PEP

POWER EFFICIENCY PROJECT

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16 Ways to Cut Energy Costs and Save Money

There are many ways to reduce a household's environmental impact and reduce energy bills. The most extensive and expensive of these can range from replacing an old HVAC system, ($6,000 - $12,000)[1,2] to reinsulating your home with more efficient insulation, ($2,000)[3,4]. There are also much easier and cheaper ways to save energy every day, such as reducing the amount of lighting, using more efficient lighting, and making sure appliances are turned off when not in use. Below are 16 ways to reduce your energy bill.

1. If you are still using incandescent light bulbs, replace them with **LED** bulbs. A 60-watt LED bulb uses less than one-sixth of the energy of an incandescent bulb[5]. Replacing 40 bulbs can really start to bring in the savings. Additionally, LED bulbs can last longer, reducing the number of bulbs you'll need to replace over time.

Figure 1:
LED light bulbs use less wattage for the same illumination.

2. Clean the **lint trap** of your clothes dryer regularly. This not only prevents fire, it also can improve the efficiency of the dryer and lower energy costs. In addition to cleaning the lint trap, periodically clean the slot the trap fits into with a vacuum hose. This will clean up any lint that doesn't stick to the trap. The dryer vent is another trap for lint that could lower efficiency (as well as start a fire). Periodically check the vent and clean it to improve the efficiency and lower energy costs[6].

3. Manage computer use for optimum energy performance. **Sleep mode** continues to draw a low number of watts, which can be managed by turning the computer off when not in use. A rule of thumb is to use sleep mode when the computer will be unused for 20 minutes and turn the computer off when it will be unused for two hours. Turning the computer off will not shorten its useful life[7].

4. Use **smart power strips** for devices that do not need to be on all the time. Even when turned off, some electronics continue to draw electricity. Smart power strips work by turning off automatically, or by command, to prevent the constant draw of electricity. Various products exist for different purposes. Some have programmable timers, which would be appropriate when use is concentrated to certain times of day. Others have motion sensors that detect when users are present. A third type shuts off certain outlets when the current draw changes to indicate sleep mode[8].

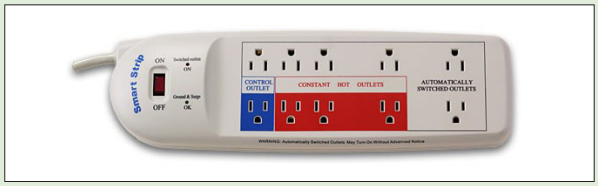

Figure 2:
Smart power strips monitor energy draws.

5. **Lower the heat** setting on your water heater. Most are set at 140°, but often 120° is warm enough and will save energy and money. Lowering the temperature setting could pose risks for those with lowered immune systems, as higher temperatures effectively kill more bacteria, so consider your health when making this change. For most, the lower temperature should pose minimal risk[9].

6. Reduce lighting expenses up to 40% by **turning off lights** when not in use or when natural light is sufficient[10]. To maximize daylight lighting, open or close window coverings for your lighting goals. During the winter, open draperies on south facing windows to let the sunlight in and provide heat as well as natural light during the day. East and west facing windows let in light in the morning and evening, respectively.

7. Set your **programmable thermostat** as high as is comfortable in the summer and raise the set point when away from home[11]. In the winter, set the thermostat as low as possible without risking freezing pipes. A good rule of thumb is 78º while at home during the summer and 68º while home during the winter.

Figure 2:
Keep temperatures moderate.

8. Be aware of the weather when choosing **window treatments**. In the winter, open shades in the daytime to let radiant heat in and close them at night to keep inside warm air from leaking out. In the summer, keep shades closed and use reflective window treatments to reflect heat out. During daylight hours, south-facing window coverings should be open in the winter and closed in the summer for heat management[12].

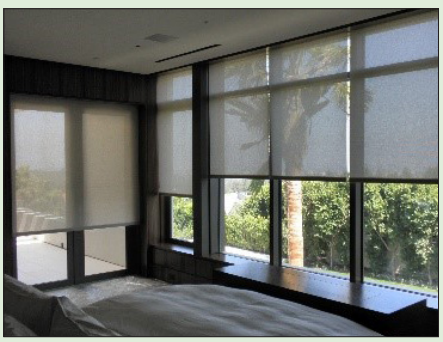

Figure 3:
Use window coverings to manage temperature.

9. If you are going to replace an appliance, look for **Energy Star** certified appliances. Energy Star certification is an indication of government-certified energy efficiency. To earn the Energy Star certification, products must contribute to energy savings, and the contribution must be verifiable through testing[13].

Figure 4:
Look for the Energy Star label to choose energy-efficient appliances.

10. Use your **cooking appliances** wisely. Self-cleaning ovens are typically better insulated, which keeps more heat on your food and less from leaking into the house—this is important particularly when you're trying to cool your house. Stove tops can also lose a large amount of heat. To avoid heat loss, use a pan that covers the entire burner and use a slow cooker for dishes that simmer for many hours, as slow cookers use less energy than stoves[14]. In the summer months, consider preparing meals that minimize or eliminate the use of the oven or stove top. Toaster ovens are another option when preparing foods that can lower energy use and reduce the amount of heat generated, which then makes your air conditioner work even harder.

11. **Refrigerators** use a great deal of energy, so proper maintenance is important for lowering energy costs. For efficient cooling, refrigerator's need good air flow. To ensure proper airflow, leave a few inches between the wall and the back of the refrigerator and clean the condenser coils with a coil cleaning brush[15]. Door gaskets can also leak air if they become old or damaged and no longer make a tight seal between the refrigerator and door. Replace door gaskets if a dollar bill easily slips out when closed between the door's seals[16].

Figure 5:
Inspecting gaskets and seals can reveal potential losses in efficiency.

12. Don't keep your refrigerator or freezer too cold. **Recommended temperatures** are 35°-38°F for the fresh food compartment and 0° F for separate freezers for long-term storage[17]. This is also the temperature at which food is safe to eat[18]. Any warmer and food will spoil, but cooler temperatures are not necessary.

13. **Defrost** manual-defrost freezers and refrigerators regularly. Frost built up more than a quarter of an inch can decrease the energy efficiency of the unit.

Figure 6:

Remove excess frost to improve efficiency.

14. When doing laundry, wash your clothes in **cold water** whenever possible, using cold-water detergents. Cold water can be used most of the time, except when dealing with oily stains, which require warmer water. Cold water detergents are formulated to remove stains at cooler temperatures[19].

15. **Exterior doors** and windows can contribute significantly to air leakage, and waste energy through conduction, especially in older homes with old or improper insulation. A variety of methods can be used to improve the seal around windows and doors. If a significant gap is present between the door and the floor, a sand- and cloth-filled bar placed in front of the door can limit air flow. If the air is coming in around the windows, a plastic covering can be used to form a barrier. For both windows and doors, caulk can be used around the trim to seal out the air[20].

16. Consider using **spray foam** to plug holes in your attic, such as where wires run into the walls. Blow-in insulation can also be another do-it-yourself, cost-effective way to reduce heat transfer between the attic and the conditioned space of your home. If those options aren't feasible or the cost is too high, one low-cost way to help seal your home from air leaks is to install electrical outlet "gaskets" behind the cover of your electrical outlets.

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For more information on 16 ways to cut energy costs and save money, contact Kansas State University Engineering Extension at 785-532-4998 or dcarter@ksu.edu.