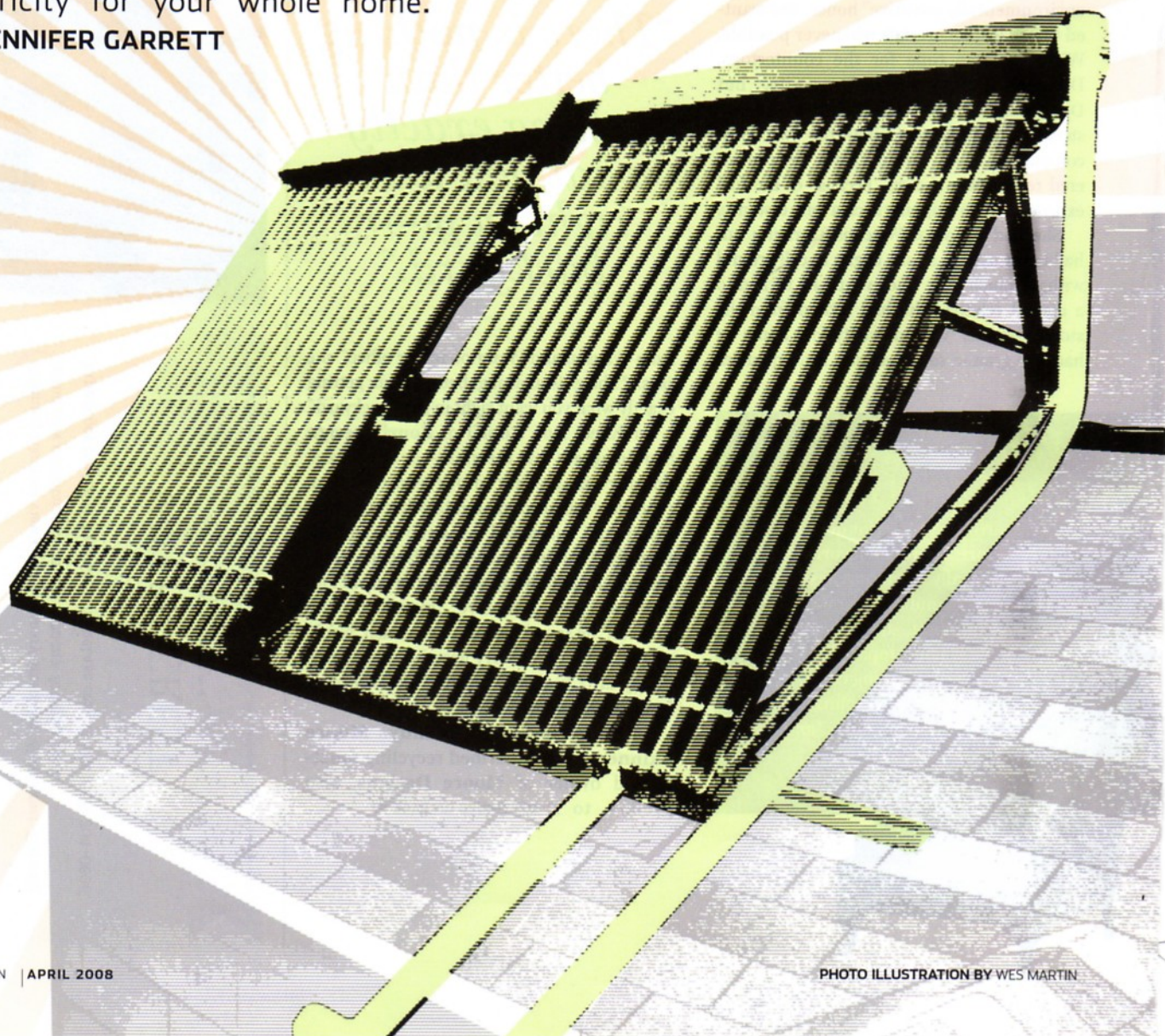


Good Day Sunshine

Forget about your wagon. Hitch your house to a star with solar panels and let sun heat your water or provide electricity for your whole home.

BY JENNIFER GARRETT



AS MORE AND MORE HOMEOWNERS

seek to shrink their environmental footprints, solar panels are getting a second glance—and a second chance—as aesthetics improve or simply give way to eco-consciousness.



Most homes use solar energy to heat water. With average price tags between \$8,000 and \$12,000 and federal tax credit and state reward programs (such as Wisconsin Focus on Energy) that can lower the bill by about forty-five percent in some cases, solar thermal heat is a relatively affordable step in the green direction.

Mike Ward, director of system design for solar-heating contractor **Resource Solar**, says solar thermal panels are an option for new or existing homes. The panels are usually installed on the roof, but they can be installed on the ground near the home. However, architect **Ed Linville** says efficiency decreases as the distance from the house increases since the heated water has to travel farther.

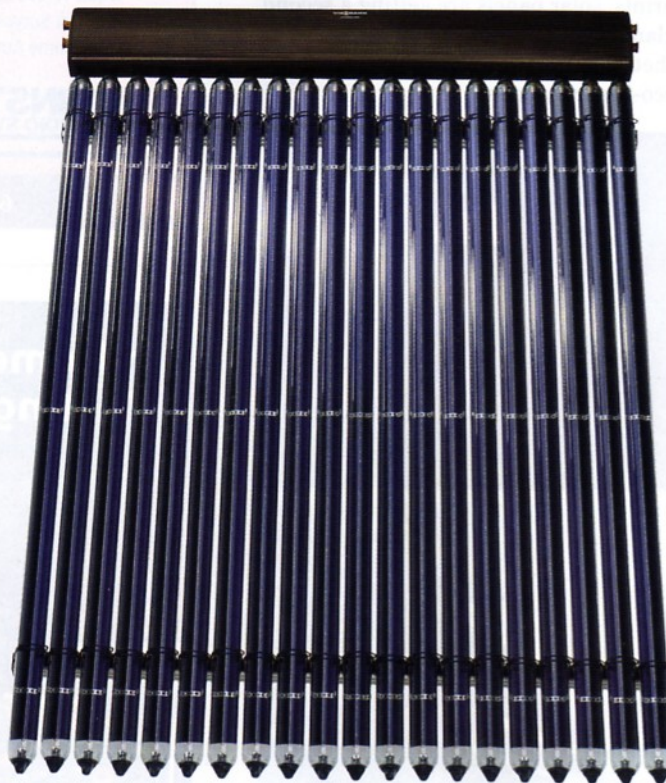
Ward explains that the main criteria for adding solar thermal panels is whether there is enough sunlight—or a large enough “solar window,” as >>

“When people put it in the big picture ... and into a thirty-year mortgage ... it usually pays for itself.”

experts refer to it—to generate enough heat to warm water. There are several factors to consider, including the orientation of the panels, which generally should not be more than thirty degrees east or west of due south, and the amount of direct sunlight that hits the collectors. Trees can be a problem when they shade too much of the roof.

Homeowners with a large enough solar window can choose between two types of panels (evacuated tube and

flat plate) as well as two systems (one uses antifreeze and another doesn't). Either type of panel can typically work with either type of system, and Ward says experts disagree about what is best for Wisconsin weather. Ward likes the tube panels since they don't rest directly on the roof and enable the roofing material to dry after rain or snow. However, he says, the flat plate panels are widely used in Wisconsin and some homeowners prefer the slight-



The two types of thermal solar panels: evacuated tube (above, right) and flat plate (left)

ly more streamlined appearance. The flat plate panels are also slightly less expensive than the evacuated tubes.

Ward also uses both heat-collection systems and says there are pros and cons to each. The closed-loop system, which uses antifreeze, is a safe choice in Wisconsin because the water circulating through the collectors won't freeze in the winter. But the antifreeze has to be replaced, usually after ten or fifteen years. The other option, the drain-back system, uses a sensor to drive a pump that circulates water through the collectors only when temperatures are warm enough to heat the water. Ward says

some solar power contractors fear that any residual water left in the collectors could still freeze, thereby damaging the panels.

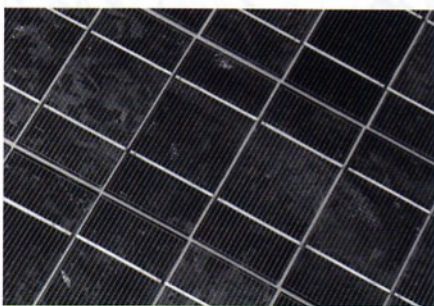
Both systems use heat transfer devices to move the heat from the water that circulates through the solar panels to the household water, which is always kept separate. The hot water can also be run through radiant heating systems, using both traditional radiators and in-floor radiant tubing.

Ward notes that solar power systems are growing more popular every day. “Lots of people do it because it's the right thing to do,” he says, and “when people put it in

the big picture ... and into a thirty-year mortgage ... it usually pays for itself."

Linville encourages homeowners, even those who might have once considered solar panels and decided against them or found that they didn't have the right degree of southern exposure, to reconsider. The panels look better, he explains, and they "don't require the exacting orientation that they once did." In other words, they're a more attractive and viable option than ever before. "It's the most encouraging time that I've encountered since I started [my firm during the energy crisis in the 1980s]," Linville says. "I think green has come back smarter."

Jennifer Garrett is a contributing writer for *Madison Magazine*.



■ LIVE WIRE

Solar energy can also create electricity. However, with a price tag of around \$25,000 for the average home, it's an option for the most ardent eco-stewards. "[People do it] for the environment, because it's the right way to make power," says **Steve Tweed**, owner of **Wisconsin Power Control**, "and for security reasons, to make our own power instead of relying on fossil fuels."

Tweed says the photovoltaic panels, which are different from solar thermal panels, absorb rays from the sun and turn it into an electrical current that can be used, stored or fed back to the power company.

While solar-generated electricity is still out of range for most homeowners, Tweed expects that to change. He notes that demand for solar energy is increasing, and there are many new products in development. He expects prices to fall as technology advances.

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