



OFF GRID BOOT CAMP

Empowering you to power your home
for energy independence

What You Can Do NOW To Start Going Off Grid

Secret # 1

Off Grid Efficiency: Being energy efficient is the first and most important thing that you can do to cut the cost of your power system.

Secret #2

Step-By-Step Transition: How to start a gradual transition off the grid NOW, so you can take it one step at a time as you are able.

Secret #3

Accurate System Design: How to start collecting data needed for properly designing your system NOW so it's not too large (\$) or small (unworkable).

Secret #4

An Experienced Guide: How to "learn the ropes" ahead of time and avoid MANY issues that newbies face. Also, how to get help when you are stuck or have questions.



The journey of a thousand miles begins with the first step. In your Off Grid Journey, you need to start with the first step. A lot of people have a misconception of what Off Grid living looks like. But if you visited us and we didn't tell you that we lived off the grid, you probably wouldn't even know. Your home can be just the same and we'll show you how to start that transition.

4 Secrets

There are 4 secrets that will give you the tools you need to start this process today.

Secret #1: Off Grid Efficiency

Being energy efficient is the first and most important thing that you can do to cut the cost of your power system. Simple math will



tell you that the more electricity you use in your home, the larger of a solar system you will have to design and install. Of course the larger the solar system, the more it will cost. So really, your budget is the determining factor here. Either way, becoming energy efficient is a first step. And the wonderful thing is that you don't have to change your current lifestyle habits to dramatically cut the cost of your system. Let me give you a few examples.

Cheap and Easy Solutions

You may already be aware of more efficient light bulbs such as Compact Florescent Light bulbs (CFL) or LED light bulbs. That is one simple but easy way to reduce the amount of power you use on a daily basis. Any time you can reduce power usage of an appliance that is used on a daily basis, it will go a long way toward reducing the size and cost of your off grid power system.



LED lighting happens to be our light bulb of choice, and with the cost of LED bulbs decreasing as they gain popularity, it really is a great way to go. When we first started using them it was close to \$20 a bulb. Now you can often pick them up for \$2 a bulb or less.

Phantom Power

Many appliances in your home consume "phantom power". This is power that is consumed even when the appliance is turned OFF (as long as it is plugged into the wall).

You would be surprised how much power is wasted by these appliances that are still plugged into the wall, but turned off. Let me give you an example. I calculated how much unnecessary phantom power a typical home might be wasting in one day.

The following is the list of appliances used in my example:

- | | |
|-----------------------------|--------------------------|
| • 2 Cell Phone Chargers | • Satellite TV Receiver |
| • Desktop Comp & LCD Screen | • Set Top DVR |
| • Laptop Computer | • TV |
| • Modem | • Cordless Drill Charger |
| • Inkjet Printer | • Coffee Maker |
| • Computer Speakers | • DVD Player |
| • Cordless Phone | • Microwave Oven |

About Us



We are a young family with a simple passion to help others succeed at their dreams of an independent lifestyle. We live off the grid with a solar system and continue to develop our new homestead deep in the mountains of Idaho. Yes, we're starting over at a new place--if we can do it, so can you!

The last time my home was on the grid was back in the last millennium--1999. Like many of you, we had a very limited budget to work with during our off grid transition, so we had to get very creative and learn how to overcome that obstacle. After years of getting first-hand experience off the grid, we had so many people asking how they could do it also.

We have spent the last 12 years educating thousands of folks across the nation about how to make their own power off the grid, with a limited budget, and without becoming an electrical engineer. There was such a scarcity of off grid training for non-technical people, that I developed Off Grid Boot Camp...

Nick & Lisa Meissner

List of possible Phantom Power Appliances

- TVs
- Stereos
- DVD or Blu-Ray players
- DVR
- Satellite TV box
- Cable box
- Video game console
- Garage door opener
- Cable modem
- Wireless phone
- Answering machine
- Clock
- Microwave (w/clock)
- Cell phone charger
- Computer LCD monitor
- Desktop computer
- Computer stereo speakers
- Laptop (not charging)
- Fax machine
- Furnace
- Air Conditioner
- Ink jet printer
- Coffee maker
- Electric musical instruments
- Gas range
- Night light (when its off)
- Surge protector
- Electrical toothbrush
- Shaver

This is by no means an exhaustive list of any and every appliance that you have that might be using phantom power. Hopefully this will help give you ideas when looking around your home for possible culprits!

The amount of combined wasted phantom power from the above listed appliances was over 2.4 kWh. Just to put this in perspective, that is MORE power than what our entire home uses in a full day! So you can see that just by taking care of this problem you could save yourself a bunch of power easily and cut down your power usage.

**Total Daily WASTED Power
From Phantom Loads:**
In above example
Over 2.4 kWh

How do we solve this phantom power problem? Simple. Electrical power strips with an on/off switch. You can pick up a few of them from a local hardware store, plug those appliances into the power strip, and when you are done using it, just flip the switch off. Place a power strip at the entertainment center, in your home office where your computer and other appliances are, and in other locations where phantom power appliances are located.

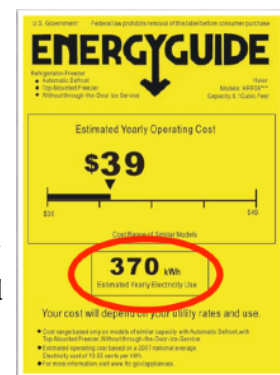
Switch To Efficient Models of Key Appliances

Key appliances that you use on a regular basis can be switched to more energy efficient models. For example, your refrigerator, freezer, water pump, ceiling fan, clothes washer, etc.

Let me give you an example...A particular 1996 20 cu. ft. side-by-side refrigerator used 2.2 kWh per day. The same person later purchased a 2007 22 cu ft. Top freezer. The newer model only used 1.3 kWh even though it was larger and included a freezer.

As a general rule, newer models have a better chance of being more efficient, but don't take that for granted! There can be a wide divergence of efficiency even among the same brand.

So, how can you tell how efficient a particular model is? Remember seeing those little yellow energy tags on appliances? When you see that on a fridge or freezer, the big number on it will give you a rough estimate of how much power it uses annually. Simply take that number and divide it by 365 and you can get a rough idea of how much daily power it uses.



One more example...Ceiling fans. Even though it doesn't appear to be a big power user (often 50-75 watts), if you leave it running 24/7 that can add up to a LOT of power and makes it well worth the effort to shop for an efficient model. And it is shocking how much more efficient some models are! Take a look at this:



**66 watts x 24 hours
= 1.6 kWh
@ 4,548 CFM**



**4.8 watts x 24 hours
= 0.1 kWh
@ 3950 CFM**

These are two models you might find while shopping at a common retailer like Home Depot. They can both move a fairly comparable amount of air, but one uses 66 watts and the other uses 4.8 watts (that's not counting the lights on either of them). Running 24/7, that makes for a daily power usage of 1.6 kWh for one model and 0.1 kWh for the other!

**Daily Power Saved From Updating
Fridge & Fan:**

2.4 kWh

If we were to total up the savings of just switching to the more efficient fridge and ceiling fan in the above examples, the amount of power saved would be 2.4 kWh! Once again, that difference in power is roughly what we use in our home to power EVERYTHING for an entire day!

Other Big Appliances

There are a number of other large electric appliances or systems in our home that could be using massive amount of power. If so, it will be necessary to transition to an appliance that uses less power. Here's what I'm talking about...

- Electric forced air heating & air conditioning system (HVAC)
- Electric oven/range
- Electric water heater
- Electric clothes dryer

Each of these uses massive amounts of power and would drive the cost of your off grid power system sky high. And there is no reason why you need to use electricity to power any of these. We have great options that are just as convenient.

Helpful Links

[Off Grid Boot Camp](#)

[Sustainable Preparedness](#)

[Energy Star Website](#)

Electric forced air heating & cooling

First, I would strongly suggest heating with an efficient wood stove. Not only do you eliminate that huge power consumption every winter, but you also gain a huge degree of independence and security for something that is essential—keeping your home warm.

For cooling, you first need to take a look at your climate. In some northern or high altitude climates, it cools off every night and air conditioning is really unnecessary if the home is well insulated and windows are opened every night (to cool it down) and closed in the morning (to keep the cool in). Ceiling fans can also be used to make it more comfortable during the heat of the day.

Some climates are simply miserably hot and humid and there is no way to make your home comfortable without air conditioning. In those climates, I would recommend looking into a "split system" (also called ductless) as the most efficient option for cooling. It will still use a substantial amount of power, but it should be far less than a conventional forced air system. In a small home, you may opt for a less expensive window air conditioner or two. That's what we use on our hottest days. Thankfully, the hottest days are usually long sunny days which also make excess solar power. So it all works out in the end.

Electric oven / range

The most convenient alternative is to use a propane oven/range. It works just the same and uses little to no power (depending on the model). If you are looking for completely independent options that don't use any purchased fuel, you could use an Amish made wood cook stove in the winter (works very well) and a sun oven in the summer, or other possible variations.



Electric water heater

Once again, the most convenient alternative is a propane water heater. As far as the user is concerned, it works the same as an electric model. More independent options include using your wood



Definitions

Watts: Used to measure the amount of work able to be done with a given amount of electricity. Amps x Volts = Watts.

Kilowatt (kW): Watts divided by 1,000 (1kW = 1,000 watts; 4kW = 4,000 watts, 0.5 kW = 500 watts).

Volts: Are used to measure the "force" of electricity flowing. One example is to compare electrical volts with water pressure, or pounds per square inch (PSI). Volts do not measure how much electricity is flowing, but rather the force or pressure at which it is flowing. Watts / Amps = Volts.

Amps: Used to measure the quantity of electricity passing a certain point in a given period of time. This is independent of force or pressure (volts) and when compared to water, is comparable to gallons per minute (GPM). Watts / Volts = Amps.

Watt-hour: Used to measure how many watts have been consumed or produced over a given period of time. 1 watt-hour = 1 watt for 1 hour; 10 watt-hours = 10 watts for 1 hour (also 5 watts for 2 hours or 20 watts for 0.5 hours).

Kilowatt Hour (kWh): Watt-hours divided by 1,000 (1kWh = 1,000 Watt-hours; 3kWh = 3,000 Watt-hours). This is the typical measurement used by utility companies on your power bill.

cook stove to heater your pressurized hot water system (using the range boiler thermosiphon model). That works in the winter when running your wood stove. You could also use a solar water heater (evacuated tube or flat panel) to heat your hot water in the summer. They can be very efficient.

Electric clothes dryer

Yet again, propane is your most convenient option. But you could also do what many others have done for millennia—air drying.

How much power saved? Get this...If your home used the totally electric version of each of these appliances and you switched to the alternatives I suggest above, you could save as much as 40 kWh per day!!! Once again, we are not talking about doing without anything—it's all about choosing our appliances wisely. And that is how we have cut the power usage of our normal home down to 2-2.5 kWh/day.

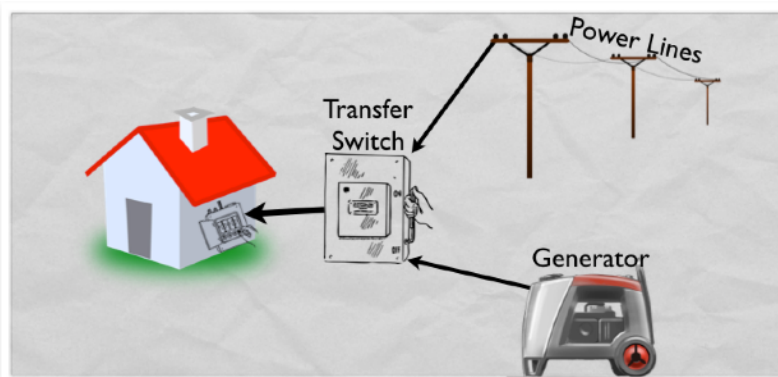
Secret #2 - Step-By-Step Transition

While I personally prefer going off the grid "cold turkey", you may find it easier to gradually transition off the grid one step at a time as you have the finances and time.



Step 1 - Back-up Generator

Many of you already have a fuel powered generator. First, you'll need an electrician to install a transfer switch on your home. This switch is an important safety that makes it impossible for your home to be connected to BOTH the generator and the power company (which would be a very bad thing!). This switch allows you to choose whether your home is connected to the power company or to your generator. Some transfer switches are automatic so you don't have to do anything.



Once the transfer switch and an outlet for a generator is installed, you are ready to roll during a short term blackout—as long as you have an adequate supply of fuel that is stabilized (fuel can go bad very quickly). It's a good idea to periodically (once a month) run the generator for a bit to exercise it.

While this step is far from ideal, it's a step in the right direction and it takes a relatively small amount of money to accomplish. And you'll be WAY better off than you are right now. It also sets you up for the next step...

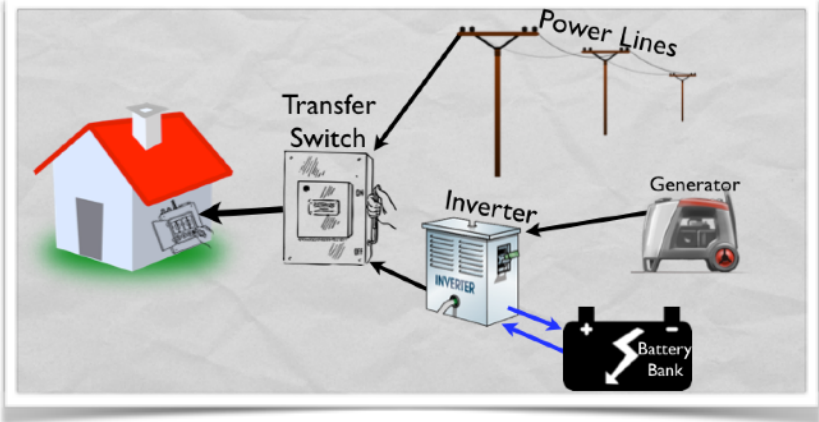
Step 2 - Add Battery Bank & Inverter

In step 1, during a blackout you would only have power when the generator is running. If you needed power 24/7, the generator would have to run 24/7 which means a lot of fuel, noise, and wear & tear on the

engine. Step 2 is going to give you backup power 24/7 while only running the generator several hours every few days. You'll still be needing that generator, but you will be using it differently.

You'll be installing a number of large heavy-duty deep cycle batteries, and wiring them together to form one large bank of batteries. That is what will be powering your home the majority of the time. But batteries operate with DC power which is different than what you use in your home, so we also install an inverter to convert that DC battery power into regular AC household current.

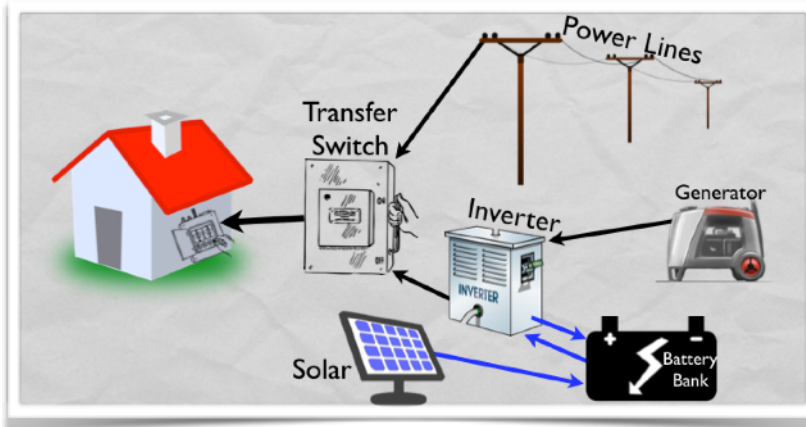
As we all know, batteries eventually run out of power, so you need some way to recharge them. That's where your generator comes into the picture. When your batteries become discharged (down to 20-50% capacity), you will start your generator, which is connected to the inverter that we previously mentioned. This inverter is a key component and does double duty. You see, it also contains a charger that takes the generator power and uses it to charge up your large battery bank.



Once your batteries are all charged up, you can turn the generator off and your home will instantly be running on battery power again. You'll have power 24/7, and will use FAR less fuel than you did when at step 1.

No, not even step 2 is ideal, but it's better than step 1 and WAY better than your current position. With each new step, we build on what we have previously set up and extend it further where it's much better. And that is what happens when we get to stage 3. All that work and money you've invested really pays off, because you are about to experience energy independence...

Step 3 - Add Solar & Charge Controller



Now that you have your battery bank and inverter set up to power your home when needed, the final step is to come up with an independent way to charge those batteries (without having to buy fuel). That's where solar power comes in.

In this step, we'll install an adequate solar array and charge controller and use that to charge your batteries so you don't have to run the fuel powered



The Kill-A-Watt Meter

Here is something you can start doing right now. I like to use a Kill-A-Watt meter to measuring appliances. It only costs \$20 or so on Amazon and will not only measure how much power an appliance is using at this moment, but will also measure cumulative power (such as how much power your fridge uses in 24 hours).

Plug your appliance into the meter and into an electrical outlet. You may be able to find these at Hardware stores, or at this link:

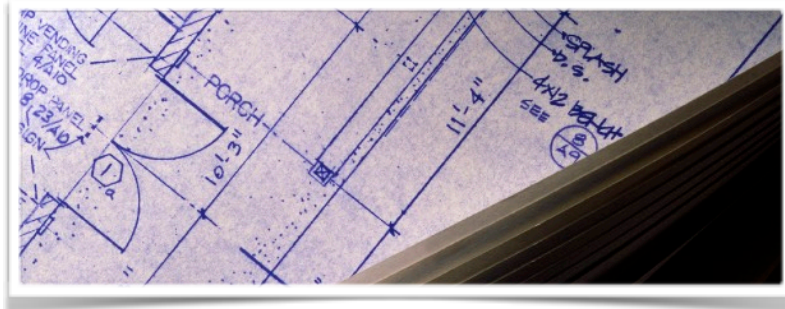
<http://amzn.to/2fLkKO4>

This is an affiliate link that doesn't cost you a penny more, but helps us to provide you with free training like this document.

generator. But you'll still have the generator as a backup in case you are faced with exceptionally cloudy weather or in case a tree falls on your solar array or something like that.

This is where you want to end up! It's the stage where all your previous work is paying off and you now have energy independence at your finger tips—whenever you want it. Just flip the transfer switch and you can be connected to the power company or your own independent power source.

Secret #3 - Accurate System Design



One of the most common and serious mistakes that I see “newbies” make when going off the grid, is the lack of planning.

Many folks treat purchasing an off grid system as if they were ordering at a fast food restaurant. “I’ll take 1 inverter, 12 solar panels, 8 batteries, and a charge controller.” The problem is that they have no idea how much power they will be using off the grid, and what it will take to produce and store than amount of power in their location.

There are a lot of variables that go into an accurate system design, such as:

- Your power usage
- Your location’s solar climate
- Your location’s shade situation
- How far the solar array will be from the power room
- Temperature in your location
- And other factors

I don’t mean to overwhelm you with all of this, but the point is that designing a system is not a quick thing akin to pulling numbers out of a hat. It should systematically take into account many factors, some of which can only be determined on-location.

Most off grid retailers offer the free service of “designing” your

system for you. But I want you to realize the limitations of such "designs". Unless they are actually taking all these factors into account, it is little better than an educated guess. And I've seen SO many people end up in a bad situation due to improper system design. Your power system is likely to either be larger (and more expensive) than needed, or even more likely it will be too small to function properly for your needs and you'll end up running the generator a lot or hooking back up to the power company (not good).

But none of this needs to happen! It is VERY possible to carefully and accurately design an off grid power system, and you can do it yourself! I actually created a calculator that takes all the raw data that is entered, runs the complex calculations, and tells you how many solar panels and batteries you need. But you still need to do your homework and collect accurate data to input into it. This calculator and all the instructions on how to use it are included with my Off Grid Boot Camp training course.

Secret #4 - An Experienced Guide

I've come in contact with a lot of folks who live off the grid. Many have had a really good experience, and some...not so much. What makes the difference?

Over the years of working with these folks I've narrowed it down to one main factor that has the biggest impact on their success off the grid. That factor is whether or not they had an experienced guide who could teach them what they need to know, answer their questions, and steer them in the right direction.

Without question, that is the most important thing you can do to ensure a successful off grid experience. But how do you find such a "guide"? Just because someone lives "off the grid" does not make them a knowledgeable resource that you should trust for solid answers and info. You would be surprised how many folks I've met who live off the grid and hardly have a clue how their system works—let alone the expertise to give you good advice. But if you can find the right person who has years of experience, has helped others, has the heart of a teacher, and is willing to take you under their wing, then you have a "gold mine"!

The fact of the matter is that people like this are few and far between. And after years of teaching short classes across the nation



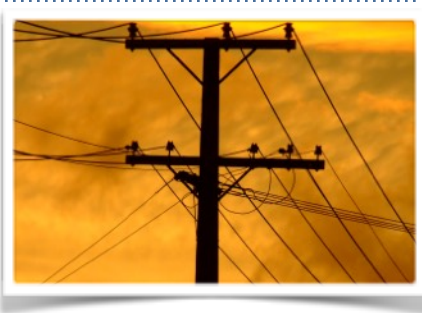
Designing Your System

The first thing you need to do in designing your system is figure out your current power usage. To do that you would use a Kill-a-watt meter as shown on page 8. But what do you do with all the numbers once you've collected them?

I use a spreadsheet to total up my daily power usage and average it out. It makes it so much easier to do and gives you a bird's eye view of your power usage so you can see what would happen if you got rid of this appliance or switched that one to a more efficient model.

In fact, to preform all the complex equations that go into designing a power system, I put together a calculator that you can input all your data into (power usage, your location's solar climate, solar shade situation, distance of solar array to the power room, temperature, etc) and then it will tell you how many solar panels you need, how much battery capacity, etc. That calculator I have included in Off Grid Boot Camp.

Why Go Off the Grid?



One of the most important factors that has encouraged dependence in our society is electricity. Before it became widely used, people were generally much less reliant on "the system".

With its advent, life has become much easier, more convenient, fast paced, and completely dependent for even life's most basic necessities. If we follow the trail of dependence for almost any item we use or need, it leads to electricity—with very few exceptions.

Take your car, for example. Most run on some sort of oil-based fuel, so how could it be dependent on electricity? Simple...what does it run on? Gasoline or diesel. Where do you buy that? How is it pumped from the gas station's storage tanks? How do they operate their cash registers or process your credit card?

You guessed it. Electricity. And how is that fuel transported to the gas station? By trucks running on fuel that was pumped with an electric pump.

We could go on for some time following the trail of dependence, but you get the picture.

While most of us could do without our automobile in an emergency and could walk or ride a bicycle or horse, there are certain basic necessities that we simply must have. These are water, shelter (especially heat), and food. Most Americans have become completely dependent for at least two if not all three of these. And the dependence usually involves electricity to a greater or lesser degree.

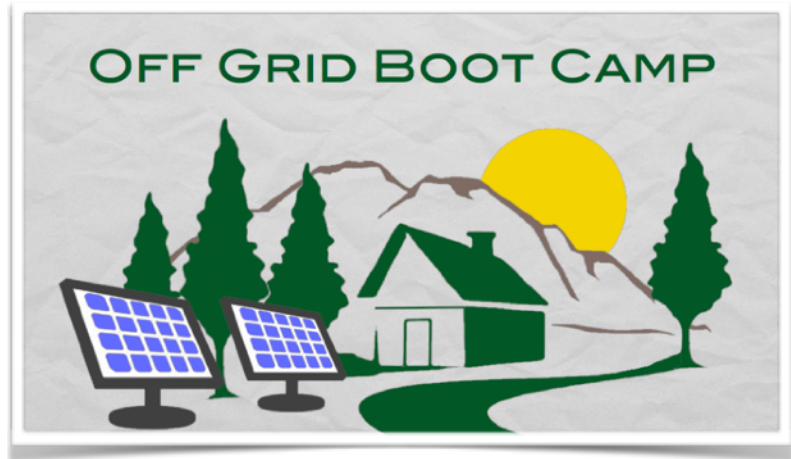
about off grid power system, I became frustrated with the lack of resources to refer my attendees to for detailed help and training. It just wasn't available.

That's why I developed Off Grid Boot Camp—to provide the ultimate collection of off grid training and resources to "newbies" and experienced users alike.

I don't want you to have to fend for yourself like I did years ago, so I've put together a special class discount for the core Off Grid Boot Camp curriculum. And since I've seen how much it helps my students to be able to discuss their situation and get answers to their questions, I'm also including access to my coaching program as part of this special.

Let me tell you about it...

Off Grid Boot Camp - [Click Here For Special](#)



For years, I had been looking for something that I could refer the attendees at my in-person seminars to for complete all-you-need-to-know training. I never could find anything worthwhile, so I finally decided I would have to build it myself. I spent almost an entire year putting it together, and what emerged was the ultimate off grid training course that covers more than I could hope to cover even if you spent a week with me here at my home.

- Dramatically Reduce Your System Cost
- Choose The Right Solar Panels, Inverter, Batteries, & Other Components
- Properly Design Your Power System
- Use & Maintain It For High Efficiency
- End Up With A Power System That Really Works!

In Off Grid Boot Camp there are 9 modules that give you ALL the information you need, in plain English so that you don't need to be an electrical engineer.

1. **Module 1** cover energy efficiency
2. **Module 2** is all about batteries
3. **Modules 3** teaches what you need to know about inverters
4. **Module 4** focuses on generators
5. **Module 5** covers solar panels & charge controllers
6. **Module 6** is all about small hydro-electric systems
7. **Module 7** focuses on wind power
8. **Module 8** is all about how to design an off grid power system
9. **Module 9** collects the frequently used lessons about using and maintaining you off grid system

[Click Here For Off Grid Boot Camp Class Special](#)

"Im enjoying your Off Grid Boot Camp program. I' ve already learned a lot. The links to external sites I find to be very helpful. And I plan to collect all the outlines and put them in a binder. I think the structure of the modules makes a lot of sense and divides topics into bite size chunks. I just wanted to mention that your videos are all meat and no fluff. They are a treasure trove of information and I am learning a lot.

Once again, kudos to you on the boot camp. It is a real meat and potatoes program . . . not a diet cola program." -John R. - Off Grid Boot Camp student

With Off Grid Boot Camp you will no longer be at mercy of someone else who may or may not be experienced or have your best interests at heart. You will be able to get input from retailers, but to take it with a grain of salt and make your own informed decisions.

Start your journey today!