

Managing Winter Energy Bills

North American natural gas production is in decline. The price of oil is rising. The days of cheap energy are gone. Plan now for more energy price increases.

Windows. Warmth always wants to move towards cold. That's why windows are like open holes in your walls. They stop the wind, but they radiate heat to the outdoors. The best solution is insulation over the windows, such as heavy curtains, blankets, or indoor shutters. One inexpensive option is to duct tape 2 or 3 mylar auto sunshades together (depending on the size and shape of the window), and then sandwich them between two blankets. Hang over the inside of the window. Several layers are better than one. You could hide the blankets and sun shades behind regular curtains. If the windows are leaky, use caulk and foam to seal cracks and holes. If the windows don't face south, staple plastic over them, inside and outside. Nail 1 x 2 strips of wood or some other cheap strips of wood, around the edges to better hold the plastic in place. Keep the windows covered whenever there is no light coming through them. If there is no light directly shining through the window, you are losing heat. **Go the extra mile in covering up windows.** This is easy to do and gives more benefit than most people realize. If you have the money, you can install new double pane, argon filled windows, but even if you do this, you will still benefit from interior insulating covers for your windows during the winter.

A Cheap Window Insulation Idea. Cut pieces of rigid board insulation and use them as indoor shutters. Thermax has aluminum foil on one side and some kind of plastic-like film on the other. A 4' x 8' sheet is about \$10 in OKC. Tape several sheets together at the edges with aluminum foil tape. Cut them so they fit snugly inside the window frame, or put magnets on the window frame and your interior shutter and put them over window well. 3/4 inch Thermax is R-5, so four sheets taped together would be R-20, which is as good as most conventional walls. To make them more attractive. . . paint them, encase them in canvas or other cloth slip-covers; or apply contact paper to them. They are lightweight and easy to handle. Keep them away from open flames.

Free heat from the sun. South-facing windows bring free heat from the sun inside your house whenever the sun is shining through them. In the morning, when the sun strikes those windows, open any curtains or shades. You can increase the heat coming through the window by placing a reflector on the ground outside so that the light which hits the ground reflects back up to the window. The reflector should be the same size as a window. So if you have a window that is 28 inches wide and 56 inches tall, cover a sheet of cardboard that size with aluminum foil and during the day use it to reflect more light into your south facing windows. Don't cover south-facing windows with plastic, as that will cut down the amount of sunlight coming through the windows. You can get some free heat in the morning from east-facing windows, and in the afternoon from west facing windows, but put up your interior window curtains, shades, or shutters as soon as the sun stops shining directly through them. Most of your heat will come from your south-facing windows. If you have a south-facing door with a glass storm door over it, that will also collect free heat.

Even MORE ideas for free heat. There are about a gillion different designs for solar air heaters that are easy and inexpensive to build. The best free source of such info is <http://www.builditsolar.com/>.

Bundle up your body! Dress for the season indoors. Wear several loose layers of clothes. Clean clothes keep you warm better than dirty clothes. Don't forget a hat, even when you are indoors and when you go to bed! Put blankets and quilts on sofas and chairs, so people can bundle up while they are sitting around. When you go outside, beware of wind and wet. Keep dry. Wet clothing loses its ability to insulate, and can suck heat right out of you. Stay out of the wind as much as possible.

Heat less of your house. Organize your household so you can live in fewer rooms. Where possible, "zone heat" – heat only the area occupied by people, when the people are there. Keep unused rooms closed and close any heating vents in those rooms. It is easier to keep a room warm when several people are inside it, than when there is only one.

Caulk and Weatherize. Do all the obvious places – windows, doors, but also think about less obvious places. If there is no insulation in your attic, you can do a lot of caulking up there. A good book on this subject is "Insulate and Weatherize" by Taunton Press. The rule of thumb for your attic is – anywhere in the floor of the attic that two pieces of wood come together, lay down a bead of caulk or use some insulating foam. Read the book for more details. It is available at most public libraries. Inside your house, use a burning incense stick to find places where air is infiltrating. When you find a little incoming breeze of cold air, plug up the hole with caulk, foam, insulation, whatever.

Insulate. If you have no insulation, start with your attic. It is easy for amateurs to insulate their attics without using a contractor. Cellulose insulation can be blown into the attic. Most places that sell the insulation also rent the blowers. This website, <http://www.cellulose.org/>, has instructions on how to install cellulose insulation. Before you insulate, however, read the Taunton Press book and do a good job caulking the floor of your attic (which is the ceiling of your inside rooms). Most people will benefit by exceeding the recommended thickness of insulation. In Oklahoma, 9 inches is recommended in the attic, we installed 13 inches. Cellulose insulation can also be blown into wall cavities. You make a hole in the top of the wall cavity (the area between two wall

studs) and fill it, then move to the next. When you're finished you patch the holes. You can generally get 4 inches of insulation in a standard wall. After we filled our exterior walls, we built new walls, 5.5 inches inside of our existing exterior walls, and filled the new walls with insulation, giving us 9" in the walls. My rule of thumb is insulate your walls to whatever depth is recommended for the attic, and then increase the attic insulation by about 30%. Low income home-owners can benefit from government programs to help them insulate and weatherize their houses. A good place to start is ask your city government or energy utility about such programs.

What if I am a renter? Put heavy objects against outside walls, especially book cases and books. Hang layers of quilts and blankets on the inside of your exterior walls. Look for places to rent with lots of south facing windows and ask the landlord about levels of insulation. You may be ahead by moving to a different apartment/house with better insulation & more south facing windows.

Recover Heat. Don't pour any heat down the drain! When you take a shower, put the stopper in the tub. Let the water cool before you drain it. Air dry your freshly-washed clothes inside the house. Don't pour hot cooking water down the drain, let it cool first. These practices will add humidity & heat to the inside of your house that would otherwise go down the drain or out into the cold back yard.

At Night. . . Turn the thermostat down or the heater off and pile on the blankets. Dress warmly for bed in sweat pants and shirt, socks, and maybe even a cap (depending on how cold it will get and how low you set the thermostat)

Floors. If you have bare floors, put down area rugs. You can layer these for even more insulating effect. Area rugs can also be placed on top of carpet to increase the insulating effect.

Food helps you keep warm. Eat good meals with lots of carbohydrates for fuel. Winter is a great time for warming and nourishing soups and casseroles. Drink plenty of fluids.

Hot Water. Use less of it by installing low-flow shower heads and faucet aerators. This can cut your hot water requirements as much as 50%, saving 14,000 gallons of hot water/year/family of 4. Low flow showerheads go for as little as \$10 at a home supply store and they are easy to install yourself. Insulate the hot water pipes. Insulate the hot water tank with a special "jacket" made for the purpose (typically \$10-20 at home supply stores), or wrap it with insulating materials. Do not cover the top or the bottom, the thermostat or the burner compartment of the tank. Lower the temperature on the water heater to 120 degrees or less. Take quick showers, not baths. To make a simple solar heater: get a 5 gallon plastic bucket with a tight fitting lid, and paint it black. Fill it with water, put the lid on tight, and set it in the sunlight for a few hours. Voila, easy and free five gallons of hot water.

Lights. Your grandfather was right: **Turn off the lights when you're not using them.** Compact fluorescent bulbs work in regular light fixtures, last longer and use much less energy. They cost more, but they use 75% less energy than regular bulbs & last for 1000s of hours. Use less electrical lighting during the day when natural light is available. Use more "task lighting" -- smaller lights focused on what you are doing,.

Washing Clothes. Wash clothes in cold water. Wait until you have a full load, don't do small loads. Instead of using the dryer, air dry your clothes. Get some racks to use for indoor clothes drying when its raining or too cold outside.

Dishwasher. The best thing to do with your dishwasher is disconnect it and sell it to somebody else. Washing dishes by hand should be a family affair -- when many hands pitch in, the work is less tedious and gets done faster. At minimum, don't use the heat dry cycle.

Small batteries. Avoid spending money for small batteries. For \$30 or less, you can get a solar powered battery charger and some rechargeable batteries, and go solar. Or you could use a charger that runs on household current. Small batteries are expensive -- the fewer you have to buy, the more money you have for other things. A good source for inexpensive (about \$15) solar-powered small battery chargers is <http://www.ccrane.com/more-categories/batteries-chargers/solar-powered-battery-charger.aspx>.

Gadgets and Ghost Loads. Many modern appliances and gadgets have "ghost loads" -- they use power all the time, even when you think they're "off". When an appliance isn't in use, make sure it is turned completely off, unplug it if necessary -- especially the television (which consumes lots of energy). Instead of wasting power, plug them into an extension cord or power strip that has an on-off switch. Use the switch to turn it off and on, and you will avoid wasting power via the "ghost loads" in the appliance. Be wary of bringing more electrical gadgets into your house and scrutinize what you already have. Do you really need all that stuff? If you have a water bed, drain it and replace it with a regular bed (a waterbed heater can use as much electricity as a refrigerator.) While you still have it, insulate it well during the day or it will try to heat your whole house. Never use the television for "background noise" while you're doing something else; a radio consumes less power.

Computers. Don't leave your computer equipment on 24/7. It is a myth that turning computers on and off is hard on your computer.

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