



The Adventures of “Private Power”

By Steven Moore



The Comfy Genset

After we had been in our solar-powered house for a few years, my friend Bob called to see if I had any ideas about how to build a generator shed at his place. Well, I had lots of them and this looked like a good opportunity to find out which ones were too stupid to live. We arranged to meet on the weekend.

Bob had a 6.5 kw Kohler water-cooled generator that ran on propane. That magnificent beast was at least 25 years old and had been reconditioned once, but it sat in a drafty eight-foot by six-foot cement block enclosure thirty feet from his shop door and had trouble starting in the winter. He was tired of nudging the governor lever with his hand for fifteen minutes in the winter to coax full running speed out of it when it was cold and was considering a new one. A quote of \$275 for new points was the last straw.

“I thought it might be \$50-75,” he said. “I know it has a good reputation and has been pretty reliable, but when they gave me that price it felt like I’d grabbed a hot 220v line. When I got my voice back, I called around to find points that might fit but no luck. So, I started thinking about a new generator in a better location.”

“Gee, you mean you’re going to put all those chipmunks and wasps out of their home?” I said, looking at the nests peppering the ceiling rafters. “Doesn’t sound very ecologically conscious to me.”

“Yeah, I know,” he said, “It’ll probably encourage them to move into the house with me. Maybe I’ll plant some trees.”

We looked around at possible sites. He had a steep bank right next to his house that was part rock garden, part weeds.

“How about digging into that bank and having most of the generator shed underground?” I said. “It would be warmer and you wouldn’t have so much garden to weed.”

Sold.

So Bob called in a backhoe and dug out a flat area nine feet by nine feet into the bank about ten feet away from his house before the hoe hit rock and had to stop. In the process, he found two rocks the size of refrigerators that he had the hoe push over by the driveway for decoration.

After we winched the old Kohler out of the blockhouse and into the back of a pickup to sell to somebody in town, the hoe lifted off the roof and carried it to a pasture as a sheep lean-to, then pushed over the blocks. We managed to save about a hundred good ones, the rest went for fill to widen the ramp up to his barn doors so he didn’t have to wear mountaineering gear to open them completely.

Bob’s house was heated by a propane-fired boiler that ran hot water through radiators, so I suggested he run a line out to the new generator shed and back to heat it as well. We had a plumber run the heating lines out and an electrician run out the cabling for the generator.

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Then we poured a four-inch concrete floor topped with a foot-high elevated pad two feet by four feet with the heating line running through it. This is where the generator would sit, on its own heated perch.

The square-foot cost of the shed was about the same as Bob's house. It had cement block walls and an insulated ceiling, weatherstripped double doors, and a flat roof. We ran the propane line over from the old blockhouse and, after tarring the outside of the block walls, we backfilled so the roofline was just even with his lawn. On one side we built an eight-foot retaining wall and filled in the ten feet to the house. On the other side, we had the hoe set in stone steps, which took up three more feet of rock garden. We installed siding on the exposed front to match his house, and when we were done it blended in pretty nicely.

In the meantime, Bob had been researching new generators, more correctly called gensets because they come with a motor and generator together as a set. One of his best sources of information was *The Renewable Energy Handbook for Homeowners* by Bill Kemp.

The main factors to consider are the rating of the generator (usually in watts) and the fuel type of the motor. Battery charging is hard on gensets. Due to the AC waveform, only the peak (when the voltage is higher than that of the battery) can be used for charging and small generators can't charge batteries efficiently. Even though Bob's charger ran at 25 amps maximum, he decided to buy a 62 amp genset (7500 watts). That was a good choice.

For fuel, the main options are gasoline, propane, and diesel. All have advantages and disadvantages. Gasoline is readily available but Bob didn't want to pay road tax to run a machine he couldn't ride somewhere. Diesel provides low-cost and long-life operation, really the best choice, but Bob didn't want to

bother with another fuel type. Since propane was already fueling most of his house, and the fuel could be readily supplied from his existing tank, he chose a genset that could run on propane most of the time and gasoline in emergencies if required.

His new generator was sitting in the garage, ready to be hooked up as soon as its new home was finished. We winched it into his pickup, and slid it gently down on its heated, elevated, pad. The propane guy hooked up the fuel, the electrician hooked up the cable connections, we hooked up an exhaust pipe and muffler running out the top of the wall on the side away from the house, and we were ready to go.

The generator was air cooled, so we cut two smaller doors in one of the double doors of the shed. Behind the top one we fastened a fan plugged in to the genset that would blow hot air out when the genset was running. The bottom one Bob would open so cool air could flow in.

In the end Bob got what he wanted. The temperature in that generator shed never goes below 60° F., no matter how cold it gets outside, and the genset starts right up. It's hard to hear it from inside because most of it is underground and the exhaust runs away from the house. The only effect is that the vibrations through the ground sometimes rattle the glasses in the kitchen cupboard if they are jammed together just right, although you never feel them yourself. Most of Bob's glasses are in the sink anyway with rings of stale beer and curdled milk in them, so this doesn't present a problem.

Now he says his tiller and lawn mower are whining about a new home and do I have any ideas about that?

Steven Moore and his family farm off-the-grid in Eastern Ontario