

Green Energy for your Home ~ A Series ~ Part 10 –

Money for Nuthin' & Solar for Free!

In the landscape of emerging technology there will always be snake oil and salesmen to promote it. According to my historical references (old Westerns) snake oil was a compound that claimed to have miraculous medicinal properties and was sold from wagons that moved from town to town quickly before the suckers ... er customers could discover they had been duped. These days with the internet it has become much easier for purveyors of this oil. Their location is never exact and their claims can be made very authoritative with supporting documentation and phony testimonials.

On the subject of snake oil, I have had several people ask about home made solar panels with that little glint in their eye that suggests they have just dredged up a hidden secret from the darkest seas of the internet. A secret kept from the unsuspecting populations by a deep conspiracy of governments and covert agencies. It's just not enough to tell people, who have invested a lot of time and effort getting excited about a newly discovered concept, that it's pure bunkum.

Why *can't* you just string a bunch of solar cells together, glue them to an old piece of plywood you found in the garage and power your house? The only caveat is that your house must be a shack in the Mojave desert (lots of sun – not much power needed, just beer), oh and you must have precise soldering skills, and um, you'd better have patience, a lot of patience as you break the solar wafers every time you look at them. You might also want to cancel your fire insurance because it won't cover fires caused by non-UL or CSA approved devices, but what dummy insures a shack in the Mojave desert anyway?

The Snake Oil Sales Teams have done an outstanding job of capturing the search engine results so if you try to find out if their claims are valid you are have to slog through a ton of disinformation. Peter Parsons on his refreshing “Deceptions” page calls a spade a spade. He discusses a company called earth4energy that promotes the sale of solar

cells for home made solar panels and their claims that you can make so much power the power company will buy it from you, etc. etc.

<http://www.nlcpr.com/Deceptions6.php>

Similarly William White in his Opensolar blog pulls no punches when discussing the DIY solar panel scam:

“...this earth4energy scam (aka homemadepowerplant aka homemadeenergy aka DIY Green Energy aka Efficient Planet) runs deep on the Interwebs. Like so many zebra mussels, it appears to have infested the solar web - to the point where it's virtually impossible to have a solar site with ads that aren't involved in the scam.”

<http://blog.opensolar.org/2009/02/earth4energyscam-scam.html>

On another front several influences have been at work in the renewable energy markets in recent months. With the relatively recent influx of Chinese made solar panels prices have dropped off a cliff. Several U.S. and offshore solar panel companies have gone out of business or discontinued PV solar from their offerings because of lack of profitability. Even some of the largest Chinese companies are having difficulty and teetering on the edge of bankruptcy. Similar patterns have occurred in emerging technology industries in the past, most notably the dotcom phenomenon. The result was a consolidation of the marketplace into fewer companies and a more stable and predictable Parcheesi board.

When Chinese panels first began appearing in the North American marketplace I was not impressed with the quality control or the long-term prospects of the startup companies. But several companies have now built solid reputations, usually under the wing of an existing and established western company. The questions I most hear about these panels now are:

Will the Chinese panel manufacturers be around next year in case I have warranty problems?

Your guess is as good as mine and I can't venture an answer there; but the good news is that solar panels have no moving parts and if manufactured with a standard of quality, which is most often detectable by a good visual inspection, they will last decades. Look for a CSA or UL approval sticker.

Will the prices go down even more?

My guess is that prices will stay about the same as they are now or may even begin to rise as consolidation of the remaining companies takes place and competition cools off. Many countries, states and provinces have also moved to limit or suspend their solar panel subsidies. These subsidies in places like Germany and Japan have driven expansion of PV production facilities worldwide but now that is reversing. So with fewer companies and reduced production capability rising prices usually follow.

It may seem surprising but the lion's share of solar panel manufacturing is grid-tied systems, not off-grid remote systems. Just a few years ago it was the other way around with hardly anyone using solar in urban settings but now probably 95% of the market worldwide is for grid-connected systems. The panels for these systems tend to be physically larger in size and have higher voltage output.

Without a special MPPT type of charge-controller these grid-tie panels cannot be connected to standard off-grid battery banks. Some MPPT controllers have the ability to accept up to 250v DC input allowing a large solar array to be located a long distance from the batteries without the usual penalty of having to use large gauge expensive wire. The savings in wire can be hundreds of dollars.

Because grid-tie panels are the biggest sellers worldwide prices for them are much lower on a dollar per watt basis. If you're thinking of expanding an existing solar array that has an older style controller and off-grid panels you can keep that in place and add more panels by adding the more advanced MPPT device. An added bonus is that you will get up to 30% more output with the advanced controller above the actual rating of the panel. This is achieved using maximum power point

tracking and gives it's best performance during colder months when it is most needed.

There are basically three common types of solar panels: monocrystalline, polycrystalline and thin-film. The monocrystalline panels consist of individual silicon cells sliced from a single crystal ingot. The slices are very thin like sushi and extremely brittle. These are the most efficient, highest power producers but the difference between monocrystalline and polycrystalline is small.

Polycrystalline panels are less expensive and are produced by melting raw silicon and pouring it into a mold. These have the largest share of the solar panel market.

The third type of panel known as thin-film is typically found in small devices like calculators. Thin film panels use less silicon so are cheaper to produce and can be made flexible so are suitable for applications like solar shingles or backpack panels. They are a much lower efficiency and have a tendency to degrade in power output significantly over time. The one interesting advantage of thin-film is its ability to work better in lower light conditions like early morning and late afternoon.

A fourth category of panel is only available from one manufacturer. The Sanyo (now Panasonic) HIT panel, combines both thin film and polycrystalline technologies into one panel producing the highest efficiency panel on the market. There is a price to pay for this proprietary technology but if you want the Cadillac you don't buy the Chevy.

Please feel free to email me with questions at: info@solareagle.com. The complete series of articles is available at our website: <http://www.solareagle.com>
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