

## Energy Conservation TIPS for the RESIDENTIAL MARKET

### Consumer tactics:<sup>i</sup>

- Check home to insure adequate insulation and no air leaks
- Ensure correct settings for home heating and cooling systems
  - Set your thermostat as low as is comfortable in the winter and as high as is comfortable in the summer.
  - Clean or replace filters on furnaces once a month or as needed.
  - Clean warm-air registers, baseboard heaters, and radiators as needed; make sure they're not blocked by furniture, carpeting, or drapes.
  - Bleed trapped air from hot-water radiators once or twice a season; if in doubt about how to perform this task, call a professional.
  - Place heat-resistant radiator reflectors between exterior walls and the radiators.
  - Turn off kitchen, bath, and other exhaust fans within 20 minutes after you are done cooking or bathing; when replacing exhaust fans, consider installing high-efficiency, low-noise models.
  - During the heating season, keep the draperies and shades on your south-facing windows open during the day to allow the sunlight to enter your home and closed at night to reduce the chill you may feel from cold windows.
  - During the cooling season, keep the window coverings closed during the day to prevent solar gain.
  - Select energy-efficient products when you buy new heating and cooling equipment.
  - For air conditioners, look for a high Seasonal Energy Efficiency Ratio (SEER). The current minimum is 13 SEER for central air conditioners.
- Manage water heating (the third largest household expense) effectively
  - Install aerating, low-flow faucets and showerheads.
  - Repair leaky faucets promptly; a leaky faucet wastes gallons of water in a short period of time.
  - Lower the thermostat on your water heater; factory settings may be higher than necessary.
  - Insulate your electric hot-water storage tank, but be careful not to cover the thermostat. Follow the manufacturer's recommendations.
  - Insulate your natural gas or oil hot-water storage tank, but be careful not to cover the water heater's top, bottom, thermostat, or burner compartment. Follow the manufacturer's recommendations; when in doubt, get professional help.
  - Insulate the first 6 feet of the hot and cold water pipes connected to the water heater.
  - If you are in the market for a new dishwasher or clothes washer, consider buying an efficient, water-saving ENERGY STAR model to reduce hot water use.
  - Install heat traps on the hot and cold pipes at the water heater to prevent heat loss. Some new water heaters have built-in heat traps.

- Drain a quart of water from your water tank every 3 months to remove sediment that impedes heat transfer and lowers the efficiency of your heater. The type of water tank you have determines the steps to take, so follow the manufacturer's advice.
- Although most water heaters last 10–15 years, it's best to start shopping now for a new one if yours is more than 7 years old. Doing some research before your heater fails will enable you to select one that most appropriately meets your needs.
- Buy a new energy-efficient water heater.
- Look for the ENERGY STAR label on efficient water heaters in the following categories: high efficiency gas non-condensing, gas condensing, electric heat pump, gas tankless, and solar.
- Consider installing a drain water waste heat recovery system. A recent DOE study showed energy savings of 25% to about 30% for water heating using such a system.
- Consider natural gas on-demand or tankless water heaters. Researchers have found savings can be up to 30% compared with a standard natural gas storage tank water heater.
- Heat pump water heaters can be very cost-effective in some areas.
- Consider installing an ENERGY STAR qualified solar water heater if your house meets certain orientation and location criteria. Rebates may be available as well.
- Examine your home's windows are such that energy efficiency is optimized.
  - Consider replacing single-paned windows with newer, double-paned ones.
  - In colder climates:
    - select windows that are gas filled with low emissivity (low-e) coatings on the glass to reduce heat loss.
    - heavy-duty, clear plastic sheet s can be used on a frame or clear plastic film can be taped to the inside of window frames during the cold winter months to help reduce infiltration.
    - Install tight-fitting, insulating window shades on windows that feel drafty after weatherizing.
    - Close curtains and shades at night; open them during the day.
    - Keep windows on the south side of the house clean to let in the winter sun.
    - Install exterior or interior storm windows; storm windows can reduce heat loss through the windows by 25% to 50%.
    - Repair and weatherize the current storm windows, if necessary.
  - In warmer climates:
    - select windows with spectrally selective coatings to reduce heat gain.
    - Install white window shades, drapes, or blinds to reflect heat away from the house.
    - Close curtains on south- and west-facing windows during the day.
    - Install awnings on south- and west-facing windows.
    - Apply sun-control or other reflective films on south-facing windows to reduce solar gain.

- Make appropriate improvements to household lighting.
  - Use linear fluorescent tubes and energy efficient compact fluorescent light bulbs (CFLs) in fixtures throughout your home to provide high-quality and high-efficiency lighting. Fluorescent lamps are much more efficient than incandescent (standard) bulbs and last about 6 to 12 times longer.
  - Controls such as timers and photo cells save electricity by turning lights off when not in use. Dimmers save electricity when used to lower light levels.
  - Take advantage of daylight by using light-colored, loose-weave curtains on your windows to allow daylight to penetrate the room while preserving privacy. Also, decorate with lighter colors that reflect daylight.
- When necessary to replace appliances, shop for ENERGY STAR compliant models.
  - Dishwasher tips:
    - Check the manual that came with your dishwasher for the manufacturer's recommendations on water temperature; many have internal heating elements that allow you to set the water heater in your home to a lower temperature (120°F).
    - Scrape, don't rinse, off large food pieces and bones. Soaking or prewashing is generally only recommended in cases of burned-on or dried-on food.
    - Be sure your dishwasher is full, but not overloaded, when you run it.
    - Avoid using the "rinse hold" on your machine for just a few soiled dishes. It uses 3 to 7 gallons of hot water each time you use it.
    - Let your dishes air dry; if you don't have an automatic air-dry switch, turn off the control knob after the final rinse and prop the door open slightly so the dishes will dry faster.
  - Refrigerator tips:
    - Look for a refrigerator with automatic moisture control. Models with this feature have been engineered to prevent moisture accumulation on the cabinet exterior without the addition of a heater.
    - Don't keep your refrigerator or freezer too cold. Recommended temperatures are 37° to 40°F for the fresh food compartment of the refrigerator and 5°F for the freezer section. If you have a separate freezer for long-term storage, it should be kept at 0°F.
    - To check refrigerator temperature, place an appliance thermometer in a glass of water in the center of the refrigerator. Read it after 24 hours. To check the freezer temperature, place a thermometer between frozen packages. Read it after 24 hours.
    - Regularly defrost manual-defrost refrigerators and freezers; frost buildup decreases the energy efficiency of the unit. Don't allow frost to build up more than one-quarter of an inch.
    - Make sure your refrigerator door seals are airtight. Test them by closing the door over a piece of paper or a dollar bill so it is half in and half out of the refrigerator. If you can pull the paper or bill out easily, the latch may need

adjustment, the seal may need replacing, or you might consider buying a new unit.

- Cover liquids and wrap foods stored in the refrigerator. Uncovered foods release moisture and make the compressor work harder.

- Laundry appliance tips:

- Wash your clothes in cold water using cold-water detergents whenever possible.
- Wash and dry full loads. If you are washing a small load, use the appropriate water-level setting.
- Dry towels and heavier cottons in a separate load from lighter-weight clothes.
- Don't over-dry your clothes. If your machine has a moisture sensor, use it.
- Clean the lint filter in the dryer after every load to improve air circulation.
- Use the cool-down cycle to allow the clothes to finish drying with the residual heat in the dryer.
- Periodically inspect your dryer vent to ensure it is not blocked. This will save energy and may prevent a fire. Manufacturers recommend using rigid venting material, not plastic vents that may collapse and cause blockages.
- Consider air-drying clothes on clothes lines or drying racks. Air-drying is recommended by clothing manufacturers for some fabrics.

- Other Energy-Saving kitchen tips:

- Be sure to place the faucet lever on the kitchen sink in the cold position when using small amounts of water; placing the lever in the hot position uses energy to heat the water even though it may never reach the faucet.
- If you need to purchase a natural gas oven or range, look for one with an automatic, electric ignition system. An electric ignition saves natural gas because a pilot light is not burning continuously.
- In natural gas appliances, look for blue flames; yellow flames indicate the gas is burning inefficiently and an adjustment may be needed. Consult the manufacturer or your local utility.
- Keep range-top burners and reflectors clean; they will reflect the heat better, and you will save energy.
- Use a covered kettle or pan to boil water; it's faster and it uses less energy.
- Match the size of the pan to the heating element.
- Use small electric pans or toaster ovens for small meals rather than your large stove or oven. A toaster oven uses a third to half as much energy as a full-sized oven.
- Use pressure cookers and microwave ovens whenever it is convenient to do so. They will save energy by significantly reducing cooking time.

- Acquire energy efficient home electronics
- Utilize effective driving and car maintenance techniques.

- Driving tips:

- Idling gets you 0 miles per gallon. The best way to warm up a vehicle is to drive it. No more than 30 seconds of idling on winter days is needed. Anything more simply wastes fuel and increases emissions.
- Aggressive driving (speeding, rapid acceleration, and hard braking) wastes gas. It can lower your highway gas mileage 33% and city mileage 5%.
- Avoid high speeds. Above 60 mph, gas mileage drops rapidly.
- Clear out your car; extra weight decreases gas mileage by 1% to 2% for every 100 pounds.
- Reduce drag by placing items inside the car or trunk rather than on roof racks. A roof rack or carrier provides additional cargo space and may allow you to buy a smaller car. However, a loaded roof rack can decrease your fuel economy by 5% or more.
- Check into telecommuting, carpooling and public transit to cut mileage and car maintenance costs.
- Car Maintenance tips:
  - Use the grade of motor oil recommended by your car's manufacturer. Using a different motor oil can lower your gasoline mileage by 1% to 2%.
  - Keep tires properly inflated and aligned to improve your gasoline mileage by around 3.3%.
  - Get regular engine tune-ups and car maintenance checks to avoid fuel economy problems due to worn spark plugs, dragging brakes, low transmission fluid, or transmission problems.
  - Replace clogged air filters to improve gas mileage by as much as 10% and protect your engine.
  - Combine errands into one trip. Several short trips, each one taken from a cold start, can use twice as much fuel as one trip covering the same distance when the engine is warm.
- Consider generating your own renewable energy or purchasing it.

---

<sup>i</sup> Resource for consumer side tips <http://www1.eere.energy.gov/consumer/tips/>