



ENERGY STAR® Program Requirements for Commercial Ice Machines

Partner Commitments FINAL DRAFT

Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified commercial ice 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 commercial ice machines and specifying the testing criteria for commercial ice 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 marks 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 ENERGY STAR commercial ice machine within one year of activating the commercial ice machines' 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 commercial ice machines. 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;
- provide to EPA, on an annual basis, an updated list of ENERGY STAR qualified commercial ice machine models. Once the Partner submits its first list of ENERGY STAR qualified commercial ice machines, 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 commercial ice 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 percent 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;
- notify EPA of a change in the designated responsible party or contacts for commercial ice 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 on the progress of these efforts:

- consider energy efficiency improvements in company facilities and pursue the ENERGY STAR mark 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 mark(s) 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), 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 labeled 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 Commercial Ice Machines

Eligibility Criteria Final Draft

Below is the **FINAL DRAFT** product specification for ENERGY STAR qualified commercial ice machines. A product must meet all of the identified criteria if it is to earn the ENERGY STAR.

- 1) Definitions: Provided below are definitions of the relevant terms in this document¹.
 - A. Ice Machine: A factory-made assembly (not necessarily shipped in one package) consisting of a condensing unit and ice-making section operating as an integrated unit, with means for making and harvesting ice. It is an assembly that makes up to 4,000 lbs of ice per day at Standard Ratings Conditions, as defined in Section 5.2.1 of ARI Standard 810-2006, and may also include means for storing or dispensing ice, or both.
- Ice Machine Categories**
 - B. Ice Making Head (IMH): A model with the ice-making mechanism and the condensing unit in a single package, but with a separate ice storage bin.
 - C. Remote Condensing Unit (RCU) or Split System Unit: A model in which the ice-making mechanism and condenser or condensing unit are in separate sections.
 - D. Self-Contained (SCU): A model in which the ice-making mechanism and storage compartment are in an integral cabinet.
 - E. Air-Cooled: An ice machine wherein motor driven fans or centrifugal blowers move air through the condenser to remove heat from the refrigerant.
 - F. Cubed: Cubed ice machines have an alternate freezing and harvesting period. Water is circulated over an evaporator where it freezes until cubes are fully formed. The cubed ice is then harvested and moved to storage. The ice may be in cube shape, or in a variation of a solid shape.
 - G. Flake: Flake ice machines produce ice continuously, usually in a barrel-shaped evaporator. An auger inside the evaporator scrapes ice off the sides into a storage bin.
 - H. Nugget: Nugget ice machines use the same process as flake machines but compress the ice flakes into nuggets.
- 2) Qualifying Products: Commercial ice machines must meet the definitions provided in Section 1, above, to be eligible for ENERGY STAR. **Ice machines that use water-cooled technology as well as flake and nugget ice machines are not eligible for ENERGY STAR under this Version 1.0 specification.** EPA intends to include flake and nugget ice machines once a test standard is made available and a robust database is established that may be used to derive performance requirements.

¹ Definitions for ice machine, IMH, RCU, and SCU adopted from ARI Standard 810-2006, *Performance Rating of Automatic Commercial Ice Makers*.

Note: There continues to be some interest in including flake and nugget ice machines under this specification. EPA intends to include flake and nugget machines but delayed their inclusion in the Draft 1 specification to allow the Air-Conditioning and Refrigeration Institute (ARI) to develop a performance rating that specifically addresses these product types. EPA has since learned that the primary issue with applying ARI 810-2006 to flake and nugget machines has to do with the current rating requirements found in Section 5 of the ARI document. Specifically, the requirements only address ice harvesting rates for ice cubed machines. Flake and nugget machines are not specifically addressed in this section. According to industry sources, cubes consist of 100% ice while flake and nugget machines are closer to 80% ice and 20% water. Based on these inherent differences applying the cubed rating approach to flake and nugget machines is inappropriate. Furthermore, it is EPA's understanding that the revisions being proposed to ASHRAE 29, Methods of Testing Automatic Ice Makers, could impact the method in which flake and nugget machines are tested. Based on this information and in the interest of finalizing this specification, flake and nugget machines will continue to be temporarily excluded. EPA will continue to follow ARI and ASHRAE revision efforts and once these standards are finalized will work with manufacturers to collect and analyze data with the purpose of proposing efficiency requirements for flake and nugget machines.

- 3) Efficiency Requirements for Qualifying Products: Commercial ice machines must meet the requirements provided below to qualify as ENERGY STAR.

Table 1: Efficiency Requirements for Commercial Cubed Ice Machines			
Equipment Type	Harvest Rate, H (lbs ice/day)	Energy Use Limit (kWh/100 lbs ice)	Potable Water Use Limit (gal/100 lbs ice)
Air-Cooled			
IMH	< 450	9.23 – 0.0077H	≤ 25
	≥ 450	6.20 – 0.0010H	≤ 25
RCU (without remote compressor)	< 1000	8.05 – 0.0035H	≤ 25
	≥ 1000	4.64	≤ 25
RCU (with remote compressor)	< 934	8.05 – 0.0035H	≤ 25
	≥ 934	4.82	≤ 25
SCU	< 175	16.7 – 0.0436H	≤ 35
	≥ 175	9.11	≤ 35

Note: One stakeholder commented that the performance requirements proposed for larger capacity machines were too stringent. While analyzing the ARI database, EPA's goal was to ensure that within any given equipment category (i.e., IMH, RCU, etc.) approximately 25% of the models listed would be able to meet ENERGY STAR, representing more than one manufacturer. It is not EPA's goal to ensure that every manufacturer has qualified models in every capacity bin. Rather, manufacturers that have models that qualify as ENERGY STAR within smaller categories are encouraged to label and promote these product lines while seeking to identify ways in which larger machines can be designed to be more energy- and water-efficient (and vice versa). Within each capacity bin listed above, more than one manufacturer and several models could qualify as ENERGY STAR under the proposed energy and water use limits. This indicates that the levels proposed are feasible and can be achieved through non-proprietary means.

EPA is continuing to exclude water-cooled ice machines due to the challenges faced in ensuring that installation is limited to closed loop situations. In the comments submitted on Draft 1 of this specification, EPA received significant support regarding this decision.

- 4) **Test Criteria:** Partner is required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. The test results must be reported to EPA using the Commercial Ice Machine Qualifying Product Information (QPI) Form.

In performing these tests, Partner agrees to use the Air-Conditioning and Refrigeration Institute (ARI) Standard 810-2006, *Performance Rating of Automatic Commercial Ice-Makers*.

- 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. The ENERGY STAR Commercial Ice Machine Specification shall go into effect on **January 1, 2008**.

Note: Several stakeholders asked that EPA consider revising the specification effective date to coincide with the effective date for California and other state minimum standards, specifically January 1, 2008. In the interest of aligning qualification timeframes and, thereby reducing manufacturer burden, EPA has decided to move the effective date to January 1, 2008. Although this will not allow for a full specification launch at NAFEM, EPA's marketing team will work with manufacturers to determine how best to utilize NAFEM and/or other industry events, depending on timing, to announce that the specification is final, though not yet effective.

Many stakeholders voiced their support for the continued coordination between the ENERGY STAR and WaterSense programs on the development of specifications and market outreach strategies. EPA will continue to facilitate coordination between the ENERGY STAR and WaterSense programs and looks forward to further synergies, increased energy and water efficient products, and opportunities for joint marketing and outreach.

- 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 the ENERGY STAR qualification is not automatically granted for the life of a product model. To qualify with the energy and/or water efficiency criteria of ENERGY STAR, a product model must meet the ENERGY STAR specification in effect on the date of manufacture.

Flake and Nugget Ice Machines: ENERGY STAR plans to revisit this specification once the revision processes for ARI 810-2006 and ASHRAE 29 are complete. At that time, performance requirements for flake and nugget ice machines will be considered and shared with industry stakeholders for review and comment.

Note: Language has been added above regarding EPA's intentions of revisiting the specification for purposes of including performance requirements for flake and nugget machines.