

Live with Solar Energy

By *Nina Mohit and Tom Brodersen*

For five and a half years now, our family has been building an eight-acre nuclear free zone. We chose not to hook up to electric utility companies for reasons moral, environmental, political and economic. Except for digging the well, we've done everything ourselves -- partially from choice, and partially because we could not afford to pay professionals to do it. We joke that it's good we couldn't afford to have the place built all at once, as our design has improved over the years.

Our solar house is sited on a south-facing slope. The passive design includes direct-gain; trombe walls; solar greenhouse; massive soil cement walls insulated on the outside; clerestories to bring light and heat to the north side; double-glazed windows with movable insulation panels; and well-insulated roof, walls, and floor. We have a propane stove and refrigerator and an efficient woodburning stove as a backup. We will eventually catch water off the roof for plants in the greenhouse.

Our water system includes a well with a windmill and a solar powered submersible pump for back-up. A hilltop storage tank gravity-feeds water to the house; our passive solar "breadbox" water heater has a supplemental propane water heater for when it's cloudy for too long; our pond catches run-off for irrigation while our garden and the beginnings of an orchard are watered by drip irrigation.

Our electrical system is entirely solar. It consists of: 10 photovoltaic panels with 12 storage batteries; 12 volts DC for lights and some appliances; an inverter to supply 110 volts AC for power tools, washing machine, computer, etc.; and a gasoline powered generator for occasional backup needs. In the summer, we still use a klunky pedal powered washing machine. We produce about one kilowatt per day.

The satisfaction and plain old fun of what we are doing is considerable. Running a cement mixer on solar electricity to mix soil-cement to build a passive-solar home is an organic and aesthetic pleasure. We're still amazed when we use solar electricity to run power tools and pump water and then have more energy stored in the afternoon than when we began! Nina is convinced that food cooked in our homemade solar oven tastes better. The knowledge that in our own small way we are reducing the demand for energy -- and the wars, injustices and environmental damage required to obtain them -- rests nicely on our hearts and minds.

"Going renewable" is not all easy or fun. Systems break down and need maintenance, and it's up to us to fix them. But the hardships have been minor, and we've grown in patience while things have taken shape.

The "renewable" lifestyle is not as convenient as a

plugged-in lifestyle, but it is more satisfying. It helps us be more conscious of waste, and more willing to do simple, but numerous, acts each day for comfort and smooth operations: for example, putting insulation panels in windows on winter nights to hold the heat gained during the day, or waiting for the sun to heat the water and showering in the afternoon in cold weather.

And there's no kidding ourselves. It took non-renewables and precious resources to manufacture and transport the renewable energy gadgets and efficiency/conservation materials we use in our home.

Anyone who expects to "go solar" to any degree should be prepared to accept the down side of the experience as well as all the good reasons that make it worth it. While we encourage others to become solar "owner-builders," here are a few warnings:

1) Do your homework. The first wave of owner-builders made many mistakes and made great discoveries; we can benefit from talking to them and reading about them.

2) Be patient. When we first moved to our land, we posted a "schedule" on the closet door, expecting to have our dream homestead together in 2 or 3 years. That was almost six years ago.

3) Think small and modular. Try to incorporate solar and conservation/efficiency principles into whatever you are building - a garage, a doghouse, etc. If you can't build your home all at once, do it in pieces. We would still be waiting if we hadn't begun until we had all the money together.

4) Combine energy systems and plan multiple "back-up" systems. In our view, there is no one "solution" to the energy problem (or most problems, for that matter).

5) Remember that little actions add up. You are not alone, and the more everyone does on their own plot, the better off the planet will be.

We hope to finish the house in 1989 (knock on wood). Then we can turn from construction to gardening, more permaculture techniques, and other pursuits.

We take some pride in what we have been able to do and are grateful for the opportunity. We recognize that other people have different and equally valid priorities; not everyone would choose to live as we do. But, our little homestead (along with many other similar projects elsewhere around the world) demonstrates that we *can* live on a fraction of the energy that we had come to think was necessary; that there *is* a non-nuclear future if we choose to make it; and that we *can* create a sustainable way of life if we take things into our own hands and set our minds to it.