



# ENERGY STAR® Program Requirements Product Specification 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 certified products. The ENERGY STAR Partner must adhere to the following partner commitments:

### Certifying 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](http://www.energystar.gov/specifications).
2. **Prior to associating the ENERGY STAR name or mark with any product**, obtain written certification of ENERGY STAR certification from a Certification Body recognized by EPA for refrigerated beverage vending machines. As part of this certification process, products must be tested in a laboratory recognized by EPA to perform refrigerated beverage vending machine testing. A list of EPA-recognized laboratories and certification bodies can be found at [www.energystar.gov/testingandverification](http://www.energystar.gov/testingandverification).

### Using the ENERGY STAR Name and Marks

3. Comply with current ENERGY STAR Brand Book, 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 Brand Book are available at [www.energystar.gov/logouse](http://www.energystar.gov/logouse).
4. Use the ENERGY STAR name and marks only in association with certified products. Partner may not refer to itself as an ENERGY STAR Partner unless at least one product is certified and offered for sale in the U.S. and/or ENERGY STAR partner countries.
5. Provide clear and consistent labeling of ENERGY STAR certified 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 rebuilt 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 Certification**

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

### **Providing Information to EPA**

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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 certified 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).
  - 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](http://www.energystar.gov/mesa).

### **Performance for Special Distinction**

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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 certified 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 certified 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 certified 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 certified 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 certified 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 certified 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 certified 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](http://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](http://www.epa.gov/greenpower).



# ENERGY STAR® Program Requirements Product Specification for Refrigerated Beverage Vending Machines

## Eligibility Criteria Version 4.0

Following is the **Final Version 4.0** product specification for ENERGY STAR certified 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. Where applicable, the cited definitions are identical with the definitions in the U.S. Department of Energy's (DOE) regulations found in 10 Code of Federal Regulations (CFR) Part 431, Subpart Q, §431.292 and Appendix B. The definitions from the CFR have been reprinted for ease of use, however, the CFR definitions take precedence and may be modified by DOE during the rulemaking process.
- A. **Refrigerated Beverage Vending Machine:** A commercial refrigerator that cools bottled and/or canned beverages and dispenses the bottled and/or canned beverages on payment. *Bottled or canned beverages* means a beverage in a sealed container.
    - a. **Class A Machine**<sup>1</sup>: A refrigerated bottled and/or canned beverage vending machine that is not a combination vending machine and in which 25 percent or more of the surface area on the front side of the beverage vending machine is transparent.
    - b. **Class B Machine**<sup>1</sup>: Any refrigerated bottled and/or canned beverage vending machine not considered to be Class A, and is not a combination vending machine.
  - B. **Combination Vending Machine**<sup>1</sup>: A bottled and/or canned beverage vending machine containing two or more compartments separated by a solid partition, that may or may not share a product delivery chute, in which at least one compartment is designed to be refrigerated, as demonstrated by the presence of temperature controls, and at least one compartment is not.
    - a. **Combination A Machine**<sup>1</sup>: A combination vending machine where 25 percent or more of the surface area on the front side of the beverage vending machine is transparent.
    - b. **Combination B Machine**<sup>1</sup>: A combination vending machine that is not considered to be Combination A.
  - C. **Refrigerated Food Vending Machine:** A refrigerated food vending machine that holds and/or prepares mechanically distributed refrigerated food products that are perishable or potentially hazardous; or a combination machine containing refrigerated food products that are perishable or potentially hazardous and refrigerated bottled and/or canned beverage products.
  - D. **Rebuilt Refrigerated Beverage Vending Machine:** An Underwriters Laboratory (UL) Listed or Classified refrigerated beverage vending machine 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 certification, rebuilt models shall include the machine and energy efficiency components or kit installed to meet ENERGY STAR requirements.
  - E. **Rebuilding Kit:** A combination of components that may be installed in a previously used vending machine at a refurbishment center.

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<sup>1</sup> 10 CFR §431.292.

- F. Basic Model<sup>1</sup>: 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 (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.
- G. Low Power Mode<sup>2</sup>: A state in which a beverage vending machine's lighting, refrigeration, and/or other energy-using systems are automatically adjusted (without user intervention) such that they consume less energy than they consume in an active vending environment.
- H. Accessory Low Power Mode<sup>2</sup>: A state in which a beverage vending machine's lighting and/or other energy-using systems are in low power mode, but that is not a refrigeration low power mode. Functions that may constitute an accessory low power mode may include, for example, dimming or turning off lights, but does not include adjustment of the refrigeration system to elevate the temperature of the refrigerated compartment(s).
- I. Refrigeration Low Power Mode<sup>2</sup>: A state in which a beverage vending machine's refrigeration system is in low power mode because of elevation of the temperature of the refrigerated compartment(s). To qualify as low power mode, the unit must satisfy the requirements described in Appendix B to Subpart Q, Part 431, Section 2.3.2.1.
- J. Standard Product<sup>2</sup>: The standard product shall be standard 12-ounce (355 ml) aluminum beverage cans filled with a liquid with a density of 1.0 grams per milliliter (g/mL)  $\pm 0.1$  g/mL at 36 °F. For product storage racks that are not capable of vending 12-ounce cans, but are capable of vending 20-ounce bottles, the standard product shall be 20-ounce plastic bottles filled with a liquid with a density of 1.0 g/mL  $\pm 0.1$  g/mL at 36°F. For product storage racks that are not capable of vending 12-ounce cans or 20-ounce bottles, the standard product shall be the packaging and contents specified by the manufacturer in product literature as the standard product (i.e., the specific merchandise the refrigerated bottled or canned beverage vending machine is designed to vend).
- K. Vendible Capacity<sup>2</sup>: The vending capacity of refrigerated bottled or canned beverage vending machine, as specified in the first paragraph of section 5 of the American National Standards Institute (ANSI)/Association of Home Appliance Manufacturers (AHAM) Standard 32.1 - 2010, "Methods of Testing for Rating Vending Machines for Bottled, Canned or Other Sealed Beverages." For combination vending machines, the vending capacity includes only the capacity of any portion of the refrigerated bottled or canned beverage vending machine that is refrigerated and does not include the capacity of the non-refrigerated compartment(s).
- L. OEM: Original Equipment Manufacturer.
- M. Qualified component supplier (QCS): A company that produces components and/or rebuilding kits for vending machines.
- N. Refurbishment Center (RC): A facility equipped to rebuild vending machines.

## 2) Scope:

- A. Included Products: Products that meet the definitions of a Refrigerated Beverage Vending Machine and Class A, Class B, Combination A, or Combination B, including new and rebuilt, as specified herein are eligible for ENERGY STAR certification, with the exception of products listed in Section 2.B.
- B. Excluded Products: Products that do not meet the Refrigerated Beverage Vending Machine and/or Class A, Class B, Combination A, or Combination B, as defined in Section 1 above; and

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<sup>2</sup> 10 CFR 431 Subpart Q, Appendix B.

refrigerated food vending machines are not eligible for ENERGY STAR. The following product categories are also excluded:

- a. Refrigerated beverage vending machines that offer operating temperatures that may be selected by the end user that are lower than the DOE test procedure rating condition (i.e., 36° F) are not eligible for ENERGY STAR.
- b. Larger refreshment centers that include modular refrigerated vending compartments are not eligible for ENERGY STAR.
- c. Refrigerated beverage vending machines with dedicated heating systems for the sole purpose of maintaining temperature in heated compartments.

### 3) Certification Criteria:

- A. Maximum Daily Energy Consumption (MDEC): To certify for ENERGY STAR, refrigerated beverage vending machines shall consume equal to or less than the MDEC values, in kWh/day, obtained using the equations below:
  - a. Class A – New and Rebuilt Machines:  $0.04836V + 2.2599$
  - b. Class B – New and Rebuilt Machines:  $0.04576V + 1.936$
  - c. Combination A – New and Rebuilt Machines:  $0.07998V + 2.4738$
  - d. Combination B - New and Rebuilt Machines:  $0.09768V + 1.7952$

Where, V = the refrigerated volume (ft<sup>3</sup>) of the refrigerated bottled or canned beverage vending machine, as specified in Appendix C of the American National Standards Institute (ANSI)/ American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 32.1 - 2010, "Methods of Testing for Rating Vending Machines for Bottled, Canned or Other Sealed Beverages." For combination vending machines, the refrigerated volume does not include any non-refrigerated compartments.<sup>2</sup>

- B. Low Power Mode:
  - a. Refrigeration low power mode: A 3% credit would apply to the calculated daily energy consumption used to determine compliance with the DOE standards for products with a low-power refrigeration mode<sup>3</sup>. The ENERGY STAR specification also applies the 3% credit to products with the refrigeration low-power mode. Refrigeration low power mode must undergo validation testing per Appendix B to Subpart Q, Part 431, Section 2.3.2.1.
  - b. Accessory low power mode: Machines capable of accessory low power modes will be highlighted on the ENERGY STAR Product Finder if the features are reported at time of certification.
  - c. The 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. Machines that house vending temperature sensitive products, 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.

### 4) Test Requirements:

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<sup>3</sup> The DOE's rulemaking analysis considered refrigeration low-power modes as a design option (TSD Section 5.5.4.11).

- A. One of the following sampling plans shall be used for purposes of testing for ENERGY STAR certification:
- a. A single unit is selected, obtained, and tested. The measured performance of this unit and of each subsequent unit manufactured must be equal to or better than the ENERGY STAR specification requirements. Results of the tested unit may be used to certify additional individual model variations within a basic model as long as the definition for basic model provided in Section 1, above, is met; or
  - b. Units are selected for testing and results calculated according to the sampling requirements defined in 10 CFR Part 429, Subpart B § 429.52. The certified rating must be equal to or better than the ENERGY STAR specification requirements. Results of the tested unit may be used to certify additional model variations within a basic model as long as the definition for basic model provided in Section 1, above, is met. Further, all individual models within a basic model must have the same certified rating based on the applicable sampling criteria. This rating must be used for all manufacturer literature, the qualified product list, and certification of compliance to DOE standards.
- B. When testing refrigerated beverage vending machines, the following test method shall be used to determine ENERGY STAR certification:

**Table 1: Test Standards for ENERGY STAR Certification**

ENERGY STAR Requirement	Test Method Reference
MDEC and Refrigerated Volume	10 CFR Part 431 Subpart Q, Appendix B

- C. Significant Digits and Rounding: All calculations shall be carried out as specified in Appendix B to Subpart Q of Part 431.
- D. Additional Reporting Requirement a. Report the type of refrigerant used in the respective Vending model, for example: R-404A, R290, or R-134a.
- 5) Effective Date:** The Version 4.0 ENERGY STAR Product Specification for Refrigerated Beverage Vending Machines shall take effect on **April 29, 2020**. For ENERGY STAR certification, 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 on which a unit is considered to be completely assembled.
- 6) Future Specification Revisions:** The 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 certification is not automatically granted for the life of a product model.