

SOLAR ENERGY FOR DOMESTIC HOT WATER

WHAT CAN YOU DO WITH *Over 300 days of sunshine?*

In Colorado the sun shines 300 days a year! Imagine what we could do if it was used to generate electricity, heat our homes and offices and provide us with hot water!

If you're interested in solar power a good place to start is using solar to heat water in your home. Known as solar thermal, it is one of the most practical uses for solar. It's an efficient way to make a big difference in your energy use.

Heating water for bathing, dishwashing, cleaning, pool and spa heating is one of the most practical uses for solar. About 70 percent of the energy needed in American homes to heat water can be saved by using solar thermal.

Install solar thermal if you are:

- ***Building a new home or remodeling.***

Include your system as part of your home mortgage. In long-term loans of 20 years or more, the monthly solar savings could be greater than the monthly mortgage payments for the solar system.

- ***Replacing a furnace or hot water heater.***
- ***Heating a pool or spa.***
- ***Using propane or electricity for heating water.***
- ***Installing hydronic heating.***



(303) 441-3278

email: crc@conservationcenter.org

www.conservationcenter.org

www.resource2k.org

Additional Resources

www.coseia.org

Colorado Solar Energy Industries Association
of certified solar installers

www.cres-energy.org

Colorado Renewable Energy Society

www.millionsolarroofs.com

Department of Energy Million Solar Roofs web site

www.solarenergy.org

Solar Energy International

www.ASES.org

American Solar Energy Society

www.SolarAccess.com

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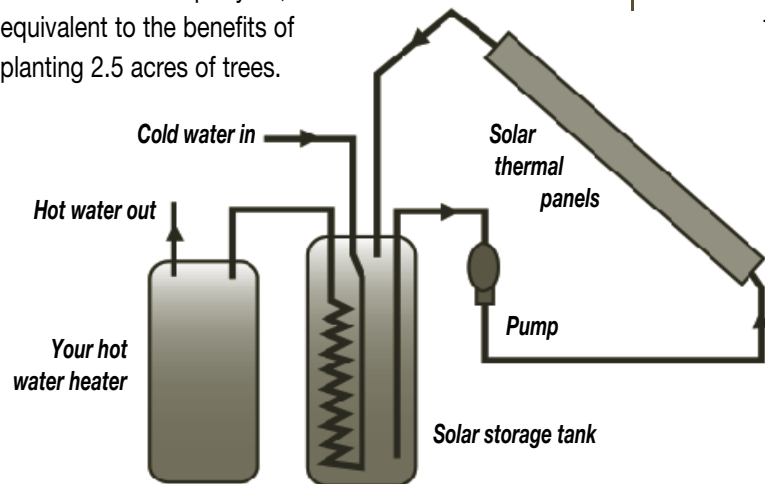


SOLAR THERMAL BENEFITS

Solar power is a renewable source of energy that is an alternative to non-renewable fossil fuels. Using fossil fuels like coal or natural gas increases carbon dioxide emissions that contribute to air pollution, resulting in dangerous changes to our global climate. Using renewable energy sources, such as solar power, preserves fossil fuels for future generations, and reduces the impact on the global climate.

With solar water heating, your investment is not in fuel but in equipment. That means the cost of heating your water won't increase for the life of the system (20-30) years. A standard solar hot water system saves a typical family of 4 about \$370-\$500 per year. If energy prices increase, the system will save you even more money while reducing carbon emissions.

A family of 4 requires approximately 100 gallons of hot water per day. To heat that water with electricity with fossil fuels uses about 20 pounds of coal per day. Using solar will eliminate 7 tons of carbon dioxide emissions per year, which is equivalent to the benefits of planting 2.5 acres of trees.



HOW DOES IT WORK?

Collectors measuring between 4' x 8' or 4' x 10' are placed on the roof or ground facing south with as much exposure to the sun as possible. Mounting them flush to the roof is a common practice to reduce exposure to wind.

The collectors have a large flat black plate. As the collectors heat, a thermostatic device pumps the water through the collectors. The water circulates through copper coils in the hot plate and the water is then pumped to a large well-insulated storage tank, commonly in the basement. The main water heater/boiler utilizes this pre-heated water. The main water heater/boiler is connected to another source of fuel such as natural gas or electricity to supply additional backup heat, as needed.

These systems are referred to as "drainback" because water drains back into the tank to protect the system. On extremely cold or cloudy days the water will not circulate through the collectors eliminating problems with freezing. The only time the water heater will need fossil fuel is during a string of very cold and cloudy days or when your needs exceed the capacity of the storage tank. These systems are very reliable and will last 25 years with minimal annual maintenance.

WHAT SIZE SYSTEM?

A two-panel system (64 sq ft of surface area) with a storage tank, controller and pump is sufficient to heat water for a family of four. It will produce up to 70 percent or more of your hot water needs depending on the available solar source. Heating a home with solar will require more panels depending on the size of your home and the amount of heat that solar is expected to provide.

A two-panel system that heats a large percentage of your hot water will cost between \$4,800-\$5,200. A 5-panel system that will heat hot water and your home will cost around \$7,000 to \$10,000. The added value to your home and the comfort of solar heated hydronic heating will outweigh the initial investment. Investing in solar now builds energy independence and moves us toward a healthier future.

Contact us! Call us! 303-441-3278.

Visit our website at www.conservationcenter.org or email at: crc@conservationcenter.org. We'll help you get started! The CRC can answer many of your questions and we can refer you to certified experienced solar installers.



All the Earth's fossil fuels put together- all the oil, coal, and natural gas- are equivalent to less than the energy from 30 days of sunshine striking the Earth.