



# ENERGY STAR® Program Requirements for Refrigerated Beverage Vending Machines

## Partner Commitments DRAFT 1

### Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified refrigerated beverage vending machines. The ENERGY STAR Partner must adhere to the following program requirements:

- comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on refrigerated beverage vending machines and specifying the testing criteria for refrigerated beverage vending machines. EPA may, 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 EPA's request;
- comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR logos and name may be used. Partner is responsible for adhering to these guidelines and for ensuring that its authorized representatives, such as advertising agencies, dealers, and distributors, are also in compliance;
- qualify at least one refrigerated beverage vending machine model within one year of activating the refrigerated beverage vending machine portion of the agreement. When Partner qualifies the product, it must meet the specification (e.g., Tier 1 or 2) in effect at that time;
- provide clear and consistent labeling of ENERGY STAR qualified refrigerated beverage vending machines. The ENERGY STAR label must be clearly displayed on the front of the machine, 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;

**Note:** ENERGY STAR is well known by consumers and large purchasers as the symbol for energy efficiency. The ENERGY STAR logo must be placed in an area of high visibility where the consumer and/or host site can see that by manufacturing the ENERGY STAR qualified vending machine and placing it on site, important steps have been taken to reduce air pollution.

EPA has received a number of comments on the placement of the ENERGY STAR label on the vending machine. While a number of additional placement options were suggested, EPA continues to believe that placing the ENERGY STAR label on the front of the machine will have the greatest impact on the consumer. Although placing the label on the front of the machine may not affect the initial purchasing decision, it still conveys the commitment of the beverage company, manufacturer, and host site to saving energy and protecting the environment.

- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying refrigerated beverage vending machine models. Once the Partner submits its first list of ENERGY STAR qualified refrigerated beverage vending machine models, the Partner will be listed as an ENERGY STAR Partner. Partner must provide annual updates in order to remain on the list of participating product manufacturers;

- provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total number of ENERGY STAR qualified refrigerated beverage vending machines shipped (in units by model) or an equivalent measurement as agreed to in advance by EPA and Partner. Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by meaningful product characteristics (e.g., capacity, size, speed, or other as relevant), total unit shipments for each model in its product line, and percentage of total unit shipments that qualify as ENERGY STAR. The data for each calendar year should be submitted to EPA, preferably in electronic format, no later than the following March and may be provided directly from the Partner or through a third party. The 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;

**Note:** As noted above, EPA is willing to work through a third party, such as the National Automatic Merchandising Association (NAMA), to obtain refrigerated beverage vending machine shipment data. This data may be masked and provided in an aggregate form so as not to be able to identify specific manufacturer data. This data is being collected as a tool to gauge the penetration of ENERGY STAR qualified products in the marketplace and to determine if changes to the program would yield increased penetration of efficient products.

- notify EPA of a change in the designated responsible party or contacts for refrigerated beverage vending machines within 30 days.

### **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 of the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR label for buildings;
- 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;
- ensure the power management feature is enabled on all ENERGY STAR qualified monitors 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 product models;
- feature the ENERGY STAR on Partner Web site and in other promotional materials. If information concerning ENERGY STAR is provided on the Partner Web site as specified by the ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources section on the ENERGY STAR Web site at [www.energystar.gov](http://www.energystar.gov)), EPA may provide links where appropriate to the Partner Web site;
- 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 Web pages, etc. The plan may be as simple as providing a list of planned activities or planned milestones that Partner would like

EPA to be aware of. For example, activities may include: (1) increase the availability of ENERGY STAR qualified products by converting the entire product line within two years to meet ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy efficiency through special in-store displays twice a year; (3) provide information to users (via the Web site and user's manual) about energy-saving features and operating characteristics of ENERGY STAR qualified products; and (4) build awareness of the ENERGY STAR Partnership and brand identity by collaborating with EPA on one print advertorial and one live press event;

- 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.



# ENERGY STAR® Program Requirements for Refrigerated Beverage Vending Machines

## Eligibility Criteria DRAFT 1

Below is the **Draft 1** product specification (Version 1.0) for ENERGY STAR qualified refrigerated beverage vending machines. A product must meet all of the identified criteria if it is to be qualified as ENERGY STAR by its manufacturer.

- 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 and canned beverages at appropriate temperatures without on-site labor intervention.
  - B. **Low Power Mode:** The reduced power state of a vending machine during extended periods of inactivity.
  - C. **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. This number is expressed in number of full 12-ounce (355 ml) cans, in accordance with ASHRAE Standard 32.1-1997 *Methods of Testing for Rating Bottled and Canned Beverage Machines*.

**Note:** The definitions provided in the Preliminary Draft specification have been shortened and refined to reflect comments made during the ENERGY STAR Vending Machine Industry Meeting in October 2002 and subsequent stakeholder correspondence. The definition of vendible capacity was derived from Section 3 of ASHRAE 32.1-1997.

To date, stakeholders have agreed that all models should be tested and qualified using full 12-ounce cans. Testing using 12-ounce cans is an industry standard, based on the current ASHRAE Standard 32.1-1997 test procedure.

- 2) **Qualifying Products:** In order to qualify for the ENERGY STAR, a refrigerated beverage vending machine must meet the definition in Section 1A. All qualifying models must also meet the performance requirements provided in Section 3, below, at the time of manufacturing. The following products may qualify under this specification: closed-front, glass front, and live display machine models. Temperature sensitive machines cannot qualify as ENERGY STAR at this time. **Note:** This specification applies only to new machine models. Models that have been retrofitted or re-manufactured cannot qualify as ENERGY STAR under this specification.

**Note:** EPA gauged stakeholder interest in including temperature sensitive machines in this specification. During the Vending Machine Industry Meeting in October 2002, industry participants voiced their concern with including temperature sensitive product machines under this specification; specifically, because of the tighter (continuous) temperature requirements (35-40 °F). Some of the manufacturers claimed that their temperature sensitive product machine models could meet the proposed ENERGY STAR energy efficiency requirements; however, the low power mode requirement, allowing the product to reach 40 degrees, could jeopardize the quality and safety of the vended product. EPA would like to collect more information on this product type before including it in this specification. Depending on stakeholder interest and data availability, EPA may consider adding this product type to this specification at a later date.

**Note:** EPA conducted a conference call with industry stakeholders in December 2002 to discuss the potential of including an existing machine retrofit option in this specification. This option would allow models within the installed base to be retrofitted with energy-efficient components and retested to meet ENERGY STAR performance requirements. After reviewing comments made during the conference call and subsequent discussions with industry members, EPA has decided not to pursue a retrofit option in this Version 1.0 specification primarily, for the following reasons:

- Changing individual machine components could affect UL approval and listing
- Retrofits and field certifications would be very difficult for EPA to track and would jeopardize the integrity of the ENERGY STAR label
- Retrofit procedures are outside of the manufacturing partners' control yet the partner would be responsible for the model's compliance

Machine manufacturers suggested allowing only new machines to qualify as ENERGY STAR. In this case, qualifying products would be required to meet the specification at the time of manufacturing (i.e., based on initial test results and without any retrofitting or engineering design changes in the field).

3) **Energy-Efficiency Specifications for Qualifying Products:** Only those products listed in Section 2 that meet both criteria A and B provided below may qualify as ENERGY STAR.

A. **Energy Consumption:** Qualifying models shall consume equal to or less energy in a 24-hr period than the values obtained from the equations, shown below. Effective dates for Tier I and Tier II are provided in Section 5 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).

**Note:** Approximately one year before Tier II becomes effective, EPA will reassess the performance level presented in this specification to ensure it's feasibility in the marketplace.

**Note:** The energy consumption equation is based on the Canada Standards Association (CSA) vending machine standard CAN/CSA-C804-96 *Energy Performance of Vending Machines* for Machine Type A, which was based on the performance of machines tested in the mid 1990s. During the Vending Machine Industry Meeting, participants agreed that this equation adequately represents the performance of standard capacity machines and should be used in this specification as a basis for determining machine energy performance.

**Note:** Please note that the primary objective of ENERGY STAR is to recognize the most energy-efficient products in the market through the use of the ENERGY STAR mark. In developing a specification, EPA considers the following criteria:

- Significant energy savings can be realized on a national basis
- Product performance is maintained or enhanced with increased efficiency
- Energy-efficient purchase will be cost-effective
- Energy efficiency can be achieved through several technology options; at least one of which is non-proprietary
- Product energy consumption and performance can be measured and verified with testing
- Labeling would effectively differentiate products and be visible for purchasers

It is not EPA's intention to design a specification that will allow every model to qualify as ENERGY STAR. In most cases, EPA develops a product specification that represents approximately the top 25% of models available for purchase. Following the release of the Preliminary Draft, NAMA provided EPA with machine energy consumption data submitted by vending machine manufacturers. This data represents machine models that are currently sold in the marketplace, ranging from 136- to 840-can capacities. After analyzing this data set, EPA found that 20% of the machine models could currently meet the proposed Tier II performance requirements. However, this percentage represents only a few machine capacities; in fact, most of the more popular sizes that are sold today would not qualify.

Therefore, EPA is proposing to start with a performance level that all manufacturers could initially meet with more than one product model ranging across a number of different machine capacities. It is EPA's hope that given enough lead time, manufacturers will be able to redesign product to meet Tier II by the time it becomes effective.

- B. Low Power Mode: Qualifying models shall come equipped with hard wired controls and/or software capable of automatically placing the machine into a low power use mode during periods of extended inactivity while still connected to its power source. The machine shall be capable of operating in each of the low power mode states described below:
- a) Lighting low power state – lights off for an extended period of time.
  - b) Refrigeration low power state – the average beverage temperature is allowed to rise above 40°F for an extended period of time.
  - c) Whole machine low power state – the lights are off and the refrigeration operates in its low power state.

In addition, the machine shall be capable of automatically returning itself back to its normal operating conditions at the conclusion of the inactivity period. The low power mode-related controls/software shall be capable of on-site adjustments by the machine owner or property owner.

**Note:** It is EPA's understanding that certain site owners may desire deployment of low power mode features. Potential scenarios include: a) exterior machine, lights are off during daylight hours, but on at night while refrigeration system runs in its standard mode throughout the day; b) interior machine in office or school location, machine is in normal operation during occupancy hours, and at night the whole machine enters a low power state due to non-occupancy and the lack of potential sales. In this case, during the night, the lights would be off and the refrigeration would be set to operate in its low power state.

EPA recognizes that each site has unique operating conditions and therefore, is not requiring manufacturers to pre-set the low power mode features to specific set points prior to shipping. EPA's goal in including a low power mode requirement is to ensure that existing machine software capabilities are available and may be used to their fullest potential based on the requirements of the host site.

The Preliminary Draft specification required qualified machine models to come equipped with low power mode related controls or software capable of reducing light levels by 20% and allow refrigeration temperatures to reach a maximum of 50 degrees F during periods of inactivity. EPA received a number of comments from stakeholders that the specification should be less prescriptive when it comes to low power mode requirements due to restrictions on design and engineering. EPA also received a number of comments suggesting clarification in the specification that low or no power mode should not be achieved simply by unplugging the machine.

One of EPA's goals is to ensure that the low power mode capabilities are being used to their fullest potential based on the requirements of the host site. EPA is interested in gathering feedback as to how to reach this goal, for example, including educational material with each machine placed on-site explaining the proper use and benefits of enabling the low power mode features.

- 4) **Test Criteria:** Manufacturers are required to perform tests, according to the requirements included in this Version 1.0 specification, then submit qualifying model information to EPA for approval.

A. In performing these tests, partner agrees to measure a model's daily energy consumption using ASHRAE Standard 32.1-1997 *Methods of Testing for Rating Bottled and Canned Beverage Machines*. The machine must be tested at  $90\pm 2$  °F ( $32.2\pm 1$  °C);  $65\pm 5\%$  relative humidity; and  $36\pm 1$  °F ( $2.2\pm 0.5$  °C) beverage temperature throughout the test, with all low or no power modes disabled and lighting levels at full illumination.

**Note:** This Draft 1 specification provides a minimum performance level that a vending machine model must meet at stable, or standard operating, conditions (i.e., ready to vend and fully illuminated). Therefore, all software features that could cause the machine to enter into a low or no power mode must be disabled prior to testing and the lighting system must be operating at full illumination in order to give users a realistic view of total machine energy consumption.

B. Test results must be reported to EPA using the Refrigerated Beverage Vending Machine Qualifying Product Information (QPI) form.

- 5) **Effective Date:** The date that manufacturers may begin to qualify products as ENERGY STAR will be defined as the *effective date* of the agreement.

A. **Tier I** – The first phase, Tier I, shall go into effect on **October 1, 2003** and conclude on **September 30, 2005**. Upon signing the agreement, the Partner may begin to use the ENERGY

STAR on qualifying product models and related marketing materials. Refer to the ENERGY STAR Identity Guidelines at [www.energystar.gov/partners](http://www.energystar.gov/partners).

- B. Tier II – The second phase of this specification, Tier II, shall commence on **October 1, 2005**. All products, including models originally qualified under Tier I, with a **date of manufacture** on or after **October 1, 2005**, must meet Tier II requirements in order to bear the ENERGY STAR on the product or in product literature.

**Note:** EPA hopes to announce an ENERGY STAR Refrigerated Beverage Vending Machine specification in partnership with industry at the October 2003 NAMA Expo. EPA is interested in obtaining feedback on this as well as the effective date proposed for Tier I to ensure product availability at the time of the announcement. EPA would also like manufacturers to comment on the proposed Tier II effective date to ensure that adequate time is given for redesign and manufacturing of models so that some may meet the performance levels proposed in Tier II of this Draft specification.

- 6) Future Specification Revisions: ENERGY STAR 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.** To carry the ENERGY STAR label, a product model must 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 by which a unit is considered to be completely assembled.