NO-COST WAYS TO SAVE ENERGY & MONEY

- Turn off everything not in use: lights, TVs, computers, etc.
- Check the furnace or air conditioner (AC) filter each month, and clean or replace it as needed. Dirty filters block air flow through your heating and cooling systems, increasing your energy bill and shortening the equipment's life.
- During hot months, keep window coverings closed on the south, east, and west windows. In winter, let the sun in.
- Glass fireplace doors help stop heat from being lost up the chimney. Also, close the fireplace damper when not in use.
- Activate "sleep" features on computers and office equipment that power down when not in use for a while. Turn off equipment during longer periods of non-use to cut energy costs and improve longevity.
- When cooking, keep the lids on pots. Better yet, use a microwave oven instead.
- Dress appropriately for the weather, and set your thermostat to the lowest possible comfortable setting. On winter nights, put an extra blanket on the bed and turn down your thermostat more.
- In summer, use fans whenever possible instead of AC, and ventilate at night this way when practical. Using fans to supplement AC allows you to raise the thermostat temperature, using less energy. Fans cost less to use than AC.
- About 15 percent of an average home energy bill goes to heating water. To save hot water, take five-minute showers instead of baths. Do only full loads when using the clothes washer or dishwasher.
- Switch to cold water washing of laundry in top-loading, energy-inefficient washing machines to save energy and up to $63 a year—detergents formulated for cold water get clothes just as clean.
- Lower the temperature on your water heater. It should be set at "warm," so that a thermometer held under running water reads no more than 120 degrees.
- Only heat or cool the rooms you need—close vents and doors of unused rooms.
- Install low-flow showerheads and sink aerators to reduce hot water use.
- Seal and weatherstrip your windows and doors to ensure that you're not wasting energy on heat or air conditioning that escapes through leaks to the outdoors.
- A water tank insulation wrap costs about $20 and helps hold the heat inside. Add pre-cut pipe insulation to exposed pipes going into your water heater—it is cheap and easy to install. If you're starting with an uninsulated tank, the energy savings should pay for the improvements in just a few months.

- Duct tape works well on lots of things, but it often fails when used on ductwork! Use mastic (a gooey substance applied with a paintbrush) to seal all exposed ductwork joints in areas such as the attic, crawlspace, or basement. Insulate ducts to improve your heating system's efficiency and your own comfort.

- Storm windows can reduce heat lost by single-paned windows by 25–50 percent during the winter. As an alternative, you can improve your windows temporarily with plastic sheeting installed on the inside.

- When buying new products, look for the ENERGY STAR® label, found on more than 40 different products such as TVs, furnaces, cell phones, refrigerators, air conditioners and more.

- Incandescent light bulbs are outdated; 95 percent of the energy used goes to heating the bulb, adding unwanted heat to your home in the summer. Replace your five most used light bulbs with ENERGY STAR compact fluorescent bulbs to save $60 each year in energy costs. These light bulbs use two-thirds less energy and last up to 10 times longer.

- Use dimmers, timers, and motion detectors on indoor and outdoor lighting.

Consider safer, more efficient ENERGY STAR torchiere lamps rather than halogen torchieres, which can cause fires. Halogen bulbs are expensive to use.

- **WEATHERIZE & INSULATE**
- Save up to 20 percent of your heating and cooling costs.

Warm air leaking into your home during the summer and out of your home during the winter wastes money. A handy homeowner can seal up holes to the outside by weatherstripping doors and sealing windows and other gaps along the home's foundation. A combination of air sealing and adding insulation to attics, basements, and crawlspaces provides tremendous energy savings and increased comfort.

The easiest and most cost-effective way to insulate your home is to add insulation in the attic. If you have less than 6 or 7 inches, you can probably benefit by adding more. Most U.S. homes should have between R-38 and R-49 attic insulation. In order to achieve this, many homeowners should add between R-19 to R-30 insulation (about 6 to 10 inches).

Other effective places to add insulation include unfinished basement walls and crawlspaces. Insulating walls can be more complex, but it can be worthwhile to do if you have little or no insulation now. Check with a contractor for advice.

Consider the ENERGY STAR® Home Sealing Program—the government's information for sealing your home: www.energystar.gov/homesealing

- **IMPROVE YOUR APPLIANCES & ELECTRONICS**

Appliances account for about 20 percent of household energy use.

Appliances and electronics really add up on your energy bill. When it is time to replace, remember these items have two price tags: purchase price and lifetime energy cost. When shopping for new appliances (refrigerator, dishwasher, etc.) and electronics (TV, computer, etc.), demand the ENERGY STAR label. ENERGY STAR is the government's rating program that shows you which items are more efficient than typical models. ENERGY STAR items will save you money over the product's useful life.

- **IMPROVE YOUR WINDOWS**

Efficient windows can lower your heating and cooling bills up to 30 percent.

If your home has only single pane windows, consider replacing them with low-e coated or ENERGY STAR windows. Alternatively, storm windows can reduce your winter heat loss by 25–50 percent.

- **IMPROVE YOUR MECHANICAL SYSTEMS**

Up to half of your energy bill goes just for heating and cooling.
Turn your heating or cooling down every night and whenever you leave home. Better yet—install an ENERGY STAR programmable thermostat and save about $100 each year; it adjusts the temperature automatically for you.

- When it's time to replace your hot water tank, buy the most efficient one possible. Consider a tankless, on-demand system (these won't work for everyone, so talk to your installer).

- An ENERGY STAR qualified furnace, when properly sized and installed, along with sealed ducts and a programmable thermostat, can save up to 20 percent on heating bills.

- When buying a new AC unit, look for a SEER (Seasonal Energy Efficiency Rating) of 13 or higher on central systems and the ENERGY STAR label on room units.
  Adding area heaters to warm just the occupied rooms in your home will enable you to keep the rest of your home at cooler, more economical temperatures.

- **LANDSCAPE**

  Save $100-$250 each year.
  Trees that lose their leaves in the fall give protection from the summer sun and permit winter sunlight to reach and warm your home. Plant trees on the south, east, and/or west sides of your home. Be sure to shade the AC unit. Create a windbreak with evergreen trees and shrubs to stop chilling winds.

TAX CREDIT

In order to be eligible for the tax credit, heating and cooling equipment must meet specified measures of energy efficiency:

- **Central air conditioners** must be in the highest efficiency tier set by an organization called the Consortium for Energy Efficiency for 2006 – seasonal energy efficiency ratio (SEER) of at least 15 *and* an energy efficiency ratio (EER) of at least 12.5 for most air conditioners. This is about 15 percent more efficient than the federal standard that went into effect in January 2006. Individuals can search for qualifying products on the, Consortium for Energy Efficiency's Web site.
- **Electric heat pumps** must be 15 SEER and 13 EER and must have a heating seasonal performance factor (HSPF) of at least 9.
- **Geothermal heat pumps** must meet current ENERGY STAR criteria – for a closed-loop system, 14.1 EER and a coefficient of performance (COP) of at least 3.3. For an open-loop system, the criteria are 16.2 EER and 3.6 COP. For a direct expansion system, 15 EER and 3.5 COP. In addition the geothermal heat pumps must include a desuperheater, which helps heat water, or an integrated water heating system.
- **Natural gas, propane, or oil water heaters** must have an energy factor (EF) of at least 0.80. This is about 20 percent more efficient than the current federal standard. Only some tankless water heaters currently reach this efficiency level.
- **Electric heat pump water heaters** must have an EF of at least 2.0. This is more than twice as efficient as the current federal standard. There is no credit for other kinds of electric water heaters.
- **Natural gas, propane, or oil furnaces and boilers** must have at least a 95 percent annual fuel utilization efficiency (AFUE) to qualify for the $150 credit. To qualify for the $50 tax credit, the furnace air-circulating fan must use no more than 2 percent of the total annual energy use of the furnace.

4. Home Energy-Efficiency Improvement

You can get a one-time income tax credit of up to $500 in total for installing efficient new windows, insulation, doors, roofs, and heating and cooling equipment in your home.

Who gets it? Individuals who install specific energy-efficient home improvements.

What energy-efficient home improvements are eligible? The overall $500 cap can be reached in several ways with the purchase and installation of energy-efficient products:

- **Exterior windows:** 10 percent of the total cost, up to $200. Includes skylights and storm windows.
- **Insulation, exterior doors, or pigmented metal roofs:** 10 percent of the cost of the product (but not the installation), up to $500. Includes seals to limit air infiltration, such as caulk, weather stripping, and foam sealants, as well as storm doors.
- **Central air conditioner, heat pump, or water heater:** up to $300 towards the full purchase price, including installation costs.
- **Furnace or boiler:** up to $150 towards the full purchase price, and/or $50 for an efficient air-circulating fan in a furnace, including installation cost. Section 6.4 of this document contains the detailed criteria for heating and cooling equipment.

In addition, to be eligible for the federal tax credits:

- **Windows, doors, and insulation** must meet the requirements for your region of the 2001 or 2004 International Energy Conservation Code, a model energy code for buildings. All ENERGY STAR windows qualify.
- **Metal roofs** must have pigmented coatings that meet ENERGY STAR requirements.
- **Heating and cooling equipment** must meet stringent efficiency requirements – not even all ENERGY STAR products will qualify. Section 6.4 of this document contains the detailed criteria for heating and cooling equipment.

In addition, windows, doors, insulation, and roofs must be expected to last at least five years (a two-year warranty is sufficient to demonstrate this).

Manufacturers can certify (in packaging or on the company's web site) which of their products qualify for the tax credit. Retailers, contractors, and manufacturers should be able to help you determine what levels of insulation and what other products qualify.

All the improvements must be installed in or on the taxpayer's principal residence in the United States. Condo and co-op improvements are apportioned to the owners. The credit cannot be taken against the Alternative Minimum Tax (AMT).

When are they available? The home improvement tax credits apply for improvements "placed in service" from January 1, 2006, through December 31, 2007. They are not available in 2005. The IRS defines "placed in service" as when the products or materials are ready and available for use – this would generally refer to the installation, not the purchase.

What do I need to do to get the tax credit? You will need to file IRS Form 5695 with your taxes. In addition, you will need to keep at least receipts proving that you purchased the improvements and a copy of the manufacturer's certification (or the ENERGY STAR label for windows). Accountants and tax advisors should also be able to provide more guidance.

- ***NEW:*** *IRS interim guidance for claiming home energy efficiency tax credits*

2. Consumer Tax Credit Information

Details on the tax credits for hybrid vehicles and for home improvements are located in Section 3 and Section 4 of this document. In addition, there is a consumer tax credit for solar energy and fuel cells (see Section 5).

The tax credits took effect in January 2006, and most will only be available in 2006 and 2007, unless Congress extends them.

Here is how much you could save on your taxes if you took advantage of some of these tax credits. But remember that your energy savings each year may be greater than the one-time tax savings:

Selected Tax Credits

Purchase	Tax savings	Notes
Hybrid car or SUV	$650 to $3,150	Credit depends on fuel economy and weight.
Central air conditioner or heat pump	$300*	Only some Energy Star products qualify.
Furnace or boiler	$150*	Only some Energy Star products qualify.
Windows	Up to $200*	All Energy Star windows qualify.
Insulation and sealing	Up to $500*	Must meet model building code as installed.

** Maximum of $500 total for home improvements.*

In some areas of the country, consumers also will be eligible for utility or state rebates or state tax incentives for the same homes, vehicles, and equipment. See our state policy index or the DSIRE database of state incentives for more information on state incentives, or contact your state energy office or local utility for more information.

To find energy-efficient products in your area, check out the shopping area of the Alliance Web site.

- *IRS fact sheet highlighting tax benefits available to individuals in 2006*.

Tax Credits Available to Businesses

Businesses (and, indirectly, governments and nonprofit groups) also can get the tax credit for purchasing hybrid vehicles. And a tax deduction for efficient commercial buildings is available to businesses as well.

Businesses that sell certain other energy-efficient consumer products (see below) also are eligible for new federal income tax credits in 2006 and 2007. While these credits do not go directly to consumers, they could reduce the cost to consumers of:

- New energy-efficient homes;
- Energy-efficient refrigerators, clothes washers, and dishwashers.

***Note:** Additional tax credit information (for businesses, builders, consumers and more) is available at the Tax Incentives Assistance Project (TIAP) Web site, including the latest information from IRS on the home energy efficiency tax credits.*

- Average annual cost of lighting a home: $130
- Percentage reduction in cost by switching from incandescent to fluorescent lighting: 70
- Percentage of occupied homes nationwide with central air conditioning: 57
- Percentage of occupied homes nationwide with air-conditioner window units: 25

This page gives a quick list of ways to save money on your monthly utility bills while getting the heating and cooling needed for indoor comfort. Below each tip, we listed a general price range plus the impact that action has to lower utility costs. After this, you can go to a page with contact information on local air conditioning and heating companies or to links to more details on these and related topics.

The energy costs of air conditioning and heating your home run between about one-third and one-half of your monthly electricity bill. If you use natural gas, the percentage of your gas utility bill could be even higher during the cold months. While the wording in these tips applies primarily to homeowners, many of the concepts work equally well with HVAC in office buildings or businesses.

When weighing the benefits and costs of more efficient equipment or their pay back period, keep the following points in mind. (1) Fuel costs tend to go up more than down over the long run, and (2) The monthly savings continue after the pay back period ends.

(1) If you have an electronic programmable thermostat, adjust the sensitivity settings so that the air conditioning or heating system turns on and off less frequently. On some thermostats, this setting is in the “advanced” settings mode. The default setting is usually at 2 degrees.

Cost: None
Impact to lower monthly bills: depending on current settings. Modest savings possible year around on both heating and cooling,

(2) If you do not have an electronic programmable thermostat, get one. Assuming your heating and air conditioning systems are connected, this single inexpensive change will bring you more comfort and lower heating and cooling bills the whole year.

Cost: The parts start around $30 and go up to $100 or more per unit. Labor costs vary with location.
Impact to lower monthly bills: Substantial savings year around on heating and cooling

(3) Change air filters in your air conditioning and heating system regularly and per manufacturer’s instructions. If you buy the air filters yourself, make sure they allow the correct air flow for your equipment. Post a piece of paper with your air filter change or cleaning history on the wall where you will see it as a daily reminder.

Cost: Usually less than three dollars per filter on the monthly change variety
Impact to lower monthly bills: Modest to moderate savings year round on both heating and cooling.

(4) Get a tune-up on your air conditioning and heating system(s)
A tune-up for an A/C and heating system consists of an on-site visit to check and adjust the components for optimum performance. Most companies have a multi-point checklist they use which includes items like: checking (or changing) the filters, cleaning the coils, checking the refrigerant levels, operation of the fan, cleaning the drain lines, temperature checks, and more. On the heating side, checking furnace and heat exchanger for leaks would be a primary feature. Tune-ups can be a one time event or, better, part of a yearly maintenance schedule.

Cost: Varies depending on labor costs. Less than $100 dollars in many parts of the country. Note: A tune-up price usually does not include parts, refrigerant, or repairs other than minor ones normally done during HVAC tune-ups.
Impact to lower monthly bills: Modest to moderate savings year round on both heating and cooling. Tune-ups and maintenance also help prevent unexpected major repairs.

(5) Arrange for yearly maintenance on your heating and air conditioning.
A maintenance agreement essentially plans a certain number of tune-ups in a year. A good starting point is a spring visit on the A/C side and a fall visit to get ready for heating season. These will save you money monthly on utility bills and will likely prevent expensive emergency repairs later.

Cost: Usually moderate, but depends on the number of zones, type of system, and more. Yearly agreements sometimes qualify you for discounts on parts and or labor if they become necessary.
Impact to lower monthly bills: Moderate savings year around potentially on both heating and cooling, plus savings on future unexpected repairs.

(6) Have air ducts checked for leaks and sealed. This one simple action affects heating and cooling, providing you more comfort and lower utility bills the year around.

Cost: Usually moderate, but depends on the number of leaks, the size of the system, and access to duct work.
Impact to lower monthly bills: Substantial potential –average over 20% savings on both heating and cooling every month. Savings monthly will depend on the condition of your ducts—they could be higher or lower.

(7) Get a home energy audit through your local utility provider or HVAC contractor
This will show how much you could save by making improvements to your home "envelope" and/or buying a new energy efficient air conditioning and heating system. Consider these two together in a "whole house" approach. Ask if rebates or financial incentives are available in your area.

Cost: Moderate to free for the estimate, depending on offerings from your local utility provider or HVAC contractors.
Impact to lower monthly bills: Moderate to substantial savings year around on both heating and cooling

(8) Get additional insulation, caulking, weather stripping around doors, and solar screens.
These conservation improvements help keep more of the cool or warm air you want inside your house. Often, these improvements can be coordinated with a local utility sponsored program that starts with an energy audit.

Cost: Moderate to substantial, based on the size of your home and the work that is needed. You may be able to offset some of the costs through rebates, low interest loans, and other financial incentives for these through your local utility provider or third parties.
Impact to lower monthly bills: Moderate to substantial savings year around on both heating and cooling bills. This will vary depending on your situation. Ask during your energy audit

(9) Buy a new energy efficient air conditioning and heating system.

Cost: Substantial. Cost will vary depending on many factors, including and layout of your home, efficiency and features of equipment you select and more.
Impact to lower monthly bills: Moderate to substantial savings year around on heating and cooling bills. Ask during your energy audit

(10) Take advantage of financial incentives. Many local utility companies and governmental agencies from local to federal offer incentives for the purchase of more efficient air conditioning and heating equipment and energy conservation measures in homes or buildings. Examples include, rebates, no or low interest loans, IRS tax credits, and off-peak season discounts from manufacturers or your local HVAC contractor.

Costs: Various incentives to save on costs from items 7,8, and 9
Impact to lower monthly bills: Substantial. (1) Discounts or rebates reduce the total amount you pay (if you pay at once) or finance (if you get a loan). (2) No or low interest offers can reduce or eliminate the interest costs on any loans and reduce the amount you pay every month. These benefits are in addition to the monthly savings in utility and repair bills you get with a new HVAC system or energy conservation improvements

Note: To achieve the optimum balance of efficiency in the new air conditioning and heating equipment and energy conservation measures in your home, perform numbers 7,8, 9, and 10 together. Alternatively, you can make a plan during number 7 and do numbers 8 and 9 separately and in the sequence determined by the energy audit.

Return on investment estimates for household energy efficiency improvements						
Months	Modification	ROI	Kwh savings/unit	Cost per kwh	Annual savings	Cost per unit
3	High efficiency showerhead	400%	400	$0.08	$32	$8
13	Fireplace pillow-stops air leakage up chimney	91%	400	$0.08	$32	$35
14	Bathroom faucet aerator	84%	21	$0.08	$1.68	$2
17	Attic insulation (R-0 to R-38)	69%	5.6	$0.08	$0.45	$0.65
23	Compact fluorescent bulb	53%	60	$0.08	$4.80	$9
23	Kitchen faucet aerator	51%	32	$0.08	$2.56	$5
25	Wrap 15' hot and cold water heater pipes	48%	60	$0.08	$4.80	$10
38	Replace incandescent porch light fixture with CFL bulb	32%	160	$0.08	$12.80	$40
43	Attic insulation (average)	28%	2	$0.08	$0.16	$0.57
44	Duct insulation and sealing	27%	12	$0.08	$0.96	$3.50
68	Wall insulation (R-0 to R-25)	18%	2.2	$0.08	$0.18	$1
88	Floor insulation (R-0 to R-13)	14%	1.7	$0.08	$0.14	$1