

Off-grid is a state of mind

Making the transition to renewables demands that we embrace energy frugality



The author's award-winning off-grid home in Musquodoboit Harbour, N.S.

(Phil Thompson photo)

by Phil Thompson

Only a century ago most electrical grids were very small, generally serving dense urban populations in cities or towns with centralized industrial operations. In the 1950s Halifax had a smoke-spewing coal-fired generation station right downtown, and an amazing electrical trolley system that was sometimes said to be “pollution free,” though it was powered by the nearby sooty smokestack. Over time we simply moved the coal plants to Cape Breton, and built bigger smokestacks.

In most rural areas with decentralized farm, forestry, and fishing industries, much of the energy supply was renewable, and great effort was expended to maximize benefits from freely available natural energy systems. In the '50s, when I was a lad, there were still quite a few small fishing boats powered primarily by sail, with little engines – though Cape Islanders were rapidly replacing them.

In their ground-breaking book “Off the Grid: Reassembling Domestic Life” (published by Routledge, 2014), co-authors Phillip Vannini and Jonathan Taggart sagely note that being off-grid

is actually a very old way of living, since we invented centralized energy generation, through fossil fuel use and urban electrical systems, only a century ago. (Journalistic ethics require that I disclose being one of the Canadian off-grid pioneers profiled in this book.) A companion documentary film has also been produced. (For more information, or to watch the trailer, follow the “Life Off Grid” link at RuralLife.ca.)

NATURAL RENEWABLES

When my grandfather was working in a lumber camp at age 14, there were no chainsaws in the woods. Men used axes and crosscut saws, and horses or teams of oxen dragged trees from the forest. Rivers floated logs to water-powered sawmills downstream – no diesel engines or trucks were required.

At that time farmers still cut ice from lakes in winter and stored it through summer to refrigerate produce in heavily insulated coolers surrounded by sawdust or bales of hay. No electricity required for refrigeration. No coal-fired compressors. Just seasonal plugging.

My father, who grew up in the De-

pression on a farm in South Maitland, Nova Scotia, told me they had no motors at all. No electricity. No tractors. Not even a radio. All entertainment was generated by the musical skills of family members, parlor organs, and accordions (batteries not included). Horses and muscle power – only 70 years ago.

My great grandfather sailed fishing schooners built in Petpeswick, N.S., on the Eastern Shore, with small dories rowed by muscle power. He kept a few sheep and goats and a large garden to feed his family. No Cape Islanders with big fuel bills, no destroyed cod stocks. Sails and courage.

We have created a great deal of dependence on electrical grids since then. We have also become reliant upon unending supplies of petroleum.

During power outages many people flock to emergency shelters to recharge smart phones. Apparently none of them noticed solar panels, frequently on sale at Canadian Tire for the past 20 years, that will charge a phone for free.

Last summer when a gasoline shortage hit Nova Scotia, people panicked and drove hours to line up to fill their

tanks – apparently so they could have gas to drive back home.

SMALL-SCALE

Back in the early to mid-1980s I fought to establish the Small Scale Energy Grant Program, under an energy sub-agreement that provided federal subsidies to the Atlantic provinces, mostly for oil and gas development. Our national team managed to get 10 percent of this money directed toward small-scale renewable energy innovation. It was fun sitting on Nova Scotia's volunteer grant committee, giving away millions of dollars to small projects, up to \$10,000 maximum. (One of the beneficiaries was Neal Livingston, whose micro-hydro project was featured in the Oct. 2015 issue of *RD*. This assistance from taxpayers ought to have been acknowledged in the story.)

Many off-grid households have achieved energy independence with no public assistance, using significant personal funds to make the initial capital investment – unlike oil and gas, which are massively subsidized. If the same 80 percent federal subsidy on oil and gas exploration were made available to all conservation and renewable energy projects, we would be living in a different environment. Perhaps with a more open federal government declaring a new direction, we might see a return to common sense.

But common sense also requires greatly reducing household energy use as we make the transition to renewable sources. Many people investigate switching their very large household electricity load to an off-grid system, and are surprised at how much the necessary equipment would cost.

Now that my three sons are grown up and gone, I find it possible to survive on only 200 Watts of solar panels. I started with a 1,000-Watt system, which included a small (750-Watt) wind generator. My windmill was destroyed by the third hurricane in three years – a victim of the climate change it was intended to prevent – and I have not replaced it. My solar panels provide all LED lighting, music and radio, and laptop and smart phone charging. Everything else is wood heat, natural refrigeration, passive solar, and great insulation.

The notion that I need a 6,500-Watt back-up generator, as some sources suggest, is quite amusing. I gave my 1,000-Watt Honda generator to elderly parents after hurricane Juan, when they lost power for three weeks. They used it to save all their food. Generators are only necessary for someone who has not yet made the transition to frugality and patience that off-grid living requires.

PSYCHOLOGY

Human psychology dictates that if we have technology we will use it, even when we shouldn't. This includes me. If we have large generators that can keep big refrigerators operating in our kitchens (next to a wood stove, struggling to maintain cold food in a warm environment), why would we bother building a natural cold pantry on the north wall of our home?

If we buy large inverters that convert solar 12-volt DC battery power to 120V AC, why would we notice that the most efficient appliances on the market are

designed for 12V DC marine and recreational use? Why do we forget that running a 120V appliance from a 12V battery pack will draw 10 times more amps than at 120V? (Watts = volts multiplied by amps. High school physics.)

Why would we care that a fan motor designed for 12V uses about five percent as much power as the same motor designed for 120V? Because the 12V fan motor costs too much? Not as much as generator fuel!

After 40 years of writing and consulting in energy alternatives, I hope people will learn to be frugal in off-grid design, and not listen to equipment sales specialists who have a vested interest in large, complex systems.

Small is beautiful. Keep it simple. A thousand Watts per person is enough.

(Phil Thompson won the Nova Scotia Housing Award for Energy Efficiency in 1997, for his low-cost, off-grid house. He lives in Musquodoboit Harbour, N.S.)

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