



# Solar water heater price comparison

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What does a solar water heater cost compared to solar panels? Why would you install a solar heater when solar panels can be seen as more useful? Let's review water heaters as a whole from their inception, and then compare the cost to a photovoltaic installation.

In response to the energy crisis of the 1970s and '80s, solar water heaters (SWH) saw a boom in popularity, with sales peaking in 1984 at 180,000 systems (p. 15) installed nationwide. This popularity was spurred on by a 40% federal tax credit as well as numerous local incentives.

After the federal tax credit ended in 1984, SWH installations dropped significantly. In 2009, just 40,000 SWH were installed (the most since 1984), only 20% of the SWH's golden years (p.16 of the report above).

Today, SWH's main competition is photovoltaic (PV) solar — the solar panels you see on your neighbor's roof, pumping out electricity to power their lights, fridge, heat, and even hot water if they've got an electric water heater.

PV solar is inexpensive, easy to install, and powers more than just your hot water. Considering all that, it begs the question: how much does it cost to install a solar water heater and, even more importantly, is it worth it?

In a word, solar water heaters are energy-saving devices. Standard water heaters (like you probably have in your basement) use gas or electricity to serve two functions: First, they heat the water up to a nice, steamy temperature. Second, they keep it heated in their insulated tanks so you can take a warm and relaxing bath at any time of the day.

As you've probably figured out by now, solar water heaters heat your water using the sun. This lets you avoid using costly electricity or gas to heat your water up, saving you money. PV solar, on the other hand, actually produces electricity, which you can use for your house's appliances or sell to your electric utility through net metering.

Both SWH and PV solar necessitate solar panels on your roof. They might look similar from the ground, but they're actually quite different. SWH collectors have small tubes filled with liquid that the sun heats up. PV solar panels are flat plates of solar-sensitive material that create electricity when hit with sunlight.

SWH decreases your energy use only through your water heater. PV solar decreases your electricity use in your entire household - refrigerator, air conditioning, lights, and any other electric gadgets — giving you the potential to save much more money over the long run (though PV solar is often more expensive to install, read the last section for more on SWH costs).

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Collectors are the panels on your roof that allow the liquid to heat up. There are a few different kinds of collectors, but flat plate collectors are common for residential applications. These are enclosed boxes on the roof. They're flat black on the inside to encourage absorption of the sun's heat, with an absorber plate on the inside bottom. Above that, there are pipes running lengthwise inside the box which contains the liquid - either water for direct SWH or antifreeze for indirect SHW - that heats up and is carried to the water tank.

Just like a conventional water heater, your SWH needs a storage tank to house all that naturally-heated hot water! In fact, SWH systems typically need a backup water heating system for days when it's cloudy or rainy. The backup system can be integrated into the SHW system or be separate. There are two different types of storage for SWH:

Some SWH systems - known as active systems - have an electric pump that "actively" pushes the liquid through the solar collector. Other systems, known as passive systems, rely on gravity to feed water into the solar collectors.

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