

The *Lotus Live* Guide to *Energy Efficiency*

In this guide, Lotus Live presents the collective knowledge both our members and many reliable internet sources regarding the efficient use of water, through both technological and behavioral measures. This guide is not necessarily meant to be a checklist of everything that everyone should do to save energy. If you're really serious about saving energy, you should have a professional energy auditor audit your home. This guide is simply to get you thinking about the plethora of possibilities you have, and to get you started. The most important thing to remember about energy efficiency is that efficiency does not mean living without the comforts you're used to. Simple changes in the technology you use can make big differences!

Appliances

- *Run your dishwasher, dryer, and washing machine on "energy saver" settings.*
Choose air dry over heated dry, single rinse over double rinse, cold water over hot water (for clothes). Your clothes and dishes won't notice the difference, but you'll save a lot of money and energy. If you're feeling adventurous, try hand washing and drying the dishes, and dry your clothes on a clothesline when possible.
- *Run the dishwasher, washing machine, and other large appliances at night when possible.*
The world uses a lot more electricity during the day (especially the afternoon) than at night, which forces utilities to turn on their least efficient power plants to meet the extra demand. Transferring your electricity use to times with less demand will put less strain on the system (which can be the cause of occasional blackouts), and make the system more efficient. Depending on your utility, the price of electricity may also change depending on the time of day. If so, it will be most expensive in the afternoon and cheapest at night, so using your appliances at night could save you money too.
- *Wash only full loads of dishes and clothes, and use short, appropriate cycles.*
Just don't stuff them so full that your items don't get clean.
- *Unplug your electronics when they're not in use.*
Literally take the plug out of the wall. Even when they appear to be turned off, TVs, VCRs, cable boxes, portable electronics chargers with those fat plugs-pretty much anything these days-still uses power. This power leakage can be pretty low, but for inefficiently designed products it can be quite significant. Overall, it is estimated that 10% of electricity use in homes is pure waste due to these "energy vampires."¹ Unplug-

¹ [Forbes - Your Power Bill Is Standing By](#)

ging these devices when you aren't using them, or plugging them into a power strip you can turn off will could save you that 10% off your bill!

- Buy [EnergyStar](#) appliances.

Following the suggestions of the U.S. government rating system will ensure you are getting the most efficient appliances.

Computers

- *Set your computer to to "Sleep" or "Standby" when not in use.*

In Windows, the power management settings are found on the control panel. "Hibernation" saves even more energy. If you have a Mac, your energy settings are found under "System Preferences->Energy Saver" in the Apple menu. Additionally, if you know you're going to be away for a few hours, shut it down. It'll take about a minute to start up again.

- *Ditch the "Screen Saver."*

While sleep and stand by modes save up to 95% of the energy compared to normal operation, a screen saver saves little to no energy at all.

- *When it's time for a new computer, buy a laptop.*

Because of the constraints of battery life on the design, laptops will always be more efficient than equivalent desktops.

Cooking

- *Cook with the microwave whenever you can.*

Although the food designed for the microwave may not be the healthiest for you, cooking healthy foods in the microwave is as safe and as nutritious as grilling or baking them, but reduces the energy required for the task by at least 20%.²

- *When using the oven, especially for long cook times, don't preheat.*

By preheating the oven, you're largely heating up the air inside-the air you're going to let out when you open the door to put your food in. Just start the oven when you put the food in, and keep a close eye on it as the recommended timer counts down (through the window-don't open the door). Unless you're trying to make the perfect soufflé, your food won't mind a few extra minutes of low temperature heating.

- *Keep lids on your pots, and turn down the stove a bit.*

You'll save a lot of energy from "going up in smoke"- er, steam, that is. As long as you

² [Hong Kong Center for Food Safety - Microwave Cooking and Food Safety](#) and [USDA - Microwave Ovens and Food Safety](#)

keep the water is still boiling, the temperature will be the same - pumping more energy in will only make more bubbles.

Heating, Ventilation, and Cooling

- *Use the natural climate to your advantage.*
In the winter, open the blinds and let the sun in. Uncovered windows facing the sun will always let in more heat than they let out. In summer, keep sun-facing window shades closed to keep out extra heat. If in your area it cools down on summer nights, open all the windows and doors, and ventilate your house with cool air. Then in the morning, before it starts to heat up, close everything and trap in the cool air. This should keep you comfortable into the late afternoon without air conditioning.
- *Plant trees on to shade your house from the sun on the east, west, and south sides.*
They will also block wind in the winter. Be sure to shade your air conditioning unit, if you have one. Carefully positioned trees could reduce your cooling load by 25%. Shrubs along the side of your house create a dead air space that helps to insulate the house.
- *Lower your thermostat in winter, and raise it in summer.*
In summer, wear light clothing. In winter, wear an extra sweater and curl up under a blanket. For every 2 degrees you raise or lower the temperature, you'll save about 5% on your bill.
- *Seal and weatherstrip your doors and windows to prevent air leakage.*
Sealing the various leaks and cracks around your house could save you up to 10% off your energy bill. Be sure to address bigger leaks as well (close the chimney damper, the windows). In addition, seal your distribution ducts with mastic (a gooey type of paint), not duct tape, and insulate them. Leaky ducts deliver precious hot and cold air into your attic, where no one can use it. You could be losing up to 60% of your heating energy through bad ducts.
- *Upgrade your windows.*
Install double or triple paned windows filled with argon or krypton gas to prevent heat from escaping. If you don't intend to use the sun to heat your house, consider low-emissivity (low-e) windows that let light transfer through, but not heat. These window upgrades will be more expensive, but will generally pay back quickly. Look for National Fenestration Rating Council certified windows. If you can't afford to replace your windows, consider window tinting, like these low-e films from [Real Goods](#) which reduce heat transfer by 60%. Installing storm windows during the cold months

can also save 25 to 50% of your heat loss. Make sure your windows are installed by a reputable professional to avoid air leaks.

- *Add insulation to attics, basements, and uninsulated walls.*
It's not just your windows that are losing heat; all uninsulated surfaces continuously suck large amounts of heat and coolth out of your house. For attics and floors, you should insulate to around R-40 (6 to 10 inches). EnergyStar provides a great do-it-yourself [Home Sealing Guide](#).
- *Whenever possible, use fans instead of air conditioning.*
They can make the room feel up to 4 degrees cooler. If you've taken thermodynamics, however, you'll know that a fan in an empty room will actually heat it up, so be sure to turn it off when you leave.
- *When you need a new furnace or air conditioner, buy the most efficient one.*
An upgrade to your system's efficiency could save you as much as 20% on your heating bill. Look for a SEER (Seasonal Energy Efficiency Ratio) of 13 or higher on furnaces, and a 95% efficient furnace. The [American Council for an Energy Efficient Economy](#) rates the energy performance of most new furnaces, air conditioners, and heat pumps. Heat pumps function as both air conditioners, and heaters, and are more efficient than either option, and may be the best option. Be sure to get a properly sized unit, as one that is bigger than necessary will function very inefficiently. Additionally, if you live in an arid climate, an evaporative cooler may work better than AC.
- *Keep the space around radiators and vents clear of furniture.*
A radiator behind the couch will heat the couch, but not the room. Additionally, use shelves and reflectors to make sure the heat is being directed into the room, not up the wall or to the outside. If you're building new, install radiators and vents on interior walls to prevent heat loss to the outside.
- *Only condition the rooms that need conditioning.*
Close heating and cooling vents in rooms that aren't being used. In rooms that do need conditioning, keep the vents clean.
- *Turn down the thermostat whenever you leave or go to sleep.*
You shouldn't need it warmer than 68 in winter (55 when you are out or sleeping) or cooler than 78 in summer. If you buy an EnergyStar thermostat, you can program it to do it for you.

Laundry

- *Use cold water to wash your clothes.*

No matter what your mother might have told you, modern laundry detergents have been designed to work just as well in cold water as in hot. By doing all your laundry in cold water, you'll save a huge amount of energy and money.

- *When buying new washers and dryers, buy [EnergyStar](#).*

Horizontal axis washers that save energy and water, and dryers that stop when they sense that all moisture is gone will prove to be worthwhile investments.

- *Clean the lint filter, and dry heavy and light fabrics separately.*
Both will improve the overall efficiency of the dryer.

Lighting

- *Use compact fluorescent light bulbs (CFLs) instead of incandescent light bulbs.*

Compact fluorescent light bulbs (CFLs) use two thirds less energy than incandescent light bulbs, and last 8 to 12 times longer, so they will save you money on both energy cost, and replacement costs. CFLs are now compatible with dimmable switches, 3-way lamps, and are available as chandelier bulbs.

- *Rid your home of halogen torchiere lamps.*

They are extremely inefficient, and many are fire hazards. Replace them with EnergyStar compliant CFL torchieres that use 60 to 80% less energy for the same amount of light.

- *Get in the habit of turning off the light whenever you leave the room.*

Do it at home, at work, at school. Just make sure no one else is in the room.

- *For outdoor lighting, harvest the sun.*

If you need outdoor lighting, consider lamps that run on solar cells--charging up during the day, and using 100% solar energy at night.

Refrigeration

- *Keep your fridge and freezer filled with food.*

The food will act as thermal mass, retaining coolth better than air, saving cooling energy. This is a great excuse to buy that carton of ice cream! *Note:* While a filled fridge is essential, so is air circulation--find a happy medium.

- *Give your fridge and freezer room to breathe.*
To function efficiently, the condenser coils on the back of the need air circulation, so leave a few inches between the fridge and the wall.
- *Keep your fridge and freezer cool.*
Position your fridge out of direct sunlight, and keep it away from the oven--extra heat will only make the fridge work harder.
- *Set your fridge from 38 to 42 degrees, and your freezer from 0 to 5 degrees.*
Use the power saving setting if it has one, and check that the seal on the door is good by trapping a dollar bill in the door and pulling it out. If it comes out easily, you should replace the gaskets.

Water Heating

- *Set your water heater to 140°F if you use a dishwasher, 120°F if you don't.*
Other than your dishwasher (check the manual for temperature requirements), you will never need water hotter than 120 degrees--keeping it any hotter than you need it will just contribute to higher heat loss.
- *Wrap your water heater in an insulating jacket.*
For \$20, you can get a water heater wrap, and slip-on pipe insulation to prevent heat loss. Feel your water heater--if it feels warm to the touch, insulation will be a very worthwhile investment.
- *When it's time to buy a new water heater, buy the most efficient one.*
Even though it may cost more, the energy and dollar savings over time will make it more than worthwhile. You might even consider a tankless water heater, which heats water on demand. Ask your installer if one might be appropriate for you.
- *Install a drain water waste heat recovery system.*
This will use the waste heat from your shower to preheat cold water entering your water heater. It could save you 25 to 30% of your water heating bill.
- *Use cold water to pre-rinse the dishes, the dishwasher will blast them with the hot.*
Or better yet, don't pre-rinse the dishes at all--give them a preliminary scrape and scrub, but let the dishwasher do its job in actually washing them.
- *Install a sink aerator to save water and energy.*
See our [Water Efficiency Guide](#) for more information.

- *Install a new low-flow shower head.*
Be sure to get a [good quality one](#), or else you might just lengthen your shower and use the same amount of water.
- *Cut a few minutes off your shower.*
We all know it's relaxing to stand in a hot stream of water-but are those extra two minutes (or thirty) really essential?
- *Use the residual steam heat to keep warm while you get dry with your fluffy towel.*
Heat lamps and electric heaters are an extremely inefficient way to warm up when you've just been showering in hot steam.

Further Reading: The U.S DOE's [EERE Energy Savers Guide](#) (36 pages) is a great resource for a more in depth look at residential energy efficiency, and is an essential read for those interested in retrofitting their home.

For a list of recommended products that can help you achieve your energy efficiency goals, see out [Energy Products](#) page.

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Other References: [Alliance to Save Energy](#), [National Resources Defense Council](#), [U.S Department of Energy](#), [PG&E Energy Tips](#)

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If you have any ideas, suggestions, or corrections you would like to contribute to this guide on Energy Efficiency, please send us an email at [additions@lotuslive.org](mailto:additions@lotuslive.org).

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