

Additional solar resources



Federal initiative: Million Solar Roofs

The U.S. Department of Energy has set a goal of seeing solar energy systems installed on one million roofs in the U.S. by 2010. The Community Environmental Council is facilitating the construction and installation of at least 750 of these systems by coordinating a Million Solar Roofs Partnership, which brings together business, government, the energy industry, and community organizations to further solar initiatives in our region. Review other materials -- including a detailed report on overcoming local barriers to solar installations -- at www.FossilFreeBy33.org.



Statewide initiative: Go Solar California

The state of California has set a goal of creating 3,000 megawatts of new, solar-produced electricity by 2017. For a complete list of resources for homes, schools, businesses and government buildings, visit www.gosolarcalifornia.ca.gov.

Energy efficiency resources

Most solar installers will agree that, 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. Community Environmental Council is helping local residents and businesses become more energy efficient through a partnership between local government agencies and Southern California Edison. For details visit www.SCEEP.org.



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 three 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 eliminating the use of fossil fuels in our region within the next generation. Promoting solar installations is one

of several strategies that CEC has outlined to reach this aggressive goal in our plan *A New Energy Direction: A Blueprint for Santa Barbara County*. For information on the campaign or to get involved, visit www.FossilFreeBy33.org.



CEC's Solar Case Studies and Get Started series

Download more materials like our residential and commercial solar case studies and our Get Started series including:

- Get Started with better lighting
- Get started with water heating
- Get Started with easy home conservation
- Get Started with solar

All are available at www.FossilFreeBy33.org

Get started with solar!

Solar photovoltaics and solar thermal systems are great options for the environment and potentially for your pocketbook. Rebates and tax credits can help bring down the initial cost of a system significantly and in many cases make it possible to start saving money with your new system right away.

10 steps to getting started



1 Learn about solar technologies.

For general information about the different solar technologies, visit the Energy Efficiency and Renewable Energy office of the U.S. Department of Energy at www.eere.energy.gov/solar or visit the California Energy Commission's website at www.gosolarcalifornia.ca.gov.

2 Get an energy audit before going solar.

Before you start planning the size of your solar installation, evaluate how much energy you could save by making your home more energy efficient. Complete an online audit at www.fypower.org/res/energyaudit/diy.html, and for a more specific energy audit contact your

local utility. There are many reasons to go solar. If your electricity bills are low but your natural gas bills are high, you may benefit from adding solar and converting to electrical appliances, or installing a solar thermal system to heat water.

3 Assess the most efficient location for panels.

Figure on needing 100 square feet of panels per kilowatt (kW). A typical home installation is 2.5 or 3 kW AC, so you would need about 300 square feet for panels. You will need unshaded roof or ground space facing South, West or East, with the panels angled between 5 and 30 degrees.

4 Consider the aesthetics.

While a state mandate prevents architectural boards and homeowners associations from restricting solar panel installation based solely on aesthetics, we strongly encourage you to consider your system's visibility to the neighborhood and visual integration with existing buildings.

Consider a high performance location with low public visibility, installing

"building integrated technologies" (such as thin panels that act as roof tiles) or using framing and mounting techniques that maximize a system's visual integration. The City of Santa Barbara, Carpinteria and Santa Barbara County all have design review guidelines (see inset on next page.)



5 Talk to a contractor who specializes in solar.

Installers will assess your location and suggest the size and type of system that is best for you. We recommend getting bids from at least two established local contractors with proven track records. Some things to look for: local affiliations and memberships (such as the Santa Barbara

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www.FossilFreeBy33.org • www.CECSB.org • www.GetEnergized.org

Contractors Association and Better Business Bureau), proper licensing (go to www.cslb.ca.gov/ to check on a specific contractor) and certification from the North American Board of Certified Energy Practitioners. Domestic hot water systems need to be certified by the Solar Rating and Certification Corporation (SRCC) – the national ratings lab for all hot water systems.

6 Reserve your incentives.

Your local utility will provide you or your installer with an incentive application form. After they receive your completed application, they will reserve funds based on the size of your solar project. These funds will be reserved for a period of time indicated in each program, by which time you must provide adequate proof of progress towards installing your system. Normally your solar installer will handle this process.

7 Install the solar system and get your permits.

Photovoltaic systems and hot water systems require a building permit, which would be handled by your contractor. Systems that are mounted on the ground rather than the roof may require a land use permit and may need to be approved by the county or city architectural review board.

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.

Above the Waterline
(specializes in marine systems)
(805) 455-8444
abovethewaterline.net

Advanced Solar Electric
(818) 889-9033
advancedsolarelectric.com

Akeena Solar
(888) 253-3628
akeena.com

California Solar
(805) 522-2747
californiasolar.com

California Solar Electric
(805) 640-7903
californiasolarelectric.com

Cooperative Community Energy Corporation
(805) 636-6086
ccenergy.com

Deventec
(805) 544-6786
deventec.com

Mac's Solar
(805) 682-3386

Pacific Solar Works
(805) 350-0202

Prime Solar Co.
(805) 646-8383
prime-solar.com

REC Solar
(805) 528-9705
recsolar.com

R&M Technologies
(battery back-up and off-grid systems)
(805) 563-2434
rmtec.net

Solar 101
(805) 969-1301
solar101.com

Solar City
(805) 765-2489
solarcity.com

Solar Electrical Systems
(805) 497-9808
solarelectricalsystems.com

The Solar Energy Company
(805) 566-2127
thesolarenergycompany.com

Solar Power Systems
(805) 346-1766
solarpower-sys.com

Solforce
(805) 695-0015
solforce.com

SunPacific Solar
(866) 9-got-sun
sunpacificsolar.net

URS Corporation
(specializes in large systems)
(805) 964-6010
urscorp.com

8 Claim your state rebate.

After the building permit has been signed off, claim your reserved rebate. Getting your check can take up to three months; however many installers will handle this application process for you and float the rebate, automatically deducting the rebate from your final bill.

9 Complete interconnection with the utility.

Once you've received signoff on the building permit, the utility interconnection process can be finalized. Within five to ten business days after the utility company receives a completed application, you get permission to operate your solar system. Your solar electric installer will handle this process.

10 Apply for your tax credits.

Under current tax code, when you file your federal income tax return you will receive a tax credit of 30 percent of your out-of-pocket, after-rebate costs for any solar system installed through 2016.

Design review

The different municipalities throughout the Santa Barbara region have varying levels of design review and incentives. Depending on your location, please refer to the below design review guidelines:

- ✓ **City of Santa Barbara** visit www.santabarbaraca.gov/Resident/Home/Guidelines. Also consider designing a system that is eligible for a City Council recognition award.
- ✓ **City of Carpinteria** call (805) 684-5405. You may also refer to Municipal Code Section - Architectural Review Board 2.36 at municipalcodes.lexisnexus.com/carpinteria/
- ✓ **County of Santa Barbara**, as of fall 2008, was in the process of updating their permit requirements and design guidelines. For more information, contact the Planning and Development Department at pad@co.santa-barbara.ca.us or (805) 568-2000, or visit www.sbcountyplanning.org

Financing your solar installation

California Solar Initiative

The California Energy Commission's New Solar Homes Partnership focus on solar photovoltaic (PV) systems for new home construction. Information is available at www.gosolarcalifornia.ca.gov/nshp. The California Public Utilities Commission (CPUC) provides incentives for all other residential and non-residential customers under the California Solar Initiative (CSI). The State program currently funds only solar PV (electric) systems. Rebates for solar hot water systems are in the testing phase.

How much are State incentives?

PV rebates given through the California Solar Initiative are performance-based incentives that reward properly installed and maintained solar systems. The incentives (described in Table A) are determined according to the system size, as follows:

- For PV systems **greater than or equal to 50 kilowatts** in size, incentives are paid monthly based on the actual energy produced for a period of five years. This incentive path is called Performance Based Incentives (PBI). Systems of any size may elect to opt into the PBI program.
- Incentives for all systems **less than 50 kilowatts** will be paid a one-time, up-front incentive based on expected system performance, calculated based on equipment ratings and installation factors, such as geographic location, tilt, orientation and shading. This type of incentive is called Expected Performance-Based Buydown. See Table A for incentive rates.

The incentive payment levels will automatically be reduced over the duration of the California Solar Initiative program in 10 steps, based on the volume of megawatts of confirmed reservations issued within each utility service territory. On average, the California Solar Initiative incentives are projected to decline at a rate of 7 percent each year.

Federal tax credit

The federal Energy Improvement and Extension Act of 2008 provides incentives for homeowners and businesses to install solar by providing a federal tax credit. Between January 2009 and December 2016, homeowners can receive a 30% tax credit for installing photovoltaic or solar domestic water heating projects. Businesses can also receive a 30% tax credit on photovoltaic, solar thermal, concentrating solar power, and solar hybrid lighting projects.

Table A: California Rebates
California Solar Initiative (CSI) Program Incentive Structure

Type of CSI Incentive	Size Category	Payment Structure	Eligible Customers and Incentives	Eligible Technologies
Performance Based Incentive (PBI)	>50kW	Payments based on \$/kWh produced over 5-year term	Residential/Commercial (\$0.34/kWh) Government/Nonprofit (\$0.32/kWh)	Photovoltaics only; solar water heating to be determined
Expected Performance Based Buydown (EPBB)	>50kW	Lump sum up-front, based on \$/watt calculation	Residential/Commercial (up to \$2.20) Government/Nonprofit (up to \$2.30)	Photovoltaics only; solar water heating to be determined

Table B: Federal Tax Credits

Type	Incentive	Cap	Incentive Period
Residential	30%	none	Jan 2009—Dec 31 2016
Commercial	30%	none	Jan 2009—Dec 31 2016

Estimating the payback period

You will often hear the word “payback period” in relation to solar power. This is the length of time it takes to pay for your solar system through your energy bill savings. Calculate it with the following formula:

$$\text{Payback} = \frac{\text{System cost}}{\text{(monthly energy bill savings} \times 12)}$$

For example, if your system cost \$20,000 and it saves \$200 off your electricity bill each month:

$$\text{Payback} = \frac{\$20,000}{(\$200 \text{ a month} \times 12)} = 8.3 \text{ years}$$

This is an oversimplified calculation and does not include financing costs or escalating electricity costs from your utility, or other important considerations. Perform a more complete calculation at www.consumerenergycenter.org/renewables.

Solar financing

Most lending institutions offer loans for solar installations, just like they do for any home improvement. Be sure to check your local rates and restrictions.

Additionally, several companies are beginning to offer leases and power purchase agreements. Leases from companies allow homeowners to pay a portion of the price upfront and then pay a monthly installment over the life of the contract (much like a car lease). A power purchase agreement allows homeowners to purchase their electricity from a third party, while not actually owning the equipment. In both cases, a solar system is installed on a home, but the homeowner is not responsible for maintenance, monitoring, or upkeep. And in most instances the homeowner will end up paying less for electricity than they would have through their local utility.

Locally, Akeena Solar, REC Solar, and Solar City offer these services (contact information on the previous page).