



Free the Sun:

By Elaine Gast
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Why is the state of Hawai'i making it difficult to go solar? I once had a chance to move into a solar paneled A-frame down in Huelo. It was a novel idea at the time, until I remembered how much it rains in Huelo. I pictured blackouts—long, dark days without the luxury of my electric toothbrush or MTV's Pimp My Ride to keep me company. It sent me running right back to the electric grid, where I thought I belonged.

Still, I always admired those solar people as the renegades they are. I pictured brave, anti-establishment types who say no thanks to the old hand-to-mouth from the utility. Instead, they choose the sun—living off the land, liberated, undoubtedly doing other noble deeds. Long ago, I decided that anyone who generates his or her own juice is okay by me.

Solar is so old it seems new. It's been around since seventh century B.C., when people were using glass and sunlight to light a fire. Today's sophisticated solar technologies include everything from sun-powered lights to buildings to vehicles. You may not be able to buy your own "green" car right now, but it seems like anyone can have a home or business run by the sun.

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A Peaking Problem

I've heard it said that our way of life is on a collision course with geology—given the fact that the Earth holds a finite supply of oil, and we humans—like blind, starving pups—have nearly sucked the poor teats dry.

Here's a simplified version of the issue:

As the amount of oil continues to decline, the demand for oil keeps rising. Not in one of those gentle curves you see on a line graph, but in a steep, vicious spike. Our seemingly endless flow of crude oil will ultimately top out—peaking at a point where supply can no longer meet the demand. It could be one year from now or 30, but it's coming. The peak is coming.

Even the petroleum companies have quietly confessed there's a problem. In its recent energy outlook report, Exxon Mobil Corporation predicted an "imminent" oil plateau. Its forecast? Five years.

No oil company in their right mind has ever discussed oil peak before. This is akin to Philip Morris campaigning that cigarettes cause cancer. Still, it seems the public is hard-pressed to pay attention. Maybe environmental dooms-dayers have cried wolf too many times.

No one may know exactly when the peak will happen, but we do know a few facts, courtesy of the latest Bulletin of Atomic Scientists:

- The world uses about 27 billion barrels of oil per year, meaning the 112 billion barrels (the proven oil reserves of Iraq) will last a little more than four years at the rate we're going.
- As the underdeveloped world industrializes, demand for oil will go up exponentially. China and India, for example, are now building superhighways and automobile factories—transforming themselves and their billions of residents into car-based cultures.

Oil is not a renewable resource, and we can't keep producing something that just isn't there. This isn't in our science fiction Star Wars future. Nor is it a problem we can simply pass off to the next generation. It's now, in our lifetimes. And some people don't want to wait around for Mother Nature to slap us on the wrists and say "Bad, humans. Bad."

On Local Terms

Because the Hawaiian Islands are isolated, they rely more on added fossil fuels than, say, our connected neighbors. Maui generates 94 percent of its energy through imported fossil fuels (namely, oil). The remaining 6 percent of its energy comes from bagasse, the waste produced from sugar cane (yes, that sweet Kahului aroma we call home).

When the peak hits, we, like the rest of the world, can expect drastic oil shortages, price surges and well, general economic holy hell. "The oil peak will no doubt have an incalculable effect on our lives," said Marco Mangelsdorf, Ph.D. and president of ProVision Technologies in Hilo, who has been involved with renewable energy in Hawai'i since 1981.

But, perhaps unlike other states, we don't need to peer into a looking glass—we're already feeling the pinch. Hawai'i has the highest electricity rates in the country. Consistently, the state holds the leading three spots for highest utilities per county as well—ranking at Kauai, the Big Island and Maui, in that order. Moreover, within the last two years, the costs of electricity on Maui have increased 52 percent.

Renewable energy—like solar, wind and hydroelectric power—is the cheapest, cleanest way to extend the world's energy supplies, and lower the costs of electricity.

You would think that the state and the utility would be aggressive in promoting renewable energy solutions—and it has, but only in some areas.

Most recently, the state and utility have agreed to let Kaheawa Wind Power build a wind energy project (the largest in the state) at Ukumehame by early 2006. The new wind farm is expected to produce about nine percent of Maui Electric Co.'s total power.

In addition, the state has one of the largest solar hot water programs in the nation—about 14,000 systems. Since 1996, the utility has paid more than \$13.5 million in rebates to Hawai'i residents who have installed solar hot water systems.

But renewable advocates say that there's much more to be done. "The state and the utility have done a great job at promoting solar hot water," said Matias Besasso, of the Paia-based Rising Sun

Solar. “But they could do a lot more in terms of promoting net metering to residential and commercial customers.”

These days, going solar doesn’t mean going off the grid. A net-metered solar electric system, one that’s still attached to the utility grid, allows your electricity meter to spin backward when your system produces more energy than it uses. Your electric meter measures the “net” difference between what you produced and what you used. If your system is designed and sized properly, you can produce as much energy as you use and achieve what’s called a “net zero” on your electric bill.

Unlike solar hot water systems, which simply store heat from the sun, solar electric systems (PV) actually convert sunlight into electricity.

Last year alone, there were more than 4,000 net-metered solar systems installed in California. In Hawai’i, there were 23—for a grand total of 69, statewide. “Something is wrong with this picture,” said Mangelsdorf.

Of course, there are many solutions to the complicated energy problem, and solar is just one of them. But solar electric users are finding that they can reduce the energy demand—and save cash at the same time.

Good Business Sense

Business owner David Spee turned the solar switch ON this past May. Tired of his rising electric bills, Spee, with the help of Rising Sun Solar, installed solar electric panels (PV) on the roof of his Paia attorney’s office on Baldwin Ave.—the first business on the North Shore to do so. Spee joins the ranks among a small number of businesses that have converted to net-metered solar electric, including Island Dodge and Harley Davidson, both in Kahului.

According to Spee, it was the numbers that sold him. “With the tax credits available, solar electric makes good business sense. Within six years, my system will have paid for itself. The system has a life expectancy of 25 years—which means I just bought myself 19 years of free electricity.”

Companies that invest in solar electric and other forms of renewable energy are eligible for tax advantages, such as a Corporate Tax Credit of 35 percent off the cost of the system, a Federal Energy Tax Credit of 10 percent, and federal and state accelerated depreciation—allowing most businesses to recover their investment within four to six years. (For more, visit www.hawaii.gov/dbedt/ert/taxcredit.html or www.dsire.org.)

The wide availability of incentives isn’t well known to consumers, partly because utilities aren’t always eager to advertise them. After all, more solar electric users could mean less revenue for them.

Yet, a new law signed June 3, 2004 by Governor Linda Lingle calls for the utility companies in Hawai’i to generate 10 percent of their energy through renewable sources by 2010—and 20 percent of by 2020.

Lingle noted that the new law won’t work if both the electric company and the state don’t cooperate. “The bill has a lot of escape hatches, if everyone’s intentions are not good,” she said.

In other words, there's no penalty if the utility companies don't reach this goal. According to Lingle, the state and the utility companies are committed to seeing this come about. Yet, the past legislative session would speak otherwise. "There were progressive bills that didn't even make it to Lingle's desk," said Mangelsdorf. "The legislators could have—and should have—done more to support renewable energy."

One Promising Solution

Renewable advocates say there's a quick way the state could reach its 2020 goal—a buy-down program for net-metered solar electric users. A buy-down program offers a rebate to people who install solar electric systems, based on how much energy they feed back to the grid. Currently, the state offers a rebate program to solar hot water users, but no rebate for solar electric.

"A buy-down program collects money from the utility rate payers, from a very small tax that appears on monthly utility bills. After you install a system, the utility sends you a check in the mail a few weeks later. It costs the state and the utility companies nothing," said Brad Albert, also of Rising Sun Solar.

Have you read your electric bill lately? You may notice that you already pay a small fee—somewhere likely in the range of four to 12 dollars, based on your usage—for a vague line item called "IRP Recovery Costs." Little do you probably know, the IRP (for Integrated Resource Planning) is an advisory board established by the Public Utilities Commission (PUC) to help Maui Electric Co. develop an "energy plan" for the next 20 years.

This past month, the IRP advisory group held the first in a series of community meetings to take consumer needs into account. According to Maui Electric's IRP supervisor Joanne Ide, "The public will have plenty of opportunities to give input to the plan, which we will submit to the PUC in October 2006."

Hawai'i Electric Co. released its own IRP Plan in early June. The plan proposed building a new power plant on Oahu by 2009.

"Consider this," said Besasso. "If every customer on Maui paid on average one dollar extra each month, based on their usage, as part of the IRP recovery costs already on their utility bill, that would generate enough money in a buy-down program to pay for 80 new solar electric systems. In just one year, those systems would create 360 megawatts of renewable energy on Maui. For this small fee, everyone benefits from the clean power produced."

New Jersey and California offer the most generous buy-down rebates for solar electric users. In California, installations jumped 53 percent under the state's rebate program last year—up to more than 12,000 systems statewide—as money became a big motive for people to go solar electric.

In this past legislative session, Representative Lorraine R. Inouye of Hilo introduced a bill for a buy-down program, but it didn't go far. The utility companies flat-out opposed it.

The PUC, which regulates the utility companies, now has the authority to institute a buy-down program, if it sees fit. It will hold a workshop this August to collect views on how the state can develop more renewables.

“Hopefully the PUC will see the benefits of a buy-down program—that it’s the best incentive for people to invest in solar energy,” said Mangelsdorf. “I’m not banking that they will, but I can still dream.”

Green Power

When Kathy Ross built her new home in Sprecklesville this past November, she knew she wanted independence from the electric company. “I wanted to do something green when building my house.” She not only installed solar electric and hot water systems, but also a well to avoid using city water.

For Ross, solar is nothing new. She’s been using solar since the 1980s when she lived on a boat, where she said everything was run by solar power.

“Solar makes sense, especially here on Maui where we live in an area that is so consistently sunny,” said Ross. She says that for a house her size, the solar electric and hot water systems combined will save her between \$200-250 per month on her electric bill.

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Residents installing renewable energy systems, whether solar water heating, solar electric (PV), wind or hydroelectric, can claim tax credits of 35 percent of the cost of the system up to a maximum of \$1,750.

“When you get a net-metered solar electric system, you’re no longer on the whim of the utility,” said Brad Albert. “You’re still connected to the grid and your community, and in a sense, you’re even supplying your community with green power.”

“It’s time to get more self-sufficient on a state level,” said Ross. “Solar should be mandated in states where it’s sunny, and the state of Hawai’i should buy back as much electricity as people can make. Other states do it, why don’t we?”

“It’s really simple. We all have rooftops. We all have sun.”

For more information on solar energy, attend one of the monthly workshops called “Taking the Mystery Out of Solar,” sponsored by Maui Electric Co. at MCC (984-3231 for more info) or visit www.risingsunsolar.com. MTW