Solar Intro

On a clear day, a single square meter of surface directly facing the sun recieves energy at a rate of approximately one kilowatt per hour. So if you had a collector surface of ten by twenty feet, you could be receiving up to 18 kilowatts per hour – how many homes use that much?

The kicker lies in just how much of all this you are actually able to collect. If you're collecting it in the form of heat you might be able to retrieve up to around eighty percent. If it's electricity you're after, be very happy with about twenty percent. Another problem is that the sun spends its days continually changing position, so unless you are mechanically tracking it, you are only briefly optimum.

In spite of all this, the sun remains an incredible resource, and even on an overcast day you may still be graced with about twenty percent of its clear day offering.

Solar Heated Air

The principles shown in project number 05340 are great for daytime heating, and can be cheap and easy to apply.

Solar Heated Water

I have enjoyed the luxury of a quiet town at 3:00 am from the perspective of a 14-foot diameter pool of 90 degree water. Solar heating it was almost as easy as getting up for an hour or so at 3:00 am to enjoy the solitude. Project number 05350 provides a few details on how this was achieved.

Solar Cookers

A couple varieties: One is a sturdy sheet metal version, and the other is a surprisingly high performing contraption of cardboard, aluminum foil and glass. See project number 05250 for details.

Solar Electric

Solar electric systems of about 50 peak watts seem to start at about $250, plus the cost of a heavy-duty battery. They can provide tremendous advantage for lighting, recharging cell phones and power tools, or running laptops.

By connecting a 2.5kw inverter to a solar-charged battery, I have even been able to run a lightweight (117VAC) welder for fifteen minutes or so.

Once a basic solar-electric system is in place, you can usually upgrade the capacity of the various components as resources become available.