

Want to save energy or just save money? Either way, the focus is efficiency - and solar panels aren't mandatory

By Kate Ramsayer / *The Bulletin*

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The current hot spell could put the natural cooling system of M.L. Vidas' new house to the test. The house was designed to be cool in the summer and warm in the winter, and it doesn't have an air conditioning system.

"What we decided was to make our house as energy and resource efficient as possible," Vidas said, "and to do it in a traditional setting with a traditional-style home. We didn't want it to be a backyard science project."

So in the summer, they leave windows open at night and let the cool air circulate, she said. During the day, they close the windows, let the insulation keep the cool air in, and let the concrete and tile floor absorb the heat from the air.

The floor mass also keeps the house warm in winter, Vidas said. And with a solar-powered water heater, a photovoltaic system to convert sunlight to electricity and many other features, the house received the highest rating from the Leadership in Energy and Environmental Design system developed by the U.S. Green Building Council.

While the Vidas' house uses about half as much energy as a regular residence would, other homeowners can still save energy — and money — with less dramatic changes.

There are a range of options, from increasing insulation to save a few dollars on utility bills, to the significantly more expensive goal of creating houses that have "net zero energy" and produce almost as much energy as they consume.

"Through really good design and utilization of renewable energy systems, people basically end up turning their home into their own personal power plant," said Cylvia Hayes, executive director of the Bend-based 3EStrategies, a nonprofit that focuses on energy issues.

But before people start thinking about putting solar panels on top of their houses, they can do such things as increasing the amount of insulation in walls and ceilings, and sealing up heating ducts.

"We really have a lot more control over this than we think we have, and an awful lot of these measures don't have to be hugely expensive," she said. "There's an awful lot that can be done to really save you money on electricity bills."

Conservation

And the first thing to do, she said, is to reduce the amount of energy a household uses in the first place.

Robert Hamerly owns Greensavers, a company that comes to homes and does a series of tests, to see where the faults are in the energy-using systems. Efficiency is a key first step, he said.

"There's no reason to spend the money and get the solar or wind or one of these renewables, and you just waste the renewable power, too," he said.

Staff with his company test ducts, furnaces, water heaters, insulation, windows, doors and whatever else could be wasting energy.

"We do all these tests, and then we write a prescription for each individual home — where a house is lacking and where a house will get the most efficiency improvements," he said.

The average house can cut its energy bill 10 percent to 20 percent by doing a number of things like sealing up ducts, insulating crawl spaces or replacing sliding glass doors.

And with federal and state tax credits for residential energy projects, and incentives from the Energy Trust of Oregon, people can often get a good portion of the work reimbursed, he said.

"There's this large fund out there of money," Hamerly said. "Basically I like to think of it as a savings account to upgrade your home, but a lot of people don't know about it."

A job to insulate a ceiling might cost \$1,500, but the Energy Trust, which is funded by Pacific Power and Portland General Electric ratepayers, might kick in \$700. And the rest could be made up over several years in utility bill savings.

After working with others at her church to look at ways to go green, Emily Herbert, of Redmond, says she is trying to reduce her carbon footprint as much as she can.

"It's our obligation to preserve this beautiful creation," she said.

She's replaced single-paned windows and is buying as much green energy as she's using through Pacific Power's Blue Sky program. She upgraded her insulation, and had Greensavers come out and look at what else she could do.

Evidently, her house was pretty leaky. Heated air had lots of opportunities to escape. So the contractors sealed up duct work under the house, and although the work cost \$850, she got \$650 back from the Energy Trust.

For a new home, people can orient a house to catch the most natural sunlight, design it so that the sunlight heats up floors that can help keep rooms warm, and ensure it has good insulation, Hayes said.

Renewable sources

Once a home can conserve as much warm or cool air as possible, people interested in taking energy independence further could start looking at renewable ways to actually generate heat or power, Hayes said.

"Solar is very glamorous and very, very cool, but they can also be quite expensive," she said. "The first place to start is solar water heating."

These devices tap solar energy to heat water, which is then transferred to a normal water heater. Because the water in the water heater is already hot, the device doesn't have to expend energy to get the water hot enough for doing dishes, washing laundry and taking showers.

"As long as it's coming through warm, the tank isn't even turning on," said Curt Garner with Cascade Sun Works, which installs a variety of solar systems.

The devices generally cost about \$7,500, he said, but incentives and tax credits can make up for about half of that.

And with the money saved on utilities, the solar water heaters usually pay for themselves after about four to five years, he said.

“Then they’re usually getting their hot water for free,” Garner said. Even in the winter, the solar heaters can provide hot water about 70 percent of the time, he said.

With the energy being spent on heating, cooling and hot water at a minimum, people can make up for what they are consuming with photovoltaic systems of solar panels that convert energy from the sun to electricity.

On average, people who install photovoltaic systems install a 3-kilowatt system, Garner said, which, while it doesn’t provide all of an average home’s electricity, can make an impact.

An average household with a 3-kilowatt system might be able to supply about 20 percent of its electricity from the sun, said Stephanie Manzo, community outreach and marketing manager with Sunlight Solar Energy.

“They want to know that they’re in control of 20 percent of their electric bills for the next 25 years,” she said, “They won’t have to worry about any rate increases for 20 percent of their bill.”

That size system generally costs about \$24,000 before incentives, she said, but customers can also get about \$6,000 from the Energy Trust, \$6,000 in Oregon tax credits and, this year, \$2,000 in federal tax credits, she said.

If people wanted to get all of their power from solar, however, it’s not very feasible, she said.

“The system sizes have to be much larger to create that much, and the out-of-pocket cost for most people — it’s just not that realistic,” she said. For the average home, she said, it could cost between \$90,000 and \$110,000 before incentives.

Pushing the envelope

But even if net zero energy isn’t feasible right now, there’s a significant movement toward energy efficiency and green building, said Bruce Sullivan of Earth Advantage, which certifies buildings according to different environmental standards.

In 2007, he said, about a quarter of all new homes built had some sort of certification, although that figure dropped to 16 percent for the first part of this year.

“There are more and more people that are also interested in pushing the envelope,” he said.

And he predicts that in 15 years, people will be building net zero energy houses in Oregon. But the financing structure for the big projects needs to be altered, he said, and codes changed to make some of the efficiencies standard.

Others in the green building industry are seeing not only an increase in interest, but a shift in the reasons people have for becoming more efficient.

“I would say a year ago or so, more people were looking at how to be green and how to live more sustainably,” said Hamerly, with Greensavers.

“Today, people are asking more and more about how to lower their utility bill, and how to save money.”

Hayes has seen more people interested in efficiency because they want to have control over the source of their energy.

"I think people are also uneasy, and rightly so, about our energy system, and where it's coming from and where it's headed," Hayes said.

"Once you do invest in these systems, you know what you're getting. You know what your energy costs are going to be."

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