

Power With Nature

Renewable Energy Options
for Homeowners

UPDATED 3RD EDITION

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PIXYJACK PRESS INC

Prologue

I have always thought renewable energy an adventurous enterprise. It certainly was back in 1999 when LaVonne and I moved to the mountains and cobbled together our first solar-electric system. Solar and wind installers were few and far between, and if you did happen upon one it was a fair bet that he or she had a day job and was doing renewable energy installations on the side. This was a time when Trace Engineering was the only name in power inverters and charge controllers and no one complained about it; when electrical utilities did not know what to make of solar power but they were all pretty sure they didn't want it contaminating their power lines; when the words "global" and "warming" were just beginning to be spoken one after the other and it was still possible to pick up a newspaper or a science journal without someone remarking about your personal complicity in bringing about the end of the world.

But things have changed. Today you can hardly walk down the street without bumping into a solar installer with certifications from one or more quasi-government institutions. Trace is now Xantrex and they're up to their eyeballs in competition. Practically every utility in the nation talks up solar and wind energy like they invented the stuff. And years of political and scientific horse whipping has cowed us all into believing that the world would be much better off if none of us had ever been born.

This is not all bad, of course. Competition in the solar marketplace has led to the creation of some truly wondrous new components with capabilities few could have anticipated a decade ago. Photovoltaic modules are now cheaper

and better than ever, and they can be connected to one another by anyone who can shove a round peg into a round hole. Yet with such a wealth of components to work with, solar and wind systems have necessarily become more complex, hence the emergence of the trained and certified solar installer—that eminently qualified person you would want to install your system in the event you decided not to do it yourself. And, of course, with so much solar and wind energy out there we should all be grateful there are utilities ready and willing to buy it from Peter and sell it to Pauline.

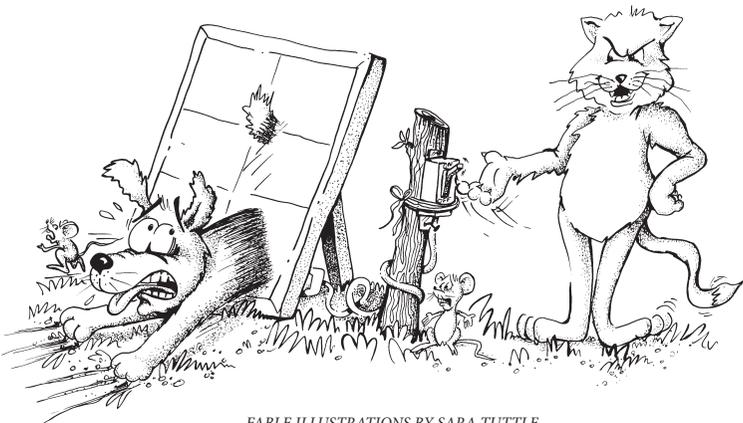
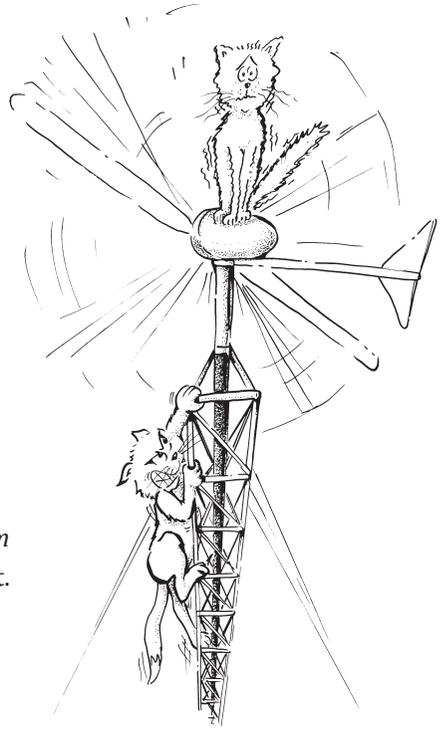
Yet somewhere along the line, an idea that was once fun and adventurous has begun to resemble a political and “moral” mandate, and now solar and wind technologies are burdened with the task of saving the world from the perils of human meddling. It’s the sort of thing that happens when scientists crawl into bed with politicians.

Power with Nature is not about political agendas or scientific prophecies, however; and nowhere will I denigrate you for your addiction to gasoline, your love of red meat from methane-farting cows, or the embarrassing size of your carbon footprint. It’s not that kind of book. For while I am indeed proud to be personally involved with the clean technologies that will one day replace fossil fuels, that’s not the reason I’m in it. It’s much simpler than that: I like being in control of my own energy usage and production, and I thoroughly enjoy dreaming up energy-conserving strategies and tactics that would never occur to anyone not living off the grid with limited energy resources.

I therefore hope to show you in some detail the most promising renewable energy technologies and how they can save you money and make you more self-reliant. I would also like to instill in you the same sense of wonder I feel every time I wire together a solar array or a battery bank, or climb my wind tower for a little routine maintenance on my Bergey XL-1 wind turbine. Because for all the things renewable energy may or may not be, it is, first and foremost, really fascinating technology that has the added benefit of being a helluva lot of fun. If I am able to get that much across, then I will have done my job.

The first two editions of this book began with a fable titled *Dog of the Sun, Cat of the Wind*. It was about my improbably talented cats and dogs, my search for the perfect woman, and, naturally, the bare rudiments of renewable energy.

But like most works of fiction, it has become dated and, I dare say, politically incorrect in that I shamelessly promote off-grid over grid-tied systems. And while I certainly have no problem with political incorrectness—indeed, I practice it every chance I get—the fable was in need of some technical revisions and I didn't have the heart to change a word of such a finely spun tale. It is not dead, however; it is waiting in PDF format as a free download at www.PixyJackPress.com for all who would venture to read it. If nothing else, it will shed a great deal of light on the many morsels of dog and cat wisdom sprinkled throughout the book. *Enjoy.*



FABLE ILLUSTRATIONS BY SARA TUTTLE

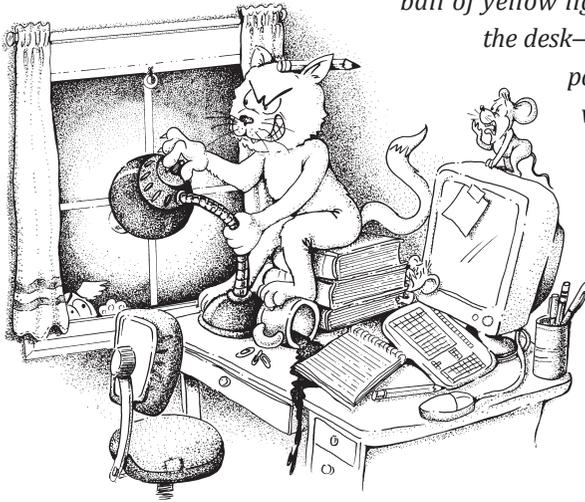
excerpt from *DOG OF THE SUN, CAT OF THE WIND*

...The scene before us as we pulled into the yard was like something out of a John Carpenter film. Packrats were pouring out of the hay barn and scrap piles, the equipment shed and wood piles in droves, their little black beady eyes glistening in the headlights as they scurried toward the house. The three dogs and Stinky, the cat, had tried to set up a defensive perimeter around the house, but there were too many rats for the four of them to fend off; whenever one of them would send a rat running, another five would sneak past.

Through the window I could see that Willie had managed to push my office door shut, ensuring that no dog could deflect him from his twisted mission. He was sitting on his haunches on my desk, flipping the desk lamp's light switch on and off with his paws, sending out his diabolical message to all his little nether-minions. His face was frozen into a maniacal rictus.

...If Willie was surprised to see me, he didn't let it show. The leer I'd seen through the window was still hard-set on his face, as though cemented in place by Igor, the hunchback taxidermist. However, the second I screamed, "Prepare to die, you good-for-nothing cat!" and lurched for his scrawny neck with out-stretched fingers-become-claws, he realized the party was over. Like a furry

ball of yellow lightning, he leapt from the desk—scattering hundreds of pages of the novel I'd been working on—zipped out of the office, and ran through the wide-open front door. Though it was obvious—even to me, in my advanced state of rage—that I would never catch him, I took off in hot pursuit...



To read the entire fable, visit www.PixyJackPress.com