Can I live Off the Grid?

Off grid living is a dream of almost everyone these days. We all want to live an autonomous lifestyle free from the ever-rising costs of public utilities. This new world wants to live smarter, less expensive and use their money for things other than paying high prices for necessary utilities.

Can I live Off the Grid? The short answer is Yes you certainly can. The long answer is an extremely complicated equation of tangible and logical solutions, including some things that we cant control such as weather.

Solar Systems and Off Grid Living

Solar systems promise a real opportunity for autonomous living. However, there are some complexities that must be addressed with absolute efficiency and optimization in mind. One major drawback of solar systems in general is that they depend on sunshine and weather. Going deeper, they are sensitive to orientation in two axis to harvest the maximum amount of power.

To be specific, to maximize solar energy harvest the array must generally be positioned in the TRUE SOUTH direction and be tilted at an angle to the sun that is very specific and related to your local Latitude. Most if not all rooftop mounted arrays simply aren't optimized due to roof pitch, and the direction the house is facing where the panels can be mounted. This is where the ground mount systems rule, and overcome these problems. Ground mounted panels can be easily kept clean which is also of paramount importance to maximize harvest.

Energy Usage in the Home

It's well known that the average American family home consumes roughly 886 KWH of energy per month. Our solar generator systems can produce as much as 20KWH per day on perfect weather days, and as low as 7-10KWH on cloudy days. Given those estimates, a 5KW array can generate as much as 600KHW a month, or as little as 200 KWH if the weather is unfavorable or the array is not optimized to maximize its harvest capability. You can easily see how important proper installation is for maximum energy harvest.

Energy usage is a hot topic among those that want to live the dream. There are lots of things you can do to reduce your carbon footprint, reduce energy consumption and in many cases get paid to do it!

1. Replace old, energy draining appliances with new Energy Star appliances.

a. One of the first things I did was rip out that giant energy hungry electric hot water heater. I immediately replaced it with a new, propane tankless water heater. Immediately my electric bill went down and has stayed down roughly $50.00 a Month!

2. Insulate, Insulate, Insulate

a. One of the easiest and least expensive energy conservation investments you can make on your home is insulate! A well-insulated house requires far less energy to heat and cool the home.

3. Replace Heavy energy electric appliances with renewable energy fuel systems.

a. Since I was replacing that hungry water tank, I also decided to go after the next monster in the house, the kitchen. I decided to replace the electric range with a propane range and man what a difference. The food cooks better, and our new range works without grid power now thankfully due to our solar system! Living in a hurricane area like Florida, that is a must.

b. The other energy monster in our homes is obvious. The Heat and Cooling system. If your AC/Heat Pump is more than 10 years old, it is definitely time to replace it with an energy efficient unit. You will see immediate savings in your pocket, and energy consumption which is what we are dealing with will be impacted in the right direction. Consider a hybrid solution here too, such as natural gas/propane for heat, and you will really be impacting the energy consumption budget. Additionally, if you live in an area like we do where power outages are common, your new hybrid system can still work when the grid goes down.

4. Windows, Doors and Points of Entrance

As is the case with item 2 above, a lot of energy is wasted due to leaky windows, drafty doors, and points of entrance into our homes. This is a quick and easy fix that should not be overlooked while we chase every opportunity to make our homes more energy efficient.

5. Replace all lights in the home with LED bulbs

LED bulbs for home lighting just make sense. They last an incredibly long time compared to the fluorescent or filament cousins. They are dimmable, designer appealing and above all energy efficient. This is yet another way to get a grip on those energy eating things around the house that is easy and quick to do.

So, can you live off the grid with a solar energy generation system? Yes you can. But the ultimate commitment goes beyond the solar system and involves your environment, your home, your energy usage and what we do to optimize our entire approach towards responsible energy management.

What if I don't live in an ideal, sun-soaked area? What is the best way to cope with weather conditions?

Answer: Install more solar panels! PV's are the cheapest part of any solar energy generation system. Adding more panels is not a difficult, or particularly expensive upgrade and you can do it as time and money permit! Of course, you need to have experience with this or have an installer that can properly wire the new panels into the existing array so your MPPT chargers like the new additional power. The newer PV designs are shade tolerant compared to the earlier generations and they will harvest more energy in low light conditions.

Lifestyle Adaptations

The responsible energy conservation plan sometimes, and often demands small but manageable changes in lifestyle. How many times do we walk out of a room for instance, and leave the lights on in there for hours when nobody is in the room? Can you learn to live with your home temperature at 78 degrees year round instead of 62 degrees? Can you do laundry twice a week instead of daily? How about doing dishes by hand a few times a week instead of constantly running the dishwasher? I realize this might sound like some crazy nonsense but remember what we are trying to do. We want to shave every KWH hour off our monthly usage that we can tolerate to allow the solar system to sustain our needs. I bet everyone of us can come up with ways to save energy usage without too much impactful lifestyle changes!

Final Conclusions

Using the average household power consumption of 886KWH per month, and estimated energy harvest from our solar system of 400-600KWH a month we can see we have a difference of about 200 KWH a month to mitigate. Your daily consumption is about 30KHW a day, so we are looking at carving down only 1 week of normal energy consumption to make it feasible to be completely off grid more or less. That may sound impossible, but its not! It can be done with tactics mentioned here, or some combination of all of them. Even if you cut your usage by 1/3rd think of the savings you will see and how you will benefit the environment.

It would not be responsible for us to imply that anyone can live off the grid with our solar generation systems with any kind of guarantee. Every household, every location, changing weather conditions, solar panel mounting, age and type of appliances in the home and ten thousand more things make it impossible to make a promise.

What we can say however, is that off grid living is within reach using our systems. Know that responsible energy conservation is as important as hardware when it comes to pursuing an autonomous lifestyle while minimizing complexity and costs. **If you become a part of the energy conservation system, you become a reason that it can and will work as you want it to.**

Yes, you will even have to make some lifestyle changes perhaps, and maybe do some work to the home to make it more efficient but it's all worth it. At the end of the day, investing in a solar system is a smart thing to do, good for the environment and even in the worst case will result in saving money in the long run.