Eight Industrial Energy Monitoring Success Stories

By **Bill Holmes, P.E.** August 23, 2013 11:07:17 am

I designed, built and installed my first energy monitoring system in a mental hospital in 1979, used the resulting data to essentially just tune up the building's existing energy systems and reduced the annual utility costs by 59%. The savings resulted from changes in management, operation, control and maintenance alone. No new equipment or capital projects were required. The methods involved nothing more than the application of good science to actual monitored data; as I have said many times, freshman year engineering stuff.

For the first several years we used the same techniques in a variety of non-industrial facilities - schools, churches, libraries, office buildings, pools, ice arenas and shopping malls – with savings of 30% to 67% resulting from simply tuning up existing energy systems in existing buildings; no new equipment or capital projects were required.

After a few years, when Holmes Energy was managing about 25 or 30 non-industrial buildings, we were contacted by Golden Castings, a foundry looking for ways to save money. Copies of their utility bills showed that they were spending more than all of our other clients combined. In accord with the conventional wisdom at the time (and still widely believed), we were told that "we couldn't touch production." The place where 90% of their energy dollars were being spent was off-limits.

All we were going to be able to do for them was recommend more efficient lighting or to shut off the office air conditioning at night. But I thought what the hell, they are using a lot of energy and spending a lot of money; this could turn out to be interesting, we could learn something. So we signed a contract and installed a monitoring system. The owner recovered the initial investment in less than three months.

Since that time, we have applied those same methods to energy systems in a variety of industrial plants with similar success; from slaughter houses to donut factories to manufacturing and cement plants. The case study summaries below illustrate how our information and science-based methods were successfully applied in eight industrial plants. You can do the same thing in your facility. Good luck!

GenCorp Automotive Components Manufacturing Plant

A Holmes AutoPilot System was installed in the GenCorp plant in Wabash, Indiana to be used by Jarrod, one of their young engineers, as his Six Sigma training project. The plant made rubber stripping for car doors and windows. Jarrod was young, bright and excited about finding ways to improve his plant. He knew the plant from top to bottom, all of the workers, and understood the equipment and the processes. It didn't take him long. Right away he used the system to find some equipment running during periods when it should have been shut down and he found that the plant was paying a significant penalty every month for one particular line that created a spike in the electrical demand during the middle of the day. He made some changes, used the monitoring system to evaluate the results, made some more changes and so on until he had his systems tuned the way he wanted for both peak production efficiency and energy costs.

Jarrod was spending a few days each month in Ohio attending Six Sigma training with employees from a number of their other plants. He would take his results back to the class where they would each discuss their projects. When he submitted the final report on his project along with the projected and

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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

actual savings he won First Prize. Not only that, his project was identified as the Number One Opportunity to Cut Costs Corporate-Wide; the best opportunity to increase efficiency and profitability. After he got back to his office, he called me and said "I have some great news. I won first prize. The company is going to install an AutoPilot System in all of their plants world-wide."

Honda-Owned Automotive Components Manufacturing Plant

This eight-year-old Japanese-owned plant meticulously assigned all costs to individual departments and product lines except for the approximately $2 million in annual utility costs, which could not easily be itemized. Departmental energy costs were reported on a per-square-foot basis, which favored some areas and penalized others. The plant managers realized that to be accurate they needed to measure utility consumption at many points within the plant. During the process of installing an energy management system to control lighting and HVAC, the temperature controls company doing the work assured the owner that their system would also provide the desired reporting.

After attempting to use the reports from the EMS for about 18 months, the owner decided that although the EMS was providing the desired control, the reporting was unacceptable. After visits to other sites and discussions with other users, the owner decided to purchase a Holmes AutoPilot System. Immediately upon startup the system provided the reports that the plant had wanted for several years. It broke utility costs down by department, shift, product line and production levels. Within the first six months, the system was expanded twice to increase in the number of monitored points in the existing plant, and plans were made to integrate the system into a planned plant expansion. Plant personnel set a target goal to reduce the plant's utility costs by 20% with the data provided by the AutoPilot System.

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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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