Solar Options for Survival

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I have recently been toying with the possibility of using solar power in emergency survival situations. There are several reasons for which I have entertained this idea. First conventional gasoline or diesel-powered generators have a tendency to be extremely loud. This is a very undesirable trait when you want to maintain a low profile and not attract attention from marauding gangs. In such cases the quieter you can be the better you preserve your safety.

The second reason is that in the event of a major power disruption, with solar you will still have badly needed energy to recharge your cell phone or to use your computer. I keep thousands of survival books on an external multi-gig hard drive since you never can tell when you might need some of the contained knowledge. Solar power will enable me to access this drive when necessary.

My wife and I have an older RV which we keep at arm's length just in case we lose power in our home. With the RV we have everything we need until such time as we revert back to our house once again to reside. We can cook in the camper; we have a safe place to sleep and heat and air conditioning at our disposal according to the season. One of my future projects is to compliment the onboard generator with a solar powered version. I believe in redundancy so I would have the running at idle RV for power, the gasoline generator and solar provision to take care of us during a major emergency.

Another example of solar power use is my KIA Soul which is completely setup as a Bug-Out Vehicle. It is equipped with just about anything that you might need if you are forced to depart your home and live in the wild for a short period of time. Included in its many gadgets and accessories is a solar powered battery charger. This could certainly prove indispensable when off the grid.

Let's move on to our plans or using solar as an emergency power source. Basic electronics will serve you well as you plan and lay out this solar system. In fact, such knowledge is essential if you are completing your own solar installation. In the event you are a little rusty on the fundaments there are a host of videos which can be accessed on "YouTube" for free. That being said, the first thing we need to understand is the "Power Formula." If you recall from your high school physics or electronic classes in order to find the power of an item measured in watts you must multiply the current in Amps by the Voltage. As an example, suppose you come across a solar panel that is reasonably priced. You make note that the panel is a 12-volt unit and puts out about 3 amps. Using the power formula, you can calculate that this panel will provide you with 36 watts of power.

Most solar systems are based upon battery banks or small battery system. The solar cells powered by the sun charge the battery banks. The smaller the bank of batteries that you have the less power you have at your disposal – the larger the series of battery banks the larger supply of power you have. Suppose for example you are using two Trojan T-125 6-volt 240-amp hour batteries which are connected in series. The best use policy would dictate that you use only half of the available 240 amps in order to prolong the life of your batteries. That gives you 120 usable amp hours.

At this point you may be wondering exactly how many solar panels you will require to recharge those batteries. Since we have a 12-volt system being setup we would naturally employ a 12-volt solar panel setup as well. Delaware provides us with a minimum number of 4 hours per day of sunlight. Using

a 12-volt, 150-Watt solar panel providing 8 amps per hour gives a total of 32 for the day you thus you would require 4 solar panels.

Harbor Fright has a 45-watt solar panel and they claim a maximum of 3 amps with at least an 80 percent guarantee. By multiplying the 3 amps by the 80 percent guarantee times the average sun day of 4 hours we derive a total of 9.6-amp hours here in Delaware. Therefore, it would take approximately 12.5 hours to replace the 120-amp hours that we used. With that being said, we should start with deciding upon the battery pack while determining just how much power will be needed. Be sure to allow for those days when the weather conditions may not allow for efficient charging.

Your next question is likely to be concerned with what you can use for stored up power for. Suppose you have an accumulated 120-amp hours of power at your disposal. If you use one 12-volt television which consumes 3.3 amps and watch TV for 4 hours per day (4x3.3) you will use 13.2-amp hours. Additionally, if you have a 12-volt refrigerator which consumes 3 amps and you have it on for 24 hours per day which incidentally in most cases a refrigerator will not run for 24 hours per day but will cycle on and off as necessary. Using 24 hours at 3 amps as an example, will give us a ballpark figure (24x3) of 72-amp hours. Now let's add some lighting to the scenario. Suppose you are using five led light bulbs rated at 1 amp each or a total of 5 amps and you run them for 6 hours per day (6x5) you will use up 30-amp hours. Let's now add up these figures and determine how much of your 120-amp hours of use you have consumed. Adding all the amp hours used comes to 115.20-amp hours. As you can see when using solar you have to reduce your power consumption when you can. In conclusion, it would actually be somewhat beneficial to have a solar backup power system for when the SHTF.