Energy Systems

Solar panels and much more! **20 minutes at this station!**

Our Earth already runs on solar energy!

Goal: Energy Efficiency: Reduce carbon footprint by decreasing energy use and increasing use of clean energy. At my home I use:

1. PV Grid tied solar panels,
2. solar box cooking,
3. solar lighting,
4. solar attic fans, and
5. a solar clothes dryer (otherwise known as a clothesline!), and
6. energy efficient windows to minimize energy loss.

1. Reducing our carbon footprint is one of the most sustainable actions we can take. Reducing our dependence on fossil fuels and increasing our use of clean energy has the most bang for your buck. Although the industrial and transportation sector use the most energy, we do not have direct control over these sectors. (Look at the Background Information/Introduction folder.) We do have control over the energy in our residential building. Look in the Residential Building folder. Doing what uses the most energy?
2. From the front patio, I hope you were able to look up and see the 4.8 kW roof mounted solar photovoltaic (PV) system. A PV system uses solar energy to create electricity which is simply moving electrons! If you want to know how it works, look at the folder. The PV system is grid tied which means that electrical energy that I do not use goes into the grid. Look at the meter system on the back wall. Look at the My PV System folder to see how to read the meter and how this is all connected and how much energy I use.
3. I also use solar energy in other ways. My home has solar tubes which bring sunlight into four specific areas of my house which means no electricity for lights. And I get to enjoy clouds and moonlight! Look for the little round domes on the roof. In the mid-1990's we installed solar attic fans which still operate as long as the sun is shining. In 2009, we added two more electrical attic fans. We also installed energy efficient windows and added insulation to our attic. All of these reduce our use of energy in the home.
4. If you turn around you will see two solar box cookers. One is homemade, (I have been making them out of cardboard boxes since 1990) and in 2004 I bought a commercial one. Solar box cookers like these, work on solar thermal energy. Solar energy entering the box is trapped by the glass and heats up the air inside by convection. That energy is transferred to the food

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inside the dark metal pots by conduction and the food inside heats up! For more, look at the Solar Box Cooker folder.

5. Also look at the solar clothes drier. In the summer months a load of wash can dry in about 15 minutes! I use the clothesline year-round.
6. Check out the solar food dehydrator which I use to dehydrate left over garden produce.
7. You might have seen my commuter bike in the driveway. I bike anywhere from 8 to 30 miles per week. Look at the Personal Transportation folder for more info.
8. As you walk down the pathway to the Biodiverse Systems, the next station, don't forget to look at one of the mulch basins from the laundry to landscape system and then look up at the roof and see if you can tell the difference between the solar attic fans and the electric fans.