

Solar_Ovens_2004.txt

Subject: Re: Solar Ovens

Definitely give it a try. It's really fascinating.

The one I made was one of the really simple cardboard ones - just a box nestled inside another box that was an inch or two bigger all the way around, with crumpled newspaper filling the spaces between them. I glued foil to the inside of the inner box, and to the inside of the flap lid of the outer box. I used a piece of coat hanger as a lid support, slapped onto the side with a piece of duct tape. I rested an old window pane on top for the glass. Inside, I placed one of those matte black round stovepipe caps (used for closing off the end of a stovepipe as the black-body absorber. I was getting temps in there hot enough to boil water in a pint Mason jar. I put an oven thermometer in there, and the highest temp. I witnessed was about 230F. The whole process, from saying "gee, I wonder how well this works" through building it to boiling water was about two hours. I used it to reheat leftovers for the rest of the week.

Since then, I've been planning on building a better, more permanent one, with a removable, enameled blackbody (a turkey roaster pan would be great, but a similar pan in rectangular shape would be even better) and a tempered glass top. I'd also splurge and make a metal reflector patterned after the SunStar. Also, fiberglass insulation would bring it up to baking temps. You can buy ready-made sun ovens that can easily bake several loaves of bread at a time, but they cost \$180-400 (or more), and besides, part of the fun is seeing if you can scrounge up all the parts for free :)

Cheers,

Andy Evans Homestead Mailing List Administrator

White Sulphur Springs, WV USA E:3 G:3 N:2.5 L:1

Check Out The Homestead Mailing List Home Page:

<http://www.cais.com/aevars/homestead/>

* List FAQ * Bibliographies * Interesting Links *

From: "Couvias, Susan" <SCouvias@tchmail02.tchden.org>

Date: Wed, 14 Aug 96 12:59:00 PDT

Subject: Re: Solar Ovens

>They all look like relatively simple weekend
>projects, but I imagine the performance varies widely between designs.
I
>thought the Nelpa design looked very useful, but perhaps one of the
panel
>cookers would be a better first project. I was wondering if you had a
>recommendation for a favorite design?

(Yea, I know, you asked Andy, but I thought I'd jump in and answer
anyway!)

I built the Reflective Open Box cooker about a month ago, and finally
tried it out last weekend. It works well for me - I was out camping, and
my usual method of cooking while camping is while hiking I also forage
for wild foods. With the solar cooker, I just went off on mini-hikes, and
whenever I came back to camp I put whatever I found into the cooker, and
ended up with a nice stew. It took about 5 - 6 hours of cooking time, and
occasional adjustments to follow the sun.

The cooker only took about 3 hours to put together, and it is completely
collapsible, and light weight. One reason I chose the open box design is
that you don't have to have a piece of glass as you do with the closed
oven types. The only materials are a cardboard box, foil, and glue.

Solar_Ovens_2004.txt

Susan
city house in Denver
70 acres near the Wyoming/Colorado border

From: Andrew Evans <aevans@cais.cais.com>
Date: Wed, 14 Aug 1996 15:16:16 -0900 (PDT)
Subject: Getting into solar the easy way

Hi folks -

The UPS man showed up this afternoon with my new toy - a Ryobi cordless 24v lawn mower, and a kit from Real Goods that converts it to solar. The kit is just a pair of small self-regulating solar panels and a few wires and connectors that allow it to hook up to the mower.

We were talking earlier about rigs for experimenting with solar - well, this is a really good one. Though I also have a bunch of heavy-duty photovoltaic gear for the house, this is a great, inexpensive way to try out solar power and put it to a practical use at the same time. You can buy the mower locally from your nearest big hardware store (it's a commonly-available model - Ryobi BMM-2400, and I think some other manufacturers sell it under their own names (Black and Decker?)), or order it from Real Goods (probably more expensive). The solar kit is sold separately anyway, and it goes for \$199. The mower is itself a highly-regarded, well-built tool, and the addition of solar makes it even better. It will run for about 1 - 1.5 hours on a full charge, and with the solar rig, is fully recharged in about 3 sunny days. I've already taken it for a spin (it came from the factory fully charged) and it cuts beautifully, and is incredibly quiet (it is almost as quiet as the hand-push reel mower!).

Solar_Ovens_2004.txt

Installing the kit is simple, but it makes you open the mower and connect wires to its guts. This is a *good* thing though, because you get to see how it all fits together - it's a small-scale version of what any solar-power system is - battery, load, panels, charger/regulator (in the panels), and battery metering (built into the mower). After monkeying with much larger systems, this really struck me as a simple, complete teaching example of a working solar power system.

When we moved into our rental place here, the one thing we didn't like so much (and wouldn't have on our "real" place, without a goat or to to help) was the huge expanse of grass there was to mow. We were used to our little suburban plot, which could easily be handled by our human-powered reel mower. We tried valiantly with the reel mower, until we realized it was going to take a week to get through the whole thing, at which time we'd be starting over :(The thought of having to buy a gas-guzzler didn't sit well with us, so we opted for this solar solution. The advantages -

- * Never need to buy gas for the mower (or pay the power company)
- * Quiet operation
- * Cuts faster, wider, and jams less than the reel mower (cuts like any other "conventional" mower)
- * Teaches you all the basics of living with a photovoltaic system that does something practical

The things you do here that are just smaller-scale versions of what you'd do on a whole-house system -

- * wiring together solar panels using their built-in junction boxes
- * connecting a solar charger to a lead-acid battery bank
- * gauging battery charge and power use
- * mounting solar panels - I used 2' lengths of pre-drilled, galvanized

Solar_Ovens_2004.txt

angle-iron from the local hardware store ("project iron", some people call it) and #10 galvanized hex-head bolts and matching nuts. The bolt heads slide into grooves on the back of the panels.

- * orienting mounted panels to receive optimum sun
- * being amazed that it all just works, and you don't have to do much of anything :)

(ObDisclaimer - I don't work for Real Goods, Ryobi, etc. Or, I should add, for the people who make project iron, though I probably should, because that stuff's *expensive* and I use it for everything :))

Cheers,
Andy Evans Homestead Mailing List Administrator

White Sulphur Springs, WV USA E:3 G:3 N:2.5 L:1

Check Out The Homestead Mailing List Home Page:
<http://www.cais.com/aevans/homestead/>
* List FAQ * Bibliographies * Interesting Links *
