



## Eligibility for Recognition Refrigerator-Freezers

### Scope

**Included products:** Full-size refrigerator-freezers are eligible for Most Efficient recognition in 2011.

**Excluded products:** The following products are not eligible for Most Efficient recognition in 2011:

- Compact models. Any refrigerator, refrigerator-freezer or freezer with total volume less than 7.75 cubic feet (220 liters rated volume as determined in Appendix A1 and B1 of 10 CFR 430 subpart B) and 36 inches (0.91 meters) or less in height
- Freezers. At the present time, freezers are not eligible for Most Efficient recognition.
- All-refrigerators. At the present time, all-refrigerators are not eligible for Most Efficient recognition.

### Recognition Criteria

1) Product must be ENERGY STAR qualified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements Product Specification for Residential Refrigerators and Freezers, Version 4.1. Product performance must be certified by an EPA-recognized Certification Body.

2) Product must use less than or equal to 403 kWh per year and be at least 30% more efficient than federal requirements (see table below), as determined by ENERGY STAR specified federal test procedures.

Product Class		Maximum Annual Energy Use (kWh/year)
1	Refrigerator & Refrigerator-Freezer with manual defrost	$AV \leq 37.1, E_{ann} \leq 6.17 \cdot AV + 173.9$ $AV > 37.1, E_{ann} \leq 403$
2	Refrigerator-Freezer with partial automatic defrost	
3	Top-Mount Freezer without through-the-door ice	$AV \leq 30.6, E_{ann} \leq 6.86 \cdot AV + 193.2$ $AV > 30.6, E_{ann} \leq 403$
4	Side-Mount Freezer without through-the-door ice	$AV \leq 14.0, E_{ann} \leq 3.44 \cdot AV + 355.3$ $AV > 14.0, E_{ann} \leq 403$
5	Bottom-Mount Freezer without through-the-door ice	$AV \leq 25.4, E_{ann} \leq 3.22 \cdot AV + 321.3$ $AV > 25.4, E_{ann} \leq 403$
5a	Bottom-Mount Freezer with through-the-door ice	$AV \leq 7.3, E_{ann} \leq 3.50 \cdot AV + 377.3$ $AV > 7.3, E_{ann} \leq 403$
6	Top-Mount Freezer with through-the-door ice	$AV \leq 21.5, E_{ann} \leq 7.14 \cdot AV + 249.2$ $AV > 21.5, E_{ann} \leq 403$
7	Side-Mount Freezer with through-the-door ice	$AV \leq 16.8, E_{ann} \leq 7.07 \cdot AV + 284.2$ $AV > 16.8, E_{ann} \leq 403$

$E_{ann}$  = annual energy consumption in kWh per year.  $AV$  = Adjusted Volume in cubic feet. A refrigerator's adjusted volume is equal to its fresh volume + (1.63 x Freezer Volume). This adjustment factor assures that differences in freezer size are taken into account when determining refrigerator energy consumption limits.

### Recognition Period

Upon notification from an ENERGY STAR Partner, EPA will add qualifying models to the 2011 Most Efficient product list for refrigerators from TBD, 2011 through December 31, 2011. The 2011 Most Efficient designation may be used in association with models recognized during this period for as long as the model remains on the market.



## Eligibility for Recognition Televisions

### Scope

*Included products.* Televisions, as defined below, are eligible for Most Efficient recognition in 2011.

Television: A commercially available electronic product designed primarily for the reception and display of audiovisual signals received from terrestrial, cable, satellite, Internet Protocol TV (IPTV), or other digital or analog sources. A TV consists of a tuner/receiver and a display encased in a single enclosure. Cathode-ray tube (CRT), liquid crystal display (LCD), and plasma display panel (PDP) are examples of common display technologies.

*Excluded products:* none.

### Recognition Criteria

1) Product must be ENERGY STAR qualified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements Product Specification for Televisions, Version 4.2. Product performance must be certified by an EPA-recognized Certification Body.

2) Additional requirements:

$$A \leq 1068 = P_{\max} = (0.073 * A) + 2.0$$

$$A > 1068 = P_{\max} = 80$$

$P_{\max}$  = maximum allowable On Mode power consumption

A = viewable screen area of the product in square inches, calculated by multiplying the viewable image width by the viewable image height

### Recognition Period

Upon notification from an ENERGY STAR Partner, EPA will add qualifying models to the 2011 Most Efficient product list for televisions from TBD, 2011 through December 31, 2011. The 2011 Most Efficient designation may be used in association with models recognized during this period for as long as the model remains on the market.



## Eligibility for Recognition Clothes Washers

### Scope

*Included products.* Standard sized residential clothes washers are eligible for recognition.

*Excluded products.* The following products are not eligible for Most Efficient recognition in 2011:

- Compact clothes washers (volume under 1.6 cubic feet)
- All-in-one combination washer-dryers
- Commercial clothes washers

### Recognition Criteria

- 1) Product must be ENERGY STAR qualified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the latest version of the ENERGY STAR Program Requirements Product Specification for Clothes Washers, Version 5.1. Product performance must be certified by an EPA-recognized Certification Body.
- 2) Modified Energy Factor. Clothes washers must have a modified energy factor or 3.0 or higher.
- 3) Water Factor. Clothes washer must have a water factor of less than or equal to 3.0.

### Recognition Period

Upon notification from an ENERGY STAR Partner, EPA will add qualifying models to the 2011 Most Efficient product list for clothes washers from TBD, 2011 through December 31, 2011. The 2011 Most Efficient designation may be used in association with models recognized during this period for as long as the model remains on the market.



## Eligibility for Recognition Furnaces

### Scope

*Included products.* Non-weatherized residential gas furnaces (as defined below) are eligible for Most Efficient recognition in 2011.

**Residential Furnace:** A heating unit with a heat input rate of less than 225,000 Btu per hour whose function is the combustion of fossil fuel (natural gas, propane, or oil) for space heating with forced hot air. Unit must include burner(s), heat exchanger(s), blower(s) and connections to heating ducts. Unit may also provide hot water for domestic or other use.

*Excluded products.* The following products are not eligible for Most Efficient recognition in 2011:

- Furnaces intended for commercial installation and/or with a rating of 225,000 Btu per hour energy or higher
- Mobile home furnaces
- Weatherized gas furnaces
- Oil furnaces

### Recognition Criteria

1) Product must be ENERGY STAR qualified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements Product Specification Version 2.0. Product performance must be certified by an EPA-recognized Certification Body.

2) AFUE 98% or higher

3) Furnaces must be enabled to communicate digitally with an appropriate thermostat or other control, with the ability to send commissioning information, such as model number, and diagnostic information.

### Recognition Period

Upon notification from an ENERGY STAR Partner, EPA will add qualifying models to the 2011 Most Efficient product list for furnaces from TBD, 2011 through December 31, 2011. The 2011 Most Efficient designation may be used in association with models recognized during this period for as long as the model remains on the market.



## Eligibility for Recognition Central Air Conditioners and Heat Pumps

### Scope

*Included products.* Residential central air conditioners and heat pumps (as defined below) are eligible for Most Efficient recognition in 2011.

**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.

**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.

**Geothermal Heat Pump:** A geothermal heat pump (GHP) uses the thermal energy of the ground or groundwater to provide residential space conditioning and/or domestic water heating. A geothermal heat pump 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 geothermal heat pump 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 geothermal heat pump system generally consists of one or more geothermal heat pump 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 Most Efficient recognition in 2011:

- Units that run on three-phase power.
- Units rated for more than 65,000 Btu/hr of cooling.

### Recognition Criteria

1) Product must be ENERGY STAR qualified consistent with applicable ENERGY STAR Partner Commitments and the requirements set forth in the ENERGY STAR Program Requirements. Product performance must be certified by an EPA-recognized Certification Body.

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

Product type	SEER	EER	HSPF	COP
Split AC	21.5	14		
Split HP	20	13	9.3	
Packaged AC	16.5	12.4		
Packaged HP	16	12	8.5	
Closed Loop Water-to-Air GHP		17.1		3.6

<b>Open Loop Water-to-Air GHP</b>	21.1	4.1
<b>Closed Loop Water-to-Water GHP</b>	16.1	3.1
<b>Open Loop Water-to-Water GHP</b>	20.1	3.5
<b>DGX</b>	16.0	3.6

3) Central AC, air source heat pumps and ground source heat pumps must be enabled to communicate digitally with an appropriate thermostat or other control, with the ability to send commissioning information, such as model number, and diagnostic information.

#### **Recognition Period**

Upon notification from an ENERGY STAR Partner, EPA will add qualifying models to the 2011 Most Efficient product list for central air conditioning and heat pumps from TBD, 2011 through December 31, 2011. The 2011 Most Efficient designation may be used in association with models recognized during this period for as long as the model remains on the market.