven that cooks food by forcing hot dry air over the surface of the food product. The rapidly moving hot air strips away the layer of cooler air next to the food and enables the food to absorb the heat energy. For the purposes of this specification, convection ovens do not include ovens that have the ability to heat the cooking cavity with saturated or superheated steam. Maximum water consumption within the oven cavity must not exceed 0.25 gallons/hour. Ovens that include a *hold feature* are eligible under this specification as long as convection is the only method used to fully cook the food.

- Full-Size Convection Oven: A convection oven that is able to accept a minimum of five standard full-size sheet pans measuring 18 x 26 x 1-inch.

- Half-Size Convection Oven: A convection oven that is able to accept a minimum of five sheet pans measuring 18 x 13 x 1-inch.

E. Conventional or Standard Oven: An oven that cooks food primarily using the naturally occurring hot air currents to transfer heat over the surface of the food product without the use of a fan or blower. The burner or elements heat the air within the oven cavity as well as the cavity walls, causing currents of hot air that transfer heat to the surface of the food. The hot air's buoyancy carries it upward through cooler air, which then slowly sinks to the bottom of the oven as it cools off.

F. Conveyor Oven: An oven designed to carry food product on a moving belt into and through a heated chamber.

G. Slow Cook-and-Hold Oven: An oven designed specifically for low-temperature (e.g., less than 300°F) cooking, followed by a holding period at a specified temperature.

H. Deck Oven: An oven that cooks food product directly on the floor of a heated chamber. The

[1] NSF 170-2005, *Glossary of food equipment terminology*.

bottom of each compartment is called a deck and heat is typically supplied by burners or elements located beneath the deck. The oven ceiling, floor, and walls are designed to absorb heat quickly and radiate that heat back slowly and evenly.

I. Mini-Rack Oven: A rack oven that has the ability to produce steam internally and includes an internal rotating rack where pans are manually pushed into the racks. Mini-rack ovens typically hold 5 – 8 full-size sheet pans.

J. Rack (Roll-In) Oven: A high-capacity oven, with the ability to produce steam internally and fitted with a motor-driven mechanism for rotating multiple pans fitted into one or more pan racks within the cavity.

- Single Rack Oven: A rack oven that is able to hold one full rack of sheet pans of product at a time, based on nominal 4-inch spacing between pans.

- Double Rack Oven: A rack oven that is able to hold two single racks or one double-width rack, based on nominal 4-inch spacing between pans.

K. Range Oven: An oven base for a commercial range top (i.e., burners, electric elements or hobs). Range ovens may use either standard or convection technologies to cook food.

L. Rapid Cook Oven: An oven that utilizes one or more non-traditional heat transfer technologies to cook food product significantly faster than would be possible using conventional (e.g., convection, conduction, radiant) heat transfer technologies. Heat transfer technologies that may be employed include microwave, quartz halogen, and high-velocity or impingement convection.

M. Rotisserie Oven: An oven fitted with a mechanism to move or turn food past a fixed heat source while the food is slowly being cooked on all sides.

Energy Efficiency Metrics

N. Cooking Energy Efficiency: The ratio of energy absorbed by the food product to the total energy supplied to the oven during cooking.

O. Idle Energy Rate: The rate of oven energy consumption while it is maintaining or holding at a stabilized operating condition or temperature. Also called standby energy rate.

2) Scope:

A. Included Products: Products that meet the definitions of a Commercial Oven and Convection Oven as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B. Only commercial full-size gas and half- and full-size electric convection ovens, as defined in Section 1D above, are eligible under this specification.

To ensure only commercial ovens qualify under this specification, products shall be third-party certified to NSF/ANSI Standard 4, *Commercial Cooking, Rethermalization and Powered Hot Food Holding and Transport Equipment.*

B. Excluded Products: This specification is intended for commercial food-grade ovens. Ovens designed for residential or laboratory applications cannot qualify for ENERGY STAR. Hybrid ovens, such as those incorporating steam and/or microwave settings in addition to convection, are excluded from this specification. Other oven types excluded, as defined in Section 1, include: combination; conventional or standard; conveyor; slow cook-and-hold; deck; mini-rack; rack; range; rapid cook; and rotisserie.

3) Qualification Criteria:

A. Cooking Energy Efficiency and Idle Energy Rate Requirements:

Table 1: Energy Efficiency Requirements for Convection Ovens	
Gas	
Full-Size	
Heavy Load Potato Cooking Energy Efficiency	≥ 44%
Idle Energy Rate	≤ 13,000 Btu/h
Electric	
Half-Size	
Heavy Load Potato Cooking Energy Efficiency	≥ 70%
Idle Energy Rate	≤ 1.0 kW
Full-Size	
Heavy Load Potato Cooking Energy Efficiency	≥ 70%
Idle Energy Rate	≤ 1.6 kW

B. Significant Digits and Rounding:

a. All calculations shall be carried out with actual measured or observed values. Only the final result of a calculation shall be rounded. Calculated results shall be rounded to the nearest significant digit as expressed in the corresponding specification limit.

b. Unless otherwise specified, compliance with specification limits shall be evaluated using exact values without any benefit from rounding.

4) **Test Requirements:**

A. Representative Models shall be selected for testing per the following requirements:

a. For qualification of an individual product model, the representative model shall be equivalent to that which is intended to be marketed and labeled as ENERGY STAR.

b. For qualification of a product family, the most energy consuming model within the product family shall serve as the representative model.

B. When testing commercial ovens, the following test methods shall be used to determine ENERGY STAR qualification:

Table 2: Test Methods for ENERGY STAR Qualification	
ENERGY STAR Requirement	**Test Method Reference**
Cooking Energy Efficiency	ASTM F1496-99 (Reapproved 2005), *Standard Test Method for Performance of Convection Ovens*
Idle Energy Rate	

C. For ovens with variable Btu/h or kW input, each available input shall be tested individually and meet the cooking energy efficiency and idle energy rate requirements presented in Table 1 of this specification.

D. If the representative model under test includes a set back mode, this feature must be disabled during testing for purposes of ENERGY STAR qualification.

5) Effective Date: The ENERGY STAR Commercial Oven Specification shall take effect on **May 16, 2009**. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the model's date of manufacture. The date of manufacture is specific to each unit and is the date (e.g., month and year) on which a unit is considered to be completely assembled.

6) **Future Specification Revisions:** EPA reserves the right to change the specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through industry discussions. In the event of a specification revision, please note that ENERGY STAR qualification is not automatically granted for the life of a product model.

   Combination and Other Oven Types: Approximately one year after the effective date of this Version 1.0 specification (i.e., May 2010), EPA will evaluate whether to extend coverage to combination ovens and other oven types defined in Section 1, above. Inclusion of these additional oven types will depend on stakeholder interest, test procedure availability, and access to a sufficient quantity of product performance data.