

Common Ways to Save Energy Home

- The typical U.S. family spends at least \$2,000.00 a year on home utility bills.
- I find it is \$3,000.00 plus.

Lighting

- LEDs improve on compact fluorescent light bulbs in many ways, including longer life, enhanced light quality, and better dimming.
- The downside is the cost – about \$18 - \$35 for a 60 watt replacement LED bulb vs. \$1.25 to \$1.50 for a similar CFL. Even at those prices LEDs will lower your electric bill.

Lighting

- Today's compact fluorescent light bulbs work just as well as incandescent, and are just as safe.
- Look for the ENERGY STAR label to ensure high quality bulbs, and try out different color varieties to find the one you like best ("soft white" most closely mimics the color of an incandescent).
- As for safety, even if a bulb breaks in your house authorities suggest that there is not enough mercury in the bulb to present a substantial health hazard. That being said, efforts should be taken to dispose of CFLs properly.

Lighting

- Turning off lights, even for short periods of time, really saves energy, with little impact on the lifespan of the bulb. Turn off the lights even when you're leaving a room for just a few minutes.

Air Sealing

Plug Air Leaks

- Dropped Ceiling
- Recessed light
- Attic entrance
- Electric wires & box
- Plumbing utilities & penetration
- Water & furnace flues
- All ducts
- Door sashes & frames
- Chimney penetration
- Warm air register
- Window sashes & frames
- Baseboards, covers, interior trim
- Plumbing access panel
- Electrical outlets & switches
- Light fixtures

Air Sealing

- Air infiltrates in and out of your home through every hole, nook, and cranny.
- About one third of this air infiltrates through openings in your ceilings, walls, and floors.

Air Sealing

- Diffusion will move about 1 pint of water through a 100 square foot wall per year if the wall does not have a vapor barrier.
- A ½ inch hole can allow 50 pints of water vapor per year to enter the home.

Weatherization Tips

- First, test your home for air tightness. On a windy day, hold a lit incense stick next to your windows, doors, electrical boxes, plumbing fixtures, electrical outlets, ceiling fixtures, attic hatches, and other locations where there is a possible air path to the outside. If the smoke stream travels horizontally, you have located an air leak that may need caulking, sealing, or weatherstripping.
- Caulk and weather-strip doors and windows that leak air.
- Caulk and seal air leaks where plumbing, ducting, or electrical wiring penetrates through exterior walls, floors, ceilings, and soffits over cabinets.
- Install rubber gaskets behind outlet and switch plates on exterior walls.

Weatherization Tips

- Look for dirty spots in your insulation, which often indicate holes where air leaks into and out of your house. You can seal the holes by stapling sheets of plastic over the holes and caulking the edges of the plastic.

Weatherization Tips

- Install storm windows over single-pane windows.
- Storm windows as much as double the R-value of single-pane windows and they can help reduce drafts, water condensation, and frost formation.
- As a less costly and less permanent alternative, you can use a heavy-duty, clear plastic sheet on a frame or tape clear plastic film to the inside of your window frames during the cold winter months.

WEATHERIZATION TIPS

- When the fireplace is not in use, keep the flue damper tightly closed. A chimney is designed specifically for smoke to escape, so until you close it, warm air escapes – 24 hours a day!
- For new construction, reduce exterior wall leaks by either installing house wrap, taping the joints of exterior sheathing, or comprehensively caulking and sealing the exterior walls.
- Many homes have small air leaks in the foundation, walls, ceilings and roof that let out as much heated air in the winter (and cool air in the summer) as an open window.
- Some air sealing tasks are do-it-yourself friendly such as plugging leaks around windows & doors and electrical outlets and penetrations through attics and basements.

Hot Water Heating

- **Hybrid Water Heater**
- If your electric water heater is near the end of its life switching to a hybrid water heater could lower your water heating bills by \$350.00 per year. They meld a standard water-heater with a heat pump that captures warmth from the air.
- They can lower your bills by 60% compared with an electric water heater.

Hot Water Heating

- Heating hot water accounts for up to 30 percent of the average home's energy budget.
- Gas tankless water heaters, which use high-powered burners to quickly heat water as it runs through a heat exchanger, were 22 percent more energy efficient on average than the gas fired storage tank models. That translates into a savings of around \$70 to \$80 per year based on 2008 national energy costs. But because they cost much more than a storage water heaters, it can take up to 22 years to break even.
- Repair leaks.
- Turn down the temperature of your water heater to the warm setting (120 degrees).

Upgrade your Appliances

- Swapping out a 15 year old refrigerator could lower your annual electric bill by \$60.00.
- A high efficiency top or front loading clothes washer might save another \$130.00
- Refrigerators, clothes washers, and dishwashers on the market today are much more efficient than those available ten or twenty years ago, but there are still significant differences in energy use among models.
- For example, side-by-side refrigerator/freezers generally use more energy than freezer-on-top models. Features such as icemakers also use extra energy.
- Air dry dishes instead of using your dishwasher dry cycle.

Upgrade your Appliances

- Most front-loading clothes washers save significant amounts of energy and water compared to conventional top-loading designs. On the other hand, products like stoves vary relatively little in their inherent efficiency.
- The best way to save energy for your computer is to turn it off when you're not using it. For example unplug chargers for your portable devices when the product is not being used.
- The second best way is to set it to automatically go into "sleep" or "hibernate" mode to save energy. Also, make sure the next computer you purchase has an ENERGY STAR label. Contrary to popular belief, using a screensaver saves no energy.
- Use a power strip. Plug home electronics and office equipment into a power strip with an on/off switch.

Thermostats

- Turn down the thermostat while you're away from the house for the day. If you are out for a good stretch of time (say 8 hours or so), this temperature "set-back" will save more energy than it will take to bring your home back to the desired temperature. (Note: If you have a heat pump, make sure you have a heat pump thermostat that has been properly programmed.)
- For each degree a thermostat is turned down for an 8 hour period, heating costs are trimmed by 1 percent.

Thermostats

- Using a programmable thermostat can help you cut your cooling and heating costs by up to 20 percent but they no longer carry the Energy Star rating.
- The EPA had concerns with programmable thermostats, including difficulties in using them. They found the controls on these devices are sometimes so confusing that one could cause your energy costs to go up.
- The EPA also questioned the lack of differentiation between Energy Star-qualified models and non-qualifying ones; the scant evidence showing that programmable thermostats conserve energy on a consistent, nationwide basis; and the fact that savings ultimately come down to consumer behavior—even the best programmable thermostat won't save energy if you doesn't use it properly.

Heating & Air-Conditioning

- Don't forget the simple maintenance needed to keep your heating and air-conditioning systems running efficiently. Change the air filter regularly (once a month during heating and cooling season) and get a "tune-up" by a contractor **every 2 to 3 years**.

While heating and air-conditioning equipment is much more efficient than it used to be, there are still significant variations in energy use. The most important decision is which contractor to choose, so the equipment will be the right size and installed properly, and the ductwork will be fixed so that it doesn't leak a quarter of the energy you buy (the US average)! Qualified contractors will ask about comfort issues, run a real load calculation program so they won't need to sell oversized equipment, and discuss options with you. Premium equipment offers even better efficiency, and features such as quieter operation and better humidity control.

Heating

- You want to keep heat only in the spaces you heat so keep closet doors closed and close off unused rooms.
- Keep radiators and registers clean.
- Keep furniture away from radiators.
- Pipe insulation.

Air Conditioning

- **What is Comfortable?**
- In looking at how air conditioning costs can be reduced, it helps to understand human comfort. The standard human comfort range for light clothing in the summer is between 72 degrees and 78 degrees and between 35% and 60% relative humidity. The comfort range can be extended to 82 degrees with modest air movement, as might be provided by ceiling fans for example. Often the house can be kept within this range using little or no mechanical air conditioning.

Windows

- Energy-efficient windows save energy, but a window replacement is unlikely to pay for itself in energy savings alone. If you need to replace your windows for other reasons, the premium you'll pay for high performance windows (ENERGY STAR or better) is generally worth the investment. And like so many other major energy efficiency projects, much of the energy savings depends on the quality of the contractor you hire to do the work. Bad installations can not only leak and cause drafts, but can also lead to major moisture damage.

While energy-efficient windows are a step in the right direction, walls always outperform windows. Be careful not to choose oversized windows, and take extra steps to increase the performance of windows, such as shading for western- and southern-facing windows.

Oil Versus Natural Gas - Comparison

139000 BTUs = 1 gallon of oil

102300 BTUs = 1 ccf of gas

139000 X 800 gallons = 111,200,000 BTUs

111,200,000 BTUs / 102300 BTUs = 1087 CCFs

800 gallons X \$3.75 = \$3000.00

1087 CCFs X \$1.50 = \$1630.50