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Sunny Side Up

By [CLAUDIA H. DEUTSCH](#)

[General Motors](#) liked the idea of using the sun to power its buildings. But until recently, one immutable economic fact held G.M. back: The upfront costs were simply too high to justify the ultimate payoff.

G.M. is not alone. Even solar energy's biggest fans concede that the high investment costs have kept companies from pursuing what is arguably the cleanest, most renewable and least politically sensitive energy source around.

But now, G.M. and a small but growing number of other companies and municipalities are getting solar energy from systems installed by others. Even though the installations are right on their own roofs, they buy the electricity much as they would from a utility's grid. And because the companies that paid for the systems will get a steady income, they can provide power from the sun at competitive electricity rates.

Since June, the roof of G.M.'s parts warehouse in Cucamonga, Calif., has been host to a photovoltaic array with the ability to generate as much as 1.5 million kilowatt hours of electricity a year. The installation, which G.M. expects will provide half of the building's electricity, cost G.M. nothing.

A solar developer called Developing Energy Efficient Roof Systems — commonly called Deers — bought the equipment with money it raised from private financiers. Deers and its investors own the cells; G.M. signed a long-term contract to purchase the solar-generated electricity from them, at a discount to the prevailing rate for electricity in the region.

These days, that rate is 9 cents to 10 cents a kilowatt hour; G.M. expects that the solar system will reduce its overall electricity costs by 10 percent a year.

"We assume the risk, because we know that companies like G.M. have budgets to buy electricity, not to spend millions of dollars generating it," said Jack P. DeLiddo, president of Deers.

G.M. is already negotiating with Deers to put a similar solar array on a warehouse in nearby Fontana. "The savings are small, but it's exciting to create such an environmentally sound project without any need to shell out capital," said Kamesh Gupta, manager of planning and programs for General Motors Energy and Utility Services, which purchases all the energy used by G.M.

Similar deals are cropping up elsewhere. Some specify that the users pay the solar developers a fixed rate for electricity, while others specify a fixed discount to the going rate.

Other factors are involved as well. The parties generally negotiate who will retain potential credits for reducing carbon emissions. When the developers and their backers keep the carbon abatement credits, they

generally plan to sell them to companies that might otherwise have trouble complying with rules planned in California and expected elsewhere aimed at limiting [global warming](#).

The electricity users could do that, too, but some of them might also use the credits to offset emissions from other parts of their operations.

But the same logic underpins all of the deals: The electricity users get a clean, reliable source of energy. The developers and their backers get an equally reliable return on their investment — which can be as high as \$6,000 per kilowatt hour of capacity — as well as the tax credits and rebates that California and other states offer for renewable energy projects.

“Corporations like solar energy, but they would rather make sizable investments in their core businesses,” said Craig Hanson, head of the Green Power Market Development Group, a consortium of large companies working under the auspices of the World Resources Institute to promote renewable energy. “But for the financiers, it’s like buying the bond of a triple-A-rated company. It may not offer a 20 percent return, but it’s a stable and secure investment.”

The “solar services model,” as Mr. Hanson calls the solar contracts, is drawing interest from a diverse group of companies and financiers.

[Alcoa](#) is negotiating with developers to put solar cells on a manufacturing plant, although it will not specify details. [General Electric](#) Energy Financial Services has installed solar roofs that provide half the electricity used by 23 San Diego schools.

Kevin Walsh, the G.E. unit’s manager for renewable energy, said the company was installing another seven. “For a financier like us, it’s a nice, steady stream of revenue with the risk virtually eliminated,” Mr. Walsh said. His unit, he said, is negotiating with a “big box retailer” to install solar roofs on some of its stores.

Retailers, which normally operate with the kind of razor-thin margins that cannot support large capital investments on anything but the core business, have been particularly receptive to the solar services model.

[Whole Foods Market](#), in a deal with SunEdison, a solar project manager financed by a group of investors that includes [Goldman Sachs](#), has solar cells providing about 10 percent of the energy it uses in three stores and one warehouse, and plans many more. “There’s just no downside,” said Jennifer McDonnell, green mission specialist for Whole Foods.

Staples, which has two distribution centers in California that derive about 15 percent of their electricity from 280 kilowatt solar arrays installed by SunEdison, also plans new ones. It recently put a 120 kilowatt system on an office building in Englewood, N.J., and is planning a large solar array for a distribution center in Killingly, Conn.

Mark Buckley, vice president for environmental affairs, said he had identified 140 stores that seemed to be prime candidates for similar installations.

“We are a frugal business with low margins, so we cannot justify the cost of a solar system,” he said. “This way, we’ve got no capital investment, no operating expenses, and we’re lowering our energy costs even as we reduce our carbon emissions. This is a true win-win.”

That does not mean the deals are free of risk. They are not feasible in locations where the sun does not shine consistently through the year, or in states that do not offer tax incentives and rebates.

The economics do not work for the many industrial companies that have negotiated below-market electricity rates. Users must commit to buying a set amount of energy for at least 10 years.

Older buildings often have aged roofs that cannot support conventional photovoltaic cells (although Mr. Walsh of G.E. Energy Financial Services said his group used a technology that embedded the photovoltaic cells in a new, and removable, roof).

Companies must also persuade their own managements — or in the case of leased buildings, their landlords — to allow the installations. And, of course, the economics only make sense to people who think that prices for conventional energy will keep rising.

“We have an incentive to make sure the systems work well, because that’s how we make our money,” said Jigar Shah, who founded SunEdison in 2003 and is generally thought to have pioneered the solar services model. “But let’s face it, we are putting a hole in their roof, so they have to trust we can do it properly. And if you think electricity rates will go down, these long-term contracts don’t look good.”

But few economists are predicting that electricity rates will plummet. And, even if they do, solar energy would still appeal to companies worried about carbon emissions and looking at ways to improve their public image.

“The energy is clean, and the fixed-price agreement doesn’t fluctuate,” Ms. McDonnell of Whole Foods said. “Seeing whether solar would work is now on our check list for every one of our new stores.”

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