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Energy Monitoring 2.0: How the Web Will Save Our Bacon

By **Bill Holmes, P.E.** August 5, 2011 02:53:35 pm[Email](#)[Print](#)

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An unknown Greek philosopher once said, "It is easier and faster, rather than trying to change some people's minds, to just wait until they die and the next generation grows up." That quote is on the first page of my upcoming book entitled *'Would You Fly in this Building?'*

In the fall of 1997, I was at the 30th reunion of the class of 1967 of Rose Polytechnic Institute, an all-male engineering school with less than 800 students at the time I graduated. My class was about 120 and I knew them all. A lot of us had kept in touch and come back every five years at Homecoming for our reunion.

After 30 years, a bunch of the guys had done pretty well and were in responsible positions in business and industry. I was eating dinner with several men that I been particularly close to in school. One of my fraternity brothers, Dick Osborn, had gone to work for NASA at the Johnson Space Center near Houston directly out of school and had risen to an upper management position. He had been there during the glory years of all the moon landings and had known several of the astronauts well. He and Mike Smith, who was on the Challenger, had been good friends. Sitting across from Dick was Jim Grundy, who was chief engineer for a division of Eaton Industries.

When I told them what I had been up to and about my energy monitoring system, they both said their bosses had been pressing them to do something to cut their energy costs. I still remember Dick telling me that his response to his boss had been, "First, I need to know where we are spending our utility dollars." Both Dick and Jim clearly understood engineering problem-solving and that the first step had to be gathering accurate information to define the problem. They each asked me for more information on AutoPilot and took it back to their bosses.

In spite of what some of the astronauts thought, Dick knew they couldn't have landed on the moon without a very precise information system. He understood information. He said he had been at a party one night in the early 1970s and was explaining to one of the Apollo astronauts some of the science and math involved in putting the Lunar Module on an exact spot on the moon's surface. The astronaut's response, with the same confidence, the same swagger and in the same east Texas accent that I was very familiar with from my days in a fighter squadron, said, "Son, just get me to where I can see the damn thing and I'll land on it."

I ended up going to Houston to make a presentation to some of the upper-level management at NASA. Just before I left the hotel for my presentation, my wife cautioned me, "Remember, they are rocket scientists." Nothing resulted from those conversations, but I have not forgotten how fundamental the first step in addressing the issue was to those two very sharp engineers. Their immediate grasp of the process was obvious.

Utility Meter Monitoring's Viral Moment

For many years, I have understood that for my approach to energy monitoring to be widely accepted, I would have to wait until the kids who grew up with computers and understood the value of information

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Author Bio

**Bill Holmes, P.E.**

Bill Holmes, P.E. founded Holmes Energy LLC www.holmesenergy.com and developed the AutoPilot Monitoring-Based Commissioning (MBCx) System in 1979. He has a B.S. and M.S. in mechanical engineering and has done additional coursework and research for his PhD. He is a former Purdue professor and taught for several years in the Continuing Education in Energy Management Program at the University of Wisconsin.

Bill has produced savings from 20% to, in a few projects, more than 50% from low-cost, no-cost changes in management, operation, maintenance and control alone in all types of facilities including Industrial Plants owned by Fortune 500 Companies.

He is the recipient of a DOE Award for Energy Innovation and was the Indiana Energy

got to positions of authority. That finally seems to be coming true. Now it is with a combination of amusement and frustration that I watch these 'kids' discovering all of the exciting ways to use that information.

In the past couple of years, a number of electric utility as well as private companies have begun to offer consumers access to their meter data via the Web. The most publicized has been the Google PowerMeter. It was introduced in October 2009 by the company that probably understands how to use information better than any other on earth. Unfortunately, it will be retired on September 16, 2011, dying at less than two years of age because, according to Google, "It didn't catch on the way we would have hoped."

The statement from Google also says, "Momentum is building toward making energy information more readily accessible, and it's exciting to see others drive innovation and pursue opportunities in this important new market. We're proud of what we've accomplished with PowerMeter and look forward to what will develop next in this space." How interesting and unfortunate it seems to me that, at a time when more and more organizations and publications seem to be understanding and publicizing the value of energy monitoring, Google would discontinue that service. I wonder why. Other companies providing a similar service include Excel Energy, based in Minnesota, and Pulse Energy from Vancouver.

So Close to a Real System

These companies and others have the right idea, the first step right, providing a way for people to see when and where all of their utility dollars are being spent – a new version of what I had built and installed in my house using an Apple II computer in 1979, long before the Internet existed. With that information, people can turn something off and see how much difference the change makes in their usage and cost. They can change the temperature of their water heater or set their house temperature up or back during cooling or heating at night and when they are away during the day.

Wonderful! What is the next step? If the homeowner does nothing with the information, there are no savings. It's that simple; exactly what I have found during my entire career in all other types of buildings. It confirms everything I have learned during the more than 30 years that I been monitoring buildings. I have found no exceptions. It's easy to see in the case of a house, but very difficult for most to understand for other types of facilities. Part of the problem is that very few people understand buildings other than their homes. But it's just the same in bigger buildings; without people reacting to the information, there are no savings. I've worked in all other types of buildings and believe me, it's just the same.

The homeowner has to take the information along with the knowledge of their house, the space heating, air conditioning, water heating, clothes drying, appliances, computers, teenagers and everything else, determine what is accounting for each penny spent and take some actions, start making some changes, and see what happens to the meter data and the utility bills. And once they determine things that they can change to save money, they have to do them. And they have to continue to do them to save. Saving energy is a lot like going on a diet; if you are really determined, you can lose 10 or 20 pounds. But the real test is keeping it off. How much have you gained back in a year or two? Obviously that's the hard part, the real issue. Most people can't do it. How much energy will they still be saving in a year or two? My guess is after the novelty wears off, not much. In my experience, the amount of energy that people use, at least in this country, depends almost entirely on whether they can afford to pay the bill.

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Manager of the Year in 1990. He has published numerous papers and been making presentations on his projects and methods for more than 25 years. Bill is a sculptor, a writer and a regular contributor to Sustainable Plant.

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