RENEWABLE ENERGY ON THE FARM

Kevin Niemi, Trochu

Energy is something that most people take for granted until it fails to be delivered to their electric meter or their furnace. Only then do most people realize their "addiction" to it and suddenly there's a much higher chance of panic, stress, and irrational behavior (especially if it's winter) in what was otherwise a group of people we formerly considered "civilized". As Joni Mitchell's song goes "You don't know what you've got 'til its gone". I'd like to extend my analogy's idea about addiction further. When we see a crack addict's desperation when their supply runs out, is it much different than ourselves when something that we're unconciously dependent upon fails to be maintained. Would our emotional reactions go into survival mode (anxiety, fear, anger, and desperation)?

We need to have systems in place or in a standby mode so that they're ready to be used if and when the system of obtaining our essentials or utilities of life fail: again, shelter, heat, water, food, electricity, and/or light. The basics of using what is in our environment will be covered in my talk, so I will only briefly address solar and wind systems within this report because obviously, electricity can create the light and water, as long as there's a water well. My priority is to inspire the reader to be aware. We are fortunate to be in a time when we can integrate technology with nature and provide our own power, heat, or light.

Hopefully, we can see the need for alternative energy sources, whether it be as small as spending several thousand dollars or investing in a fully independent off-grid home. Of course, there are more reasons than this to make use of renewable energy, but I propose what should be most obvious and easiest to implement for the rural population: to have a back-up system. People buy insurance all the time, so this should be easier than it seems.

The size and cost of any renewable energy system is directly related to your wants and needs. For off grid systems, it's very important to understand that energy efficiency is much more important than energy generation. For every $ invested in efficiency, you save $3-5 in generating equipment. Therefore, always minimize your energy needs first. That may be through downsizing, high insulation levels, high efficiency lighting, or whatever ingenuity fits in your situation.

Solar panels are a simple, dependable, source of electrical generation although it takes quite a few to make decent power. A typical panel puts out between 75 to 170 watts at full sunlight. I believe prices are in the 7-8 dollar per rated watt range. Their durability is proven by their general guarantee of 20-25 years, and very likely longer. In Alberta, for most locations and comparing them to wind generators, solar electric panels are the most cost effective, require less maintenance, and last longer.

Wind energy equipment may be able to put out more power, but their output is obviously sporadic and unpredictable. Wind power equipment works well with solar panels, because quite often when a high pressure system moves in, the air is calm and clear for sunlight; but when it is night time, cloudy, or variable in atmospheric pressure, it is more likely that the wind turbine will be

operational. A note of caution has to be mentioned in that wind turbine output ratings are quite often over rated, and if purchasing one, don't buy the light and cheap ones; they won't last. A 1000 watt wind turbine might run you $3000-5000 with a tower maybe $1500.

Batteries are an essential part of the system in order to have storage and back-up. Typically deep cycle lead acid batteries are still the preferred unit. There is a wide range of cost and life, with the best industrial deep cycle batteries lasting 15- 20 years with reasonable care.

Inverters are used to convert DC battery power back to AC 120-240 volt power. The best and most common inverters today produce sine wave power that is equal in performance to the power you get from the grid.

Something to consider for hot water heating, whether for hot water heating or domestic hot water is evacuated tube solar collectors. They have a higher efficiency than the flat plat solar collectors that first came out. The evacuated tubes can operate even during cloudy conditions, and during the winter fairly effectively. These tubes are likely the most cost effective alternate energy systems at the present time. The cost for a unit that might do 2-3 people would be about $2500 for the panel unit, and that much again for the pump, tank, and related hardware.

What does the future hold for renewable.energy? In Ontario the provincial government has ordered the local utility companies to pay individuals and businesses 42 cents a kilowatt-hour for solar power, and 11 to 14.5 cents for wind, hydro, or bio-electric. This program started in November of 2006 and there's a scramble going on to buy into it and get equipment. If there's a will on the part of our leaders (or for people to press them) to invest in the future of non-polluting energy production, the public would embrace it whole-heartedly and rapidly. Furthermore, it's my firm conviction that there's a lot of innovative energy methods that have been patented, yet bought up and suppressed by Big Oil because of the threat to their profits. I think there's a great future awaiting us when we realize that there's a lot more clean energy sources out there, just not realized yet.

An excellent and current book on renewable energy (written in Canada) as listed below is one good source of further study. Another source of information and equipment that I found valuable is Erhard Hermann, who lives off the grid within the town of Didsbury. He not only sells the hardware, he tests it, uses it, and lives by it. He also has a good website for information. There is so much more knowledge to be found if someone is truly interested in creating their own energy sources and making use of it.

Sources:

The Renewable Energy Handbook by William H. Kemp, 2005
Available through Trimline Design Centre, Edmonton
780-466-9034
www.trimlinedesigncentre.com

Erhard Hermann, Didsbury, Alberta
403-335-3330
www.erhardselectric.com

"Homeowners scramble for renewable payback"
Calgary Herald, October 13, 2006

www.getprepared.ca
www.homepower.com