Community Environmental Council

Solar Energy

Join your neighbors in saving energy and money

Greening your life

Solar photovoltaics and solar thermal systems are great options **for the environment** and potentially **for your pocketbook**. **A federal tax credit and rebates** 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.

Eight steps: Get Started with **Solar**

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 planning the size of your solar installation, evaluate how much energy you could save by making your home more energy efficient. Visit **www.empowerSBC.org** for more information on energy audits and energy efficiency.

3 ASSESS THE MOST EFFICIENT LOCATION FOR PANELS

Figure on needing 80 square feet of panels per kilowatt (kW). A typical home installation is 3 - 7 kW DC, so you would need anywhere from 240 - 560 square feet for panels. The ideal location is unshaded roof or ground space facing South, West or East, with the panels angled between 5 and 30 degrees.

4 TALK TO A CONTRACTOR WHO SPECIALIZES IN SOLAR

Installers will assess your location and suggest the size and type of system. We recommend getting bids from at least two established local contractors. Some things to look for: local affiliations (such as local Contractors Associations and Better Business Bureau), proper licensing (go to **www.cslb.ca.gov**) and certification from the North American Board of Certified Energy Practitioners.

5 CONSIDER THE AESTHETICS.

A state mandate prevents architectural boards and homeowners associations from restricting solar panel installation based on aesthetics, but we encourage you to consider your system's visual integration with existing buildings. If possible, consider a high performance location with low public visibility, installing or using framing and mounting techniques that maximize a system's building integration.

6 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.

7 COMPLETE INTERCONNECTION WITH THE UTILITY

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

8 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 costs for any solar system installed through 2016.

Incentives and financing

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. Through 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.

NET EXCESS METERING

The State of California requires that utilities allow their customers to meter energy use on a net basis. This means that if a solar array produces more energy than is consumed in one month, that excess generation is rolled over to the next month as an energy credit. The metering period is 12 months, and at the end of those 12 months, the utility is required to pay the customer for any excess generation. If you have a solar array already and have not been notified of your options, contact your utility.

CALIFORNIA SOLAR INITIATIVE

The California Public Utilities Commission (CPUC) provides solar incentives for residential and non-residential customers under the California Solar Initiative (CSI), including multi-family and single-family affordable housing, existing commercial and residential properties, and solar water heating. **Rebates for residential solar PV systems are no longer available in PG&E and SCE territories.**

The California Energy Commission's New Solar Homes Partnership focus on solar photovoltaic (PV) systems for new construction. Information is available at **gosolarcalifornia.ca.gov/nshp**.

HOW MUCH ARE STATE INCENTIVES?

Rebates given through the California Solar Initiative are performance-based incentives that reward properly installed and maintained solar systems. The incentives (summarized in the tables on the next page) are determined according to the system performance, or expected performance, as follows:

Photovoltaic (PV) solar:
State rebates for residential solar PV systems are no longer available in PG&E or SCE territories. State rebates for non-residential (government, commercial and non-profit) solar PV systems are still available in SCE territory but have been fully subscribed in PG&E territories.

Solar water heating
A rebate program administered by your local utility company is available for electric and natural gas powered heaters in residential and commercial properties. The program is retroactive from July 15, 2009 and runs through 2017. Rebates are based on energy displaced and will be the same for commercial and residential systems, though the maximum caps vary and budget allocation is limited . Incentive payments will decline with time. Visit **gosolarcalifornia.ca.gov/solarwater/** for more information.

Incentives and financing (cont.)

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:

PAYBACK = System cost /(monthly energy bill savings x 12)

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

PAYBACK = $20,000 /($200 a month x 12) = 8.3 years

This is an oversimplified calculation and does not include financing costs or escalating electricity costs from your utility, or other important considerations.

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.

Several companies 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. In most instances the homeowner will end up paying less for electricity than they would have through their local utility.

If you own your home and have completed some basic energy efficiency improvements through the Energy Upgrade California rebate program, another financing option in Santa Barbara County is a low interest loan through the emPowerSBC program. With emPowerSBC, the County of Santa Barbara has partnered with Coast Hills Credit Union to offer low interest, unsecured loans to homeowners for energy efficiency and solar upgrades. Check out **www.empowersbc.org** for more information. The emPower program will be expanding to Ventura and San Luis Obispo County in 2014.

SOLAR PHOTOVOLTAIC (PV) ELECTRICITY (as of 4/14; Edison territory)

Type of CSI Incentive (for PV)	Size	Payment Structure	Eligible Customers and Incentives Eligible
Performance Based Incentive (PBI)	>30kW	Payments based on $/kWh produced over 5-year term	Commercial $0.032/kWh Gov/Nonprofit $0.114/kWh
Expected Performance Based Buydown (EPBB)	<30kW	Lump sum up-front, based on $/watt calculation	Commercial up to $0.25 Gov/Nonprofit up to $0.90

SOLAR WATER HEATING

Fuel Source	Customer Class	$ per kWh or therm displaced	Incentive Cap
Natural Gas	Residental Commercial/ Multifamily	$18.59/therm	$2,719 $500,000
Electricity	Residential Commercial	$0.54/kWh	$1,864 $250,000

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 (**empowesbc.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
www.a1solarpower.net

Allen Energy
(PV and Water)
805.324.5774
www.buildtoperform.com

California Solar Electric
805.640.7903
www.californiasolarelectric.com

Coastal Solar
805.427.1368
www.coastalsolarventura.com

Good Energy Renewables
805.452.7136
www.goodenergyrenewables.com

Mac's Solar (Water)
805.682.3386
www.macsolar.com

Planet Solar
800.859.SOLAR
www.planetsolar.com

Prime Solar Co.
805.646.8383
www.prime-solar.com

REC Solar / Sunrun
805.528.9705
www.recsolar.com

Santa Ynez Valley Solar
805.688.1213
www.syvsolar.com

Solar City
805.765.2489
www.solarcity.com

The Solar Energy Company
(PV and Water)
805.566.2127
www.thesolarenergycompany.com

Solarponics Energy Systems
805.466.5595
www.solarponics.com

Solforce
805.695.0015
www.solforce.com

Solwave
805.324.4433
www.solwavesolar.com

Sun Pacific Solar Electric Inc.
805.965.9292
www.sunpacificsolar.net

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