



ENERGY STAR[®] Program Requirements for Commercial Hot Food Holding Cabinets

Version 2.0 Partner Commitments DRAFT 3

1 Commitment

2 The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the
3 manufacturing of ENERGY STAR qualified commercial hot food holding cabinets. The ENERGY STAR
4 Partner must adhere to the following program requirements:

- 5 • comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must
6 be met for use of the ENERGY STAR certification mark on commercial hot food holding cabinets
7 and specifying the testing criteria for commercial hot food holding cabinets. EPA may, at its
8 discretion, conduct tests on products that are referred to as ENERGY STAR qualified. These
9 products may be obtained on the open market, or voluntarily supplied by Partner at EPA's
10 request;
- 11 • comply with current ENERGY STAR Identity Guidelines, describing how the ENERGY STAR
12 marks and name may be used. Partner is responsible for adhering to these guidelines and for
13 ensuring that its authorized representatives, such as advertising agencies, dealers, and
14 distributors, are also in compliance;
- 15 • qualify at least one ENERGY STAR commercial hot food holding cabinet product within six
16 months of activating a Partnership Agreement. When Partner qualifies a product, it must meet the
17 specification in effect at that time;
- 18 • provide clear and consistent labeling of ENERGY STAR qualified commercial hot food holding
19 cabinets. The ENERGY STAR mark must be clearly displayed on the front/inside of the product,
20 on the product packaging, in product literature (i.e., user manuals, spec sheets, etc.), and on the
21 manufacturer's Internet site where information about ENERGY STAR qualified models is
22 displayed;
- 23 • Under a third-party certification requirement, manufacturer partners must have an EPA-
24 recognized certification body certify that their products meets all applicable ENERGY STAR
25 performance parameters prior to the products being labeled as a qualified ENERGY STAR
26 product. Other partner requirements EPA expects to propose as part of product-specific program
27 requirement revisions include:
 - 28 1. Products have to be tested in an EPA-recognized laboratory.
 - 29 2. In the event that there are changes that affected the performance of the product with respect to
30 the relevant ENERGY STAR program requirements, the partner has to report these changes to
31 the certification body and EPA. Further, the partner has to demonstrate, through re-testing in an
32 EPA-recognized laboratory, that the product continued to meet the ENERGY STAR requirements
33 in order to maintain its ENERGY STAR qualification.
 - 34 3. Manufacturers need to authorize the certification body to share the results of any relevant
35 testing or product review with EPA.
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37 **Note:** As mentioned in the previous Draft 2, EPA is working to expand this Partner Commitments
38 section to include the new ENERGY STAR testing requirements and other program changes
39 proposed in the Enhanced Program Plan for ENERGY STAR products. EPA is working with
40 interested stakeholders to develop these new requirements. More information is available on the
41 ENERGY STAR Web site at www.energystar.gov/testingandverification.
42

- 43 • provide to EPA, on an annual basis, unit shipment data or other market indicators to assist in
44 determining the market penetration of ENERGY STAR. Specifically, Partner must submit the total
45 number of ENERGY STAR qualified commercial hot food holding cabinet models shipped (in
46 units, by model) or an equivalent measurement as agreed to in advance by EPA and Partner.
47 Partner is also encouraged to provide ENERGY STAR qualified unit shipment data segmented by
48 meaningful product characteristics (e.g., capacity, size, or other as relevant), total unit shipments
49 for each model in its product line, and percent of total unit shipments that qualify as ENERGY
50 STAR. The data for each calendar year should be submitted to EPA, preferably in electronic
51 format, no later than the following March and may be provided directly from the Partner or
52 through a third party. Any information used will be masked by EPA so as to protect the
53 confidentiality of the Partner; and
- 54 • notify EPA of a change in the designated responsible party or contacts for commercial hot food
55 holding cabinets within 30 days.
56

57 **Performance for Special Distinction**

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

- 61 • consider energy efficiency improvements in company facilities and pursue the ENERGY STAR
62 mark for buildings;
- 63 • purchase ENERGY STAR qualified products. Revise the company purchasing or procurement
64 specifications to include ENERGY STAR. Provide procurement officials' contact information to
65 EPA for periodic updates and coordination. Circulate general ENERGY STAR qualified product
66 information to employees for use when purchasing products for their homes;
- 67 • ensure the power management feature is enabled on all ENERGY STAR qualified displays and
68 computers in use in company facilities, particularly upon installation and after service is
69 performed;
- 70 • provide general information about the ENERGY STAR program to employees whose jobs are
71 relevant to the development, marketing, sales, and service of current ENERGY STAR qualified
72 product models;
- 73 • feature the ENERGY STAR mark(s) on Partner Web site and in other promotional materials. If
74 information concerning ENERGY STAR is provided on the Partner Web site as specified by the
75 ENERGY STAR Web Linking Policy (this document can be found in the Partner Resources
76 section on the ENERGY STAR Web site at www.energystar.gov), EPA may provide links where
77 appropriate to the Partner Web site;
- 78 • provide a simple plan to EPA outlining specific measures Partner plans to undertake beyond the
79 program requirements listed above. By doing so, EPA may be able to coordinate, communicate,
80 and/or promote Partner's activities, provide an EPA representative, or include news about the
81 event in the ENERGY STAR newsletter, on the ENERGY STAR Web pages, etc. The plan may
82 be as simple as providing a list of planned activities or planned milestones of which the Partner
83 would like EPA to be aware. For example, activities may include: (1) increase the availability of
84 ENERGY STAR labeled products by converting the entire product line within two years to meet
85 ENERGY STAR guidelines; (2) demonstrate the economic and environmental benefits of energy
86 efficiency through special in-store displays twice a year; (3) provide information to users (via the
87 Web site and user's manual) about energy-saving features and operating characteristics of
88 ENERGY STAR qualified products, and (4) build awareness of the ENERGY STAR Partnership
89 and brand identity by collaborating with EPA on one print advertorial and one live press event;
- 90 • provide quarterly, written updates to EPA as to the efforts undertaken by Partner to increase
91 availability of ENERGY STAR qualified products, and to promote awareness of ENERGY STAR
92 and its message;

- 93 • join EPA's SmartWay Transport Partnership to improve the environmental performance of the
94 company's shipping operations. SmartWay Transport works with freight carriers, shippers, and
95 other stakeholders in the goods movement industry to reduce fuel consumption, greenhouse
96 gases, and air pollution. For more information on SmartWay, visit www.epa.gov/smartway;
- 97 • join EPA's Climate Leaders Partnership to inventory and reduce greenhouse gas emissions.
98 Through participation, companies create a credible record of their accomplishments and receive
99 EPA recognition as corporate environmental leaders. For more information on Climate Leaders,
100 visit www.epa.gov/climateleaders; and
- 101 • join EPA's Green Power partnership. EPA's Green Power Partnership encourages organizations
102 to buy green power as a way to reduce the environmental impacts associated with traditional
103 fossil fuel-based electricity use. The partnership includes a diverse set of organizations including
104 Fortune 500 companies, small and medium businesses, government institutions as well as a
105 growing number of colleges and universities; visit www.epa.gov/grmpower.



ENERGY STAR® Program Requirements for Commercial Hot Food Holding Cabinets

Version 2.0 Eligibility Criteria DRAFT 3

106 Below is the **DRAFT 3** Version 2.0 ENERGY STAR Commercial Hot Food Holding Cabinet specification.
107 A product must meet all of the identified criteria if it is to earn the ENERGY STAR.

108

109 1) Definitions

110 A. Commercial Hot Food Holding Cabinet: A heated, fully enclosed compartment with one or more
111 solid or transparent doors designed to maintain the temperature of hot food that has been cooked
112 using a separate appliance.

113

114 B. Idle Energy Rate–Dry: The rate of appliance energy consumption while it is maintaining or holding
115 at the control set point, without using a humidity-generating device (if applicable). For purposes of
116 this specification, idle energy rate is measured in watts.

117

118 C. Drawer Warmer: An appliance that consists of one or more heated drawers and that is designed
119 to hold hot food that has been cooked in a separate appliance at a specified temperature.

120

121 D. Heated Transparent Merchandising Cabinets: An appliance with a heated compartment that is
122 designed to display and maintain the temperature of hot food that has been cooked in a separate
123 appliance.

124

125 E. Cook-and-Hold Appliance: A multiple-mode appliance intended for cooking food that may be used
126 to hold the temperature of the food that has been cooked in the same appliance.

127

128 F. Proofing Cabinet: An enclosed mobile, portable, or stationary appliance designed to maintain the
129 proper temperature and relative humidity for supporting fermentation of dough products by yeast.

130

131 **Note:** Based on several stakeholder comments, the term “glass” has been replaced with the term
132 “transparent” to better reflect the different materials (e.g., polycarbonate) used by manufacturers to
133 provide viewing of food product.

134

135 A definition for proofing cabinet is proposed above, which is based on the Proofing Cabinet definition
136 provided in NSF Standard 170-2005: *Glossary of Food Equipment Terminology*. Proofing cabinets are
137 excluded in Section 2, below, along with other dual function equipment.

138

139

140 2) Qualifying Products

141 Any commercial hot food holding cabinet that meets the definition in Section 1.A is eligible for the
142 ENERGY STAR. Dual function equipment (e.g., cook-and-hold, proofing), heated transparent
143 merchandising cabinets, and drawer warmers are not eligible for ENERGY STAR qualification under this
144 Version 2.0 specification.

145

146 This specification is intended for commercial food-grade equipment only. Hot food holding cabinets
147 qualifying under this specification must be third party certified to (1) ANSI/NSF Standard 4 International
148 Standard for Commercial Cooking, Rethermalization, and Powered Hot Food Holding Transport
149 Equipment and (2) ANSI/UL Standard 197 Commercial Electric Cooking Appliances.

Note: As part of the Draft 2 specification review process, manufacturers were encouraged to submit performance data on hot food holding cabinets that also provide other functionalities not currently represented by the ENERGY STAR specification requirements, including proofing. EPA's intent was to review this data and determine potential requirements for these additional functionalities. It is important that equipment bearing the ENERGY STAR label is evaluated for energy efficiency across all modes of operation, especially those that are promoted as key selling features. However, EPA did not receive additional information on these products. Without sufficient data, EPA is unable to determine a method for evaluating and comparing performance of these functionalities. Therefore, EPA has decided to exclude all dual function equipment from this specification, including proofing cabinets. EPA may consider covering dual function equipment in future specification versions if data is made available for further evaluation.

In response to stakeholder comments, EPA has included a requirement that qualifying products be third-party certified to ANSI/NSF Standard 4 and ANSI/UL Standard 197 to further ensure that only commercial grade equipment are submitted for ENERGY STAR qualification.

3) Energy Efficiency Criteria

To qualify for ENERGY STAR, commercial hot food holding cabinets must meet the maximum idle energy consumption rate requirements provided in Table 1, below, based on interior volume (see **Equation 1**).

The maximum idle energy consumption rate, in watts, shall be based on the test procedure referenced below in Section 4.A, below. Interior volume noted as "V" in Table 1, must be measured according to the protocol provided in Section 4.B, below, and reported in cubic feet.

Table 1: Maximum Idle Energy Consumption Rate Requirements for ENERGY STAR Qualified Commercial Hot Food Holding Cabinets	
Product Interior Volume (Cubic Feet)	Product Idle Energy Consumption Rate (Watts)
$0 < V < 13$	$\leq 21.5 V$
$13 \leq V < 28$	$\leq 4.7 V + 219.3$
$28 \leq V$	$\leq 1.1 V + 319.6$

Note: V = Interior volume in cubic feet (ft³).

Note: Despite multiple requests for data, EPA has received limited information (i.e., four data points) on banquet cabinets larger than 55 cubic feet. EPA sees several options for addressing this unique product category: (1) excluding cabinets larger than 55 cubic feet; (2) adding a fourth subcategory (≥ 55 cubic feet) that limits the Idle energy rate at 380 watts; or (3) keeping the existing slope as proposed above and dictated by the larger ≥ 28 cubic feet dataset. EPA's preference is Option 3 to allow manufacturers the opportunity to design and qualify highly efficient larger units and reduce confusion in the marketplace regarding what size is eligible for ENERGY STAR qualification. However, EPA also understands that the amount of time that these larger cabinets spend actually plugged into the wall is minimal and therefore, perhaps ENERGY STAR qualification offers minimal savings and value. Manufacturers are encouraged to provide feedback on these options and/or supporting performance data for EPA consideration.

In addition, EPA expressed an interest in also evaluating humidity generating cabinets using the Idle Energy Rate-Wet Test, as described in Section 10.6 of the ASTM Standard F2140-01. However, limited data was received based on application of the Wet Test and EPA is unable to evaluate the impact of humidity generating devices on energy efficiency performance at this time. Longer term, EPA may consider revisiting the development of levels based on the Wet Test if sufficient data is available for evaluation.

193 **4) Test Criteria**

194 Partners are required to have their qualifying units tested in an EPA approved accredited laboratory which
195 is qualified to certify that the units tested meet the ENERGY STAR hot food holding cabinet eligibility
196 criteria. Test results for each qualifying model must be submitted to the appropriate certification body.
197 The certifying body will then submit the certified data to EPA using the Commercial Hot Food Holding
198 Cabinet Qualifying Product Information (QPI) form prior to the product's labeling. **Manufacturers may**
199 **report test results for a representative model and submit associated family model number**
200 **variations using one QPI form. The tested representative model must be the most consumptive**
201 **design and match the exact internal cabinet dimensions of represented models. Partners need to**
202 **provide EPA with details on the design variations that impact energy consumption. These**
203 **variations will be noted on the Qualified Product listing.**
204

205 **Note:** During the 2010 National Restaurant Association (NRA) Show, EPA discussed the challenge of
206 testing each individual model variation with several manufacturers. There continues to be concern
207 regarding the cost and burden that would result in requiring that each variation for any given model be
208 tested for ENERGY STAR qualification and listing. This is of particular concern for manufacturers that
209 offer hundreds of skus each representing only slight differences in energy consumption as compared to a
210 representative model. However, as currently written all of those individual skus would need to be tested
211 and listed on the ENERGY STAR Web site.

212
213 EPA is interested in developing an approach that relieves some of the testing burden on manufacturers
214 while supporting EPA's overall goal of presenting accurate data on the ENERGY STAR Qualified Product
215 List so that end users can easily compare units across brands at the various sizes and capabilities.

216
217 The current EPA proposal presented above requires separate testing for differences in *cabinet size* within
218 any given model family but allows flexibility regarding the model variations represented by the tested unit.
219 Using this approach, EPA would accept data that is representative of the most energy consumptive
220 design at any one cabinet size within a given family. Model variations would need to share the same
221 internal cabinet design to be qualified under the representative unit. For example, if a manufacturer offers
222 a 40 cubic foot unit that is sold with several door options, some of which would result in a slightly different
223 Idle energy rate, that manufacturer would test the most consumptive (i.e., worst case) configuration that
224 would then represent all of the 40 cubic foot units within that model family.

225
226 Stakeholders are encouraged to provide EPA feedback on the above approach and/or submit additional
227 proposals that balance manufacturer burden with EPA's commitment to greater data accuracy.

- 228
229 A. Measuring Idle Energy Consumption Rate: In performing these tests, partners are required to
230 measure a model's energy performance using ASTM Standard F2140-01, *Standard Test Method*
231 *for the Performance of Hot Food Holding Cabinets*. Partners are required to use the Idle Energy
232 Rate-Dry Test, as described in Section 10.5 of the ASTM test procedure.
233

234 **Note:** The ASTM F26 Committee is revising the current test method for hot food holding cabinets (i.e.,
235 ASTM F2140-01). The revised standard is scheduled to go to the F26 Main Committee ballot this
236 summer with an anticipated finalization in October of this year.

237 One of the proposed revisions involves a repositioning of the thermocouples to match NSF testing
238 requirements. This change is not expected to alter energy efficiency performance results. A second
239 revision proposed involves a change to the test period from 3 hours to 24 hours to provide greater
240 confidence in the test results and accuracy of the reported performance. Concerns with the current test
241 period were brought to the attention of the ASTM Committee, specifically that some models have longer
242 cycles, resulting in a smaller subset of data points by which to base the efficiency rating.

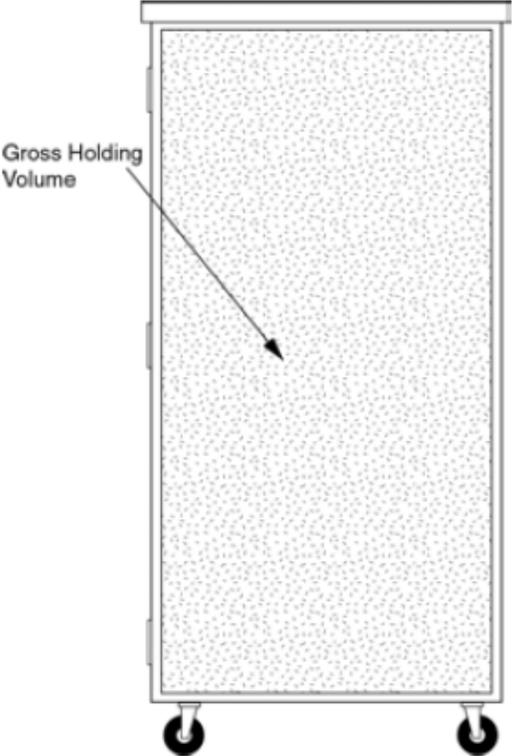
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Note cont.
Cutting the test period off in the middle of a cycle will result in an error in the reported idle energy rate, due to the small number of cycles during the test period. A cabinet with a large number of cycles (e.g., >10) during the test period would have a minimal error associated with a partial cycle during the test. The consensus of the ASTM F26 committee was to extend the test period from 3 hours to 24 hours to ensure a significant number of heater cycles is captured during the Idle energy rate test, thereby improving the accuracy of the reported test results.
In the interest of data accuracy and referencing the most recent industry accepted test standard, EPA is considering requiring that manufacturers apply the new ASTM test method to test and qualify products under this Version 2.0 specification. Manufacturers are encouraged to comment on this proposal.

- B. Additional Test Conditions: Manufacturers should report the total energy consumption of the product, which includes both the auxiliary heating and heating energy consumption with:
- All standard, factory-installed accessories (lighting, etc.) in the “ON” position, if manually-controlled, and
 - With all accessories that come standard with equipment, but not necessarily factory-installed, installed and in the “ON” position.

Note: A suggestion was made to EPA that additional conditions are included in the specification to require that all accessories be turned on during testing. This ensures that all manually controlled, energy consuming accessories are accounted for when testing energy efficiency performance, were the end user to employ these features in operation. These requirements mirror those included in other ENERGY STAR specifications, including Commercial Refrigeration. Stakeholders are encouraged to provide feedback on whether additional clarification is needed or specific examples for hot food holding cabinet accessories that could be included above.

- C. Measuring Interior Volume: Commercial hot food holding cabinet interior volume shall be calculated using straight-line segments following the gross interior dimensions of the appliance and using **Equation 1** below. Interior volume shall not account for racks, air plenums or other interior parts.



Equation 1: $Interior\ Volume = Interior\ Height \times Interior\ Width \times Interior\ Depth$

290 **5) Effective Date**

291 The date that products must meet the requirements specified under the Version 2.0 Commercial Hot
292 Food Holding Cabinet specification will be defined as the effective date of the agreement. The ENERGY
293 STAR Version 2.0 Commercial Hot Food Holding Cabinet shall go into effect on **May 2, 2010**.

294
295 Any previously executed agreement on the subject of ENERGY STAR qualified commercial hot food
296 holding cabinets shall be terminated effective **May 1, 2011** for products eligible under the Version 1.0
297 Program Requirements for Commercial Hot Food Holding Cabinets.

298
299 **Note:** Due to the extended specification review process, EPA is revising the Version 2.0 effective date
300 from February 1 to May 2, 2011. This new effective date provides stakeholders with additional time to
301 review draft proposals and prepare for new requirements while also taking advantage of a key industry
302 event at which to launch the new specification (i.e., 2011 NRA Show).

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304
305 Elimination of Grandfathering: EPA will not allow grandfathering under this Version 2.0 ENERGY STAR
306 specification. ENERGY STAR qualification under Version 1.0 is not automatically granted for the life of
307 the product model. Therefore, any product sold, marketed, or identified by the manufacturing Partner as
308 ENERGY STAR must meet the specification in effect on the date of manufacture of the product.

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312 **6) Future Specification Revisions**

313 EPA reserves the right to revise the specification should technological and/or market changes affect its
314 usefulness to consumers or industry or its impact on the environment. In keeping with current policy,
315 revisions to the specification will be discussed with stakeholders. In the event of a specification revision,
316 please note that ENERGY STAR qualification is not automatically granted for the life of a product model.
317 To qualify as ENERGY STAR, a product must meet the ENERGY STAR specification in effect on the date
318 of manufacture of the product.

319