

Green Energy for your Home ~ A Series ~ Part 7

Not About Smart Meters

The civilized refinements of modern society have removed us some distance from a clear understanding of how things work. We care more about results and not so much about how those results are achieved. We turn on the TV, the shower, and the computer and get results; we don't need to think about the delivery mechanism. But if you choose to live off-grid you become intimately involved with the mechanisms of everything you do from getting wood to communicating with the outside world.

City folks live in a constant delivery stream of goods and services that has evolved over the ages into a very sophisticated and almost invisible plasma. Food, sewer, water, electricity, culture, everything is seamlessly provided. Deprived of that nurturing and omnipresent structure a modern city dweller will become pretty helpless.

But when you live off-grid you need to know not only where your water comes from but how it gets to your home. You need to understand the water source, its reliability, purity, the amount of energy needed to deliver it to your sink, how to protect it from freezing and how to distribute it. These requirements apply to all the staple necessities of life, just substitute the word water with anything else like power, heat, food, fuel, communications and so on.

The essence of understanding the underlying systems that deliver your off-the-grid goods and services is data collection. You must understand not only how to acquire the required staples of existence you must also be fully aware of the state of those delivery mechanisms. For example what is the state of charge of your storage battery, how much energy are the solar panels delivering right now, how long has it been since you performed the required maintenance of the battery, how much power is left if you use appliance x for one hour?

If you have an imperfect understanding of your systems then you will always be putting out fires, rushing from here to there in a frenzy trying to remedy problems. I've seen this happen many times when urban dwellers suddenly pull up stakes and move to the country looking for a more idyllic lifestyle. The typical scenario starts with a lot of money being spent on 'outfitting' the dream followed by a long period of hard work as new skills are learned and applied. If there is a lack of effort or commitment the end result will be disastrous and costly.

With an off-grid power system the key to understanding the state of the system is the monitor. Each device you have in your home based power company will have some form of monitor to provide information on its performance and will often provide control options to enable you to refine that performance to meet your present needs. For example an inverter can have a monitor that allows you to see if it is in charge mode; to allow you to turn the unit on and off; to allow you to start your generator remotely; to allow you to change the voltage settings in the charge stages. A solar panel monitor,

usually associated with the solar charge controller, may tell you the battery voltage, the amps in and out and historical data such as how much charging was achieved over a period of several days. Full system monitors like the TriMetric made by Bogart Engineering can give a complete picture of all the incoming power from solar, wind or micro-hydro and all the outgoing power to your loads. At a glance the TriMetric will tell you the state of charge of the batteries; when you should provide an equalize charge; and how much power each household appliance uses.

A similar device to the TriMetric has recently become available for both on-grid and off-grid dwellers. A company called The Energy Detective (TED) provides a monitor that can give you real time information on your home power consumption. Another company called Efergy makes similar electricity monitors. I just installed Efergy's Elite model at my home. It involves two simple clip on sensors that are placed on the incoming power lines and a transmitter that sends information to the wireless monitor. The monitor can be carried around and observed as you turn on and off various appliances.

The Elite collects data over time and gives you daily, weekly and monthly averages. You can also program in the current electricity rate if you are on-grid and it will tell you how much your energy use is costing. At \$139 it's a good value, easy to install and cheaper than the TED. You will quickly learn how much power your appliances are using and the historical data gives you incentive to reduce your consumption.

While this article is not about Smart Meters it is about smart metering. The concern over the installation of Smart Meters by our electric utility company is widespread. Some of the claims that 'strangers will be able to tell what appliance I am operating in my house' remind me of Kramer from the Seinfeld shows. I picture this wild eyed guy bursting in the door screaming something like "they know when I'm turning things on!!".

In matters of invasion of privacy I think I'm a lot more concerned with Google's new privacy policy. They are keeping historical records of my Internet browsing and then probably selling my 'interests' profile to some marketers. These marketers will then prepare attack ads to harass me into buying their products every time I turn on my computer.

But that pales in comparison to a massive 2 billion dollar surveillance facility that the NSA is building in Utah and I realize that privacy really is a thing of the past. No phone call, no text, no email is private, even if encrypted. The secret listening posts that the NSA has built at communication facilities around the U.S. and elsewhere will collect every kind of transmitted information and a new breakthrough technology for cracking even the deepest encryption means that nothing is hidden.

However if invasion of privacy isn't the big concern with Smart Meters there are claims that people with electro sensitivity may experience adverse health effects. I really can't comment on that aspect. A year ago when I was visiting my Dad who is 86 years old he complained that the wireless Internet device that I plugged into his cable network was making him feel 'weird'. He insisted that I remove it. Being the rotten son that I am I did

re-connect it a few times without his knowledge when I needed to get at my email. He never noticed. Today he is happily using his new iPad on a wireless network and the complaints have disappeared.

Understand that I am not dismissing the potential health concerns that Smart Meters may represent for some individuals. Personally I developed a mild chemical sensitivity as the result of years of exposure to harsh film processing chemicals and screen printing inks. If either of my daughters even attempted to open a bottle of nail polish remover I'd banish them to the back forty and we don't even have a back forty. I can't tolerate strong perfumes or solvents. For this reason I respect the fact that some may indeed have a hypersensitivity to environmental factors and those people should be allowed a choice in determining their environmental influences.

Smart Meters and wireless devices like smart phones and iPads give off RF (radio frequency) energy as they transmit and receive their information. See the chart showing some comparative values.

Other concerns about Smart Meters involve claims of over billing. BC Hydro has dismissed these claims saying that customers either were using more electricity than they thought they were or their old meters were inaccurate. Your own household monitor like the Elite will give you some peace of mind allowing you to compare BC Hydro's billing with your own collected data. If in fact they are over-billing you'll have some evidence. At the very least you'll train yourself and your family to be more aware of how you use or squander your resources.

Radio frequency power from various sources:

FM radio or TV broadcast station signal	0.005
Smart Meter device at 10 feet	0.1
Cyber cafe (Wi-Fi)	10-20
Laptop computer	10-20
Cell phone held up to head	30-10,000
Walkie Talkie at head	500-42,000
Microwave oven, two inches from door	5,000

Source: Richard Tell Associates, Inc

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