



Solar Thermal Water Heating Frequently Asked Questions

**Q: How does a solar water-heating system work?**

Every solar water-heating system features a solar collector that faces the sun to absorb the sun's heat energy. This collector can either heat water directly or heat a "heat transfer fluid" that's used to heat the water. In active solar water-heating systems, a pumping mechanism moves heated water to the storage tank. In passive solar water-heating systems, the water moves by natural convection. In almost all cases, solar water-heating systems work in tandem with conventional gas or electric water-heating systems. The conventional systems operate as needed to ensure a reliable supply of heated water. There are many types of solar water heaters. Each has strengths to recommend it for specific climates and water conditions.

**Q: What are the benefits of using solar energy to heat water in my home?**

If the sun heats your water for free, why would you use anything else? Your solar system starts paying for itself the day it is installed creating energy independence. Second, solar water heaters and other solar technology applications do not pollute (carbon foot print). They do not add to the carbon dioxide, nitrogen oxides, sulfur dioxide, and other air pollutants and wastes produced by most of today's power plants, even those that run on natural gas. Finally, solar water heating in the USA takes care of 40%-80% of your hot water heating needs depending on system size and your homes location.

**Q: Are there any disadvantages to using solar energy?**

Solar thermal water heating products often have higher first costs than other water heating solutions. This means it will probably cost more initially to purchase and install a solar system than it will to purchase and install another kind of water heating system. Still, in nearly all cases, you will recover your initial costs through substantial fuel savings, as shown in lower utility bills, over the life of the product. Many solar systems last from 15 to 30 years. Your existing water heating source will be used as your back up during seasons which low solar radiation is produced to provide enough hot water for your family.

**Q: Can a solar water heater replace an electric or gas water heater?**

Not completely. Your solar water heater, with free solar heated water from the sun, augments your existing water heater thus reducing your energy costs and extending the life of your water heater. Conventional electric or gas water heating systems are still necessary as a supplement to the solar water heating system, largely because the sun might not shine in a particular area for several days at a time. However, because solar water heaters are designed provide hot water directly to the tank of a gas or electric water heater, they reduce the need for the water heater to run on conventional fuels. And this in turn reduces your gas or electric bill. Depending on where you live, solar water heaters can provide 40% - 80% of your home's annual water-heating needs.

**Q: Can solar water heaters be used in northern states and other colder or cloudy climates?**

Yes. Solar water heating technology is effective regardless of the outside temperature. Solar collectors act like a green house. The solar absorber plate draws in solar energy through the collector glass. On cooler but sunny days when you get into your automobile it is usually warmer inside the car. That is solar radiation at work. In colder climates, more energy is required to heat cold incoming ground water, so using solar energy in such conditions could dramatically lower a consumer's utility bills. Solar collectors are protected from freezing temperatures due to the use of our Heat Transfer Fluid (Propylene Glycol) protecting against freeze damage well below 60 degrees below zero.

**Q: Aren't solar water heaters bulky and unattractive?**

Solar collector panels looks have come a long way in the last 20 years. They have a sleek design that fit in well with almost any roof surface. Remember, the collector panel needs to face south and have sun from about 9 am to 3 pm to do the water heating work. If you have a ground location that meets this need, then you may ground mount the collectors instead of roof mounting them.



**TECHNICAL SERVICE DEPARTMENT**  
**Technical Service Bulletin**  
**1-800-432-8373**



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**Q: How much does a solar water-heating system cost?**

The cost of a solar system depends on a number of factors, such as the size of the system and the particular system installer. Solar rebates and other incentives available in your area will reduce that total cost. For tax years 2009 and 2010, the federal government is offering a 30% tax credit on the total installed price of your new solar system.

Some home builders are beginning to list solar water heaters as an option for their homes. Others include them as a standard feature in every home. In some cases, the builder or mortgage company may offer a lower interest rate when solar water heaters or other energy-efficient features are built into a new home, because the buyer can expect to save a significant amount of money on future energy bills.

**Q: How much money will a solar water-heating system save on my utility bill?**

Conventional water heating will never pay for itself. Installing solar locks in your energy costs and protects you against these increases making your own hot water free from the sun. As a matter of fact, the amount of energy falling on the earth in one hour is enough energy we could ever use in a lifetime, if we could only capture it. You will probably save 40%-80% of what they are currently spending today. You can ask your solar system professional how much energy your new system will consume on an annual basis and then subtract that number from your current annual consumption—the total amount of electricity and gas you use—to get an idea of how much you will save.

**Q: How do I find out about financial incentives such as rebates or tax credits in my home state?**

Several resources are available to help you obtain this information. To learn more about financial incentives in your area, please visit the Database of State Incentives for Renewable Energy ([www.dsireusa.org](http://www.dsireusa.org)) and contact your state's energy office (<http://www.naseo.org/members/states/default.aspx>).

**Q: How can I find a reputable solar installer in my home town?**

Shop around and remember - any time you work with a contractor, it is wise to check references. Make sure they are licensed and trained in solar thermal installations. Some states require a special solar installation license; not just a plumbing license. You can also check with the local Better Business Bureau, the state Attorney General's office for any complaints against the contractor.