

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. The City of Santa Barbara participates in the partnership, and this brochure is one of the partnership's products. 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.

City of Santa Barbara solar publications

- ✓ *Solar Energy System Design Guidelines and Recognition Program*
- ✓ *Passive Solar Design Guidelines and Recognition Program*
- ✓ *Solar References and Resources*

City of Santa Barbara solar recognition program

Projects that follow the City of Santa Barbara's Solar Design Guidelines are eligible for recognition certificates. Certificates are presented to property owners, businesses and contractors by the City Council each summer. Plaques are awarded for the best project examples.

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. The City of Santa Barbara and the Community Environmental Council are helping local residents and businesses become more energy efficient through a partnership between local government agencies and Southern California Edison. For details visit www.southcoastenergywise.org



Community Environmental Council

CEC is one of the oldest and most established 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 largely 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. For information on the campaign or to get involved, visit www.FossilFreeBy33.org.

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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



Sun First Energy Systems

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.sce.com and use your customer number on your electric bill to request a history of your

electric usage. 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. To review the City of Santa Barbara's Solar Energy System Design Guidelines, visit www.santabarbaraca.gov/Resident/Home/Forms/design_guidelines.htm. Also consider designing a system that is eligible for a City Council recognition award.



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

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established local contractors with proven track records. Some things to look for: local affiliations and memberships (such as the Santa Barbara 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.

The program administrator will provide you or your installer with an incentive application form. After the program administrator receives your completed application, it will reserve funds based on the size of your solar project. These funds will be reserved for periods of time indicated in each program, by which time you must provide adequate proof of progress towards installing your system. The administrator will require you to provide documentation to show that you are moving forward with the project.

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.

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.

Tax incentives change from year to year. 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 in 2006 or 2007. The tax credit is capped at \$2,000 for homeowners, but businesses (including home-based businesses) can take the full 30 percent. You are also eligible for an exemption on your state property tax.

Financing your solar installation

California Solar Initiative

As of January 1, 2007, the California Energy Commission's New Solar Homes Partnership will 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) will provide 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. It does not provide rebates for solar hot water systems.

How much are State incentives?

Starting in January 2007, PV rebates given through the California Solar Initiative will change from the current capacity-based payments to performance-based incentives that reward properly installed and maintained solar systems. The incentives (described in Table A) will be determined according to the system size, as follows:

- For PV systems **greater than or equal to 100 kilowatts** in size, incentives will be 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 100 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 following the start of implementation in 2007. The incentives will gradually phase out over the 10 steps.

Federal tax credit

The federal Energy Policy Act of 2005 provides incentives for homeowners and businesses to install solar by providing a federal tax credit. Between January 2006 and December 2007, homeowners can receive a 30% tax credit, capped at \$2,000, for installing photovoltaic or solar domestic water heating projects. Businesses can receive a 30% tax credit on photovoltaic, solar thermal, concentrating solar power, and solar hybrid lighting projects with **no cap** on the tax credit.

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)	>100 kW	Payments based on \$/kWh produced over 5-year term	Residential/Commercial (\$0.39/kWh) Government/Nonprofit (\$0.50/kWh)	Photovoltaics only; solar water heating to be determined
Expected Performance Based Buydown (EPBB)	<100 kW	Lump sum up-front, based on \$/watt calculation	Residential/Commercial (up to \$2.50) Government/Nonprofit (up to \$3.25/watt)	Photovoltaics only; solar water heating to be determined

Table B. Federal Tax Credit

Type	Incentive	Cap	Incentive Period
Residential	30%	\$2,000	Jan 2006 - Dec 2007
Commercial	30%	none	Jan 2006 - Dec 2007 Credit reduces to 10% in 2008

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. A more complete calculation can be performed at www.consumerenergycenter.org/renewables/estimator.

Solar loans

Santa Barbara County Federal Credit Union provides a solar financing option to its members through its no hassle solar loan program. The program provides a home equity line of credit up to \$15,000 at an APR currently as low as 7.00% (as of June 2007, and subject to change.) To become a member of the credit union, you must be an employee (or a relative of an employee) of a business or organization that is a membership qualified employer. Any business can apply for membership at www.sbcreditunion.com.

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	Dexter's Solar Radiant Energy Services (805) 884-5188	The Solar Energy Company (805) 962-8898 thesolarenergycompany.com
Advanced Solar Electric (818) 889-9033 advancedsolarelectric.com	Mac's Solar (805) 682-3386	Solar Power Systems (805) 346-1766 solarpower-sys.com
California Solar (805) 522-2747 californiasolar.com	Pacific Solar Works (805) 350-0202	Solforce (805) 695-0015 solforce.com
California Solar Electric Company (805) 640-7903 californiasolarelectric.com	REC Solar (805) 528-9705 recsolar.com	SunRay Solar Electric (805) 689-1479 sunraysb.com
Cooperative Community Energy Corporation (805) 636-6086 ccenergy.com	R&M Technologies (specializes in battery back-up and off-grid systems) (805) 563-2434 rmtec.net	URS Corporation (specializes in large systems) (805) 964-6010 urscorp.com
Deventec (805) 544-6786 deventec.com	Solar 101 (805) 969-1301 solar101.com	

Design review

In the City of Santa Barbara, a project that may have the potential for visual or historic significant impacts could be subject to design review, i.e.:

- ✓ Design Review has been triggered for some other aspect of a larger project which includes the solar energy system.
- ✓ The system is proposed on a site with a historically significant structure.
- ✓ The project has more than 1,000 sq. ft. of panels, with placement and design that may create potentially significant visual impacts.
- ✓ The system is proposed in a Special Design District, with placement and design that may create potentially significant visual impacts.