

## A History of Power Development in Wildwood - Solar (continued)

This is the second article in a series in which I will share with you our Wildwood electrical experience over a period of 28 years. You will recall that I had planned ahead for eventual photo voltaic and commercial power and installed a 6500 watt generator and a 100 amp power service panel to supply our power needs for our new home in 1987. This would allow an easy transition in the future (1991) when I would add a large photo voltaic system and even later, (1995) commercial power.

The next power development phase was minor in comparison to previous and future phases but was quite beneficial in the interim. I did not like to run the generator continuously, especially at night for lights alone. So I installed a pair of deep cycle batteries in my crawl space near the outside generator along with an automatic charging unit. I wired 12 volt dc lights in several rooms. In addition, I had piped propane lights into the house during construction.

Even so, there were numerous inconveniences. We still had the noise both inside and outside, and exhaust fumes if you were outside. We still had to start the generator to use the electric appliances like popping pop corn with the electric popper rather than the hand crank one on the stove. You can see that by then our pioneering spirit and associated inconveniences was starting to ebb.

By 1989 we were thinking that we should look at adding a solar system so that we didn't have to leave the generator running or start it frequently for just short periods even though the remote start switch was located in the house. I knew that a solar system that would be suitable for our needs would be expensive. I wanted to check out the possibility of getting commercial power before investing about \$10,000 or more for a solar system.

I contacted the IREA regional office at Woodland Park to explore the feasibility of extending the power into filings 1 and 2 both on a general basis for the area and specifically to my home in filing 2. The general going rate was quoted as about \$5 per foot for a large area project and about \$6 per foot on smaller specific projects. I figured that we could cover a good part of filings 1 and 2 with about \$250,000 or about \$1000 for the primary power line to be in reasonably close proximity to each lot. That would have been very cheap compared to the cost of solar/generator systems. It was 2 miles from the point-of-origin at filing 1, lot 162, to my house in filing 2, lot 274. Two miles at \$6/ft. is roughly \$63,000.

There was a mild recession in 1988-89 and many owners of vacant lots were in fact trying to sell rather than develop even though commercial power would have improved their property values. It also would have improved their sales opportunities. In addition, the cost was not economically feasible for me individually. Since I could not generate any interest in a project of this size from the general membership, I dropped the idea.



Inverter/2400 watt, 220 volts	\$2400 About \$1.00/watt
12, deep cycle batteries, 6v-235 amp-hrs	\$1000 (Note! 5 year replacement)
Misc. components & cabling	\$2700
Generator, Onan or Khoeler, 6500 watt	\$3000
<b>Total system component cost without taxes, engineering and installation = \$13,600.</b>	

This also does not include the costs of the solar array structure, heavy duty battery rack structure, maintenance of batteries and electronic equipment, etcetera. An engineered turn-key system of this size and complexity would have cost at least \$18,000 to \$20,000 in 1991. I would guess that this would cost over \$25,000 today. Also note that deep cycle batteries deteriorate with each charge/discharge cycle. The batteries have to be replaced every five years or so with regular (e.g., full time) use. The high initial capital costs, inconveniences and ongoing operating costs of solar are kept low key by environmentalists and those who aggressively promote the use of renewable energy.

Many different power system arrangements are available. Individual needs, finances and tolerance for inconveniences, will drive those decisions. Several residents have installed various sizes and types of generators or solar/generator systems at various costs over the years. I for one, and I'm sure others who have had solar systems installed, would be happy to discuss their solar system knowledge and experiences with anyone who may be interested in installing a solar system.

I designed and installed the integrated solar/generator system as described in the attached sketch in 1991. It was expensive but a delightful challenge and required a great deal of hard work. This system served us reasonably well (**as a substitute**) until we got IREA to extend their commercial power line to us in October, 1995.

My next article will cover the extension of IREA commercial power into filings 1 and 2. Also I will cover the cost of installing a solar system with the intent on selling solar generated power back to the power company.

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