

# GREEN LIVING

- By Cile Downs

## Tilting at Windmills ... And Winning

Lately, I've been thinking about alternative energy sources and various ways of reducing electric company power use, as well as our well-known expensive fuel oil habit. Then I saw my old friends Arthur and Millicent Kaliski and they handed me a little brochure on Milwind, as their house is called. That did it. I went to see their famous windmill and saw a lot of other things as well.



Arthur and Millicent live high in the Stony Hill woods, and their house, completed in 1997, looks like any regular house. But there is heavy urethane insulation of walls and roof and a great many south-facing windows with "smart glass" panes that distinguish between low-angle winter sun (which is admitted) and high-angle summer sun (which is reflected.) It's a passive solar house. You would expect this sort of thickly insulated and very tight house to develop a lot of humidity and grow mold, but here fresh air is circulated by fans. In winter, a heat exchanger removes heat from the air being exhausted and adds it to the incoming outside air. When heat is needed beyond what the sun supplies, the circulating air is heated by water from the household hot water heater running on propane.

Here's the exciting part of the Kaliski hot water: as part of my tour, I arrived on an upstairs balcony above which there was a handsome array of glass tubes on the roof, and was told that this was the solar water heater! My limited experience with such things had only involved primitive devices that are filled with water and therefore have to be drained for the winter. Not this one. Inside the tubes a rather complicated and highly efficient process of solar heat collecting goes on, the product of which is transferred (by the vaporizing and condensation of a liquid in what are called heat pipes) to circulating water and thence to a tank in the basement. One beauty of the cylindrical shape of the tubes is that any ray of sun striking them from any angle works at once to make heat—when the sun comes up, you're in business!



On a sunny day this unit (called the Seido 5 and made by the Chinese Beijing Solar Energy Technology Co.) heats eighty gallons of well water from about fifty to about a hundred degrees. In the basement, the tank this water is stored in is connected to the household water heater and acts as a pre-heater for it. You can imagine how little propane would be used to raise the water there to the necessary 120 degrees or so needed to heat the house. The whole works cost about \$2000 for the Seido 5 plus a like amount for installation and accoutrements. I have no doubt that it is busily paying for itself.



But the windmill! The reason I was visiting the Kaliskis in the middle of a working day! First I looked at a DVD of Millicent on the beach with this beautiful white cylinder, whirling in different wind conditions. Lightly tripping past it, she flipped a lever that changed its speed and its extension, so that the rotating cups opened out, flower-like, or closed themselves up. It looked like a sculpture and spun like a top, or....well...a windmill. It is a vertical axis turbine, and the uses to which it could be put are myriad. Arthur envisions its use in third world countries for pumping and purification of water and for electricity. It would be an excellent emergency power solution and would team up admirably with solar panels to charge storage batteries, or it

could run the LIPA meter backward as the solar panels do. It does not produce vibrations in its supporting structure, so it could be mounted on any building or tower that gets the wind, gathering up to 25% of its energy.

I envision a consortium of investors who could back, say, ten different inventions serving the purpose of efficient, pollution-free energy production. I once heard of such a group that invested in art by many different artists who were relatively undiscovered. You didn't have to make a killing on them all — just one jackpot would be enough! Why not use the principle on green devices?

American ingenuity has not declined, but new ideas need more encouragement. Bottom line? I'd love to see Arthur Kaliski's windmill get beyond the prototype stage, because I want one! Learn more at [www.milwind.com](http://www.milwind.com).