

# The *rise* of solar

Panel systems are dropping in price and increasing in popularity

By Andy Lindstrom

**C**are to cut your home energy bill by 70 percent or more? Tired of power outages, grid dependence, friends going on about the dire consequences of burning fossil fuels?

Sounds like you're in the market for solar power. Like other renewables including wind, water and biomass, unlimited energy harvested from the sun has long had its supporters as a future replacement for the world's finite supplies of gas, coal and oil.

**But the future is now for nearly half a million homeowners nationwide.**

Second only to natural gas in new generating capacity this past year, some 140,000 solar installations were added to residential rooftops from sunny California and Arizona to far less likely New England. Photovoltaic power stations — "solar farms" with acres of interconnected silicon panels that automatically track the sun's path across the sky — convert its rays into enough electricity to feed the needs of several small cities. Noiseless, non-polluting and increasingly competitive in price with traditional energy sources, PV cells are rapidly becoming major

players in the power generating game either as stand-alone systems or tied into the local power grid.

Free energy from our own private star is only one reason solar has come out of the shadows, so to speak. Advocates point out that cell technology has made giant strides in the past few years both in efficiency and lifespan. Properly maintained, cells will gather sunlight for up to 30 years at peak capacity, while panel prices have dipped 60 percent since 2011 thanks in large part to mass production and market competition.

In addition to battery-stored electricity for home consumption, solar water-heating units and pool heaters have gained significant market share. As the world's fastest growing energy source, power from the sun may soon match the trajectory of cell phones — from a 1990s novelty to world supremacy now.

## Quick tip Tying into the grid

Simply by connecting your rooftop solar array to the utility meter, you can cut energy bills to the bone as the grid tie-in literally runs your meter backwards when the system generates more power than it uses. Called net-metering, it allows you to sell excess electricity or buy it as needed. Be aware, though, that net-metering regulations vary by state and province, and the service is not available in all areas.

## Leasing offers alternative path to alternative power

**In theory, converting sunlight into energy takes only four working parts:** a photovoltaic panel, inverter, charger and battery. Problem is, all those gadgets cost money, as much as \$40,000 for a typical home installation. Thanks to a growing number of

solar companies, prices can be reduced to near zero through leasing arrangements in which the company covers installation costs and the homeowner pays a set rate for electricity along with a rental charge. **The result:** Companies collect any tax rebates while

homeowners' monthly bills are less than their previous utility payment. Although contracts vary, most stipulate a long-term lease agreement and guaranteed power-purchase rate. It's a good idea if you're short of upfront cash, less so if you plan to move in the near future.



## Solar power and your pocketbook

**F**or a long time, solar generators as a source of cheap, renewable energy had few takers due to high startup costs that offset any savings over conventional sources. Lately, however, that scenario has changed dramatically.

**Thanks to federal and state tax credits,** a steady reduction in the price of equipment and rising conventional power charges, solar in many states is rapidly approaching what's called "retail grid parity." In layman's terms, that means it saves enough on your monthly utility bill to cover lease or ownership payments.

A \$47,000 setup in Florida, for instance, qualifies for up to \$20,000 in state subsidies and \$14,100 in federal tax credits, meaning a homeowner's bottom line of \$12,900 is recoverable through near vanishing utility charges. In California, a San Jose news reporter wrote that she and her husband bought a 14-panel grid-tied system priced at \$24,000 before tax rebates. After \$1,000 down with the balance minus rebates financed, the couple's monthly loan payment was lower than their former utility bill.



The Solar Energy Industries Association says that modules today cost 1 percent of their price 35 years ago. System charges have fallen 15 percent since 2011. Every four minutes, there's a rooftop solar startup company somewhere in the country.

**Conventional utilities are concerned** about losing customers, particularly those companies that see solar independents as freeloaders on the power grid. With an estimated 100,000 new solar homes in 2013 and a projected 500 percent growth rate for so-called small solar, those concerns may well be justified.

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