



## *Energy Efficiency and Conservation*

Building a brand-new renewable energy power source in your community has a lot of appeal. Doesn't everyone want to have the latest and cleanest power plant to supply their power and stimulate the local economy? New renewable energy sources, such as the wind turbines erected all over Minnesota, *do* get a lot of attention. However, there is a lot less glamorous way to "produce" energy that is cheaper and smarter than building a new plant. This great, unsung hero is energy efficiency—consuming less energy by using it efficiently. Because energy efficiency reduces energy bills, it's also dollars smart. Energy efficiency technologies adopted since the shock of the 1973-74 Arab oil embargo, have saved the U.S. \$150 to \$200 billion annually in energy costs.<sup>1</sup>

### **What is the difference between energy efficiency and energy**

**conservation?** Very simply, energy conservation is changing your behavior in order to save energy (and money). An example is turning off the lights. Energy efficiency means installing appliances, equipment or lighting that use less energy. An example is replacing an incandescent light bulb with an energy-efficient compact fluorescent lamp (CFL), which uses at least 66% less energy for the same lighting level. Conservation measures are no-cost, and efficiency measures can be low-cost or can require a significant investment (which is often cost-effective when you consider the reduced energy bills). Both energy conservation and efficiency measures help you reduce energy use, energy bills, air pollution and greenhouse gas emissions.<sup>2</sup>

**How does building orientation affect energy efficiency?** The orientation of a home can increase or decrease the energy efficiency of a home. The best way to orient a home is north-south, with adequate overhangs on the south facing windows to prevent the sun's rays from penetrating the house during the summer months. Low-E glass on all the windows also prevents undue overheating of the home. However, a north-south orientation will allow for solar warming in the winter months when the sun is lower on the horizon and solar heating of the home is preferable. Homes that are oriented east-west do not promote energy efficiency since solar warming cannot take place in the winter and unwanted heat will enter the home through the west facing windows during the summer.

<sup>1</sup> Pawlisch, Melissa, Carl Nelson, Lola Schoenrich. 2003. *Designing A Clean Energy Future: A Resource Manual*. P. 15. Retrieved on February 9<sup>th</sup>, 2005, from: [www.cleanenergyresourceteams.org](http://www.cleanenergyresourceteams.org).

<sup>2</sup> This question comes from California's Flex Your Power Frequently Asked Questions link. Retrieved on February 9<sup>th</sup>, 2005, from <http://www.fypower.org/faq.html>.

**What is a hot water heater blanket?** A hot water heater blanket can be purchased at hardware or home supply store. It is typically made of fiberglass adhered to a plastic sheet. The blanket is wrapped around a hot water heater and prevents energy from escaping through the sides of the tank. This increases the efficiency of the hot water heater. Use of a hot water heater blanket is often one of the most cost-effective means of increasing energy efficiency in a home.<sup>3</sup>

**Can I really save energy and money on my electric bill with compact florescent light bulbs?** Yes. Compare a 15 watt compact fluorescent light with a 60 watt incandescent bulb. A compact florescent bulb costs \$17.00 or less and lasts for 10,000 hrs. A regular incandescent bulb costs \$2.50 and last for about 1,000 hrs. You would have to replace the regular incandescent bulb 10 times at a cost of 25.00 to equal a compact florescent light. The savings here would be \$8. The energy savings between the two is about \$1.50 a month. A compact florescent light costs .50 cents a month and a regular incandescent bulb costs about \$2.00 a month (with normal use). By using a compact fluorescent light, the savings is \$30.50 over the life of the bulb for this example.<sup>4</sup>

**What else can I do?** Use a programmable thermostat that can automatically adjust the temperature of your home when you are away. Ensure that your whole system (i.e., furnace, heat pump, air conditioner, and heating and cooling) is energy efficient. Leaky ducts can decrease the overall energy efficiency of your heating and cooling system by as much as 20%. Duct sealing increases efficiency and lowers your utility bills. Upgrade your refrigerator if it is 10 years old or older. Refrigerators use more energy than any other appliance in your home, but an ENERGY STAR qualified refrigerator uses about half the energy of a 10-year old conventional model.<sup>5</sup>

### **Links:**

Energy Star: <http://www.energystar.gov/>.

US Department of Energy's Building Technologies Program:  
<http://www.eere.energy.gov/buildings/>.

Leadership in Energy & Environmental Design: [http://www.usgbc.org/leed/leed\\_main.asp](http://www.usgbc.org/leed/leed_main.asp).

Energy & Environmental Building Association: <http://www.eeba.org/>.

Rebuild America's Minnesota Partnership:

<http://www.rebuild.org/partnerships/PartnershipByStateDisplay.asp?state=MN>.

American Council For An Energy-Efficient Economy: <http://www.aceee.org/consumerguide/>.

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<sup>3</sup> The previous two questions come from the E-Star Frequently Asked Questions link. Retrieved on February 9<sup>th</sup>, 2005, from: <http://www.e-star.com/faq.html>.

<sup>4</sup> This question comes from the Full Spectrum Lighting Frequently Asked Questions link. Retrieved on February 9<sup>th</sup>, 2005, from: [http://www.fullspectrumlighting.com/compact\\_fluorescent\\_faqs.shtml](http://www.fullspectrumlighting.com/compact_fluorescent_faqs.shtml).

<sup>5</sup> This question comes from the Energy Star website, "home solutions" section. Retrieved on February 11<sup>th</sup>, 2005 from: [http://www.energystar.gov/index.cfm?c=home\\_solutions.hm\\_improvement\\_highenergy](http://www.energystar.gov/index.cfm?c=home_solutions.hm_improvement_highenergy).