Developing an Energy Management Plan

An Online Continuing Education Course for Engineers

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How to Develop an Energy Management Plan

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Introduction

Increasing energy demand, global climate change, and constrained energy supplies are likely to impact how energy affects businesses in the future. Market trends suggest that the demand for energy resources will rise dramatically over the next 25 years. For instance, global demand for all energy sources is forecast to grow by 57% over the next 25 years. U.S. demand for all types of energy is expected to increase by 31% within 25 years. Electricity demand in the U.S. will grow by at least 40% by 2032. New power generation equal to nearly 300 power plants will be needed to meet electricity demand by 2030. Currently, 50% of U.S. electrical generation relies on coal, a fossil fuel; while 85% of U.S. greenhouse gas emissions result from energy-consuming activities supported by fossil fuels.

Whether a business is in manufacturing, real estate, retail, healthcare, education or government, controlling and cutting costs is important for success. Reducing energy use and increasing energy efficiency is a proven strategy for cutting and controlling costs with good returns.

"Of one thing we can be sure: energy will be more challenging and more important in the future. Will you, and your business, be ready?"— Peter Schwartz, Chairman, Global Business Network

Even with good returns, energy waste is still prevalent throughout organizations. Consider that:

- A 400% variation in energy use intensity of buildings in the United States exists that is not explained by age, technology, hours, size, and climate.
- Little improvement of overall energy consumption has been seen although building components are 30% more efficient since 1980.
- Oversizing building fan systems, on average, occurs by 60%.
- Most chillers are oversized by 50-200%.

Unfortunately, capturing energy waste has been hampered by a lack of focus on energy management. Too often energy management is characterized as being decentralized, poorly-coordinated, focused on paying bills & running the powerhouse, reactive, undervalued, and considered capital intensive.

If energy prices also rise dramatically due to increased demand and constrained supply, business impacts could include:

- Reduced profits due to high operating costs.
- Decline of sales of energy-using products.
- Loss of competitiveness in energy intensive businesses.
- Disruptions in supply chains as suppliers are unable to meet cost obligations or go bankrupt.

Organizations that have adopted effective energy management strategies and built successful energy programs have had different results. Consider the following:

- Ford Motor Company has saved over $75 million through effective energy management.
- USAA Real Estate has realized a 5% annual energy savings and increased the asset value of a California building by $1.5 million due to energy efficiency upgrades.
- Hines estimates the difference in operational costs between its energy efficient buildings and inefficient buildings at more than $13 million.
- Fairfax County Public Schools estimates an annual energy savings of $4.5 million from energy efficiency improvements.

The value of strong energy management as a proxy for overall organizational management is increasingly recognized by financial analysts. Recent studies by Innovest Strategic Value Advisors found that leaders in energy management achieved superior stock and financial performance over laggards in energy management. The difference between the leaders and laggards is significant:

- Real estate investment sector – over 3,400 basis points difference
- Retail food sector – 1700 basis points difference
- Retail merchandising – 7100 basis points difference

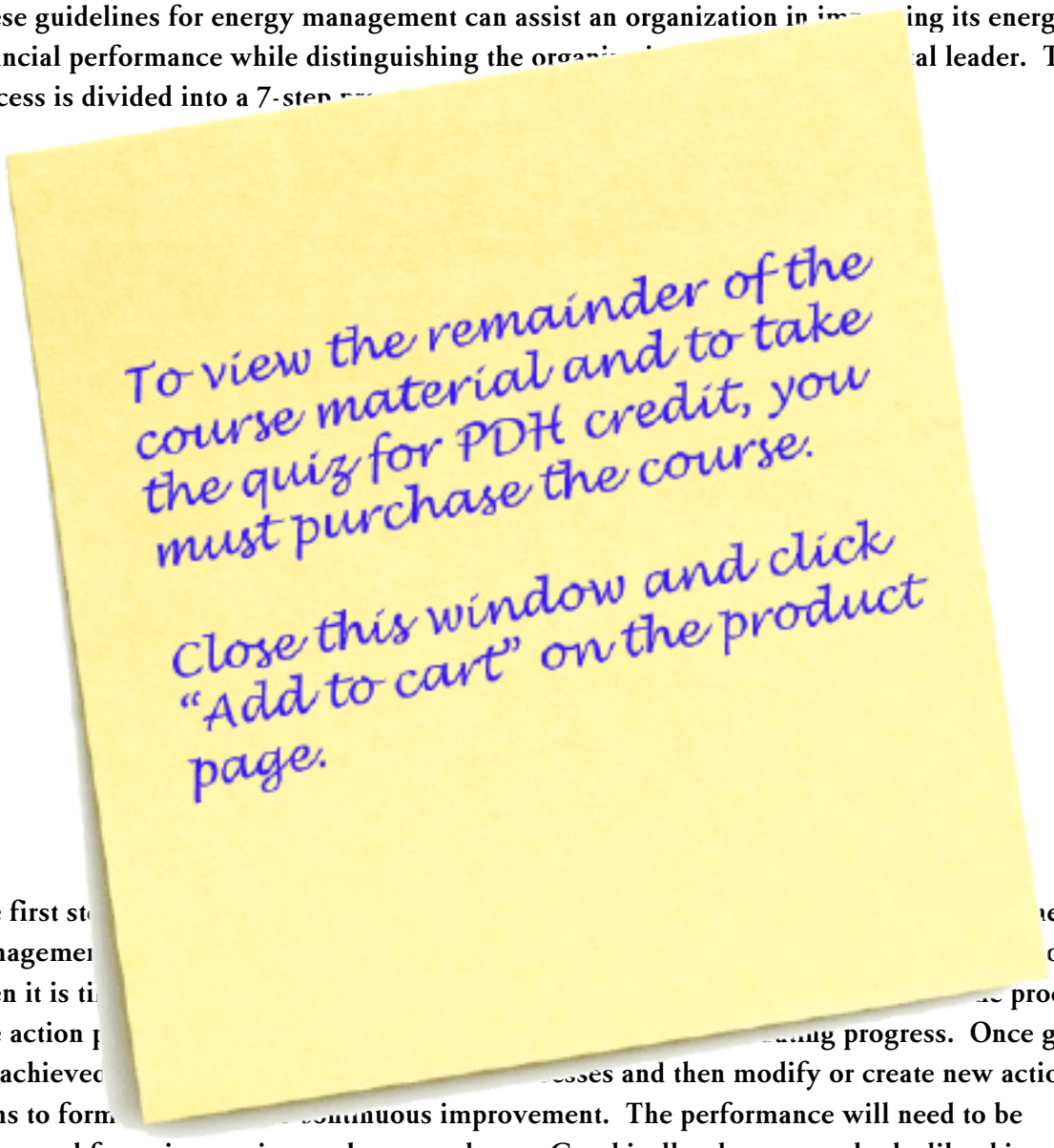
The bottom line – good energy management is good business and adopting an energy management strategy is a business decision that should not be ignored.

The purpose of this course is to outline the steps necessary to develop a successful energy management program and the overview on the next page will give you an outline of the process.

Overview

The process discussed in this course was developed by the EPA and is actually a good format for energy management. It offers a proven strategy for superior energy management with tools and resources to help each step of the way.

These guidelines for energy management can assist an organization in im ing its energy and financial performance while distinguishing the organi al leader. The process is divided into a 7-step pr



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The first st ergy management on. Then it is ti process. The action p ing progress. Once goals are achieved sses and then modify or create new action plans to form continuous improvement. The performance will need to be reassessed from time to time and new goals set. Graphically, the process looks like this,