

## **A Guide to Making Energy-Smart Purchases**

**Summary: This fact sheet will provide you with an overview on buying energy-efficient products for your home, such as appliances and windows.**

Though energy use varies among homes, there are many ways to lower your energy bills.

Being more energy efficient can be as simple and inexpensive as buying and installing caulk or as complicated and expensive as building a state-of-the-art, energy-efficient house. However, whatever you do to reduce energy costs will usually require the purchase of goods or services.

Investments in products or systems designed to save energy can provide a return through future savings from lower energy bills. They also reduce the impact of rising fuel prices and usually help improve the environment. However, poor choices of such products or systems can be disappointing and aggravating.

### **Knowing Your Needs**



An energy audit is one of the best ways to determine the most cost-effective measures for reducing energy bills. Energy audits can locate areas where energy is wasted and can determine the efficiency of your heating and cooling systems. Energy audits vary in complexity. You can perform a simple audit by examining the home for obvious leaks or ensuring that appliances work efficiently.

More thorough audits can be conducted by "energy auditors" who usually work in teams using special equipment such as infrared cameras, and surface thermometers. This equipment allows them to find inefficiencies that a visual inspection could not detect. Energy auditors also analyze previous energy bills and implement some energy efficiency measures at the time of the audit.

### **Determining Your Priorities**



Results from the energy audit can direct you to the changes that would be most appropriate to improve the energy efficiency, or "tightness," of your home. Before you purchase an energy-related product or system, though, you should answer some important questions.

What are your budgetary limits? Which areas are causing your greatest energy

losses? How long can you wait for the investment to pay for itself in energy savings? How much time and money is the customer willing to spend on maintenance and repair? Are you investing solely to save on energy bills or are other factors also important?



Many options that improve energy efficiency are available. Although installing caulk and insulation may not be as exciting or impressive as a ground-source heat pump, such energy efficiency measures are very often cost effective. Indeed, if you decide to install a heating or cooling system, you should first ensure that your home is

properly weatherized. Using energy efficiently reduces demands for heating, cooling, and electricity, thereby allowing a smaller, less expensive system to be used.

Because of the high percentage of your energy bill that goes toward conditioning the air in your home, detecting heat losses and gains is a great place to start when deciding what measures may improve the energy efficiency of your home. Leaky windows and doors, and walls, and cracks and holes in the walls and ceiling are all areas where heat can escape and enter. Heat can also escape through light fixtures and switches, electrical outlets, and leaky ducts.

Appliances and equipment can also have a tremendous effect on your energy costs. Hot water heaters, stoves, refrigerators, dishwashers, and clothes dryers can contribute to excessively high energy bills when they operate inefficiently. Poorly sized and inefficient heating and cooling systems can lead to high costs for space conditioning.

When you decide to implement energy efficiency measures, you can determine the most appropriate product or system by investigating the options. The energy efficiency projects addressed here are divided into two categories—weatherization projects and energy-efficient appliances.

### **Energy-Efficient Appliances**

The energy efficiency of similar appliances can vary significantly. It is usually more cost effective to purchase appliances with high efficiencies. Determining and comparing the energy efficiency of different models is usually easy. A label or energy-use information in the product literature is required for refrigerators, refrigerator-freezers, freezers, water heaters, washing machines, dishwashers, room and central air conditioners, heat pumps, and fluorescent lamp ballasts.

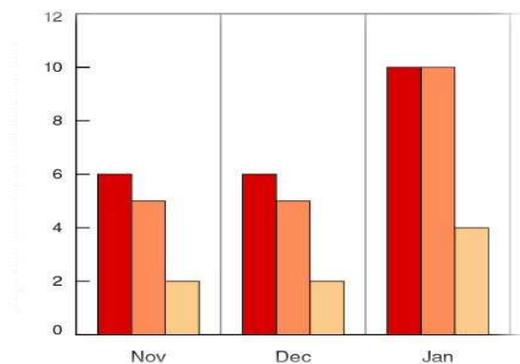


You can also maximize the efficiency of appliances you already own through regular maintenance and tune-ups and system upgrades. Examples of some things that you can do are:

- Check air filters in heating and cooling systems monthly during the seasons they are in use and clean and replace them as necessary.
- Clean air vents regularly and keeps them unrestricted by furniture, carpets, or drapes.
- Follow prescribed maintenance (e.g., maintaining certain water levels in steam heat systems).
- Install an insulating jacket on your hot water heater, insulate hot water pipes, and lower the water heater temperature.
- Clean refrigerator coils yearly and maintain internal temperatures between 36 degrees F (2.2 degrees C) and 38 degrees F (33 degrees C) for the refrigerator compartment and between 0 degrees F (17.8 degrees C) and 5 degrees F (15.0 degrees C) for the freezer compartment.
- Move the refrigerator if it is currently located near the stove or dishwasher.
- Regularly defrost refrigerators that do not have a completely automatic defrost capability to eliminate ice build-up on interior coils.
- Clean dryer filters after each use or as necessary.

Sometimes independent companies provide this service as well. For professional service for other home appliances, you should contact the business where the appliance was purchased.

### **Making Good Investments**



Most consumers are looking for the greatest return for the least investment. This does not necessarily mean, though, that you should buy the least expensive product or system on the market. In fact, spending a little more money initially for an energy-efficient product or system (as opposed to spending less and sacrificing energy efficiency) is often more economical in the long run because your investment will pay for itself in energy savings.

Generally, there are two ways to analyze the costs of energy efficiency investments: simple payback period, which is the amount of time required for the investment to pay for itself in energy savings; and full life-cycle cost, which is the total of all costs and benefits associated with an investment during its estimated lifetime.

You can obtain an estimate of the simple payback period by dividing the total cost of the product by the yearly energy savings. For example, an energy-efficient dryer that costs \$500 and saves \$100 per year in energy costs has a simple payback period of 5 years.

Computing life-cycle costs is more difficult. Life-cycle costing is a method of economic evaluation in which all values are expressed as present dollars. This evaluation method sums the discounted investment costs (less salvage value); operation and maintenance (non-fuel) and repair costs; replacement costs; and energy costs of an appliance or building system.

Before making your decision, examine your budget, the expected payback periods, and estimated lives of different alternatives. Products or systems with payback periods that approach or exceed their projected life are usually not worthwhile. Compare the life-cycle costs of similar products or systems. These include installation (if any), operation, and maintenance costs.