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Water Heater Key Product Criteria

ENERGY STAR Residential Water Heaters – Eligible Product Types

Storage Water Heaters	Storage type units ¹ designed to heat and store water at a thermostatically controlled temperature of less than 180 °F, including: gas storage water heaters with a nominal input of 75,000 British thermal units (Btu) per hour or less and having a rated storage capacity of not less than 20 gallons nor more than 100 gallons; electric heat pump type units with a maximum current rating of 24 amperes at an input voltage 250 volts or less, and, if the tank is supplied, having a manufacturer’s rated storage capacity of 120 gallons or less.
Instantaneous Water Heaters	Instantaneous (or “tankless”) type units ² which initiate heating based on sensing water flow and deliver water at a controlled temperature of less than 180 °F, heat water, but contain no more than one gallon of water per 4,000 Btu per hour of input with an input between 50,000 Btu/h but less than 200,000 Btu per hour.
Solar Water Heaters	Solar water heaters include a collector and storage tank, and use the sun’s thermal energy to heat water using one of the four basic types of solar water heating systems: i. forced circulation (includes both direct and indirect systems), ii. integrated collector and storage, iii. thermosiphon, or iv. self-pumped.
Light Duty EPACT-covered gas water heaters	Light Duty EPACT-covered gas water heaters heat and store water at a thermostatically controlled temperature, with an input rate > 75,000 Btu per hour and <100,000 Btu per hour, and storage volume between 20 and 100 gallons.

ENERGY STAR Criteria

A water heater model must meet all of the identified criteria to be labeled as ENERGY STAR.

Criteria for Qualified Electric Storage Water Heaters

Criteria	ENERGY STAR Requirements
Energy Factor	≤ 55 gallons EF ≥ 2.00

> 55 gallons	EF ≥ 2.20
First Hour Rating	FHR ≥ 50 gallons per hour
Warranty	Warranty ≥ 6 years on sealed system
Safety	UL 174 and UL1995
Lower Compressor Cut-Off Temperature (Reporting Requirement Only)	Report ambient temperature below which the compressor cuts off and electric resistance only operation begins

Criteria for Qualified Gas Storage Water Heaters

Criteria	ENERGY STAR Requirements
Energy Factor	≤ 55 gallons EF ≥ 0.67 > 55 gallons EF ≥ 0.77
First Hour Rating	FHR ≥ 67 gallons per hour
Warranty	Warranty ≥ 6 years on system (including parts)
Safety	ANSI Z21.10.1/CSA 4.1

Criteria for Qualified Gas Instantaneous Water Heaters

Criteria	ENERGY STAR Requirements
Energy Factor	EF ≥ 0.90
Gallons-Per-Minute	GPM ≥ 2.5 over a 77° rise
Warranty	Warranty ≥ 6 years on heat exchanger and ≥ 5 years on parts
Safety	ANSI Z21.10.3/CSA 4.3

Criteria for Light Duty EPACT-Covered Gas Water Heaters

Criteria	ENERGY STAR Requirements
Thermal Efficiency	TE ≥ 0.90
Standby Loss	Standby loss ≤ 1889 Btu/hr ×(TE-0.73)
Warranty	Warranty ≥ 6 years on system
Safety	ANSI Z21.10.3/CSA 4.3

Criteria for Qualified Solar Water Heaters

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Criteria	ENERGY STAR Requirements
Solar Energy Factor	SEF \geq 1.8 for electric backup
	SEF \geq 1.2 for gas backup
Warranty	\geq 10 years on collector \geq 6 years sealed system \geq 2 years on controls \geq 1 year on parts

Glossary

Energy Factor (EF): A measure of water heater overall efficiency, is the ratio of useful energy output from the water heater to the total amount of energy delivered to the water heater.

Solar Energy Factor (SEF): The energy delivered by the total system divided by the electrical or gas energy put into the system.

First-Hour Rating (FHR): An estimate of the maximum volume of hot water in gallons that a storage water heater can supply within an hour that begins with the water heater fully heated.

Gallons per Minute (GPM): The amount of gallons per minute of hot water that can be supplied by an instantaneous water heater while maintaining a nominal temperature rise of 77°F during steady state operation.

¹ 10 CFR 430, Subpart B, Appendix E

² 10 CFR 430, Subpart B, Appendix E and 10 CFR 430, Subpart A, § 430.2 Definitions