Solar use can reward homeowner

Sounds good but solar rebates were given back in Carter's days and the dead and unusable solar panels on many houses are witness to the need for high maintenance costs.

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If the thought of rising energy bills has you rushing out to buy insulation, hold off until after Jan. 1, when the recently enacted Energy Tax Incentives Act of 2005 kicks in.

The act includes incentives to make your home more energy efficient and give solar a try. They come in the form of tax credits, reducing federal tax bills dollar for dollar. Unlike many federal programs, they are not phased out for higher incomes.

The most generous credits are available for those who add solar water, heat or power to their homes. It wasn't long ago that installing virtually any kind of solar device was a labor of love without much economic value. But with the federal incentives -- combined in many places with utility and state incentives -- solar is looking like a much better deal.

The new energy law encourages taxpayers to claim a tax credit each year in 2006 and 2007 for these expenses: 30 percent of the cost of solar water-heating equipment, up to a $2,000 maximum tax credit for each tax year; 30 percent of the cost of solar equipment that generates photovoltaic electricity, up to a $2,000 maximum tax credit for each tax year, and 30 percent of the cost of a fuel-cell power plant, up to a $500 maximum tax credit for installation in a taxpayer's principal residence. Unfortunately, this technology isn't yet available for practical use to residential consumers.

Solar equipment -- particularly solar water heaters -- is a lot more reasonably priced, easier to install and generally more practical than it's ever been.

While installing photovoltaic systems can be pricey with payback in the distant future, installing a solar water system can pay for itself quickly and, as energy prices rise, continue to save a homeowner increasing amounts of money.

"I think that even without the tax credit, solar hot-water systems are economical," says Noah Kaye, policy and communications coordinator for the Solar Energy Industries Association. "You'd almost be crazy not to get a solar hot-water heater right now -- especially with natural gas prices going up."

Solar hot-water systems rely on relatively simple and cheap technology to circulate water through panels that face the sun, supplementing, and in some cases replacing, conventional water-heating systems.

The most common type of solar thermal system involves copper pipes that wind back and forth through a flat plate collector, typically mounted on a roof. The heated water is collected in an auxiliary water tank, or it can be routed straight into the main water tank, where it is either heated further by conventional means or is ready for use at the spigot or in a radiant, or radiator heating system.

Kaye estimates that a reliable system installed by a professional can cost as little as $3,500, with systems climbing to as much as $6,000 in cold climates where freezing is an issue.

Once it's installed, the ongoing costs are near zero with only occasional maintenance needed. **(This is certainly untrue since it's lifetime is less than ten years.)**

The federal tax credit will pay as much as one-third of that upfront, but in many states, such as California and New Jersey, there are other incentives available that pay as much as 60.

A much more extensive and expensive proposition would be to add a grid-tied solar-electric system to your home. This photovoltaic, or PV, system is made of a complete set of components for converting sunlight to electricity, storing that electricity and delivering it to its end use. The system could produce some or all of the electricity that your home requires. In addition, it can allow you to sell the excess back to your utility company.

Figuring out whether it makes economic sense for you can be accomplished by gathering up a few electric bills and showing them to a qualified solar installer who can do the calculations for you. Or you can try to estimate the return on investment yourself using a calculator offered by BPSolar.

The price will depend on how much electricity your home and lifestyle require, the amount of sunlight your region gets each day during peak sun hours, how sunny the location of your property is and how much money is available to you from state and utility rebates.

Just to give you a ballpark figure, George Douglas, a spokesman for the National Renewable Energy Laboratory, says experts at this federal research facility estimate that in New Jersey, purchasing and installing a photovoltaic system costs $9 per watt, and the average home requires 4,000 watts per year for a total cost of $36,000. This is offset by state incentives that can be as large as 70 percent, with the federal rebate on top of that. Plus the homeowner can sell back excess power to the utility company at rates that are about 50 percent of retail.