



ENERGY STAR® Program Requirements for Refrigerated Beverage Vending Machines

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 refrigerated beverage vending machines. A list of eligible products and their corresponding Eligibility Criteria can be found at www.energystar.gov/specifications.
2. Obtain certification of ENERGY STAR qualification from a Certification Body recognized by EPA for refrigerated beverage vending machines prior to associating the ENERGY STAR name or mark with any product. As part of this certification process, products must be tested in a laboratory recognized by EPA to perform refrigerated beverage vending machine testing.

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.
5. Provide clear and consistent labeling of ENERGY STAR qualified refrigerated beverage vending machines.
 - 5.1. The ENERGY STAR mark must be clearly displayed on the front of the product or on/ next to the machine nameplate, 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.
 - 5.3. Partner shall adhere to the following product-specific commitments regarding use of the ENERGY STAR certification mark on qualified remanufactured machines:
 - 5.3.1. Each completed ENERGY STAR qualified machine shall receive a "refurbishment label/sticker" that includes the following information to indicate that the machine has been upgraded to ENERGY STAR performance levels:
 - A new and discrete model number that is representative of that machine and rebuilding kit combination;
 - The date of rebuilding; and
 - The ENERGY STAR certification mark

5.3.2. It is the responsibility of the Partner to verify UL or equivalent safety requirements and that the components used in the ENERGY STAR labeled rebuilt machine are Listed, Recognized, Classified, etc., as applicable for each component.

Verifying Ongoing Product Qualification

6. Participate in third-party verification testing through a Certification Body recognized by EPA for refrigerated beverage vending machines.
7. Comply with tests that EPA/DOE may conduct at its discretion 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

8. Provide unit shipment data or other market indicators to EPA annually to assist with creation of ENERGY STAR market penetration estimates, as follows:
 - 8.1. Partner must submit the total number of ENERGY STAR qualified refrigerated beverage vending machines 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).
 - 8.2. Partner must provide unit shipment data segmented by meaningful product characteristics (e.g., type, capacity, presence of additional functions) as prescribed by EPA.
 - 8.3. 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. Any information used will be masked by EPA so as to protect the confidentiality of the Partner;
9. Report to EPA any attempts by laboratories or Certification Bodies (CBs) to influence testing or certification results or to engage in discriminatory practices.
10. 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, communicate, and/or promote 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 Climate Leaders Partnership to inventory and reduce greenhouse gas emissions. Through participation, companies create a credible record of their accomplishments and receive EPA recognition as corporate environmental leaders. For more information on Climate Leaders, visit www.epa.gov/climateleaders.
- 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 Refrigerated Beverage Vending Machines

Eligibility Criteria DRAFT Version 2.1

Following is the **Version 2.1** product specification for ENERGY STAR qualified refrigerated beverage vending machines. A product must 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. Refrigerated Beverage Vending Machine: A self-contained system designed to accept consumer payments and dispense bottled, canned, and other sealed beverages at appropriate temperatures without on-site labor intervention.
 - 1. Indoor Vending Machine: A machine intended for placement inside a building and not subjected to the effects of weathering. These machines are marked "For Indoor Use Only" in accordance with UL Standard 541 "*Refrigerated Vending Machines*."
 - 2. Outdoor Vending Machine: A machine intended for placement outdoors and subjected to the full effects of weathering. These machines are marked "Suitable for Outdoor Use" or "Suitable for Protected Locations" in accordance with UL Standard 541 "*Refrigerated Vending Machines*."
 - 3. Rebuilt Refrigerated Beverage Vending Machine: A UL Listed or Classified model that has been previously in use and subjected to various degrees of retrofitting, remanufacturing, refurbishing, repairing, or reconditioning for resale or reuse. For purposes of ENERGY STAR qualification, rebuilt model shall include the machine and energy efficiency components or kit installed to meet ENERGY STAR requirements.
- B. Low Power Mode: The reduced power state of a refrigerated beverage vending machine during extended periods of inactivity.
- C. Rebuilding Kit: a combination of components that may be installed in a previously used vending machine at a refurbishment center.
- D. Standard Product: The standard product shall be 12 oz (355 ml) cans for machines that are capable of dispensing 12 oz (355 ml) cans. For all other machines, the standard product shall be the product specified by the manufacturer as the standard product.¹
- E. Vendible Capacity: The maximum quantity of standard product that can be dispensed from one full loading of the vending machine without further reload operations when used as recommended by the manufacturer.²
- F. OEM: Original Equipment Manufacturer.
- G. Qualified component supplier (QCS): A company that produces components and/or rebuilding kits for vending machines.
- H. Refurbishment Center (RC): A facility equipped to rebuild vending machines.

¹ ASHRAE Standard 32.1-2004, *Methods of Testing for Rating Vending Machines for Bottled, Canned, and Other Sealed Beverages*.

² Ibid.

2) Scope:

- A. **Included Products:** Products that meet the definition of a Refrigerated Beverage Vending Machine as specified herein are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.B.
- B. **Excluded Products:** Vending machines that dispense product other than refrigerated beverages are not eligible for ENERGY STAR.

3) Qualification Criteria:

- A. **Daily Energy Consumption:** To qualify for ENERGY STAR, refrigerated beverage vending machines shall consume equal to or less than the kilowatt-hour (kWh) values obtained using the equations³ shown below. Effective dates for Tier I and Tier II are provided in Section 6 of this specification.

Tier I

$$Y = 0.55 [8.66 + (0.009 \times C)]$$

Tier II

$$Y = 0.45 [8.66 + (0.009 \times C)]$$

Where:

Y = 24 hr energy consumption (kWh/day) after the machine has stabilized

C = vendible capacity

Example:

Under Tier I, a 650-can capacity machine may consume no more than 7.9805, or 7.98 kWh/day (rounded).

Under Tier II, a 650-can may consume no more than 6.5295 or 6.53 kWh/day (rounded).

- B. **Low Power Mode:** In addition to meeting the 24-hour energy consumption requirements in Section 3A, qualifying models shall come equipped with hard wired controls and/or software capable of placing the machine into a low power mode during periods of extended inactivity while still connected to its power source to facilitate the saving of additional energy, where appropriate.
 - a. The machine shall be capable of operating in at least one of the low power mode states described below:
 - 1. Lighting low power state – lights off for an extended period of time.
 - 2. Refrigeration low power state – the average beverage temperature is allowed to rise to 40°F or higher for an extended period of time.
 - 3. Whole machine low power state – the lights are off and the refrigeration operates in its low power state.
 - b. Machine shall be capable of returning itself back to its normal operating conditions at the conclusion of the inactivity period.
 - c. The low power mode-related controls/software shall be capable of on-site adjustments by the vending operator or machine owner unless the low power controlling device is already pre-programmed when installed into the machine.

³ The energy consumption equation is based on CAN/CSA C804-96 *Energy Performance of Vending Machines* (for Machine Type A).

While only one of the above low power mode state is required, EPA encourages new machine manufacturers to continue to include all of the low power mode options in equipment designs and partners that are rebuilding machines to seek out new technologies that might help to achieve this goal as well.

EPA encourages partners to train vending machine installers to provide information to host sites on the low power mode capabilities of their machines so that these capabilities may be enabled as desired by the host site.

EPA's goal in including these low power mode requirements is to ensure that existing machine software capabilities are available and may be used to their fullest potential based on the individual requirements of the host site. However, machines that are vending temperature sensitive product, such as milk, shall not have the refrigeration low power state enabled on site by the vending operator or machine owner due to the risk of product spoilage.

C. 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 three significant digits.
- b. Unless otherwise specified, compliance with specification limit shall be evaluated using exact values without any benefit from rounding.

4) Test Requirements:

- A. Representative Models shall be selected for testing. The representative model shall be equivalent to that which is intended to be marketed and labeled as ENERGY STAR. Qualification based on product family is not acceptable under this specification. Each individual model shall be tested and meet the requirements of this specification to be qualified as ENERGY STAR.
- B. When testing refrigerated beverage vending machines, the following test methods shall be used to determine ENERGY STAR qualification:

Table 1: Test Standards for ENERGY STAR Qualification	
ENERGY STAR Requirement	Test Method Reference
Daily Energy Consumption (kWh/day)	ASHRAE Standard 32.1-2004, <i>Methods of Testing for Rating Vending Machines for Bottled, Canned, and Other Sealed Beverages (Section 6)</i>

- C. Machines marked "For Indoor Use Only" per UL Standard 541: shall be tested at 75±2 °F (23.9±1 °C); 45±5% relative humidity; and 36±1 °F (2.2±0.5 °C) average beverage temperature throughout the test.
- D. Machines marked "Suitable for Outdoor Use" or "Suitable For Protected Locations" per UL Standard 541 shall be tested at 90±2 °F (32.2±1 °C); 65±5% relative humidity; and 36±1 °F (2.2±0.5 °C) average beverage temperature throughout the test.

5) Effective Date: This ENERGY STAR Product Specification for Refrigerated Beverage Vending Machines shall take effect on the dates specified in Table 2, below. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on the 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.

Table 2: Specification Effective Dates		
Product Type	Tier 1	Tier 2
New Refrigerated Beverage Vending Machines	April 1, 2004	July 1, 2007
Remanufactured Refrigerated Beverage Vending Machines	August 31, 2006	July 1, 2007

- 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 stakeholder 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.