



# Solar thermal system cost

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A solar water heater costs \$3,000 to \$9,000 installed, depending on the system and tank size, type, and location. After tax credits and rebates, a solar hot water system costs \$1,500 to \$6,600 or 26% to 50% less. Solar-powered water heaters save 50% to 80% on energy costs and last 20 years.

Solar water heaters for homes cost \$3,000 to \$9,000 with installation. Active solar water heating costs \$2,300 to \$6,000, and passive thermal water heaters cost \$1,000 to \$3,700 for the system alone. Solar hot water collector panels cost \$800 to \$1,500 each. Solar storage tank prices are \$1,000 to \$2,800.

Active system types cost \$2,300 to \$6,000 and are more effective in colder climates. Passive systems cost \$1,000 to \$3,700, have no moving parts, and are easier to maintain. All solar water heater systems are either active (direct and indirect) or passive (integral collector-storage and thermosyphon).

Active solar hot water system prices are \$2,300 to \$6,000 for the system alone. Active systems use a pump to circulate liquid from the solar collectors to a storage tank inside the home. Most active systems have a backup heating element to provide hot water on cloudy days.

Active direct systems, also called open-loop systems, pump the household water supply directly through the collector on the roof, where it is heated and circulated back into the home. Direct systems are susceptible to freeze damage.

Active indirect systems, also called closed-loop systems, pump an anti-freeze heat-transfer fluid through the collector and a heat exchanger, which transfers the heat to water in a storage tank. Indirect systems are ideal for homes in regions that experience freezing temperatures.

Active drain-back systems pump distilled water through the collector and use a heat exchanger to transfer heat to the home's potable water supply. Drain-back systems prevent freezing by draining the water from the collector into a separate storage vessel when the pump is inactive.

Passive solar water heating systems cost \$1,000 to \$3,700 for the system alone. Passive systems don't use pumps and rely on convection to circulate the water as heated water rises and cold water sinks. Passive systems are less efficient than active systems and are susceptible to freeze damage.

Integral collector-storage (ICS) passive systems, also called batch solar heaters, feature large, black storage tanks built into a collector box. Water in the tanks is heated directly by the sun before flowing into the home's plumbing system.

Passive thermosyphon systems feature a rooftop tank mounted above a collector panel to store hot water as it



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rises from the collector. Thermosyphon systems work best in moderate to warm climates and require a roof strong enough to support the weight of a full water tank.

Solar water heater installation costs depend on the system type, thermal collector and storage tank size, location, site conditions, and tax credits and rebates.

Solar thermal collectors cost \$800 to \$1,500 per panel depending on size, or \$1,600 to \$2,600 for enough collectors to supply hot water to a family of four. Solar water heater collectors are typically roof-mounted and come in these models:

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