

# Modern day off grid living

The housing boom is over, the McMansions are white elephants that no one wants. Electricity is or was soaring as well as energy prices, but not energy supply. Living in the 21st Century opens up technologies that were incomprehensible 100 or 50 or even just ten years ago. We have high output Photovoltaic panels that seem to last a long time, though still expensive, they work very well. Inverters have become extremely reliable and affordable. Batteries are still the same primitive devices that they've always been and are still the weak link in off grid life. Lighting, with compact fluorescents, are mass produced and offered in every retail store for little money. DC refrigeration systems that use a fraction of electricity when compared to its AC counterpart. 120 volt submersible well pumps, stove top coffee makers and other DC appliances has all changed the amount of energy that is required to live. All of these devices have made it very possible for a home to be self-sustaining. But there are still compromises and challenges that living off grid living poses. I often think that it should be required living for everyone to live in an off grid home for a month, so they can understand that electricity and energy has to be made and manufactured somewhere, and is not free! I mentioned in the opening lines of this paragraph about the housing boom, and junk McMansions cheap OSB constructed home that were built in the last five years. During those years, many people felt so secure in their life. They now had a huge home, energy was affordable enough to handle the inefficiencies of their new place. Deep in debt, they felt like they were really doing well. Seemingly endless energy supplies, people getting rich from doing nothing and mostly that money was the answer that was going to buy them everything. Well wake up idiots. It is over! Now the ole US dollar is worthless, cheap oil "is" dwindling, even though you're not supposed to know that, and now the fertile farm lands have been converted to suburbia. And during these high times, many people thought I was being eccentric or odd trying to save energy, trying not to pollute and be as independent from debt and the clutches of energy companies. Now everyone is changing their tunes. I've given talks on solar energy and energy saving devices. It always draws an interested crowd. Read my article ("I want to go solar"). But people are still discouraged with the cost of installing a PV system that will suffice their culturally designed, gluttonous energy needs. For most people to think about conserving is only a minor consideration for them. People have a hard time not eating 5 times a day, never mind watching less TV or turning the huge spot lights off in their driveway, or shutting the video game off and the huge flat screen. But conserving is the answer to the dwindling energy supplies and increasing pollution. It is nice for the wallet that petroleum is low priced, but it is all a farce and short lived and is not encouraging people to conserve and use alternative means.



So this all leads me to talk about the challenges of producing your own power and living off the grid. The summer months is no problem, always with an excess of electricity, while the winter months become more challenging. In this respect, being tied to the grid is advantageous, though it never really lets the house hold know what it is like to be low on the electricity. Learning to plan energy demanding activities for sunny solar days is necessary so that the electricity isn't coming out of the batteries but directly from the panels. Using an electric lawn mower is a good example of this. As is running table saws, power tools, watering the lawns, doing laundry and vacuuming are others. When there isn't any solar gains, low energy appliances wont' deplete your stored electricity. This is where being conscious of what you are using is important. In my off grid home, I built the

[DC refrigerator](#), which uses at least a sixth of a conventional AC refrigerator. There are commercial DC refrigerator and freezers available, such as SunFrost, that work and look even better than mine though are over twice the cost of making your own. There are stove top drip coffee makers that work just like the Mister Coffee, such as made by Coleman, but use a heat source instead to make the water rise to the coffee grounds. If you desire to watch TV, you can use a TV tuner attached to your laptop or desktop. Laptops use about 15 watt hours verses a desktop is about 150 - 200 watt hours, but it is still less energy than a 32" flat screen. Front loaded washing machines use less water and energy to do the same thing as a top loader. Lighting is another huge drain for many poorly designed houses that are dark with inadequate natural lighting. Use smaller lights locally to light the area you occupy verses trying to light the whole room. Microwaves make good use of electricity by doing a lot of cooking in a very short time. Baked potatoes in 6 minutes verses 45 minutes in an oven. Which incidentally, most of the new gas ranges have an electrically operated solenoid to turn the oven flame on and off. These solenoids use 500 watt hours when on. I was disappointed to find this when i installed the new gas range. I have yet to resolve this.

The latest development has been an electric [clothes dryer](#) converted to run of the waste heat of a wood stove. This has worked very well, easy to do for the handy person, (which there is no excuse for not being handy) and only uses 200 watt hours instead of the rated 3600 watt hours of its electric counterpart.

Heating systems are another huge electrical energy draw for people, since so many poorly designed hydronic systems have four or five or more circulators, all using 100 watts when on. And of course baseboard hot water heating is the worst and the most abused. Unfortunately, most houses were built the easiest and fastest and most convenient way at the time to yield the most profit. In my case, I built a radiant heat system that uses only 90 watt hours to circulate the hot water through the floor, which, because the house is so insulated and thermal mass, it will only run two times of three hours in a 24 hour period. There is also a circulating pump on the small indoor wood boiler that runs 6 hours every other day to charge the 800 gallon hot water storage tank. This tank can be supplemented with solar as well.

So with all these modern day advances, we are able to live in a very nice home off the grid, but only with conservative efforts and working with the sunny days. A good example is I built the house using mostly solar power for all the tools, though I would use the generator for the heavier thickness planers, larger table saw, etc. But if the sun is bright, I could do most operations then.

I hope this opens the eyes of some to the fact that it can be done. All of this did not cost me a tremendous amount. I have about \$10,000 in the solar installation. It would be a great exercise for a family to try and see how little electricity they can use on a weekend, and still be active. There is a great initiative by [www.builditsolar.com](http://www.builditsolar.com) , called the <http://www.builditsolar.com/References/Half/Half.htm> . Here is a plan for a family to agree amongst the household to reduce their consumption by half in a month. Very good exercise for every one.