



## ENERGY STAR® Program Requirements for Air-Source Heat Pumps (ASHPs)/Central Air Conditioners

### Partner Commitments

#### Commitment

The following are the terms of the ENERGY STAR Partnership Agreement as it pertains to the manufacturing of ENERGY STAR qualified ASHPs/central air conditioners. The ENERGY STAR Partner must adhere to the following program requirements:

- X comply with current ENERGY STAR Eligibility Criteria, defining the performance criteria that must be met for use of the ENERGY STAR certification mark on ASHPs/central air conditioners and specifying the testing criteria for ASHPs/central air conditioners. 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;
- X comply with current ENERGY STAR Logo Use Guidelines, describing how the ENERGY STAR labels 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;
- X qualify at least one ENERGY STAR labeled ASHP/central air conditioner model within one year of activating the ASHPs/central air conditioners 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;
- X provide clear and consistent labeling of ENERGY STAR qualified ASHPs/central air conditioners. The ENERGY STAR label must be clearly displayed 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. It is also recommended that the label appear on the top/front of the product and on the product packaging;
- X offer and encourage training to distributors and/or contractors on the following issues: air distribution issues and their effect on equipment performance, proper installation of registers, duct work, and plenum to ensure low leakage and to meet insulation requirements, and proper use of the Manual J calculation, or other equivalent calculation, in order to encourage proper sizing of equipment;
- X provide to EPA, on an annual basis, an updated list of ENERGY STAR qualifying ASHP/central air conditioner models. Once the Partner submits its first list of ENERGY STAR labeled ASHP/central air conditioner 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;
- X 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 ASHPs/central air conditioners 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;

- X notify EPA of a change in the designated responsible party or contacts for ASHPs/central air conditioners 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:

- X consider energy efficiency improvements in company facilities and pursue the ENERGY STAR label for buildings;
- X purchase ENERGY STAR labeled 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 labeled product information to employees for use when purchasing products for their homes;
- X 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;
- X 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 labeled product models;
- X feature the ENERGY STAR label(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](http://www.energystar.gov)), EPA may provide links where appropriate to the Partner Web site;
- X 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;
- X 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 Air-Source Heat Pumps (ASHPs)/ Central Air Conditioners

## Eligibility Criteria

Below is the product specification (Version 2.0) for ENERGY STAR qualified ASHPs/central air conditioners. A product must meet all of the identified criteria if it is to be labeled as ENERGY STAR by its manufacturer.

- 1) **Definitions:** Below are brief descriptions of ASHPs and central air conditioners and other terms as relevant to ENERGY STAR.

**A. Air-Source Heat Pump (ASHP):** An air-source unitary heat pump model consists of one or more factory-made assemblies which normally include an indoor conditioning coil(s), compressor(s), and outdoor coil(s), including means to provide a heating function. ASHPs shall provide the function of air heating with controlled temperature, and may include the functions of air-cooling, air-circulation, air-cleaning, dehumidifying or humidifying.

**B. Central Air Conditioner:** A central air conditioner model consists of one or more factory-made assemblies which normally include an evaporator or cooling coil(s), compressor(s), and condenser(s). Central air conditioners provide the function of air cooling, and may include the functions of air-circulation, air-cleaning, dehumidifying or humidifying.

**C. Split System:** A split system is an ASHP or central air conditioner with separate indoor (evaporator) and outdoor (condenser) units. For split systems, the energy-efficiency ratings of a particular split system model are based on one of the following: 1) the condenser-evaporator combination that is the Partner's most commonly sold combination for that condenser, or 2) the actual condenser-evaporator coil combination of the split system model.

**D. Desuperheater:** A heat recovery system that captures heat from the hot refrigerant as it leaves the compressor of an ASHP or central air conditioner and transfers the heat to the domestic hot water tank. Desuperheaters provide hot water only while the heat pump or air conditioner is providing space conditioning.

**E. Heating Seasonal Performance Factor (HSPF):** This is a measure of a heat pump's energy efficiency over one heating season. It represents the total heating output of a heat pump (including supplementary electric heat) during the normal heating season (in Btu) as compared to the total electricity consumed (in watt-hours) during the same period. HSPF is based on tests performed in accordance with U.S. Department of Energy (DOE) test procedures found in 10 CFR 430 Appendix M to subpart B.

**F. Seasonal Energy Efficiency Ratio (SEER):** This is a measure of equipment energy efficiency over the cooling season. It represents the total cooling of a central air conditioner or heat pump (in Btu) during the normal cooling season as compared to the total electric energy input (in watt-hours) consumed during the same period. SEER is based on tests performed in accordance with DOE test procedures found in 10 CFR 430 Appendix M to subpart B.

**G. Combined Cooling Performance Factor (CCPF):** This is a measure of the cooling efficiency for an integrated appliance that measures the total combined efficiency including water heating. Testing is in accordance with ARI 290 testing protocols.

H. Combined Heating Performance Factor (CHPF): This is a measure of the heating efficiency for an integrated appliance that measures the total combined efficiency including water heating. Testing is in accordance with ARI 290 testing protocols.

I. Manual J Calculation: A calculation performed to determine the heating load for a residence or small commercial building. The calculation includes site-specific characteristics such as regional weather data, building framing materials, building insulation levels, building air infiltration levels and window area. The calculation follows procedures and protocols developed by the Air Conditioning Contractors of America.<sup>1</sup>

J. Manufacturer Limited Warranty: For the purposes of ENERGY STAR, a manufacturer limited warranty is an assurance by the Partner that purchased system equipment and components are warranted by the manufacturer for a period of time. The period of time is typically expressed in numbers of years.<sup>2</sup> The exact terms of the limited warranty shall be determined by the Partner.

2) Qualifying Products:

A. ASHPS - This agreement shall cover ASHPs that are rated below 65,000 Btuh and powered by single phase current and excludes such equipment as window and packaged terminal heat pumps. The ASHP may be a single packaged system, where there is only one assembly, or a split system where there are two. If such equipment is provided in more than one assembly, matched assemblies shall be used in meeting the specifications outlined in Section 3 below.

B. Central Air Conditioners - This agreement shall cover central air conditioners that are rated below 65,000 Btuh, and powered by single phase current and excludes such equipment as window or packaged terminal air conditioners. If such equipment is provided in more than one assembly, matched assemblies shall be used in meeting the specifications outlined in Section 3 below.

3) Energy-Efficiency Specifications for Qualifying Products: Only those products listed in Section 2 that meet the criteria below (see items A and B and Tables 1 and 2) may qualify as ENERGY STAR. Integrated appliances may qualify by the specifications in either the first or second table shown below. If using Table 2, space heating only or space cooling only equipment must qualify under Alternative A. Dual-mode equipment may qualify either under Alternative A or Alternative B.

**Table 1: Energy-Efficiency Criteria for ENERGY STAR Qualified ASHPs and Central Air Conditioners**

Product Type	SEER	HSPF
Air-Source Heat Pumps - Units Shipped on or after January 1, 2000	≥ 12	≥ 7.6
Central Air Conditioners	≥ 12	n/a

<sup>1</sup> Air Conditioning Contractors of America (ACCA) , 2800 Shirlington Road, Suite 300, Arlington, VA 22206.

<sup>2</sup> At the time of writing, a manufacturer's limited warranty is typically 5 years for the compressor, and 1 year for parts.

**Table 2: Energy-Efficiency Criteria for ENERGY STAR Qualified Integrated Heat Pumps/Air Conditioners**

Capacity (Btuh - higher of heating or cooling)	Alternative A - Equipment must meet minimum ratings for both CCPF & CHPF (single-mode equipment need meet only the appropriate specification)		Alternative B - Equipment must meet minimum combined value
	CCPF	CHPF	
24,000 or less	≥ 7.6	≥ 5.9	CHPF + (0.29 * CCPF) ≥ 8.2
24,001 - 30,000	≥ 8.0	≥ 6.1	CHPF + (0.34 * CCPF) ≥ 9.1
30,001 - 36,000	≥ 8.5	≥ 6.3	CHPF + (0.37 * CCPF) ≥ 9.7
36,001 - 42,000	≥ 8.8	≥ 6.4	CHPF + (0.32 * CCPF) ≥ 9.5
42,001 - 54,000	≥ 9.1	≥ 6.5	CHPF + (0.34 * CCPF) ≥ 9.9
54,001 - 65,000	≥ 9.5	≥ 6.7	CHPF + (0.37 * CCPF) ≥ 10.5

A. Partner shall include a manufacturer limited warranty with its qualified ASHP or central air conditioner models.

B. Partner shall consider including or encouraging the use of a desuperheater or heat recovery unit in its ASHP or central air conditioner models in order to provide some portion of the domestic water heating.

- 4) **Test Criteria:** Manufacturers are required to perform tests and self-certify those product models that meet the ENERGY STAR guidelines. Partner agrees to perform energy-efficiency tests for ASHPs and central air conditioners under rating conditions in accordance with DOE test procedures found in 10 CFR 430 Appendix M or in accordance with ARI 290 testing protocols. For split systems, the energy-efficiency ratings of a particular model shall be based on one of the following: 1) the condenser-evaporator combination that is the Partner's most commonly sold combination for that condenser, or 2) the actual condenser-evaporator coil combination of the split system model. These HSPF and SEER ratings shall be identical to the levels reported on the Federal Trade Commission (FTC) Energy Guide Label.
- 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 ASHP/Central Air Conditioner specification is effective immediately.
- 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.