



Efficient Water Heating

Join your neighbors in saving energy and money

Greening your life



Water heaters account for **25% of the average household's energy use in California.** Heating water for showers, baths, washing machines and dishwashers can add to your gas and electricity bill, as well as increase your carbon footprint. The good news is that there are some basic steps you can take (as well as new technologies on the market) that can benefit your wallet and our environment.

Five steps: Get Started with Water Heating

LOWER THE WATER TEMPERATURE

1

Reduce your water heater thermostat to 120 degrees—or to the low to medium setting. Each 10 degree reduction will save three to five percent on your water heating costs.

INSTALL LOW-FLOW FIXTURES

2

Typical showerheads flow at about three to eight gallons per minute. New advanced showerheads reduce flow rates to two to three gallons per minute, and can save you up to 50% on your hot water costs without reducing water pressure.

INSULATE YOUR WATER HEATER AND PIPES

3

Reduce your water heating costs up to 10% by installing a water heater insulation blanket around the water tank. Also, insulate all exposed hot water lines to increase the temperature at the faucet by two to four degrees and reduce heat loss through the pipes.

DRAIN THE SEDIMENTS FROM THE TANK

4

Drain at least one quart of water from your hot water tank every three months to remove sediment. This increases the unit's life and improves its efficiency.

FIX LEAKS

5

You can significantly reduce hot water use by simply repairing leaks in fixtures—faucets and showerheads—or pipes. A leak of one drip per second adds over a dollar a month to your energy bill.

Ready to upgrade your water heater?

Most water heaters last about 10 to 15 years, and when they die, they die quickly—and often at the worst possible moment. In an emergency situation like this, most of us don't have the time to research the best alternative replacement technology, and we may end up with the technology that our plumber is most familiar with or that is in stock. On the other hand, planning a retrofit for a home or business can provide significant energy savings and cost savings. Look for the Energystar label on efficient water heaters in the categories below.

TANKLESS OR 'ON DEMAND' GAS WATER HEATERS

What are they?

Rather than keeping large amounts of water hot at all times (which is as inefficient as it sounds), on-demand units heat water directly over a heat exchanger and send it to the shower, dishwasher, or sink as soon as you turn on the tap. Because on-demand units don't store water, they are typically much smaller than standard water heaters—providing an added benefit for condos, apartments and other small spaces.

The downsides: Santa Barbara's 'hard' water can cause scale buildup on tankless water heating elements, potentially reducing efficiency and function. Soft water systems are suggested. Also, tankless heaters often require installation of larger gas lines, as they require more than 40,000 BTUs per hour. (You can find out the size of your gas line simply by contacting your local plumber or building contractor.)

How much do they cost?

Tankless water heaters are most cost-effective when installed during new construction. Replacing an existing storage tank water heater with a tankless unit can run between \$2,500 and \$3,500

before rebates, and upgrading a gas line can cost \$2,000 or more depending on size, length of line, and location. With an annual energy savings of 30%, a tankless heater can almost pay for itself within its lifetime if you don't have to replace the gas line.

Finding a tankless dealer courtesy of the American Council for an Energy Efficient Economy (ACEEE) :

Bosch (Aquastar)
866.330.2725
bosch-climate.us

Bradford White
800.523.2931
bradfordwhite.com

Eccotemp
866.356.1992
eccotemp.com

Infinion
800.873.3507,
tanklesswaterheaters.com

Monitor Products
800.524.1102
monitorproducts.com

Paloma Rheem/Ruud
866.720.2076
rheemtankless.com

Rinnai
866.746.6241
foreverhotwater.com

SEISCO
888.296.9293
seisco.com

Takagi
888.882.5244
takagi.com

SOLAR THERMAL WATER HEATERS WITH GAS OR ELECTRIC STORAGE

What are they?

These technologies rely on the sun's thermal energy to pre-heat water—reducing the amount of gas or electricity required to heat stored water to the desired temperature. Water is run through a 'solar collector,' or pipes on the roof where the water is heated by solar energy. The heated water is then sent to the existing storage tank, making this system ideal for retrofits as well as new construction.

How much do they cost?

While annual energy savings of 43 percent for gas or 50 percent for electric can dramatically reduce your energy bill, solar does

entail a high initial investment of approximately \$6,000 (after rebates). Overall, a solar assist system with a 20-year life can save over \$3,700 on your energy bill with gas storage, and \$7,100 over the life of the system with electric storage. Also, new federal tax credits, state rebates, and local financing programs can make these systems much more affordable.

LOCAL INSTALLERS:
Mac's Solar
805.682.3386
macsolar.com

The Solar Energy Company
805 566 2127
solarenergycompany.com

Dexter's Solar Radiant Heating
805.884.5188

ELECTRIC HEAT PUMP WATER HEATERS

What are they?

Heat pump water heaters transfer heat from the surrounding air or ground to water in the heater’s tank. Heat pumps are very efficient compared to the typical electric-powered tank-type water heaters. Air source heat pumps require a large surrounding air space if they use ambient air as the heat source, making them a less attractive technology for replacement of a traditional water heater in a closet. However, if your water heater is in a larger space like the garage, an air source heat pump would actually cool the surrounding air – an added benefit in hotter seasons!

How much do they cost?

Air source heat pumps are being installed in other parts of the country for around \$1500. Ground source heat pumps are a bit more expensive due to underground drilling and piping, but are more reliable due to near-constant temperatures below ground. Upgrading from an electric storage tank water heater to

an electric air source heat pump with double the efficiency pays for itself in three years when factoring in the new 30% federal tax credit (maximum \$300). Even switching from a gas storage tank to an electric air source heat pump (assuming the electrical capacity currently exists) pays for itself within its approx. ten year lifetime. And think about the climate change benefits if the new electric system were operated via solar energy!

We are working to increase heat pump availability in our region. In the meantime, several potential manufacturers are listed by the American Council for an Energy-Efficient Economy (ACEEE):

Airgenerate-AirTap

713 574 6729
airgenerate.com

Trevor-Martin—Hot Water Generator

727 410 2226
trevormartin.com

How do they compare?

Tankless, solar, and heat pump water heating technologies are suitable for both residential and commercial buildings. When choosing a system, you’ll want to consider the building size and the needs of the occupants. While some of these systems have noticeable up-front costs, it’s important to consider the energy costs and savings over the life of the appliance. This is particularly important for those people looking to stabilize their utility bills, as it is likely that energy costs will continue to rise in the future. (Table below uses constant energy costs)

	Tankless Gas	Solar w/Gas	Solar w/Electric	Electric Heat Pump
Energy Factor	0.8	1.2	1.8	2
Annual Energy Savings	74 therms	111 therms	2424 kWh	2662 kWh
Annual Monetary Savings	\$80	\$140	\$280	\$370
Life Expectancy (years)	20	20	20	10
Lifetime Savings	\$1,700	\$2,900	\$5,200	\$2,850
Installed Cost	\$3,000	\$7,500	\$7,500	\$1,500
Tax Credit/Rebate	\$300	30%/\$2175	30%/\$1834	\$300

Additional solar resources

ENERGY EFFICIENCY RESOURCES

To maximize the benefit of a solar installation, you should first trim down the building's energy use and make the building as efficient as possible. Through Energy Upgrade California (energyupgradeca.org) you can get rebates for up to \$4,500 for these improvements.

Additionally emPowerSBC (empowersbc.org) can help you finance both home energy efficiency upgrades and solar electricity.

COMMUNITY ENVIRONMENTAL COUNCIL

CEC is one of the oldest environmental organizations in southern California, having been founded in 1970 as a result of the oil spill off Santa Barbara's shores. Over the last four decades, CEC has pioneered real-life solutions for the community in the areas of pesticide reduction, organic agriculture, green building, hazardous waste collection and recycling.

Today CEC is focused on weaning our region from fossil fuels and energy-intensive products. Promoting solar installations is one of several strategies that CEC has outlined to reach this aggressive goal.

For information or to get involved, visit cecsb.org.



FINDING A SOLAR INSTALLER

Installers can provide you with complete information about current costs and the details of installation. We suggest you talk to at least two installers. All installers are PV only unless otherwise noted.

A1 Solar

855.410.4700
a1solarpower.net

Allen Energy

(PV and Water)
805.324.5774
buildtoperform.com

California Solar Electric

805.640.7903
californiasolarelectric.com

Coastal Solar

805.427.1368
coastalsolarventura.com

Good Energy Renewables

805.452.7136
goodenergyrenewables.com

Mac's Solar (Water)

805.682.3386
macsolar.com

Planet Solar

800.859.SOLAR
planetsolar.com

Prime Solar Co.

805.646.8383
prime-solar.com

REC Solar / Sunrun

805.528.9705
recsolar.com

Santa Ynez Valley Solar

805.688.1213
syvsolar.com

Solar City

805.765.2489
solarcity.com

The Solar Energy Company

(PV and Water)
805.566.2127
thesolarenergycompany.com

Solarponics Energy Systems

805.466.5595
solarponics.com

Solforce

805.695.0015
solforce.com

Solwave

805.324.4433
solwavesolar.com

Sun Pacific Solar Electric Inc.

805.965.9292
sunpacificsolar.net



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805.963.0583
cecsb.org