



\$1000 solar water heater

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To provide you with the most accurate and up-to-date cost figures, we gather information from a variety of pricing databases, licensed contractors, and industry experts.

These days, many people are looking for eco-friendly ways to upgrade their homes while reducing their impact on the environment and traditional fuel sources. One option that many homeowners have elected is to install a solar water heater. Also known as solar domestic hot water systems, these units offer a cost-efficient way to heat water using the thermal power of sunlight. A solar water heater is made of two main components: solar collectors that warm the water and a storage tank to hold the water. Because of the nature of the work, these systems are best installed by solar installation experts.

The national average cost for installing a solar water heater is between \$8,000 and \$10,000, with most people paying around \$9,000 for a fully-installed, 100-gallon solar active indirect hot water heating system. At the low end of the spectrum, however, you can opt for a smaller tank that holds only 60 gallons and costs about \$4,000 when fully installed. At the high end, you pay up to \$13,000 to have a 120-gallon tank with a dual heat exchanger fully installed with a collector.

A solar water heater is designed to provide hot water to a building as a traditional unit would, except that these heaters use solar energy to heat the water through various methods, depending on the type of solar tank chosen. Solar water heaters are available in numerous designs, but all include collectors and a storage tank. There are two main types of systems to choose from: active and passive.

An active system uses a pump to circulate the water to heat it. A passive system relies on gravity to move the fluid through the system. Active systems use direct or indirect circulation, while passive systems are all indirect circulation based on natural convection and gravity. Because of this, passive systems are far less efficient and are usually only used to preheat water for a conventional system rather than to heat the water for the entire home. Active systems lower energy bills faster because they heat larger amounts of water and eventually replace a conventional system. In contrast, a passive system will be an add-on to your existing heater, so it may only save a small amount on energy bills.

The cost for a solar system by type ranges from \$1,000 to \$4,000 for the unit only. There are two types of solar water heaters: active and passive. The most basic of the two systems is the passive system, which relies on gravity to function. Active systems are more complicated and use a furnace or boiler to heat the water and pumps to push the water through the collectors. These additional parts also make active systems more expensive in most cases. Active systems are available in indirect and direct styles. Passive systems also come in two styles: integral collector storage or thermosyphon. In the table below, you will see the costs of each system, not including labor or installation.



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You can expect to spend \$1,000 to \$3,000, on average, for passive solar water heater units. Passive systems are more affordable than active systems, but are less energy efficient. One of the main drawbacks of the passive system is that it quickly runs out of hot water on a cloudy day. With a passive system, most homeowners must keep their existing system to keep hot water when the sun is not shining. A passive system can only heat about 40 percent of the home's water. The two types of passive solar water heating systems include the integral collector storage and the thermosyphon. In the table and subsections below, you'll see the types of passive heaters, their features, costs, and other information.

An integral collector storage system costs from \$1,000 to \$2,000. The integral collector storage (ICS), also called the "batch" system, is the most affordable of the two and tends to be the most favored by homeowners due to its ease of installation and basic requirements. This transparent tank is installed in the yard and the sun heats the water inside of the tank. The necessity of direct heating from the sun limits its capacity but the integral collector storage passive system is highly energy-efficient and inexpensive compared to other systems. However, these systems only function in areas with very mild or warm weather conditions because they can lose their heat very quickly if it is cloudy, cold, or at nighttime.

An active solar water heater costs between \$2,000 and \$4,000. Installing an active solar water heater involves mounting the solar collector directly on the roof. Often, a portion of the roof must be removed during installation. All control systems for the unit are installed last and connected to operate. Active systems are commonly used in areas with cold/freezing temperatures. Many homeowners choose active systems because the tank can be conveniently hidden inside a closet or basement. With other systems, the tank must be located higher than the collectors, such as on the roof. In the table and subsections below, you will see both types of active systems and their features, costs, and more.

The typical cost of a direct solar water heating system with one collector and a tank averages \$2,000 to \$3,000. With direct active systems, the water is stored in the holding tank, and then pumped through the solar collectors and back to the storage tank, which distributes the hot water to the rest of the house. People often favor direct active systems in areas with ample sun because it is the most affordable of the two systems. However, the indirect active system is usually used in cloudy or cold regions. Both types of active systems are extremely energy efficient.

The price of the tank ranges from \$1,000 to \$8,000 when it is priced by capacity. In addition to single and double-walled tanks, solar tanks also offer five standard sizes, ranging from 30 to 120 gallons. The tank is paired with a backup electric or gas heat source, so you do not have to worry about taking a cold shower during the night or when no sunlight is readily available to heat the water. You can choose from simple storage-only tanks, indirect backup tanks with a built-in heat exchanger, or a direct tank with built-in auxiliary heat. In the table below, you will see the different sizes and their average costs for the unit only.

You will spend between \$600 and \$4,500 on the collector for your solar water heater, depending on which style you choose. A solar water heater collector captures and retains the sun's UV rays to heat the water or liquid in the water heater. The collector is the large panel seen on the rooftop that most people



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associate with solar power. It works by creating thermal equilibrium and balancing heat loss with convection, radiation, and conduction, much like the basic function of any solar panel or collector system. The larger the collector surface, the quicker it can heat. Typically the collector is installed on the roof to collect as much sunlight as possible. The table and subsections below show each type, its costs, and other information.

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