



Some Notes on The Midwest Renewable Energy Fair, Solar Ovens, And Small Wind

Posted by [Nate Hagens](#) on June 18, 2007 - 11:15am

Topic: [Alternative energy](#)

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Since my dog has a broken leg, and my garden is reasonably under control, I decided this afternoon to drive the 20 miles from my cottage to Custer, WI, where the annual [Midwest Renewable Energy Association Fair](#) (MREA) was taking place. The organizers expected 15,000 people to attend. I went last year (amidst tornado sirens) to see Jim Kunstler and my initial sense was that this years fair was nearly identical to last, in terms of product booths, workshops and types of people attending. From the MREA website:

The Fair is the world's largest renewable energy, energy efficiency, and sustainable living educational event of its kind

Below the fold are some of my observations and thoughts from a few hours at the energy fair.

Like last year, it was packed. The fair had hundreds of booths, from solar, wind, and geothermal alternatives, to gardening and small scale farming materials, to biofuel and farming books and magazines like Mother Earth News and Backwoods Magazine. Here's the [exhibitor list \(pdf\)](#) with phone numbers and websites of all the product vendors at the booths.

We only had a few hours so my friend and I spent most of our time talking to the several solar oven vendors. Solar ovens are selling like hotcakes in developing countries that have areas with no easy access to electricity, though here I get the sense they are still viewed as a novelty. There are the personal sized ovens (about 19x19x11 inches) that sell for under \$200 and they also have the industrial [cook-for-a-village size](#) that are about \$10,000. The large version concentrates reflection from panels on the side of a glass filled box. The smaller versions have the same shape/ratios, but the reflective panels are optional. Apparently (this was my first time shopping for solar ovens) the same mechanism that causes cars to get VERY hot when the windows are up is enough to generate 250-300 degrees in these glass and plastic ovenboxes. The reflective panels bump that temperature up a little more - one vendor said in the sun climate of Wisconsin, they could get to a maximum of 380 degrees, with the panels.

Duration Of Time For Solar Cooking On A Sunny Day

EASY TO COOK
2 Hours or Less



EGGS



RICE



FRUIT



VEGETABLES
(above ground)



FISH



CHICKEN

MEDIUM
3 - 4 Hours



POTATOES



VEGETABLES
(roots)



SOME BEANS
LENTILS



MOST MEAT



BREADS

HARD TO COOK
5 - 8 Hours



LARGE ROASTS
(all meats get more tender)



SOUPS AND STEWS

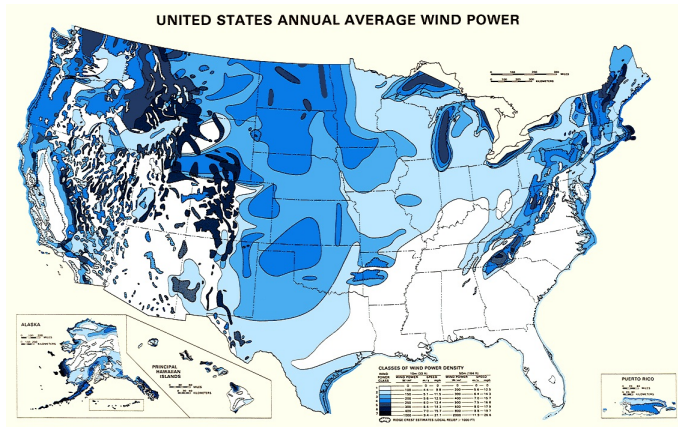


MOST DRIED BEANS

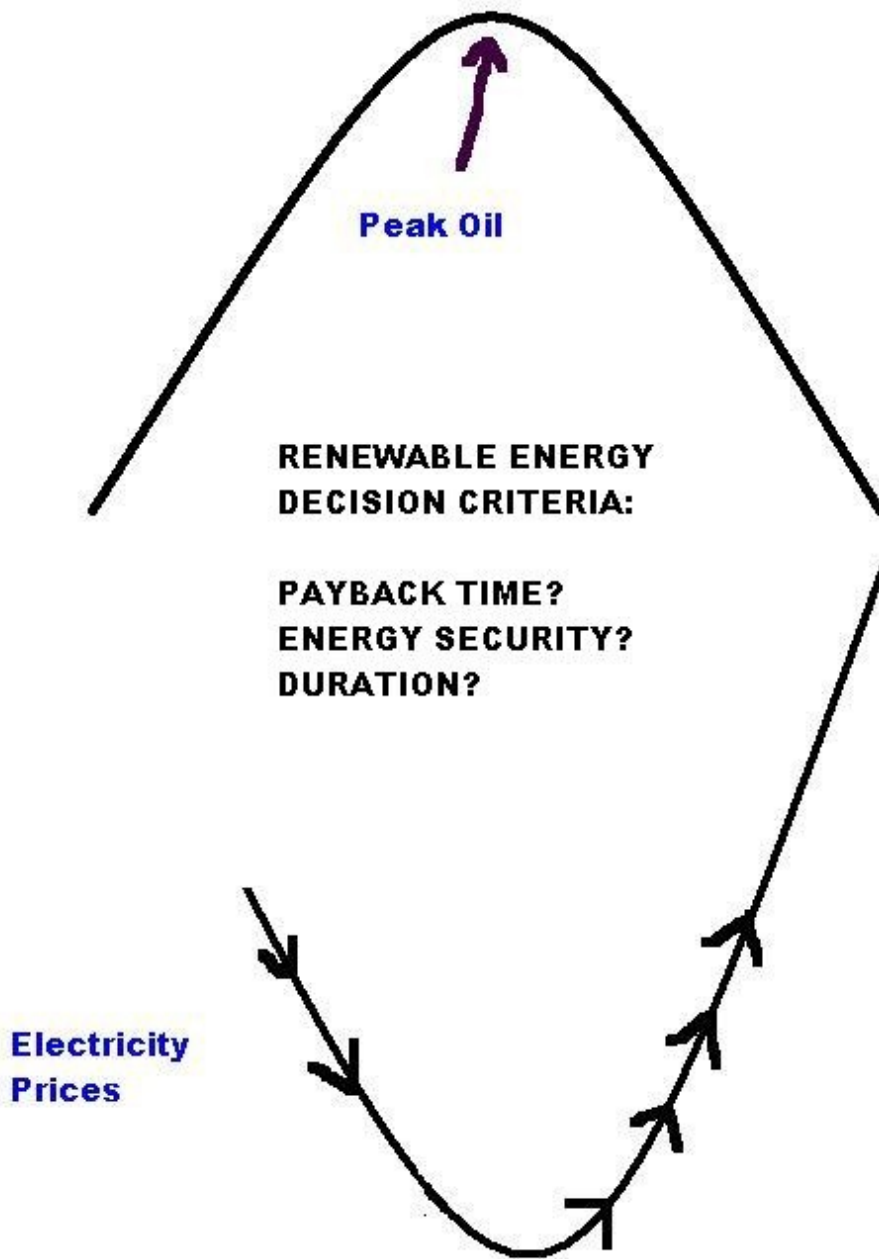
The other thing we were told is that these ovens are also used as water purifiers. Apparently boiling water kills pathogens in a few seconds, but 'pasteurization' occurs at lower temperatures for greater lengths of time (10 minutes was their guideline).

http://www.theoil Drum.com/files/solar_cooking.JPG>

I was pretty impressed by [the small oven](#) and actually bought one (I chose this brand because I basically liked the people better). For me this was not an 'energy investment' decision, but my cottage gets hot in the summer and even hotter with the oven on. If I can cook outside, the house stays cooler. Also, the marketing seemed to suggest that food slow-cooked in this manner is tastier and healthier and apparently chicken and fish work great. Im sure I will save some electricity by using this product, but it struck me more as a sensible thing to do given all the free sunlight falling on my yard. Then again, my girlfriend bought one first and maybe my purchase



The fair also had numerous wind turbine and electricity conversion systems. The cost on the wind turbines I looked at was roughly \$15-\$20,000 and depending on the wind regime (see above) you live in had a payback time of 10-20 years by rough calculation. As wind 'return' increases with the cube of wind speed (as opposed to square), large scale wind turbines will have a better total return for society as there is an energy economy of scale - plus they can get higher up in the air accessing greater wind speeds.



One of the first questions people ask when buying a small scale wind turbine is 'what is the payoff time?', or how many years of electricity bills that I wont have to pay add up to the purchase price of the turbine? This question misses many aspects of the decision to buy a wind turbine. First of all, some people get satisfaction from harvesting renewable power from wind, irrespective of cost. If there is concern about grid interruptions or failures in the future, then owners of turbines and solar panels will not only have saved on electricity bills but also bought 'energy insurance'. To view the future electricity prices at an inflation adjusted version of today is straddling two paradigms and might be an exerise that keeps people from pulling the trigger on these items. Peak oil will likely result in the entire spectrum of energy prices having an upward shift. (Note: I dont know enough about small scale wind to recommend for or against it - though I am very certain that large scale wind will grow tremendously and be profitable in both energy and dollar terms).

The financial concept of duration comes to mind when assessing wind turbines. Duration is the weighted average of all future income streams on a bond and effectively measures the sensitivity of a bond's price to a shift in interest rates. If interest rates drop precipitously, one will make a lot more money on a 30 year bond (12 year duration) than a 3 month t-bill (2.9 month duration). Similarly, if energy prices all shift upwards dramatically, those assets with the longest lifespan (duration in this sense) will have much higher payoffs. In other words, I am beginning to increasingly look at large purchases not only in dollar terms, but in energy terms. Given my view on the future energy landscape, I should be (and am) willing to pay more 'dollars' for things today if they are the correct energy decisions for the future. I wish more of corporate and policy decisions were made in this manner. I am going to look further into small scale wind - my impression is that many of the current menu offerings are more like toys, and not great harvesters of energy. If some of you know more on this, please post links and info.

In sum, the people I saw at the fair were not dissimilar to the crowds at other alternative fairs I've been to in the past (though pretty different than [my brother](#) at a Midwest Medieval Fair in Ohio). I got the sense the average person at MREA were in Custer because living partially/wholly off the grid is a lifestyle choice and wanted to learn about the latest gadgets, meet with friends and learn more about the alt-energy tribe. I did not get the sense, either this year or last, that a majority of consumers attended because they see the peak-oil-writing on the wall and are trying to get ahead of the curve on energy independence.

It also struck me today that these solar PV and home wind systems are complicated enough that you almost need an engineer in the family or a lot of training/experience to effectively get and use the energy harvested from the panels/turbines. I think it's great to want to be more self-sufficient and that these fairs are attracting large crowds. But the days of many of your neighbors having solar panels and wind turbines seem far far away to me.



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