

# The Energy Management Process

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## ABSTRACT

**“You cannot control what you cannot measure”**

**“Measured data are of little use without analysis”**

**“It takes action to get results”**



## Goal:

Develop a comprehensive *understanding* of energy use and a *co-ordinated plan* to reduce energy use in the most cost effective method.

## Objective:

- Reduce the overall *energy cost*.
- Reduce *pollution emissions*.
- Improve energy *distribution reliability*.

Energy represents a significant operating cost in most industrial facilities. Controlling energy cost is not merely a technological solution involving engineered solutions. It requires management similar to other operating expenses such a labor and production.

The *Energy Management Process* is a structured method used to insure consistent success in energy cost reduction at industrial facilities.

Defining goals, objectives, and the steps to reach them is key to successful energy management.

The expected results are a reduction in annual energy costs of 15% with an average simple payback of less than two years.

To put this in perspective consider that at a 10% profit margin saving \$ 100,000 per year would be equivalent to securing a \$1 mil-

lion per year long term contract (How much would your company invest to secure such a contract?)

It takes much more work than just identifying a potential energy cost reduction project with a good payback, handing it over to plant managers, and waiting for them to jump on the idea and implement the project. Energy projects must compete for resources—financial and labor just as other operations projects have to. Credibility of the presenter, good solid business cases with options, benchmarking, reasonable implementation plans, and a good presentation are essential.

Management buy-in and inter-department communication are imperative to success. An energy cost reduction project supported by multiple departments has a much stronger chance to win resources.

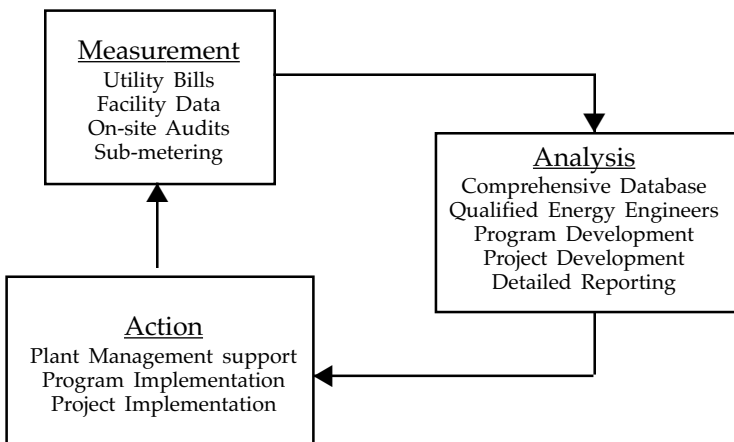
The *Energy Management Process* is a structured method used to help identify, develop, and implement energy cost reduction projects consistently across an organization.

**Remember:**

Completing one good energy cost reduction project is far better than a long list of good ideas.

## METHODOLOGY

The components of a successful *Energy Management Process* consist of three repetitive processes:



## MEASUREMENT

Utility bills contain significant data including consumption, costs, and rate information.

Facility data includes information such as plant size, location, products, production schedules, major equipment, contacts, and HVAC requirements.

On-site audits help to validate facility data and identify potential energy saving projects.

Sub-metering provides a tool to aid in identifying potential energy saving projects, and to provide verification of savings. A basic metering system that can provide interval data from each utility meter is needed.

## ANALYSIS

A Comprehensive Database of measured information is essential to insuring the most cost effective energy projects are identified.

Qualified Energy Engineers provide the expertise and focus needed to identify and quantify energy projects. The Energy Engineer provides detailed energy use analysis reports, leads development of energy cost reduction projects, *leads Employee Awareness* programs, and leads *Shut It Off When Not in Use* programs.

Program development utilizes measured and analyzed data to develop *Employee Awareness* programs and *Shut It Off When Not in Use* programs.

Project Development takes the top energy cost reduction ideas and turns them into detailed business cases, implementation plans, and presentations for plant management.

Detailed Reporting provides utility bill analysis, utility use and cost trending, forecasting, energy project tracking, and analysis and recommendations.

## ACTION

To reduce energy costs it take action (implementation of projects). To implement projects it takes resources. Resources require

management approval.

Plant management support is essential. Funding is required for basic metering systems and energy engineers. Labor is needed for low cost energy projects. Defined acceptable payback criteria and availability of funds and labor is needed.

*Shut It Off When Not in Use* programs are only successful when Plant Managers demonstrate support.

Projects typically involve many departments. It is vital to include people from each department as part of the decision and planning process. Oversight and close management of project implementation is important to insure completion and cost controls.

Credibility of the presenter, good solid business cases with options, benchmarking, reasonable implementation plans, and a good presentation are essential to get projects approved. Without approval, there are no energy savings.

## **Measurement: (repeat)**

Continual measurement is needed to verify success, to develop benchmarks, and to insure the cost of the process remains economical.

## **SUMMARY**

**“You cannot control what you can not measure”**

**“Measured data are of little use without analysis”**

**“It takes action to get results”**

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### **ABOUT THE AUTHOR**

**Thomas C. Mort, CEM**, is the manager of Energy Management for Delphi Automotive Systems. Most recently, he is leading the development and implementation of a corporate worldwide Common Energy Management Process for the firm. Mr. Mort has 20 years' experience in the energy field, including supply and demand side man-

agement. He has been involved in identifying and developing energy cost reduction projects throughout his career.

Mr. Mort received the 1997 General Motors Energy Conservation Award; the 1998 Delphi Automotive Systems Energy Conservation Award, the 1999 Energy Manager of the Year Award from the magazine *Energy Manager*. He has been a featured speaker at AEE's World Energy Engineering Congress in Atlanta, at the National Town Meeting for Renewable Resources in Detroit, and at the Manufacturer's Education Council, Ohio Deregulation Conference.

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