Most Efficient 2019
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Proposed Criteria
Central Air Conditioners, Heat Pumps, and Geothermal Heat Pumps

Scope

Included products: Residential central air conditioners, air-source heat pumps, and geothermal heat pumps, as defined below, are eligible for ENERGY STAR® Most Efficient recognition in 2019.

Air-Source Heat Pump (ASHP): An air-source unitary heat pump model is a product other than a packaged terminal heat pump, which 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.

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

Geothermal Heat Pump (GHP): A geothermal heat pump uses the thermal energy of the ground or groundwater to provide residential space conditioning and/or domestic water heating. A GHP model normally consists of one or more factory-made assemblies that include indoor conditioning and/or domestic water heat exchanger(s), compressors, and a ground-side heat exchanger. A GHP model may provide space heating, space cooling, domestic water heating, or a combination of these functions and may also include the functions of liquid circulation, thermal storage, air circulation, air cleaning, dehumidifying, or humidifying. A GHP system generally consists of one or more GHP models, the ground heat exchanger(s), the air and/or hydronic space conditioning distribution system(s), temperature controls, and thermal storage tanks.

Excluded products: The following products are not eligible for ENERGY STAR Most Efficient recognition in 2019:

- Units that run on three-phase power.
- Central Air Conditioner or Air-Source Heat Pump models rated for more than 65,000 Btu/h of cooling. This limit does not apply to GHPs.
- Mini-splits, multi-splits, and split ductless systems are eligible for ENERGY STAR Most Efficient in 2019 with different requirements.

Recognition Criteria

1) Product must be ENERGY STAR certified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements Product Specifications for Residential Air Source Heat Pump and Central Air Conditioner, Version 5.0 or Geothermal Heat Pumps, Version 3.1. Product performance must be certified by a certification body recognized by the U.S. Environmental Protection Agency (EPA).

2) Products must meet the following cooling and heating performance levels:

Product type	SEER	EER	HSPF	COP
Split AC	18	13		
Split ASHP	18	12.5	9.6	
Packaged AC	16	12.0		
Packaged ASHP	16	12.0	8.2	
Closed Loop Water-to-Air GHP		17.1		3.6
Open Loop Water-to-Air GHP		21.1		4.1
Closed Loop Water-to-Water GHP		16.1		3.1
Open Loop Water-to-Water GHP		20.1		3.5
DGX		16.0		3.6

3) GHP products, except for water-to-water, must be able to provide heating and cooling (as applicable) at two or more capacity levels. All other AC and ASHP products must be able to provide heating and cooling (as applicable) at more than 3 capacity levels.

4) Products must work as part of a system that provides system status and messaging capabilities as specified below.

A. **Unit setup information:** Units shall be able to send to and receive information from at least one system controller to automatically configure settings appropriate to the controlled equipment, such as airflow for heating and cooling. This may include prompting an installer through configuration of HVAC system settings and desired comfort settings, and a test sequence at turn-on. The controller may be a thermostat, mobile application, or an on-board controller designed to coordinate operation of an entire HVAC system.

B. **Fault History:** Service personnel shall be able to access a log displaying fault history on an alphanumeric display, which may show plain text or error codes. The product may enable access through any mechanism, for example: 1) a text-based display (e.g. LED) permanently incorporated into the unit, 2) at least one thermostat available on the market, 3) a diagnostic tool available on the market which can be brought to the work site by the service personnel. Other equivalent mechanisms are also acceptable.

C. **Resident Alerts in Plain Text:** Units shall facilitate display, in plain text, of messages to residents, without assuming that the resident knows much about their system. At a minimum, these messages shall clearly recommend a specific action for the resident to take if the air filter needs to be checked, changed, or cleaned, and if the unit needs professional service. This may be through display on the thermostat or other control device in occupied space in the home, or through any other system that can reach residents directly (e.g., mobile application). Displays on a unit inside a closet, basement or attic, or outside of conditioned space, will not be sufficient. An LED on a remote or thermostat, with static text beside it, is acceptable.

Recognition Period

Upon review and approval of applications received from ENERGY STAR Partners, EPA will add qualifying models to the ENERGY STAR Most Efficient 2019 product list for central air

conditioners and heat pumps from January 1, 2019 through December 31, 2019. The ENERGY STAR Most Efficient 2019 designation may be used in association with models recognized during this period for as long as the model remains on the market.