

# Strategic Planning for Energy and the Environment

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F. William Payne, Editor-in-Chief

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## REDUCING ENERGY COSTS IS NOT AN ENGINEERING PROBLEM

*William A. Holmes, P.E., C.E.M.  
President, UtiliTRACK Corporation*

Over the past 20 years, experience in producing, documenting, and maintaining maximum cost-effective energy savings has advanced considerably. In the process, we have learned some hard-won lessons.

- We have learned that reducing energy costs is not an engineering problem, it is a financial and a management problem.
- We cannot achieve our objectives without continuously monitoring energy consumption and costs.
- The Energy Management Profession has focused on technical solutions and avoided the real problem—PEOPLE.

I believe that it is time to follow the lead of industry, abandon the attitude that technology is the only solution, and begin to involve people by applying information technology and TQM methods to utility costs.

### THE TRADITIONAL APPROACH

There are a number of sophisticated processes which energy engineers have developed in the past twenty years, in the progress toward energy-efficient systems.

These include:

- Walk-through or preliminary energy audits
- Detailed energy audits or studies
- Energy accounting

- Use of new, advanced portable instrumentation
- Annual energy calculations
- Systems simulation
- Energy usage estimation
- Peak load calculations
- Identification of capital projects
- Estimates of expected savings and paybacks
- Implementation of energy conservation measures
- Spot-checking or calculating actual savings

These activities are based upon several assumptions:

First, that actual energy consumption data for individual equipment and systems are not available. Next, that savings will come from technology and involve capital projects. Last—that after the new energy-efficient programs are set up, actual savings will be close to the estimates made during system planning.

### UTILITRACK TAKES A DIFFERENT APPROACH

Based on our experience, we know that significant savings opportunities exist in all facilities.

**We eliminate all of the activities associated with estimating and approximating energy consumption and costs.**

We install permanent monitoring instrumentation which will provide the actual consumption and cost figures on a continuous and real-time basis. The information gained from the monitoring system is used to:

- Extend management techniques to utility costs.
- Produce immediate savings through improvements in operation and maintenance.
- Quantify all significant energy users.
- Identify opportunities for capital projects.
- Verify savings.
- Maintain savings.

The immediate savings are used to fund the process and generate a positive cash flow.

QUESTION:

**What do the following have in common?**

- Management Information Systems
- Total Quality Management Programs
- Identification and Reduction of Waste
- Entrepreneurial Groups Within Large Companies
- Increased Accountability and Responsibility

ANSWER:

They are all tools being used by well-managed companies to remain in business... gain an advantage over their competition... make a profit.

But—There is also another correct answer to the question:

**None of these systems and programs is being applied effectively to control utility costs.**

Here's another question which can be addressed to most plant and building managers: "Why aren't you managing your utility costs like you manage all of your other costs?"

The top ten answers you can expect, in reverse order, are:

10. "Utility costs are only 5 percent of our expenses; we've got other problems that are more important."
9. "I don't have time."
8. "I can't take the risk."
7. "Dollars paid to the utility companies aren't as valuable as dollars spent on materials or labor."
6. "We can't change production."
5. "We tried it once; it didn't work."
4. "That theory doesn't work out here in the real world."
3. "We're putting in new lights."
2. "We have an energy management system."

Number 1 Reason: "We've already done everything possible."

## THE REAL REASONS

These answers camouflage the true reasons why utility costs are not being managed properly. The real reasons are:

- Lack of awareness of the opportunity
- No incentive from above
- Don't know how
- Resistance to change
- Misinformation on opportunities and techniques
- Misconception of risk involved
- Horror stories of past failures
- Low priority
- Production regarded as "hands-off"
- Tendency to look for a specific solution rather than a process leading to a solution

## PEOPLE ARE THE KEY. TECHNOLOGY IS ONLY A TOOL.

Here are some quotes from an article in the *ASHRAE Journal*, July 1981:

"Most savings result from... good operating and maintenance practices. The operator's awareness that the utility bill is being scrutinized by his superiors is probably the most important item."

"We do everything we can to force the building operator or manager to begin listing or plotting his energy consumption month-by-month. *In our opinion, this simple exercise will save more energy than any other device regardless of cost.*"

Further quotes from an article in *Strategic Planning for Energy and the Environment*, Fall 1993, by Dr. Peter Judd:

"Accountability, not technology, conserves energy. It is not the mouse-trap, but how it is operated."

"What works? The common ingredient is a sustained commitment by owners reflected in the attitude and incentives of the building staff."

"Submetering added to apartment houses in New York City resulted in a 15-30 percent drop in consumption. It is simple enough: If you have to pay for something you will use it more carefully."

What facilities are appropriate for energy conservation measures? A facility is a good candidate if top management is serious about reducing utility costs... if the annual utility costs are significant... and if there is no real-time and continuous monitoring system or effort in place.

Exceptional opportunities for energy conservation engineers and consultants exist if there are areas with substantial energy requirements that have been treated as off-limits in the past. This normally means that no one has ever looked objectively at the consumption patterns and costs.

There is a widespread potential "market" for the energy engineer/consultant, as any experienced professional will be quick to tell you. By using the "human dimension" you can achieve greater successes in expanding your activity in this market, and in meeting energy cost reduction objectives.

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### ABOUT THE AUTHOR

*Bill Holmes* is president of *UtiliTRACK*, in Columbus, Indiana. His firm specializes in reducing utility costs in existing buildings through improvements in operation, maintenance and control. After five years with a consulting firm doing energy audits and designing improvements, he taught for six years in Purdue's Mechanical Engineering Technology Program. In 1979 he founded *UtiliTRACK* Corporation. In 1988 and 1990 his firm received awards from the State of Indiana for achievements in energy efficiency and in 1990, in received a DOE Award for Energy Innovation. Bill holds a B.S. in mechanical engineering from Rose-Hulman Institute of Technology and an M.S.M.E. from New Mexico State University. He is a registered engineer in Indiana and Ohio, a certified energy manager, and in 1990 was named Energy Manager of the Year by the Association of Energy Engineers, Hoosier Chapter. He is a regular lecturer in the Energy Management Program conducted by the College of Engineering at the University of Wisconsin and for the past two years, has been a speaker at the World Energy Engineering Congress in Atlanta.