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Why Home MadePowerP lant?

There is one disturbing fact that people are slowly beginning to realize. We can't depend on fossil fuels for our energy forever.

Oil prices are skyrocketing around the world. People are fighting and dying over oil reserves. The damage to our planet and our climate is irreversible and is becoming more and more apparent by the day.

Put shortly, chances are that if we don't do something about our energy situation now, our kids and their kids are going to have to face some extremely difficult challenges in the future.

But what can we do? It seems that most alternative energy choices are too expensive to mass market. As an individual, is there really anything you can do to make a difference?

We're going to answer those questions and a whole lot more throughout this book. We'll look at some of things you can start doing right now, today, to do your part in solving the world's energy crisis.

Today is the day for change. This is your action plan for change. In this book you will not find dry, boring scientific claims that global warming and climate change will be the end of us all.



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In this book you will find interesting and easy to follow plans to build your own homemade solar panels, find free or inexpensive solar panels, and find free batteries too. Many problems plague the modern World right now- whether your concern is pollution, rising gas and oil prices in the future, or you fear blackouts and higher energy costs in the future.

The solution to our everyday energy and lifestyle problems really lies in our own backyard. The actions we take and the decisions we make everyday can affect change. How do I know this?

No, I don't have a fancy science degree from a famous university, and I don't support fancy name brand societies that line their own pockets in the name of marketing 'Green' choices.

My family has simply made the choice to implement a lifestyle that would no longer contribute to global warming and climate change. The truth is that we have been doing this for 21 years and we see it working.

That's the important part in all of this. We all have to take personal responsibility for our own part in global warming or there will be no change. Back in the 1960's when I grew up I thought we could keep consuming the Earth's resources without any consequences.

I was wrong.



Chapter 1. Useful tips before startin

What you must now on energy saving

Renewable energy is an amazing thing, but it's not easily accessible or affordable to everyone in its current state. That doesn't mean that there aren't things that you can do right now in order to cut down on your energy expenses.

- You can start by using energy efficient fluorescent light bulbs in all of your lights.
- Turn off all appliances, such as TV's and computers when they are not in use. They still consume energy, even in standby mode.
- Air dry clothes and dishes when at all possible, and only run the dishwasher or clothes washer with full loads.
- Avoid baths. Try to take short showers.
- Keep your thermostat at a comfortable but moderate temperature. Not too cool in the summer and not too warm in the winter.



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- Drive sensibly and keep your car tuned up for the most fuel efficiency. Excessive speeding and rapidly accelerating and breaking can waste gas.
- Make sure that your house is well sealed around windows and doors. Warm or cool air escaping from homes can substantially drive up utility costs.

If you plan on using renewable energy such as wind or solar power in your home then you **MUST** act on the advice above.

I didn't just put it there to look good.

There is no point going to all the effort of making a wind or solar generator if you are going to leave lights and power points on when the appliances are not being used etc.



Chapter 2. Electricity 101

For some of you it may be instructional to start at a basic level in understanding how electricity works in everyday life. Unless you work everyday in the electronics field or are a licensed Electrician you may want to get back to the basics first. Right now we will explain the terms used in this discussion of electricity as it pertains to your off grid home.

Watts

We started our discussion earlier asking you how many watts your appliances use everyday and your weekly wattage (power) consumption.

Most people are fairly familiar with the term **watt**, but most don't know what it describes. A **watt** is the power produced by current (amps) flowing through a wire multiplied by the pressure (voltage) at which it flows.

Volts

Like water pressure in a pipe, voltage is the pressure of electricity flowing through the wire.

Amps

This is the amount of electricity flowing through the wire.



Power Rates

We are most familiar with the term KWH (or Kilowatt Hour) as it appears on our monthly power bills. This is the rate of power flowing through a wire.

As an example, if a 100 watt light bulb is turned on for ten hours the power rate would be $100 \times 10 = 1,000$ watt-hours or 1 Kilowatt hour (kilo means 1000)

Direct Current (DC)

We will be discussing both ***Direct Current (DC)*** power and ***Alternating Current (AC)*** in the planning of your renewable energy system. AC current is what you presently use in your home.

The most important difference between AC and DC power is that DC current can be stored in a battery while AC power cannot.

In the Renewable Energy system that you are designing to run your home DC power produced by your solar panels or wind generator (for example) will be converted to AC power by using an inverter. Inverters will be discussed later in depth.



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In this way you can still use many of the same appliances that you currently depend on. Because of the blessings of capitalism, AC appliances are cheaper since there are so

many units produced. All you shoppers, I know that I promised you would be able to buy new appliances, but for now you should know that you will be able to continue using some of the appliances you now own.

Common DC voltages are 12, 24 and 48. The advantages of DC appliances are many, but most important is that DC motors are more efficient than AC motors. There are many applications for DC power and the benefit is that we can use this form of energy in our off grid home, while in your present tied to the grid home you cannot.

AC Current

Alternating current is called this because the current changes direction constantly. AC is the most common form of electricity usage today mostly because it is easier to work with than common DC current.



Chapter 3. Your Own Personal Solar Generator

How exactly does it work?

Solar power is an amazing thing. The Sun blasts enough energy over the surface everyday to provide us with more than enough power to sustain ourselves.

Right now, technological limitations and financial considerations are the only reasons that we aren't using solar power for the majority of our energy needs. That won't be the case forever though.

Solar power works by collecting the energy output by the sun over a specified surface area, and then converting that energy into usable electricity.

Solar panels collect and convert that energy using photovoltaic cells. The word photovoltaic literally means "light (photo) "electricity" (voltaic).



What Is PV?

The term "photovoltaic," commonly referred to as PV, is derived from a combination of the Greek word for light "photo", and "Volta," the name of the Italian physicist, Alessandro Volta, who invented the battery in 1800.

The PV effect is the direct conversion of solar energy into electricity. This process does not generate much heat like solar domestic hot water or solar pool heating systems do. It also differs from the process used in solar thermal, where concentrated solar energy is used to produce steam that activates a turbine connected to a generator.

PV power systems do not have any moving parts. They are reliable, require little maintenance and generate no noise or pollutants. PV systems are great in that they are modular - the building blocks or cells come in a wide range of power capabilities, from a fraction of a watt to more than 300 W. Modules can be connected to achieve the power that your application requires.

Some large PV power plants have several megawatts of power, although most installed PV systems are much smaller.

Unfortunately, there is a lot of the sun's energy lost in this transfer of energy from light to electricity. Everyday larger and more efficient panels are manufactured it seems.



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Even though they are not that efficient at converting light to electricity solar panels remain a very good choice in the renewable energy system because of their low maintenance and long life.

Properly installed your solar panel array should last around 50 years. Not a bad long term investment for most people.

The Advantages of PV Power Systems

Users of PV power systems appreciate their quiet, low-maintenance, pollution-free, safe and reliable operation, as well as the degree of independence they provide.

Why else should you consider a PV system?

If you are some distance from an electrical grid, it may be cheaper to generate your own power rather than pay to extend transmission lines from the grid.

Fossil fuel- Diesel, gasoline or propane generators are the main alternatives, but many people find them noisy, polluting and costly to run and maintain.



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It also makes little sense to turn on a 5-kW generator to power a few 100-W light bulbs or the TV. PV systems reduce the negative aspects of generators by using them only as a backup.

When capital cost is an issue, or when photovoltaics alone are not enough to replace an existing generator, you can use a wind generator as part of a hybrid PV system. It works great and reduces the use of the generator.

This kind of charging system is more efficient than a generator running continuously at low load.

In addition to saving fuel and lowering maintenance costs, you will increase the generator's life span.

Also, since the PV panels and battery banks are modular, you can expand the PV system gradually as your budget or needs increase. That, we think is the best part.



The Limitations of PV Power Systems

It is important to realize that PV power systems are expensive when compared with the low price of utility power in North America for the most part.

You should reserve the electric power produced by PV modules, an inverter and a storage system for your most energy-efficient appliances, tools, lights, etc.

Although it is technically possible, heating with photovoltaics is generally not recommended. You can easily and more efficiently collect heat with a solar thermal system.

A solar water heater or pool heater mentioned earlier generates more hot water with less initial cost than any PV-powered heater.

Also, for cooking, it is generally more cost-effective and convenient to use a stove that operates on propane or natural gas rather than solar electricity.

Stand alone PV-powered homes and cottages often rely on wood cook stoves for cooking and space heating.

Refrigerators are becoming more energy efficient, so the cost of operating them with PV power is now feasible. They make some great ones now.

[GET THE REST HERE](#)