

Home Energy Efficiency - Saving Energy in the Home

Our parents taught us that the best way to save energy in the home was to shut off the lights when we left the room (“...do we have stock in the power company now!”). But as life has gotten a bit more complicated and electric rates have skyrocketed, we’re always on the lookout for less obvious ways to save energy. These tips are designed for homes that have already reduced their consumption in obvious ways like compact fluorescent bulbs and energy star appliances.

*"Energy Savers" book from the Department of Energy (DOE)

“LIPA’s Electric Appliance Energy Guide is a handy reference tool that can be used to help make purchasing decision, especially when buying a major appliance such as a large-screen TV or washing machine,” said Mr. Kessel. “These are decisions that have long-term energy use implications. By being a conspicuous consumer, electric bills can be lowered by purchasing energy efficient appliances.”

As reported in LIPA’s Electric Appliance Energy Guide, some of the home appliances that consume significant amounts of electricity annually include: Large Screen TV’s, 594 kWh per year; Clothes Dryer, 1,122 kWh per year; Room A/C unit, 5,000 BTU, EER of 6.6 (lowest efficiency), 2,106 kWh per year; Range with Oven, 703 kWh per year; electric water heater, 7,200 kWh per year.

The appliance guide also shows the dramatic difference in energy consumption between a 10 to 15 year old frost free refrigerator/freezer, which would consume 2,046 kWh per year, and a new high efficiency model that would consume only 517 kWh per year, which is nearly a 75% reduction in electric consumption.

“When buying appliances that work 24/7, it’s wise to select the most efficient model possible,” said Mr. Kessel. “The investment will be well worth it, many times over, in the long run.”

Watch your Humidity.

A hygrometer (Price: \$10-50) to monitor humidity can save energy and make your home more comfortable and healthier. High humidity in the winter can make 68°F feel more like 76°F.(1) Too much humidity, though can cause condensation on the windows and mold.

The relative humidity in the home in winter should be between 20% - 35%. As the outside temperature falls, lower the percentage to prevent condensation from forming on windows.

Outside Temperature/Target Humidity

-10 F and below, 20%

0 F, 25%

10 F, 30%

20 F, 35%

30 F and up , 35%

In the summer, control humidity with air conditioners, dehumidifiers, and keeping doors and windows closed. Humidity above 35% promotes allergies, rot, mold, and more.

Install a Programmable Thermostat.

Avoid heating and cooling your house when nobody's home. A programmable thermostat can automatically lower and raise your home's air temperature when you're at work or in bed. By turning your thermostat back from 72°F down to 65°F for eight hours a day, you can save as much as 10% on your annual heating and cooling costs.

Use the Free Solar Energy Generators already installed your home.

They're called 'windows' and, with proper use can dramatically impact the energy profile of your home. On cold winter days, raise south and west facing window shades. Close them at night. Reverse this in summer. Single-pane windows waste dramatic amounts of energy. If you can't replace them with double-pane glass, seal them or cover them with plastic to reduce drafts.

Does your home breathe well?

The efficiency of the heating and air condition systems in your home is based on the movement of air. If air does not circulate well then you may be heating unused attic areas, the underside of pieces of furniture, and even the furnace itself.

Check your ductwork in unused areas like basements and attics. All heating system air ducts leak to some degree and some leak to a large degree. Leaky ducts not only blow expensive heated or cooled air into unnecessary places, but leaks in the intake portion of your ductwork suck dust and dirt into the system. Use duct tape to seal any holes or gaps in the ducts themselves and the insulation around them. There are professional services available that clean then seal ductwork.

Check the air vents in your home. The intake vents have no dampers on them and need to be clean and completely clear at all times. Heating (and cooling vents) often have dampers on them, allowing you to reduce airflow in unused areas. Close unneeded vents or seal them with cardboard and duct tape. Vents underneath furniture need to be sealed or fitted with a plastic vent-redirector or extensions.

If you need to turn the thermostat to 76 to get the bedroom up to 73 then your system is unbalanced. If the imbalance is caused by leaky or clogged ducts then cleaning and repairs are needed. If, though, this is caused by poor heating system design, the problem can be often be solved by closing off vents in other rooms or installing a vent fan to suck heated air from the system into the underheated room.

Replace Filters

Clogged filters, or the wrong type of filters in air conditioning and heating systems can waste as much as 10% of your energy. Replace at least every three months or more often during pollen season. Use the right filters for your system. Some high performance 'hepa' filters advertise relief from allergies but block so much airflow as to cause problems with some heating systems. Check the specifications for the system.

Hot Water Heater.

If you've already added insulation to your water heater, insulate at least the first six feet of pipe as it exits your water heater.

Understand Time-Of-Use (TOU) pricing, if available.

Your utility may be offering a Time-Of-Use pricing option. If you are willing to learn about these options and make lifestyle changes, there is a significant savings potential. Electricity costs more to generate during 'peak' times (late afternoon) and is less expensive at night and on weekends. More utilities are offering homes the opportunity to pay higher rates for energy used during peak times and very low rates for off-peak usage. If you can control when you use electricity with timers and lifestyle changes, you can be eligible for dramatic savings.

Cover Your Window Air Conditioning Unit

Typically, air conditioners are not well insulated. In the winter, cover your air conditioner or remove it from the window.

Close the Damper in your fireplace when not in use.

Consider installing glass doors on your fireplace. In an open fireplace, much of the heat is sucked up the chimney. Glass doors prevent this and allow the fireplace to produce efficient, radiant heat.

Use a switched outlet for TV's, computers, and other electronic equipment.

Your TV doesn't shut off when you press the power button, it goes on 'standby', consuming, in some cases, 10% of the power used when it is on. Plug televisions and monitors into a switched surge protector or a wall outlet that is controlled by a switch. Unplug phone chargers when not in use. Arthur H. Rosenfeld, Ph.D. Commissioner of the California Energy Commission (and responsible for huge advances in global efficiency) calls these zillions of little black boxes "...energy vampires, sucking the life out of our grid one watt at a time."

Energy Star rated TV's use about 30% less electricity than standard televisions and use less than 3 watts when in the 'standby' mode. (2)

Consider Solar Electric (photovoltaic or PV) or Solar Thermal panels.

If your home and your lifestyle is already highly energy efficient, you may want to consider generating some energy on your own.

A solar electric system provides the most power during peak electricity usage times. This is ideal for time of use pricing. In most areas, if you produce more than you use, you can sell the power back to the utility. There are federal and state rebates available to help pay for them.

Solar Thermal panels are used to preheat water before it goes into your hot water heater, or heat air to supplement your heating system. In areas where winters are long, these can generate greater savings than photovoltaic panels and be cheaper to install.

Become Carbon-Neutral, Buy Renewable Energy Credits (or Greentags).

If you can't install a solar system of your own, you can still power your house with solar electricity by contributing to some else's solar system. This can often be done through your utility or through one of several certified clearing houses. This is similar to buying 'carbon credits' only better because it is specifically geared to solar energy.

Buying renewable energy credits can be compared to sponsoring an NPR radio program. Your sponsorship helps cover the cost and does entitle you to claim that you are responsible for the presentation of the show. When you 'sponsor' someone's solar system, you are legally and morally entitled to claim that you are responsible for the production of that solar energy.

If your state has required that your utility get 5% of its power from solar energy, your utility can either install solar panels themselves, or 'sponsor' solar panels installed elsewhere. The increasing number of states that require utilities to do this drive up the costs of these 'greentags' and make more money available, through sponsorships' to people who want to install panels on their homes and businesses.

Some of these tips will save huge amounts of energy; a drafty window can be as bad as leaving the outside door open in the winter ("Were you raised in a barn?") Others, like shutting TV's completely off only save a small amount of energy, but with virtually no inconvenience and significant national impact when multiplied by 20 million homes.

... and don't forget to turn off the lights when you leave the room.

Footnotes:

(1) NOAA Heat Index Calculator: http://www.crh.noaa.gov/jkl/?n=heat_index_calculator

(2) Energy Star Ratings for Televisions and other Electronics:
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductCategory&pcw_code=HEF

US Department of Energy Home Energy Efficiency: <http://www1.eere.energy.gov/consumer/tips/index.html>

Purchase Greentags at <http://www.GreenTagUSA.org>

Vent Air Flow Re-directors at: <http://www.improvementscatalog.com/home/diy/air-deflector>

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Energy efficiency and solar go hand in hand. By decreasing waste and generating solar we squeeze the middle.