Wonders in the Wind

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Joe Biondo

In the hills above Soquel, an energy-minded neighbor is taking advantage of the Monterey Bay winds to power his house. Passing by their house, you can't help but look again at a large three-bladed propeller atop a tower perched on a backyard knoll. Joe and Michelle installed their electric windmill back in 1980 when Joe was a partner in Wind Power Systems, a distributing company for homesize windplants. In conjunction with solar hot water panels, this household has successfully lowered its electric bill.

"My monthly electric bill used to be $125 for our all electric home," says Joe. "Now with these alternative sources, it's down to $75." Joe runs double meters: one for the electricity he uses when the wind won't blow, and one that gives him credit for energy produced. This interconnection with the utility, known as co-generation, is the way to go for those desiring to stay hooked into the power grid but still wanting to supplement their electrical demand. Joe shares a cautious optimism concerning wind energy and advises to those considering wind power, "I would surely recommend these wind machines for anyone living in a windy area."

Power from windy breezes may be free but wind generators aren't. His windplant cost $10,000 back in 1980, but federal and state tax credits hacked off half. He says he's saved enough money on electricity to make up the difference by next year.

Further south, in the Aromas hills, halfway between a cool Moss Landing and a hot San Juan Bautista, lies a desirable area blessed with winds that bring out the best in wind generators. Harvey and Eudora bought their property specifically for that reason and have built an energy-efficient homestead complete with a 12-foot diameter wind turbine, baseboard solar space heating, solar hot water panels and a water-pumping windmill.

"We live in a wind channel," says Harvey, as he gestures toward a long narrow open valley frm the ocean to an arid inland region. With his utility-interconnected all-electric home, he occasionally even gets credit for more power produced than used. "I seldom pay over $20 per month to power my five-acre place." For an all-electric residence, that is quite a feat, as kilowatts are burned up fast by electric ranges and clothes dryers.

Harvey's 160-pound mill sits on a 65-foot tower and is capable of extracting 1,500 watts of power out of a 23 mph wind. "I've only been up there a couple times, only to that point," he says as he points halfway up the narrow steel tower. Of course, the tower is scaled to the top only on windless days, as contending with rotating 10-pound blades can be less than friendly, even fatal. "They're made of sitka spruce, a hardwood with straight grain, the same as they use on aircraft props. On real windy days, the blades twist their angle into the wind, and make a 'whish-whish' sound, slowing down the blades to keep them within a safe rpm. But usually we have only 16 mph winds and the windmill is noiseless."

To complement his wind generator is an old water-pumping windmill that not only pumps water up from their well, but also pressurizes the water system of the whole house.

Complete energy independence is something attainable only with a windplant in a good wind area, complementary solar heating, and a sense of energy conservation—a concoction difficult for many people to achieve. Nevertheless, Bob and Patty of Aromas are attempting to do just that. Like the thousands of windchargers that powered remote ranches in days gone by, these folks plan a complete disconnection from the utility lines.

"I want to pull the plug on PG&E," quips Bob as he glares at utility lines overhead. But unlike the old windplants of the past, Bob has added a bit of high tech to his windmill. Actually, it's a vertical windmill, a new twist to an old idea. By charging a bank of deep-cycle batteries to draw from on windless days, which are few, they plan a level of energy independence that reflects the true meaning of alternative energy.

"Up here in these hills, we can take advantage of the wind and not even have to depend on the power companies," Bob says. In addition to their 4-kilowatt, 25-foot-high vertical windplant, he has constructed a 36-by-6-foot wide passive solar greenhouse to heat his hilltop home. "Other than our solarium and woodburning stove, we don't use any other means to heat our place."

A few miles north of Davenport lies another area ideally bred by Mother Earth for the harnessing of the wind. Located in this wind-whipped region is Dave and Gail's horse ranch, and a fine example of self-reliancy that wind lingoists call "windependence." At their ranch there are no power lines strung overhead into their acreage. Instead, they've erected a 65-foot tower and topped it off with a "12-footer." Its white blades demand your attention as they spin hypnotically, churning free watts out of the wind.

"We've got a 12mph average windspeed here, enough to power the whole house. We're totally self-sufficient here," says Dave. Pointing to a neighbor's house about a mile away, he states, "From there, PG&E wanted $30,000 to bring in the utility poles and lines, so we figured that it'd be cheaper to put up the wind generator and never have to pay monthly utility bills."

His system, complete with 350 amp-hour battery storage and 6,000-watt inverter cost $15,000, but was knocked down to $7,500 after tax credits and rebates. Looking up at the silent spinning dynamo, he says, "It's really quiet." ●