

A Little Off the Grid – Midwest Analytical Experiments in Alternative Energy

(Crystal A. Proxmire, 7/23/2011)

“Don’t get me wrong, I love the electrical grid. DTE provides a wonderful service. But I am a control freak and I’d rather have my own stuff.”

 That’s the main reason Kevin O’Mara, owner of Midwest Analytical Services has begun his “experiments” in alternative energy.

Passing by his laboratory at 2905 Hilton it’s hard to miss the wind turbines, solar panels and tubes which are busily collecting energy to give O’Mara and his staff light and heat. The systems employed take care of much of the office’s lighting and also warm the women’s restroom using a solar thermal system that cycles beneath the room’s recently tiled floor. A captured rainwater system nourishes the lawn and flowers.

The experiments began three years ago when O’Mara, who typically does environmental testing and chemical analysis for industry, was talking with a client about the rising costs of utilities. They installed some equipment at a facility in Birmingham, and when a plumbing problem came up at his own office, it seemed like the perfect time to make some changes.

He installed the solar thermal heating system, and took it a step further by connecting the water heater to his off-grid electrical storage system. When the sun is out, the solar thermal panels and photovoltaic (PV) panels channel energy down through wires in the roof and put through a regulator and into a set of eight 12 volt deep storage batteries. When the batteries become full, the regulators discharge energy into the hot water tank. 

The system has consistently also provided the power to run all

of the 24-hour emergency lighting in the building which is required by code, plus enough power to run lights in the offices and his laptop during the day, while also holding a supply that could be used approximately two days if energy collection were to be interrupted.

✘ “It costs me about \$25,000 a year just to keep this building going for electric and heat,” O’Mara said. He estimates that the equipment has cost him about \$20,000 but that with factoring in trial and error he thinks he could produce a similar system for about \$10,000. And overall it saves him \$2,000 a year off his electric bill and an estimated \$500 more off his gas bill.

“Ten years may seem like a long time for a return on investment, but what else can you do? There is no return if you just pay as you consume. Where is your money going then?”

He looks forward to adding more storage and expanding his experiments to more aspects of his building management. He also sees this as an opportunity to give his clients a way to reduce their operating costs.

“I’m not an expert at this yet,” he said. “And I’m always up front with people about that. But I do want to help people learn to do this. So if they’re willing to experiment along with me, there can be long-term benefits.” ✘

The components are available from multiple manufacturers. The key is figuring out what balance of equipment meets the needs of a particular facility. “A lot of the manufactures provide a great product, but don’t offer much support. The art in business is to connect technology with the human needs involved.”

The human aspect is not lost even in the cold mechanical components hidden in the laboratory’s back room or stuck up on the roof. Each part is named after loved ones of those who

helped with project. Three PV tube panels are named after O'Mara's daughters Amber and Sam. The third is after his granddaughter Briana. Sons Billy and Patrick are the honored wind turbines in their name, and the solar thermal extractor is named after a friend named Megan, and other acquaintances of O'Mara's friend and co-experimenter Don Somel and Chief Organizer Charles Puissegur got the names of the hot water tank (Sandy) and the heat exchanger (Tina). The three friends built the frames themselves, and made them adjustable to maximize exposure to the sun in different seasons, and the tubing used around the roof was also custom-built.

☒ Other benefits of experimenting in alternative energy seem obvious as our interview happened to have been scheduled in the midst of a three-day electrical system failure that affected over half the city. (see <http://oaklandcounty115.com/2011/07/22/power-outage-update>).

"One of the very practical reasons to do this is so I can control my exposure to factors that I cannot control," O'Mara said. "If everybody has a little personal power supply it would be easier when there are outages. We could all have a little fan and a laptop to keep connected to information."

It's also a logical expansion of his business interest, and it gives him "something new to learn and tinker with." ☒

Midwest Analytical Services is an chemical and environmental testing facility that serves clients in many different industries – from attorneys to hospitals, food producers, and various manufacturers. As with his quest for acquiring more power, O'Mara has been determined that his business should be his own. By the age of 17 he was a respected chef, and his love for preparing good food grew alongside a passion for chemistry as he worked his way through college.

At 22 he saw an opportunity. "Air bags did not exist in 1986," he said. "I'd been working at a business incubator in Detroit

when an engineer down the hall got the idea that he wanted to use [sodium azide in air bags](#). His idea as to build a factory in East India, which is where he was from and where his family was. He needed research and development for his business plan, so I had him and enough other potential clients that I felt comfortable opening up my own lab... That guy ended up being one  of three sodium azide suppliers in the world.”

O’Mara’s success grew as well, and now with over 200 clients for Midwest Analytical, and also a flourishing restaurant in Berkley (aptly called O’Mara’s), and children now building careers of their own, he is excited to see this potentially powerful new project grow.

Find out more about Midwest Analytical Services at www.e4mas.com. Also check out O’Mara’s Restaurant at <http://www.omaras.net>. Keep up with alternative energy and other local environmental issues in our [Green News Section](#).

