environment

Green homes: solar vs. energy efficiency

Solar gets more subsidies, but home energy efficiency may be more cost-effective.

By **Ben Arnoldy** | Staff writer of The Christian Science Monitor/ November 26, 2008 edition

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When Ted and Astrid Olsson set out to cut their home electricity bill, they had three strong incentives to buy solar panels: federal, state, and city subsidies. But they shelved the idea in favor of insulating the attic of their San Francisco Victorian.

While it's not as sexy as a rooftop rack of silicon, improving a home's energy efficiency tends to be the more cost-effective way to trim carbon emissions. So why are politicians showering subsidies on residential solar instead?

That's the question posed by Matt Golden, president of Sustainable Spaces, a company specializing in optimizing the energy performance of homes. He convinced the Olssons to think first about energy efficiency, but with every new solar subsidy, it gets harder for him to get homeowners' attention and contracts.

Policymakers say energy efficiency doesn't have out-of-the-box solutions that are easy to mandate or incentivize. Mr. Golden's message: Try harder,

or forget about meeting greenhouse-gas goals.

“Everybody strategically understands that energy efficiency is the most cost-effective place for us to spend our capital,” says Golden. “We can’t afford just to take all these [super-inefficient] houses and put really big solar systems on them that require massive rebates and incentives from the government.”

Among the states, California is furthest along in understanding its emission sources and setting specific cuts. Homes account for roughly one-third of the electricity and natural-gas consumption in California – most of it in older homes. By 2020, the state wants to cut existing home energy consumption by 40 percent.

To get there, California has incentives for both energy efficiency and rooftop solar. But it’s the solar initiative that’s gotten the buzz, helped in part by Gov. Arnold Schwarzenegger packaging it as the “Million Solar Roofs” plan. The program discounts piggyback on a federal tax credit of up to 30 percent of a system’s cost. San Francisco residents can get another $3,000 to $6,000 written off.

Stoking demand for solar can be good for energy efficiency, too, notes Molly Sterkel of the California Solar Initiative, the state’s solar incentive program.

“[I]t’s a two-way street. Solar gets some people excited about energy consumption and drives them to do energy efficiency. And I think a lot of people get energy efficiency and they still want to do more, and so they go do solar,” says Ms. Sterkel.

Ted and Astrid Olsson talked with half a dozen solar installers before a colleague advised getting a home energy audit first.

On a recent weekend, Golden and a two-man team walked with the Olssons around their four-story home. Golden’s team are like plumbers for air. Using

smoke candles, they watch how air circulates through ducts and drains out of vents, and look for bottlenecks and leaks. Using a fan device known as a blower door, they measure how airtight the building is.

The average home is leaky – lots of energy goes out of windows, doors, or walls. Two percent of all the energy used in California is lost from bad ducts alone.

The Olssons' audit revealed, among other things, that their attic hemorrhages heat. The audit prioritized retrofits based on return on investment, helping the couple decide to insulate the attic and hold off on other fixes.

"Even with all the incentives offered [for solar], it pays me more to solve my problem by retrofitting the house," says Mr. Olsson.

Energy officials say they want homeowners to make such rational assessments, but audits cost several hundred dollars and fixes can be time-consuming. That makes it tricky to agree on when and how homeowners should be pushed into the process.

One obvious moment: when a house goes up for sale. The California Assembly passed legislation requiring audit and repairs at a home's time of sale, but it died in a Senate committee.

"It frankly would create a lot of green jobs as you have people moving into that sector, but the realtors … don't like it because they think it gets in the way of the transaction," says Bill Pennington, manager of buildings and appliances at the California Energy Commission.

Getting real estate agents to add an energy-efficiency rating in the database of homes for sale would dramatically boost awareness of energy audits. The ratings would act like an auto fuel-efficiency sticker for homes, says Golden.

Proposals to pair home energy audits and retrofits with solar installations have raised concerns with the solar industry. It would mean consumers have to get separate contractors, says Sue Kateley, head of the California Solar Energy Industries Association. “It’s really good for the consumer to do [energy efficiency] first, but the timing is really difficult to overcome.” Golden, who emphasizes he isn’t anti-solar, says efficiency upgrades and solar should be paired. “We play in the same sandbox. When [policymakers] pull the lever, they are not only helping solar, they are hurting energy efficiency.”

He says retrofits don’t have to hold up a solar sale: Require the audit upfront, install the solar system, and give consumers a year to make efficiency upgrades.

Sterkel of the solar initiative worries the proposal would increase installers’ paperwork and delay collection of state rebates. Ultimately, she says, her priority is to drive up demand for solar so as to bring down its price.

The utilities commission is asking for public input about whether to scale back its solar subsidies after Congress extended federal solar tax credits recently.

“If we are ever going to meet our carbon goals … existing buildings have to be tackled somehow. And so integration of energy efficiency and [rooftop solar] has to happen,” says Andrew McAllister, director of the California Center for Sustainable Energy.