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62 WAYS TO REDUCE YOUR ENERGY COSTS

Your home energy bill is due to many factors; ranging from what type of utilities you use, how you use them, when you use them, who uses them, how many people use them and almost homes can implement a variety of inexpensive measures that will reduce the total bill.

Tip

1-6 2. Efficiency: **Insulation**

7-8 3. Efficiency: **Air Flow Management**

9-19 4. Efficiency: **Cooling**

20-25 5. Efficiency: **Heating**

26-31 6. Efficiency: **Refrigeration**

32-37 7. Efficiency: **Cooking**

38-46 8. Efficiency: **Hot Water**

47-51 9. Efficiency: **Lighting**

52-61 10. Efficiency: **Appliance**

62 1. Professional Home Energy Audit - a home energy audit will identify areas of the home that can provide energy savings. Consists of diagnostic tools; Blower Door Testing, Duct Blaster, IR studies, etc.
Contact SandEnergy or other local authorized professional home energy rating auditor.

The following alphabetically listed sites are suggested for confirming ideas, suggestions, recommendations and additional information and resources

- www.aceee.org
- www.aham.org
- www.ari.org
- www.buildingamerica.gov
- www.buildingsdatabook.eere.energy.gov
- www.doe.gov
- www.dsire.org
- www.eei.gov
- www.eere.energy.gov/consumers/tips/
- www.eere.gov

- www.eia.doe.gov/emeu/recs/contents.html
- www.energysavers.gov
- www.energystar.gov
- www.fueleconomy.gov
- www.gamanet.org
- www.geoexchange.com
- www.hes.pnt.gov/CFLdownlights
- www.homeenergy.org
- www.rmi.org
- www.sandenergy.net

BE AWARE THAT HEAT MOVES TOWARD COLD: IN THE SUMMER HEAT MOVES INWARD AND IN THE WINTER HEAT MOVES OUTWARD.

\$\$\$\$ BOTH COSTS YOU MONEY \$\$\$\$

1. Insulation is provided as part of the building envelope. The "R" Rating is simply a measure of a product's ability to insulate a building against heat and cold. The higher the "R" value, the better level of insulation you have. Attics and ceilings usually have an "R" rating of 22-49 and exterior walls from "R" 11-28. Make your "R" value as high as possible!!
2. Check and update insulation in exterior walls and attic. Insulate ceilings, walls, floors over and around unconditioned crawl spaces.
3. Check for double-glazed or triple-glazed windows to reduce loss of heat. Should be low "E".
4. Add simple storm doors to all exterior entrances
5. Check for air leaks about the doors and windows, which can account for 15-30% loss of heat or cooling. Use weatherstrip and caulk to reduce air leaks.
6. Consider the tax benefits of upgrading to ENERGY STAR windows which affect insulation; Federal tax credit of up to 10% of cost of improvement with a \$ 500 maximum for improving the building envelope. The window tax credit is also 10% with a \$ 200 maximum.
7. The picture below shows the obvious places where air can creep into your living space and cost you money. Use caulk, weatherstripping and plastic covers to reduce such leaks.

Doors
Windows
Outside faucet
Fan Vents
Electrical outlets
Switches
Air Ducts
Fireplaces



Recessed Lights
Dryer outlet
Pet doors
Crawl spaces
Attic hatch/door/access
Plumbing fixtures
Chase
Furnace Flues

Leakage can occur inward or outward depending on where temperature is coolest

8. Fireplace should have well-fitting dampers to allow natural transfer of air.
9. Air conditioners are major energy consumers and it is to your advantage to understand their requirements and behaviors.
10. Window or room air conditioners vary widely in efficiency and one should check the Energy Efficiency Ratio (EER). Minimum acceptable EER is 9.0-10.0. Generally, an EER of 11.0 and higher is excellent. A tax credit is available in 2006 and 2007 if the central air conditioner or heat pump is rated at a SEER of 15 and an EER of 13.
11. Central air conditioners (and Heat Pumps) are rated based on Seasonal Energy Efficiency Ratio (SEER). A SEER of 10 is the lowest acceptable and 14 is considered excellent. A SEER of "14" or higher is considered an Energy Star qualifying unit.
12. Sizing of AC units is very important and an oversized unit not only uses more energy, but they fail to correctly dehumidify correctly.
13. The compressors are generally exterior to the house and it is best if they can be shaded by house or trees and kept clean and clear of shrubbery. A northern exposure is best if possible as there is less sunlight available on the north side.
14. Manage the thermostat with a summer reading as high as possible as comfort will permit. A dramatic saving can be realized with the newer computerized thermostats that can be preset to automatically rise to a higher level when the house is not occupied, and return to acceptable levels prior to returning home. For each degree higher setting, you can realize a reduction in energy cost of 1-2%.



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15. Attics must be ventilated to relieve heat buildup in the summer months. Be sure that vents are working properly. One can also have installed solar attic fans which will quite effectively relieve the heat buildup.
16. Consider when building a house or replacing the roof to choose roofing materials of a lighter shade. Dark roofing materials absorb the sun's radiant heat and it ultimately transfers to the house.
17. Conditions permitting, it is beneficial to open windows and admit air for cooling and reduce the air conditioner running time.
18. Decorative shades, blinds or drapes can shield incoming sunlight and reduce heat transfer.
19. During colder times of year, only run exhaust fans long enough to rid the area of fumes and vapors.
20. A heating system in January of 2006 must meet a new efficiency standard called Heating Seasonal Performance Factor (HSPF) of 7.7 or higher. In 2006-2007, a federal tax credit is available for the purchase of a central heat pump with a SEER of 15 and 13 EER on the cooling and a HSPF of 9.0 on the heating side.
21. An excellent consideration for heating is the Geo-Exchange system which can reduce heating and cooling cost by as much as 30-50 percent. In 2006-2007, a federal tax credit of \$300 is available for an Energy Star ground source heat pump that includes a desuppreheater.
22. Be sure that the positioning of the thermostat is not affected by heat or cold blasts of air.
23. For each thermostat degree beyond 68 degrees, a 3% increase of electrical energy is required. i.e., 72 degrees requires 12% more energy, 73-15% more, etc.
24. check and maintain the equipment as per manufacturer specifications.
25. Check, change and maintain air filters as required. And be sure that the registers for air supply and/or return air are not obstructed.
26. When replacing a refrigerator or freezer, consider your actual requirements and needs as the size of the appliance is directional proportional to electrical requirements. When replacing these appliances, consider only ENERGY STAR labeled products. These products use at least as much as 12% less energy than previous models.
27. An unairconditioned garage is **NOT** a good place to put a refrigerator or freezer as the winter months the refrigerator may fail to work correctly when the temperature goes below 42 degrees. In the summer months, the temperature may well exceed 100 degrees and the appliance must work harder (consume far more energy). A basement, washroom or laundry room is a much better choice.
28. If the unit has compressor coils, it is a good idea to every 3 months or so to clean or vacuum them to remove the dust from the coils so as not to reduce compressor efficiency.
29. Be sure that when closing the doors that the gasket seals correctly or you will absorb heat into the refrigerator and consume more electricity.
30. Refrigerator and freezer models over 15-20 years old will consume 35% or more energy. An ENERGY STAR model will save in excess of 45% over such older models.
31. Remove refrigerator contents quickly and in quantity if possible as constant opening and closing of the door requires that the compressor work harder and longer to replace the displaced cold air.
32. When cooking, pots and pans that are absolutely flat conduct heat much better than curved ones. The heat escapes around the curved surface and requires a longer time to cook and the escaped heat then adds to the environment.
33. Devices that are slow cookers and have tight lids are more energy efficient, generally requiring lower temperatures and shorter cooking periods.
34. Reflector pans beneath stovetop-heating elements serve to reflect heat in a focused fashion. Keep these shiny, bright and clean.
35. Using a microwave, while quite convenient, uses 50% or less energy than conventional ovens.
36. Preheating an oven for 5-8 minutes is generally is all that is necessary and when broiling or roasting no preheating is necessary.
37. Avoid unnecessarily opening the oven to check it contents; heat escapes and must be replaced within the oven and that heat escaped must be removed an dealt with.



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38. Current federal standards for water heaters are with an Energy Factor (EF) of .90 for an electric based 50 gallon unit and an EF of .59 for a gas based 40 gallon unit. Check your unit for the appropriate EF.
39. Consider insulating your water heater with a "water heater blanket."
40. There is a relatively new breed of hot water heater that should be considered for new installation; "tankless" or "instant on" water heaters.
41. In 2006 and 2007, there is a federal tax credit of \$ 150 for buying a high-efficiency gas, oil or propane water. A \$ 300 federal tax credit is also available for purchasing an electric heat pump water heater with an EF of 2.0 or better.
42. A leaky hot water faucet can waste untold gallons of water and the energy that was necessary to produce that hot water is wasted.
43. A shower generally uses about 50% less hot water than a bath.
44. A simple reduction of the temperature setting from 140 degrees to 120 degrees can result in a 10%+ savings in the hot water heating bill. Many recommendations suggest lowering it to 110 degrees.
45. If the house is to be unattended or vacant for an extended period of time; it is beneficial to reduce the temperature of the hot water heater to its lowest level or vacation mode if available.
46. If the hot water heater is located distant to points of use, use pipe insulation to reduce heat loss.
47. Compact Fluorescent Light (CFL) are one of the easiest and best energy savers. They use at least 60+% electricity, they last about 10 times longer (they don't need to be replaced as often), they produce less heat when on. The US Government, Department of Energy (DOE) is promoting a program "Change a Light, Change the World". The premise is that if every American household changed one (1) bulb to a CFL, we could save 5.6 billion kilowatt hours of electricity with a savings of \$ 526,000,000.00 per year.
48. Use local lights with lower wattage for small areas, desk, shops, etc. so that it is not necessary to illuminate a room with a large wattage light source.
49. Place floor, hanging or table lamps in the corner and enjoy the benefit of that light being reflected off of two surfaces, providing more usable light.
50. For exterior lights, use a photoelectric and/or motion detector to turn off light during the day.
51. Consider using dimmers, motion detectors, timers to best maximum required lighting.
52. Dishwashers are subject+C144 to federal guidelines and in 2004 the standard was an Modified Energy Factor (MEF) of 1.04 and in January 2007 that will be increased to an MEF of 1.26.
53. Oversudsing has an adverse effect on washing machine as the washing action is reduced and may require more rinses to fully clean the clothes.
54. Current recommendations for new machines are for front-loading or horizontal axis machines. The DOE has indicated that these units use 30% less water and 50% less energy.
55. Set water selection to cold or warm and rinse water to cold as often as possible and sort the laundry and coordinate your washing schedule to best maximize it full capacity, thus reducing the number of cycles to do the wash.
56. Washers with higher spin speeds can reduce drying time as more water is expressed in a shorter time and consumes less energy.
57. Using a dryer with an automatic moisture sensor will allow you to dry clothes to a preset level and not damage clothes by over drying or over heating.
58. Drying with the dryer at its expected load and not overloaded will maximize energy usage and reduce wrinkling.
59. In washing dishes, make sure that the dishwasher is full, but not overloaded.
60. Soaking or prewashing should only be used when there is burned-on or dried-on foods.
61. The term "phantom load" describes the consumption of electricity when a device or appliance is not on or being used. An example of this might be a DVD or Television that immediately comes on when it is turned on. Other items that might exhibit this phenomena might be power strips, computers, fax machines, printers, etc. A timer placed between the electrical socket and the appliance that is scheduled to turn off when not needed eliminates this phenomena. Typically, at night, when one is asleep, the timer could eliminate the use and wasted electricity.
- 62. Hire professional help to conduct comprehensive diagnostic testing; Blower Door, Duct Blaster, Infrared Thermography, Smoke Analysis. Look for authorized Home Energy Rating Specialists.**