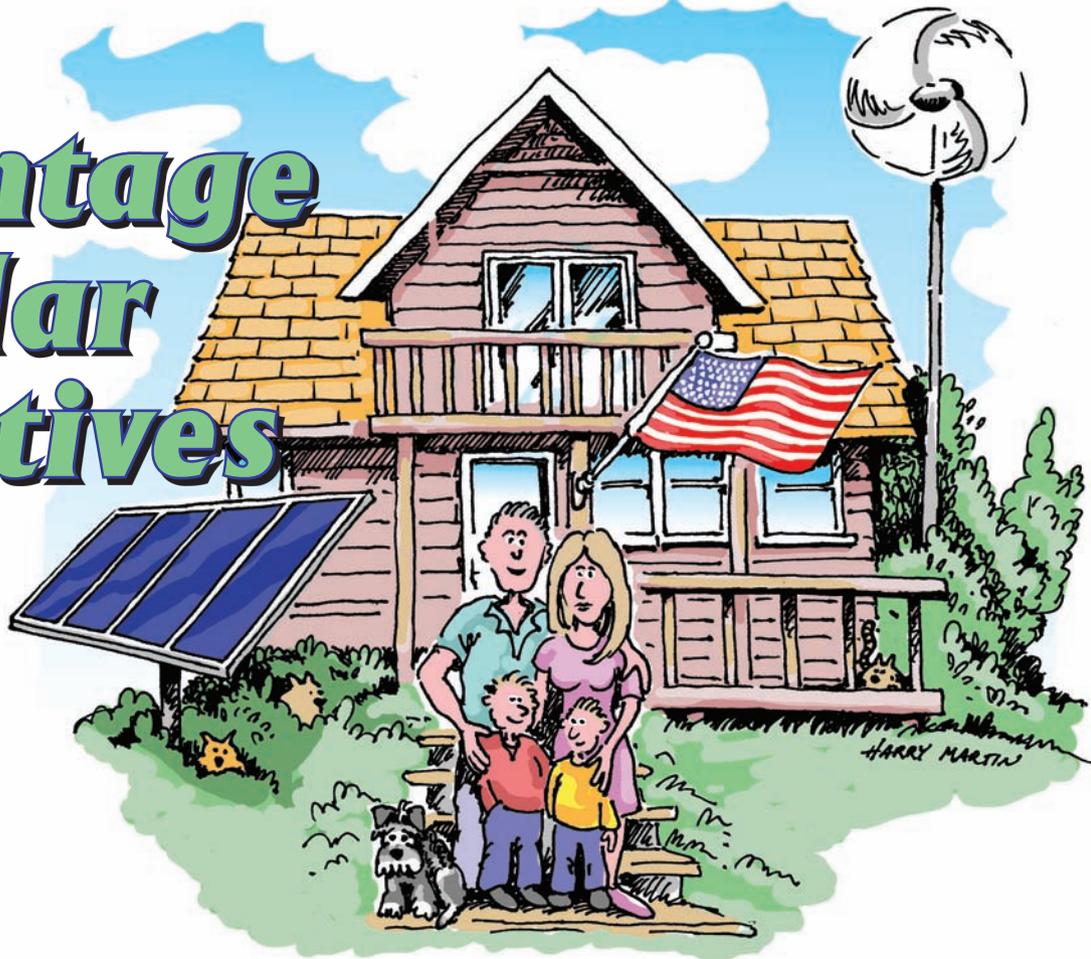


Take Advantage of Solar Incentives



with Mo Rousso

Federal, state, and utility incentives make investing in solar energy for your home more affordable than ever. Here are some programs that are available and information on how you can put them to work for your pocketbook.

Federal Incentives for Residential Systems

The primary incentive from the federal government is the investment tax credit (ITC), initially brought into law as part of the Energy Policy Act of 2005. The ITC was for PV systems, solar hot water (SHW), and fuel cells, and was calculated as 30% of the qualified expenditure for the system, with a cap of \$2,000 for residences. In late 2008, HR1424 extended the ITC to include small wind systems (up to 100 kW). Additional provisions included an eight-year extension of the ITC until December 31, 2016, and the ability to apply the ITC against the alternative minimum tax for federal tax returns. The American Reinvestment and Recovery Act (ARRA) of 2009 removed the \$2,000 cap for all PV, SHW, and small wind systems placed into service after 2008.

So what does this mean for you? A tax credit is applied against taxes owed. It is not a deduction, which is merely subtracted from income to determine the amount of tax

to be paid. Credits result in much higher tax savings than deductions. According to the feds, their PV and wind system tax credit covers system costs, which besides the cost of components, may include labor for site preparation and system installation, and wiring to connect the system to the home. If the system is for a new home, the “placed in service” date is when the homeowner obtains occupancy. If the federal tax credit exceeds tax liability for that year, the excess may be carried forward (through 2016), until it is depleted.

SHW systems carry additional requirements for tax-credit eligibility. First, the equipment must be certified by the Solar Rating Certification Corporation (SRCC) or a comparable entity qualified by the state in which the system is installed. Second, the system must provide at least 50% of the home’s water heating needs. This credit applies only to domestic water heating—solar heating systems for pools and spas aren’t eligible.

Regardless of the technology, the home served by the RE system does not have to be the taxpayer’s *principal* residence to qualify for the credit.

The tax code provision includes another potential incentive. According to Section 136 of the IRS Code, rebates, buy-downs, and other subsidies provided by public utilities are nontaxable. To quote the IRS: “Gross income shall not include the value of any subsidy provided (directly or indirectly) by a public utility to a customer for the purchase or installation of any energy conservation measure.”

Check Out DSIRE

The Database of State Incentives for Renewables & Efficiency (DSIRE, www.dsireusa.org) is a comprehensive source of information on state, local, utility, and federal incentives and policies that promote renewable energy and energy efficiency. Established in 1995 and funded by the U.S. Department of Energy, DSIRE is an ongoing project of the North Carolina Solar Center and the Interstate Renewable Energy Council.

DSIRE contains lists and links for all of the programs mentioned in this article and many more. It is sorted by federal and states and is as simple as clicking on your state on the map, which brings up a list of all incentives with detailed information.



Production Incentives: Europe is a leader in implementing renewable energy, and forward-thinking policy and attractive incentives have largely been the basis for its success. European countries have been using feed-in-tariffs (FITs, see *Power Politics*, HP133), a legislated tariff that requires utilities to pay a premium rate over a predetermined period (15 to 25 years, typically) for all electricity produced by renewable sources and fed into the grid. Typically, FITs can be three to four times that of the retail electricity tariff, meaning that homeowners installing RE systems dramatically reduce their system's payback period.

In the United States, the Gainesville Regional Utilities (GRU), a municipal utility owned by the City of Gainesville, Florida, was one of the first to offer a FIT for PV systems. Similar to the German FIT model which legislates utilities to purchase energy from qualified PV systems via a standard

offer contract, GRU will offer a FIT at set rates for a period of 20 years. Under GRU's program, homeowners with PV systems smaller than 10 kW have the option to enter into a FIT agreement and sell 100% of their electricity to GRU, or to net meter and only send the excess electricity to GRU. For qualified residents who choose net metering, GRU also offers a rebate. FIT programs are also currently under development in Vermont and Oregon, according to Rusty Haynes of the North Carolina Solar Center.

If there's a program in your area, how do you determine if a FIT is right for you? Depending on the tariff schedule, energy consumption profile, and size of your PV system, you may elect to evaluate which FIT scheme to adopt in two different ways. First, if you are a relatively low user of electricity and rarely use enough energy to reach peak tiers, you may get more financial benefit by selling all of your power to the utility. Conversely, if you are a heavy user and are space-constrained so that you end up installing a peak-shaving PV system, then you may want to opt for the net-metering option and claim the rebate. Most financial advisors would conduct a net-present-value calculation, where typically, the more cash you get up front (i.e., rebate), the better the economics.

Chelan County Public Utilities District in Washington state also has a variant on a FIT program—Sustainable Natural Alternative Power (SNAP). It has a variable FIT rate, depending on the number of customers who pay into their green pricing program and the overall energy production by participants. This approach serves a double purpose. First, the green pricing program allows ratepayers to elect to pay a slight premium for renewable electricity. Second, the green-pricing premium helps subsidize the FITs for those who want to invest in installing green energy systems. In 2008, the tariff was 25 cents per kWh.

In May 2005, Washington enacted Senate Bill 5101, establishing production incentives for individuals, businesses, and local governments that generate electricity from solar power, wind power, or anaerobic digesters. The incentive amount paid to the producer starts at a base rate of 15 cents per kWh and is adjusted by a multiplier, based on the system type, with larger multipliers for systems using equipment manufactured in Washington state.

These multipliers result in production incentives ranging from 12 cents to 54 cents per kWh, capped at \$5,000 per year. Ownership of the renewable-energy credits associated with generation remains with the customer-generator and does not transfer to the state or utility.

Property Tax Exemption: Several states offer property-tax abatements or exemptions. For example, in Oregon, the added value to any property from the installation of a qualifying renewable energy system such as PV, SHW, or wind may not be included in the reassessment of the property's value and is exempt from additional property tax. This exemption is intended for the end users of the property. Many other states have exempted PV, SHW, and small wind from additional property taxes, including California, Texas, Kansas, Massachusetts, Michigan, Tennessee, Indiana, Nevada, and Rhode Island.

Sales Tax Exemption: As with property taxes, a number of states exempt eligible renewable energy systems from sales tax. As an example, Colorado exempts from their sales-and-use tax all components used in the production of AC electricity from a renewable energy source. In addition, effective July 1, 2009, through July 1, 2017, all components used in solar thermal systems are also exempt from sales-and-use tax. The

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exemption only applies to state taxes, not taxes assessed by incorporated municipalities and counties. However, the state has granted local jurisdictions the authority to adopt the exemption for renewable energy equipment at their option. Other states that have implemented RE sales-tax relief include Vermont, Washington, Massachusetts, Minnesota, Arizona, Wyoming, New Jersey, Maryland, Florida, and Ohio.

State Loan Programs: Numerous states offer low-interest loans for residential renewable energy projects. To illustrate, the Oregon Small-Scale Energy Loan Program finances small-scale, distributed generation projects, like rooftop PV and SHW systems. The state will loan up to \$20 million for a single project, although most loans are for less than \$100,000. Terms are pegged to the expected life cycle of the technology and are typically five to 15 years in length. Interest rates vary.

Iowa's Alternate Energy Revolving Loan Program provides up to 50% of the cost of a qualifying PV, SHW, or small wind system, and offers attractive terms of 0% interest for up to 20 years.

State Rebate Programs: Many states offer cash rebates for the implementation of residential PV and SHW systems. California is the leader in this and offers several types of rebate programs. In January 2006, the California Public Utilities Commission (CPUC) implemented the California Solar Initiative (CSI) program, which provides more than \$3 billion in incentives for solar-energy projects. The program's objective is to have 3,000 megawatts of PV capacity by 2016.

Originally, the CSI program provided incentives only to the customers of the state's investor-owned utilities. However, in August 2006, the CSI was expanded to encompass municipal utility territories and is required to offer nearly \$800 million of incentives beginning in 2008. For systems less than 50 kW, incentives are awarded as a one-time, up-front payment based on expected performance,

which is calculated using equipment ratings and installation factors such as geographic location, tilt, orientation, and shading. Applicants may choose to receive their incentives via the performance-based incentive (PBI), which is calculated against the actual number of kWh generated. The PBI runs over five years and is paid monthly. All

installations larger than 50 kW must take the PBI. Rebates decline per a published schedule once a certain targeted MW of PV capacity is reached.

Although the CSI primarily funds PV projects, the CPUC also authorized \$2.6 million for a pilot SHW program (except pool and spa systems). The pilot is managed by the California Center for Sustainable Energy and is limited to customers of San Diego Gas and Electric. The maximum residential rebate is \$1,500 and is adjusted downward based on expected performance. Equipment installed must carry the SRCC's OG100 rating.

Utility Loan Programs: Some utilities offer loans that are either funded from within or through an established finance company. In New Jersey, utility company PSE&G offers low-interest loans for PV systems to customers. Residential customers can receive loan terms of 10 years at 6.5% interest. The loan may be coupled with the New Jersey rebate for homeowners and covers 40 to 60% of the system cost. Customers can repay their loans with a combination of cash

Example Incentives

	San Diego, CA		Aspen, CO		Long Island, NY	
	PV (2 kW)	SHW (80 sq. ft.)	PV (2 kW)	SHW (80 sq. ft.)	PV (2 kW)	SHW (80 sq. ft.)
Cost	\$15,120	\$4,000	\$15,000	\$4,000	\$14,000	\$4,000
Federal tax credit	4,536	1,200	4,500	1,200	4,200	1,200
Maximum rebate	3,100	1,500	4,000	1,000	7,000	0
Out-of-pocket cost	\$7,484	\$1,300	\$6,500	\$1,800	\$2,800	\$2,800
Percent of cost	49.5%	32.5%	43.3%	45.0%	20.0%	70.0%
Building permit	No charge		Fee		Fee	
Sales tax	Not exempt		Exempt		Exempt	
Property tax	Exempt		Depends on county		Exempt, 15 yrs.	

Federal tax credits are calculated assuming all rebate funds are claimed as part of the household taxable income.

and solar renewable energy certificates, with 1 SREC equal to 1 megawatt-hour of green electricity. Since the state trades SRECs, the value of the SREC may vary. If it goes higher, then customers will enjoy the extra benefits.

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As an example, California's Earth Advantage Rebate Program offers rebates for PV and SHW systems to residential and business customers of Redding Electric Utility. Rebates for PV vary from \$2.60 to \$3.55 per watt, depending on tilt, azimuth, and whether there is a tracker involved. SHW is 50% of project cost—up to \$1,000 for the first collector, \$500 for the second, and \$250 for the third.

Seize the Solar Opportunity

All homeowners are eligible for the federal incentives—if they have a tax liability. Additional incentives vary from state to state, city to city, or utility to utility within the same state. To capture all the available incentives, do your homework. A reputable solar or wind installer should be able to help you reap all the incentives you are eligible for.

We are seeing more and more great incentives, allowing homeowners to get excellent returns on their PV or SHW investment. The recession has created a buyer's market, and eager contractors and equipment suppliers are selling their products and services at better-than-ever prices. Low prices, the current administration's desire to promote renewable energy, and the fact that many states are creating market demands by reducing out-of-pocket costs make this a very good time to install renewable energy systems.

Access

Mo Rousso (mrousso@heliomu.com) engineered and installed his first solar energy project in 1975. In 2001, he founded HelioPower, a leading solar power integration firm based in California. Mo is currently CEO of Helio mU, a PV finance company. He holds an MBA with an emphasis in finance, and a bachelor's degree in mechanical engineering.

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