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It's Getting Cheaper to Tap the Sun

By BARRY REHFELD Published: June 18, 2005

Annette Benedict gave a party to celebrate the installation of solar panels on the roof of her Bronx home over a year ago.

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John Sunde bought three systems in three years for the two Long Island homes he owns - two for the Brentwood house he lived in and a third for a Hampton Bays home he lives in now.

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Julie Marquart

Irene Pletka's house in Sag Harbor, N.Y., uses copper tubing panels to heat the swimming pool while silicon panels provide electricity.

Architect: Ronald Evitts Architect, New York, NY.

Susan Ferraro and her husband, Nick, featured their new network in the sales ad for their summer home on Shelter Island, N.Y., earlier this year.

Excitement over residential solar energy may not be running this high everywhere, but providing homes with electricity and heat from the sun is getting more buzz than it has in decades.

In the 70's it seemed that buyers of solar systems were mostly isolated tree huggers who somehow had a small

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fortune to spend on panels, but now urban and suburban homeowners are looking to the sun hitting their roofs for relief from rising electricity and heating costs.

Higher utility bills, though, are just the stick. The carrot is the falling cost of solar systems that are lighter and more efficient and feature new designs, like solar panels that double as window awnings. Standardized installations and economies of scale for equipment production have helped drive costs lower.

In moving toward the energy mainstream, solar expenses have dropped to around \$8 a watt, from roughly \$100 three decades ago; the cost is even less if a system is installed as part of a new home's construction.

In either case, that puts the price of a system that can reduce electric bills significantly - like a three-kilowatt system - in the \$20,000 range. That's still a lot of money, but buyers may be able to get a lot of it back immediately, through government incentives. And with energy prices rising, the payback period for the rest is getting steadily shorter.

State programs developed in the last few years are making it possible for homeowners to cut the cost of a system by more than half, to less than \$4 a watt. These programs include rebates, tax refunds and access to utility grids, enabling homeowners to sell excess electricity back to power companies.

"Oil prices give people a reason to look, but then it's all about the incentives," says Gary Minick, president of Go Solar, in Riverhead, N.Y., who has been installing systems for 26 years. "I get eight calls a week now. I'm all booked."

While incentives can be found across the country, New York, New Jersey and Connecticut tend to give good deals. Forty states allow selling excess power back to utilities, according to the Database of State Incentives for Renewable Energy, and 19 offer rebates.

Typically, California led the charge when one of its utilities opened its grid to homeowners over a decade ago. Within a few years, New York was establishing itself as an East Coast solar beachhead. Now more than 700 New York homeowners have solar energy systems hooked up to

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utilities. New York has also licensed some 50 solar equipment installers.

"We've building for the long term," said Adele Ferranti, who works for the New York State Energy Research and Development Authority, which regulates solar installations. "We haven't had one failure for anything installed by the people we certify."

On Long Island, Mr. Sunde's systems are working smoothly, and he expects them to keep doing so over their guaranteed 25-year life. A staunch environmentalist who had dreamed of owning solar panels since he was a boy, he now has more power than he needs.

He couldn't have done it without the incentives. With rebates and tax refunds, he chopped nearly 75 percent off the \$115,000 bill, bringing the cost down to \$30,000. With about 7.5 kilowatts for each house, he wound up paying about \$2 a watt.

He did so well because Long Island kicked off New York's incentive programs with rebates of up to \$6 a watt. Now it's in line with the rest of the state, offering \$4, while the newer New Jersey program, is the most generous in the New York metropolitan area, with incentives of \$5.50 a watt.

Exactly how much electricity a system provides and how long it takes for an installation to pay for itself, though, depends on many factors besides costs and incentives. Also important is the amount of shade at a house, the pitch of a roof (25 degrees is good, and typical for the Northeast except in areas that get heavy snow), and the direction the roof faces.

An additional factor is the amount of sunshine received, which depends on both latitude and average number of days with cloud cover. In Mr. Sunde's case, his new home has the edge over the old because its roof faces south. Over all, he calculates the payback period at a bit over 15 years.

"It's worth it," he said. "There's nothing to break. No moving parts. When I've saved as much as it cost me in the first place, I'll have free electricity."

Irene Pletka has two different solar energy systems at her Sag Harbor, N.Y., summer house. Copper tubing panels are

used to heat her swimming pool, while silicon panels provide all the electricity for her home.

The copper panels for the pool's heating are alongside the roof deck, and the silicon modules providing electricity are attached like awnings above a bank of first-floor windows to keep out the summer sun. Copper trumps silicon for heating. For one thing, it warms water directly, where silicon panels must first convert solar energy to electricity. While there are no rebates or tax breaks for thermal heating systems in New York, her \$2,500 pool system will still pay for itself in about two seasons.

"You're also not limited the way you are with oil," she said, "thinking about swimming too early or late in the season because of the fuel you may use up."

A big challenge for solar heating comes during the winter, for the simple reason that the sun is around the least when it is needed the most. It is also difficult to heat interior space; hot air cannot be stored the way water can.

Brian Flanagan, though, had special reasons for installing a solar heating system in the Brooklyn house he bought last year. The building had a boiler with only enough capacity to heat the commercial space he rented out on the ground floor; the upstairs was too big, with too many windows, to heat in the winter.

Buying a small boiler and installing a roof-top solar unit with vacuum tubes (which do not lose heat the way copper tubes do) - plus large hot water storage tanks to save heat for a cloudy day - would, he reasoned, be more economical in the long run. The package cost \$33,000 compared with \$20,000 for a separate large boiler for his living space. But with lower heating bills, he expects the system to pay for itself in eight years.

"I'm no longer a slave to oil prices," he said. "I pay a fifth of what my tenant pays."

It's still too early, though, to tell if the added expense of solar equipment makes a home more valuable. Based on Susan Ferraro's experience selling her vacation home, the answer just might be: not yet.

"We thought it very pioneering, and we put it in our ads,

thinking people would think it was as exciting as we thought it was," she said of her year-old system. "But it never even came up, even with the people who bought the house."

Some things will never change, though, like what got everyone interested in solar energy in the first place.

"I read about it in a Sierra Club magazine," Annette Benedict said of her decision to install solar equipment. "It made sense. It was good for the environment."

And good for her: she bought a piano with her rebate.

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