

Managing in Tough Economic Times
Saving Energy Saves Money
Jim Giebel

The focus on sustainability and “green” practices is crucial for the future of our planet. As an added benefit, many green initiatives can also save your city money. In these times, that’s not just nice—that’s necessary.

Energy is one of the largest expenditures for city governments, so it’s more important than ever to make sure your city’s energy use is as efficient as possible. It’s good for the environment as well as for your city’s budget.

City buildings, for example, use—and often waste—a ton of energy. But there are many low- and no-cost energy conservation strategies cities can employ to combat this waste. Many of these are well-known practices that are easy to implement, so it’s important that you evaluate your city’s energy use to make sure you are taking advantage of these simple techniques.

Monitor your buildings

The first step in your energy evaluation is to establish a baseline for all of your city buildings. Start by collecting two years’ worth of billing data for all of the gas and electric meters of each building. This will give you an average cost and help you measure the success of your energy-saving initiatives.

One way to help you track your energy use and cost is to make sure your city is in compliance with the state requirements of the Minnesota “Buildings, Benchmarking and Beyond” initiative. Under this program, government entities must submit their electric and natural gas energy usage numbers for all public buildings. The purpose is to identify inefficient energy use in public buildings.

If your city has not submitted this data, you should do so as soon as possible as the deadline has already past. Submitting this information is required by the state, and can actually be quite helpful to cities. The state has contracted with the Weidt Group to analyze the data for comparison, so individual cities can see where they stand on energy use. The Weidt Group is also providing pie charts, graphs, comparisons by type of building (fire, police, libraries), and other free tools that will aid in your tracking of energy.

The Environmental Protection Agency Energy Star program also offers free tools to help you track the energy use of your buildings. Learn about them at www.energystar.gov (click on “Buildings & Plants”).

Temperature

Making sure your thermostat is set at the optimal temperature is one of the easiest, no-cost strategies for reducing energy and saving money. This may sound simple, but too often, thermostats are set at the same temperature whether the building is in use or not.

Suggested heating temperature range is between 66 and 70 degrees when the building is in use, and 58 to 60 degrees when unoccupied. For air conditioning, the suggested temperature range is 76 to 80 degrees at all times. Temperatures can be automatically adjusted at specific times with an energy management system or a simplistic setback thermostat. It is estimated that for every degree adjustment in heating/cooling, a savings of 1 percent to 2 percent can be expected.

Lighting

For most organizations, lighting consumes more than 30 percent of total energy usage. This is an area where you have the opportunity to make a major impact.

One easy way to save energy is to make use of the least expensive form of light in buildings—sunlight—otherwise known as daylighting. Daylighting, in its simplest form, is simply taking advantage of any indirect sunlight that comes into your buildings.

Open shades during the day, especially during the winter months, to permit as much natural sunlight in as possible. This may allow you to turn off some lights near the windows. And there is an added benefit: tests have shown letting more sunlight into the office results in higher worker productivity.

The type of lighting in your buildings will also affect your energy bill. For instance, incandescent lights are only about 10 percent efficient as light, with the other 90 percent given off as heat. They should be replaced immediately with compact fluorescent lights (CFLs) for immediate energy savings. Don't wait until they burn out—they are costing you money now.

Fluorescent lights are the most common type of lighting in buildings today. Most T-12 style lamps are gone. If yours are not, replace them as soon as possible as they are huge energy wasters.

The most common replacement for the T-12 is the T-8 lamp. These have been around for years and are much more efficient than T-12 lamps. Originally, the majority of these lamps were 32 watts. They are now available in both 28 and 25 watts to further reduce energy.

The Super T-8 lamp provides as much light as a standard T-8 lamp but uses 15 percent less energy. Recent enhancement and development has now led to the use of T-5 lamps. Each upgrade permits using lower wattage energy-saving lamps while producing about as much light as the older 32 watt T-8 lamp. By using lower-watt lamps in a large number of light fixtures, you can drastically reduce your energy and cost.

Light-emitting diode (LED) lights are becoming more common, and the technology is evolving. In St. Paul, we have found them to be appropriate in some settings, such as traffic lights and exit signs. But because of the high cost, they are not being used much for everyday lighting.

One area where it is starting to make sense to consider LED fixtures is in streetlights. The cost of LED streetlight lamps has gone down from about \$500 to about \$300, and each lamp lasts about 50,000 hours (10 to 12 years). This will definitely result in savings if your city currently uses the

common high-pressure sodium light bulb, which costs less than \$100 but lasts only about 10,000 hours (three to five years).

Energy costs are also reduced: the LED light produces similar light quality and levels using half the wattage of the traditional fixture. The LED fixture can also be installed as a full cutoff “dark sky-friendly” fixture. This forces the light down to the street to reduce light pollution and “sky glow.”

LED streetlights are starting to get the attention of energy-conscious cities. The City of Los Angeles, for example, recently began a major project to retrofit 140,000 of its current streetlight fixtures with LED lights over the next five years. Stay tuned as this revolutionary technology becomes the norm.

Short payback light strategies

There are also various lighting strategies that result in short payback periods, including:

- **Partial lighting schemes.** A/B lighting and inboard/outboard schemes allow you to turn on a portion of the available lighting with one switch while a second switch turns on the rest of the lights. This way, you don't have to use all the lights if you don't need them. This can permit energy savings of up to 66 percent, depending on the scheme and usage.
- **Delamping.** Work areas are often overlit. To remedy this situation, a “delamping” process can help solve the problem by reducing the number of lights in a fixture. This is easily accomplished by turning lamps so they are no longer operational and leaving them in place so they do not need to be stored.
- **Automation.** Several devices are available to help you automatically turn out the lights when the room is empty. Motion sensors turn on the lights when there is movement and turn off the lights when no motion is detected for a certain period of time. These work well in places like bathrooms and conference rooms. Photo sensors can be used to turn off lights when there is sufficient daylighting available. These are inexpensive to purchase and install, and result in quick paybacks.

As you consider lighting retrofits, keep in mind that rebates and free or inexpensive lighting audits are available for some projects. Almost all utility companies and electric cooperatives in Minnesota offer lighting rebates. In addition, companies such as the Center for Energy and Environment (CEE), have a third-party business relationship with utility companies where their company will actually conduct a lighting audit. In the case of CEE, it has a relationship with Xcel Energy whereby CEE will perform a no-cost audit anywhere in Xcel's service territory.

Computers

Myth or Fact: Screen savers save energy? This is a myth. Screen savers use as much energy as normal computer use. The best way to save energy with computers is to turn off your monitor whenever you leave your desk for more than five minutes. You will not wear out the switch, as some believe. The next best option is to have the IT department set sleep modes that will take effect after 15 minutes of non-use. The monitor uses approximately 70 percent of the power consumption of your system.

Newer models of related equipment, such as copiers and printers, have similar energy-saving modes as well. It is important to make sure you are taking advantage of and implementing all of these various power-reduction modes. With these modes, you can save energy during the day as well as during overnight hours and weekends, when this equipment is too often left operating.

Although many other energy-saving techniques exist, the three areas addressed here offer options you can implement inexpensively, and you'll see a return on your investment within a reasonable time frame. These ideas are a good starting point—later, you can incorporate alternative energy sources such as wind turbines and solar electric systems!

Cities understand that energy-saving, sustainable practices not only reduce costs and save taxpayer dollars but also help the environment by reducing greenhouse gases. In other words, by becoming energy efficient you are becoming the model for the community, which is good environmental and social stewardship.

Continue the conversation at the LMC Annual Conference

What energy-saving ideas has your city implemented? Cities will have a great opportunity for sharing ideas at the League of Minnesota Cities (LMC) 2009 Annual Conference and Marketplace June 24-26 in St. Paul. You can learn more about energy-saving strategies as well as a variety of other important topics. For more information and to register for the conference, visit www.lmc.org/page/1/annual-conference09.jsp.

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