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## SOLAR GETS SEXY

Clunky roof arrays are long gone; clean designs, lower prices are getting homeowners to open their wallets. **PAGE K4**



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# Solar energy shines during slump

## Green products thriving even as builders suffer

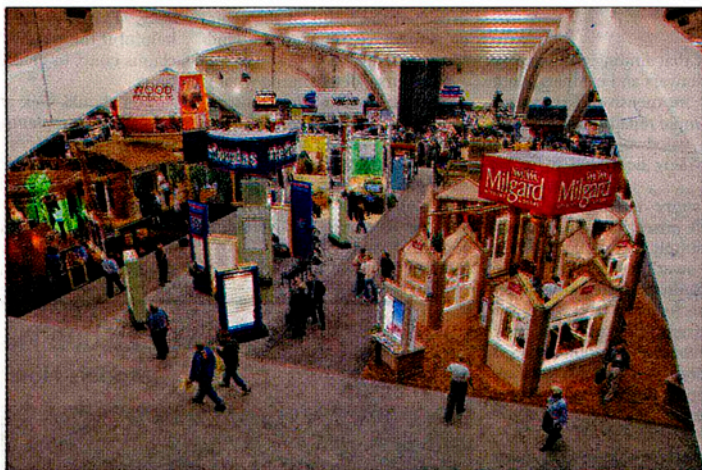
By Richard Paoli  
SPECIAL TO THE CHRONICLE

There are two shades of green in this new eco-friendly, sustainable world: the business of providing green products and services and the green consumers pay for them.

What are you willing to spend to save? That seems to be the basic question for home buyers and homeowners.

Despite the public debate about environmental matters and energy conservation, studies of consumer attitudes show that if it isn't affordable it doesn't get bought — or built. It is a question of price.

And more affordable solar energy systems seem to be opening consumers' wallets. "Right now, the residential building market is soft," said Ron Kenedi, an executive with Sharp Solar Energy Solutions Group in Huntington Beach, "but we're seeing instead a tremendous growth in solar panel sales for remodeling projects." Kenedi was attending PCBC, the California building industry's annual expo at Moscone Center last month. Sharp Energy was one of



JUSTIN SULLIVAN / Getty Images

more than 20 companies exhibiting solar thermal panels.

"The technology for photovoltaic panels keeps improving the energy efficiency and reducing the cost. This is an industry that has been seeing double-digit growth for the past few years," he noted, "and that wouldn't happen if people didn't see the savings."

Typically, Kenedi said, it costs \$24,000 to put a photovoltaic system on the roof. "That's before the government and utility incentives kick in and cut the cost by about 30 percent. What does that buy? About 50 to 60 percent of the utility bill." When you're not using power, the system can be set to run the home's electricity meter backward, he added.

The building industry's trade show held last month at Moscone Center in San Francisco featured plenty of companies that offer environmentally responsible products for homes.

The incentives address a basic green principle: With more households producing electricity, fewer fossil fuel-based generating plants have to be built to meet growing demand.

Also, for many years, a stumbling block for rooftop solar was strictly cosmetic. Homeowners didn't want a roof that looked like the solar display on a space station. "That has been addressed," said Kenedi, "with new panel shapes, lighter supporting structures and better design incorporation with roofing material."

The first spike in photovoltaic research and sales came during the oil crisis in the 1970s. While early photovoltaic panels predated the 1970s, most were for light-sensing or -measuring devices — the light meter in a camera, for example.

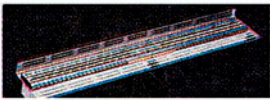
But the advance of electronic and semiconductor technology dramatically pushed the power-generating possibilities of photovoltaic cells. In less than a decade, the efficiency of the panels increased more than fourfold. And you don't have to live in a sun-

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## New products designed to catch builders' eyes

The slowdown in residential building hasn't had a visible impact on wares displayed last month at PCBC, the California building industry's annual expo. While construction materials, windows and energy saving may have taken most of the space at San Francisco's Moscone Center, a few new and renewed products were on view:

**Sonic bath:** Kohler has combined sound vibration, chromatherapy and music into a bathtub "to slow your breathing and heart rate." The tub comes in 72- and 88-inch lengths with a control panel to set sound, vibration and color. Prices start at \$10,000. ([www.kohler.com](http://www.kohler.com))



**Shower drain:** Quick Drain is a less intrusive drain system that gets rid of the round center

shower drain. It drains the water along one edge of the shower pan, reducing the need for compound angles required for central drains. The stainless steel system is usually sold to contractors; the estimated price of a standard installation is \$300. ([www.quickdrainusa.com](http://www.quickdrainusa.com))

**What goes up:** Saniflo looks like a toilet specifically designed for all those nonconforming units stashed in the lower floors of many San Francisco Sunset District homes. Saniflo uses a compact grinder and pump that pumps bathroom waste up 18 feet. The grinder-pump can be tucked into the wall. A wall-hung version of the toilet is priced at \$999. ([www.saniflo.com](http://www.saniflo.com))

**Call home:** Lagotek's cell phone application allows you to ring the home and turn on lights, raise or lower the shades, start the coffee, neat or cool the house, or link to a security camera. Wireless Home Intelligence connects

supported home systems to cell phones over the Internet. Basic installation for a 2,500-square-foot, three-bedroom home would be around \$25,000. ([www.lagotek.com](http://www.lagotek.com))



**Walls of glass:** Want a hand-painted picture of the grandchildren on glass to hang in the family room? Four Seasons Glass, working with artists in China, specializes in custom-glass wall art, door inserts, shower enclosures, glass partitions and room dividers. The pricing, depending on the glass texture or theme, starts at \$60 a square foot. ([www.fourseasonsglass.com](http://www.fourseasonsglass.com))

**Up in smoke:** The Greenwood Hydronic Wood Furnace burns not only the wood but the smoke. The squat boiler accelerates the

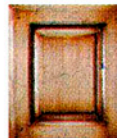
internal temperature to about 1,100 degrees by burning the gases from the wood fire. Greenwood claims the wood burner saves up to 70 percent on heating bills. It's priced at \$7,250. ([www.greenwoodfurnace.com](http://www.greenwoodfurnace.com))

**Lite lights:** The LR6-230V uses LED technology to produce a recessed lighting fixture comparable to a 75-watt incandescent bulb. The fixture uses approximately 12 watts of electricity, 85 percent less than the incandescent. The fixtures prices start at \$130, without installation. ([www.creeLLS.com](http://www.creeLLS.com))

**Palm-boo:** Ever wonder what happens to worn-out coconut palms? The folks who brought you bamboo flooring have introduced Durapalm, made from plantation-grown coconut palms. Palms produce nuts for up to 80 years, then nonproducing palms become flooring. Palmwood plywood is made from multiple layers of palm and contains no added urea formaldehyde. With-

out installation, the palm flooring is \$8 a square foot. ([www.durapalm.com](http://www.durapalm.com))

**Extra inch:** The 12-inch dinner plate rules at Broco, an Indonesian cabinet manufacturer. Broco designed its upper cabinets 13 inches deep. The high-end manufacturer uses European systems of hinges and tracking for it hardwood-faced cabinets. Prices not available because Broco sells directly to builders. ([www.brocousa.com](http://www.brocousa.com))



**Up on the roof:** SunGrabber's newest product, Solar Domestic Hot Water heating system, is an all-polymer, hot water system designed to collect solar energy, reduce water-heating bills up to 50 percent and qualify for tax credits. The price is about \$4,000. ([www.sungrabber.net](http://www.sungrabber.net))

— Richard Paoli

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ny climate to take advantage of it. The largest growth in electric-generating solar installation the past years has been in Germany.

Photovoltaic systems have two basic components. An array of solar panels that look like flat-screen televisions (in fact, the manufacturing and materials are very similar) mounted on a roof or in a field. The second component is an inverter. The system generates direct current; the inverter switches it to the household's alternating current.

Solar farms are being incorporated in many planned communities, providing power to the public buildings. A growing number of new homes are including roof

arrays. A lack of clear standards for the use and installation of PV may be keeping builders from wider use.

"Solar is still on the menu of options for most builders," said Raymond Becker, chairman of the California Building Industry Association and a vice president of DMB, a Hollister home builder. "There needs to be a building standard. Right now, different jurisdictions have differing standards for what constitutes green and solar."

Kenedi notes that one problem with rooftop installation is meeting fire department requirements. "We're working, as an industry, with fire departments to design the rooftop panels so the firefighters can get into the rafters from the roof in the event of a fire."

"The newest development is something called thin film. (It) is as thin as a sheet of

Mylar. The need for heavier and costly support becomes reduced," said Kenedi.

The next step is power storage. "Imagine," said Kenedi, "coming home after work and plugging your car into the system and having it recharged from the electricity generated and stored during the day."

Solar power and its growth are one part of the two shades of green.

"This whole issue of green is making us look at a lot of residential building issues," Becker said. Among those issues:

► **Design:** Recent trends show buyers want new homes smaller than what has been the norm. They want more efficient use of space and better use of energy.

► **Vehicle mile:** Builders have to think in terms of where they're building, and how far most of the potential buyers would have to drive.

► **Job centers:** Large planned communities have to think about what jobs are being created near the sites.

"The challenge," Becker said, "is how builders are expected to do all of these and do it in a way that will make new home buyers pay for it."

It all adds up to builders and buyers suffering from the same problems — higher gasoline and energy prices, tighter credit and hesitancy about any major financial outlay.

Education for builder and buyer can help, Becker said. "A lot of the options for green become limited unless we create a sense of value, a social sense, to buy green."

*Richard Paoli is a former Chronicle real estate editor. Comment at [realestate@sfchronicle.com](mailto:realestate@sfchronicle.com).*

**Green reading**

You could probably build a well-insulated home using books about going green. Design, materials used in construction, solar power, green remodeling and the organic maintenance of homes are among the titles jamming the eco shelves in bookstores. Here are some titles that address going green:

**Your Green Home***by Alex Wilson*

(MOTHER EARTH NEWS, \$17.95)

This is intended for homeowners planning a new home and for designers and builders seeking to meet that demand. It answers questions about where to build, energy-efficient systems, building materials and living in a green world.

**It's Easy Being Green***by Crissy Trask*

(GIBBS SMITH, \$12.95)

Most of us agree with the goals of the environmental movement, but we don't do much more than recycle household waste. Environmental consultant Trask seeks to address this question — and solve the disparity — with a book that makes it easy to be an environmentalist, no matter how busy or hectic your lifestyle.

**Solar Power for Dummies***by Rik DeGunther*

(FOR DUMMIES, \$19.99)

This book has 10 do-it-yourself solar projects. DeGunther guides you through a household energy efficiency survey and evaluation of how solar power benefits you.

**Organic Housekeeping***by Ellen Sandbeck*

(SCRIBNER, \$30)

Sandbeck provides a guide to maintaining every part of your home — from sink to septic tank — using safe, simple cleansers and preventive measures that save time, money and the planet.

**Eco Design: The Sourcebook***by Alastair Fuad-Luke*

(CHRONICLE BOOKS, \$35)

This is the shopping source for eco products. There is a great deal of information on the new and hybrid materials and lists of manufacturers, design studios and green organizations.

**Go Green, Live Rich***by David Bach and Hillary Rosner*

(BROADWAY BOOKS, \$14.95)

Financial expert Bach offers 50 ways to make money while putting green into life, home, shopping. He also has suggestions on profiting from investments in green businesses.