



4 Oxford Road, Suite D5  
Milford, CT 06460  
Phone: (203) 878-9123  
Fax: (203) 878-9464  
[www.sunlightsolar.com](http://www.sunlightsolar.com)

## Solar Hot Water

After reading this information, please call us at (203) 878-9123 to get started on your own solar system! Rachel, your first contact, will gladly schedule an appointment for a Systems Designer to come to your home and give you a free custom proposal. We do not charge a fee for any preliminary proposals or site surveys.



5.16 kW photovoltaic and  
2-collector hot water arrays

Solar energy never looked so good!!

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### I. Financial Incentives

#### A. Clean Energy Finance & Investment Authority rebate

The Clean Energy Finance & Investment Authority (CEFIA) is currently offering a solar hot water rebate for all residential and non-residential domestic hot water systems. You can receive a rebate on a system that will cover up to 80% of your domestic hot water heating needs. The rebate is calculated based on predicted system output on an annual basis. For residential applications, the CEFIA rebate generally covers about 20-25% of the total system cost. The CEFIA rebate is also available for commercial and non-profit entities, and can cover the majority of the system cost.

**B. Federal Investment Tax Credit**

In addition to the CEFIA rebate, you will be credited 30% of your investment by the Federal Government.

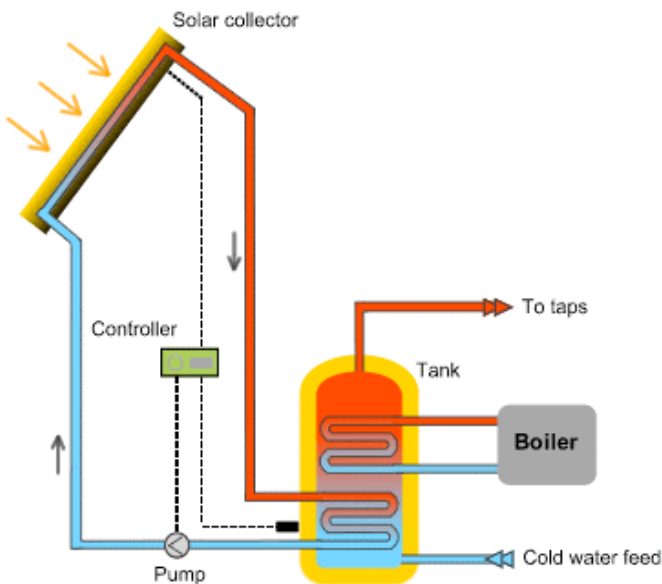
**C. Cost and Energy Production**

The average American uses 20 gallons of hot water per day. A three-person household would require two solar panels (collectors) and a larger household would require three or four collectors. For example, an \$11,000 solar hot water system with a CEFIA rebate of \$2,000 would be eligible for an ITC of \$2,700. Therefore, your net investment would be about \$6,300. The commercial and non-profit system costs will vary greatly according to the hot water usage of the building. Please call us to receive a free quote.

**II. Solar Technology**

**A. How a Hot Water System Works**

Solar hot water systems capture the heat of the sun and use it to heat water.



As shown in the picture to the left, the sun heats a non-toxic, freeze-proof solar fluid that is hotter than the water in the hot water tank. The collector detects that the solar fluid is hotter than the water in the tank. A pump in the Solar Station pumps solar fluid from the collector to the tank and it flows through a pipe coiling inside the tank to heat the water. The hot water is available for use in the house. The solar fluid is pumped back up to the collector, where it is once again heated by the sun.

**B. Quality & Warranties**

Most hot water systems have a five-year warranty protection plan and the products, including tank, have a ten-year warranty. SSE has a three year labor warranty on all hot water systems. Closed-loop technology is at the cutting edge of efficiency and reliability. The systems install quickly and are up and running with minimal disruption.

**C. Solar Collectors**

The solar collectors turn solar radiation into heat. Solar collectors provide industry-leading heat collection efficiency. Tempered safety glass, a tough aluminum frame, and corrosion-resistant materials ensure long service life. The collectors use propylene glycol instead of water. Glycol is a more efficient heat transfer agent, it does not freeze, and algae will not grow in it. It is safe and non-toxic. The solar fluid generally needs to be changed every 12-15 years, though it is best to check it periodically (about every 3-5 years). By using propylene glycol, these systems do not have a "heat dump" pipe on the roof but instead utilize the fluid as overheat protection.

#### D. Water Heater Tank and Other Components

The storage tank is where the heat from the collectors is transferred to your water system and stored. The solar fluid never touches the water because of the heat exchanger.

Domestic hot water systems use controllers that provide automatic system control and show the system's yield and temperature. The Solar Station contains all the plumbing. The Manufacturer installs the pump, valves, and fittings in the factory so everything works the first time. This also means that no additional soldering is necessary in your home.



We mount the collectors on your roof with a mounting system. This hardware is carefully engineered for durability and strength.



### III. Installation Considerations

#### A. Orientation

Just as with a solar electric system, a southern-facing roof is ideal. However, southeast, southwest, and even east and west roof orientations can also work. For east and west roofs, we usually tilt the panels towards the south for maximum production.

#### B. Roof

Solar collectors are designed and installed to withstand severe weather conditions including hurricane-force winds and hail storms. In addition to our own rigorous installation standards, your system will be reviewed, inspected, and approved by your municipality.

Two collectors will occupy 50 square feet and three collectors will occupy 75 square feet on your roof.

#### C. Shading

The solar collectors are not as sensitive to shading as photovoltaic panels. However, it is ideal to have no shade on your roof where the collectors will be located. Shading problems from trees can be handled by pruning, topping off, or cutting down trees and replacing them with shorter-

growing trees and bushes; shading caused by chimneys and dormers are unavoidable obstructions.

During our site survey we will climb on your roof and take accurate measurements to identify potential shading challenges.

*D. Aesthetics*

A 45-55 degree tilt of the roof is the optimum overall average for solar hot water collectors in Connecticut, although we will work with any roof pitch. Typically we suggest using the natural pitch of your roof.

When tilt mounting panels on east or west facing roofs, solar hot water collectors work best at tilts not less than 22-degrees.

*E. Array Maintenance*

Our best maintenance suggestion is to visually inspect the collectors at least once a year. If anything looks amiss, just give us a call. It is also good to keep the collectors free from dirt, dust, salt, pollen, and debris. You may hose down the collectors with water. A mild non-abrasive detergent can be used to take care of persistent dirt.

Call us today to  
schedule your  
site survey!

(203) 878-9123

