

## ***Energy Efficiency***

The cost of energy is a major item for any organization's budget. With record high prices expected for natural gas this winter, those who are responsible for managing their organizational operating costs have an even greater challenge.

Recent Utility Company reports indicate that the North Iowa area will experience an estimated 52% increase in natural gas prices. For an organization like North Iowa Area Community College, an increase of this size translates into a bit of shock and renewed efforts to conserve.

Fortunately, over 20 years ago the College made a wise investment by installing an Energy Management System throughout the buildings on campus. Energy Management Systems are computer-controlled systems that can operate practically any type of mechanical or electrical equipment. They can automatically turn on or off heating and air conditioning, control lighting, reset thermostats, control boilers, pumps, valves, and motors, and even monitor energy consumption, all according to pre-programmed instructions entered by trained Facilities staff. Investment in Energy Management Systems can be costly but that cost will generally be recovered within a few years.

There are many organizations besides North Iowa Area Community College which have invested in Energy Management Systems and aggressively targeted new energy saving projects with 5 years or less payback in order to reduce operating costs.

There are also many relatively simple inexpensive measures companies can take to make a significant impact on their budget. Substantial energy savings can be achieved by implementing no-cost or low-cost strategies, and by applying new technologies and energy management practices.

New improvements in lighting technologies, especially with light emitting diodes (LED) and electronic ballasts using T-5 lamps have made a significant impact on our energy consumption. At North Iowa Area Community College, High Intensity Discharge lighting fixtures in our gymnasium were recently replaced with new technology High Bay lighting using electronic ballasts and T-5 lamps, cutting the gymnasium lighting energy consumption in half.

## **Energy Policy**

Whether you have an energy policy in place or not, in order to make informed energy saving decisions in a high-tech environment, you need information that is objective, accurate and straight to the point. Factors to identify when planning an energy management project include the availability of in-house expertise and the need for outside contractor expertise.

As with all successful projects, you will need management commitment, employee involvement, and a collection of all pertinent information (including Return on Investment calculations). You must also validate and track project results. Additional guidelines to follow:

Establish an energy policy with specific goals and objectives.  
Identify an individual or team within your organization to take responsibility for energy management.  
Monitor each building's energy use.  
Perform an energy audit in all buildings to identify energy-inefficient equipment.  
Evaluate operating practices.  
Identify projects to save energy.

There is a tremendous amount of useful information available on the internet to help you identify potential energy savings and stay current with the newest technologies available in today's marketplace. A very good example of the available information online is an energy efficient calculating guideline provided by the local utility company. Be careful when estimating for a rebate, as utility company rebates have specific parameters, including time and dollar limitations. Before beginning a project, contact your local utility company. They will answer your questions on rebates and provide practical information on cost effective and energy efficient technologies for commercial and industrial buildings.

Here are just a few web sites that you should check out:

Alliant Energy - [www.alliantenergy.com](http://www.alliantenergy.com)  
Automated Buildings - [www.automatedbuildings.com](http://www.automatedbuildings.com)  
Energy and Power Management - [www.energyusernews.com](http://www.energyusernews.com)  
Department of Energy - [www.eere/energy/.gov](http://www.eere/energy/.gov)

### **No Cost & Low Cost Strategies**

The following are just a few of the energy improvements and maintenance operation practices utilized by the North Iowa Area Community College. Our approach has been to identify each energy saving opportunity and prioritize those projects by a measurable benefit to the College. All of these practices have made a positive impact on our operating budget.

1. Maintenance - Identify every system component that can be linked to a possible point of energy loss. Increase inspections on those points and make sure components are operating properly (e.g. valves, actuators, thermostats, steam traps, air compressors, boilers, etc.). Include the entire building envelope (e.g. windows, doors, walls, roofs, etc.).
2. Thermostat Conservation - Set occupied room thermostats to 68 degrees during the winter and 78 degrees during the summer. Hallways, bathrooms, storage areas, and unoccupied rooms are areas that can be targeted for even greater savings.
3. Lighting – Turn off internal building lighting during unoccupied times, replace incandescent lamps with fluorescent or LED lamps, install occupancy room sensors, and retrofit existing fluorescent lighting to electronic ballasts with T8 or T-5 Lamps.

4. Night Setback - Reduce the temperature in all buildings during unoccupied times.
5. Duty Cycling - Utilize a duty cycle program to conserve energy by shutting down a system for a portion of its normal operating period.
6. Water Consumption - Install reduced volume shower heads and install reduced volume flush valves.
7. Reduction of Ventilation Air - Use carbon dioxide sensors to control outside air intake, which means less cooling, heating, dehumidification, and fan motor speed.
8. Boiler Efficiency - Maintain boiler efficiency at 82 % or greater, upgrade all boiler controls to solid state controllers for maximum efficiency, closely monitor water chemistry electronically in order to maintain maximum efficiencies, and minimize tube corrosion and scaling conditions.

For North Iowa Area Community College, there are many compelling reasons to be actively searching for new energy saving opportunities, including environmental stewardship, economic stewardship, and mission support. By implementing energy-efficient improvements and practices, organizations can reduce energy bills while creating comfortable and healthy environments. A well designed and implemented energy management program can contribute to the success of your institutions.