



Republic of the Philippines  
**National Electrification Administration**

09 May 2005

NEA MEMORANDUM No. 2005-013

T O : ALL ELECTRIC COOPERATIVES

SUBJECT : **ENERGY EFFICIENCY AND CONSERVATION TIPS**

=====

In line with the government's thrust to reduce the utilization of and the country's dependence on imported oil, you are encouraged to adopt and disseminate to your member-consumers the attached energy efficiency and conservation tips which are meant to guide all electricity consumers in using the least amount of electricity without reducing the standards of basic goods and services. Additionally, we are also issuing some gas mileage tips that could be beneficial to your community as well.

Please disseminate in the most practical and effective way to your officials, employees and member-consumers accordingly.

  
**EDITA S. BUENO**  
Administrator

NATIONAL ELECTRIFICATION  
ADMINISTRATION

IN REPLYING, PLS. CITE: #0R006801



0R-0R006801

GH  
12-06

## **ENERGY EFFICIENCY AND CONSERVATION TIPS**

1. Lighting
  - a. Turn-off unnecessary light.
  - b. Use fluorescent lights instead of incandescent bulbs. A 40-watt fluorescent lamp produces more light than a 100-watt incandescent bulb at half the cost.
  - c. Better yet, use compact fluorescent lamps that utilize 70%-80% less energy than their incandescent equivalents. When replacing a 100-watt incandescent lamp, a 20 to 23-watt CFL is used. CFL may cost higher but lasts 8 to 13 times the life of the incandescent lamps, hence, would cost lesser in the long run.
  - d. When using fluorescent lamps, install electronic ballast instead of magnetic ballast as the latter uses approximately one-fifth of all energy required for fluorescent lighting.
  - e. Clean lamps, bulbs and diffusers regularly. Dirt lessens illumination by as much as 50%.
  - f. Replace immediately fluorescent tubes that show signs of busting out.
  
2. Cooking
  - a. Have all ingredients ready when cooking to avoid frequent switching on and off of the electric stove.
  - b. Avoid using a big burner for a small pan.
  - c. Use flat-bottom pans with light covers to lessen heat transfer loss.
  - d. Bring down frozen foods at the refrigerator area at least 1-hour before cooking to allow it to thaw thoroughly. Do not use the microwave oven to thaw the frozen food as it requires higher electricity consumption.
  - e. Switch the electric stove to "low" when the food begins to boil.
  - f. Turn-off the electric stove during the last minutes of cooking. The remaining heat will make the food simmer.
  - g. Avoid using heavy utensils in cooking small quantity of food as it requires more time to heat, hence, consumes higher electricity.
  - h. When buying a gas range or oven, choose one with an automatic ignition system. You can save about 40-50% on gas for the top burners.
  - i. It is more economical to use LPG fuelled stoves than electric stoves.
  - j. Pre-heat the oven only when necessary as when baking cakes or pastries.
  - k. Observe the color of the fire when using an LPG. A blue colored fire indicates the efficient use of the LPG.
  - l. Use steamer to cook more than one kind of food at the same time.
  - m. When reheating foods, bring them out from the freezer or refrigerator at least half an hour before heating to minimize electricity consumption.
  - n. Use pressure cooker to cook meat faster.
  - o. Avoid frequent opening of the oven door when baking to prevent heat loss.

3. TV Viewing

- a. Switch off the set when no one is watching. Unplug it when a transformer is used. Do not let it stay on stand-by mode since it also consumes additional electricity.
- b. Watch the TV together with your family. It could not only save on electricity consumption but also promotes family bonding.
- c. Reduce the volume of your TV set. Loud volume consumes higher electricity.
- d. Black and white sets use less electricity than colored ones. Likewise, smaller TV sets consumes lesser electricity.
- e. Substitute computer games with educational board games and physical activities that will improve the total well being of the individual.

4. Electric Fan

- a. Turn off the fan when not in use.
- b. If comfortable enough, set the fan to "low".
- c. Lock the oscillator when the fan is needed in one direction only. This way, air is blown directly to where it is needed.
- d. Clean and oil the electric fan regularly to enable it to work efficiently.

5. Refrigerator

- a. Choose a refrigerator model and size suited to your family needs.
- b. Defrost the refrigerator regularly. Do not allow the frost to thicken to more than  $\frac{1}{4}$  inch.
- c. Replace loose refrigerator gaskets. To test, close the door on a peso bill. The seal is tight if the peso bill is hard to pull out.
- d. Place the refrigerator away from the stove and the sun.
- e. Open the refrigerator door as infrequently and briefly as possible. Make sure the door really closes.
- f. Keep the refrigerator fans and coils clean and dust free by vacuuming or brushing off the condenser coils once a year.
- g. Do not store hot food in the refrigerator.
- h. Do not overstuff your refrigerator. Internal air circulation is important.
- i. Place the refrigerator at least 4" away from the wall to allow air circulation.
- j. If the refrigerator is almost empty, put in a few bottles of water to help store the cold.
- k. Turn off spare refrigerator when you aren't using it. Store it with child safety in mind.

6. Ironing Clothes

- a. Do all the ironing at one time. If possible, do the ironing between 10:00 PM to 7:00 AM when the rate of electricity is lower once the time-of-use (TOU) scheme in charging is implemented.
- b. Iron when it is cooler and more comfortable. This lessens the demand for electricity during peak hours.
- c. Dampen clothes moderately. Excessively moistened clothes take longer to iron.
- d. Switch off the electric iron in the last few minutes of ironing. There will be enough heat to press lighter materials.
- e. Stretch the clothes after rinsing and before hanging them to dry to reduce creases. Fold clothes properly after drying to eliminate the need for ironing.
- f. Iron heavy clothing first and the lighter ones at the last so that the remaining heat after the flat iron is unplugged could be used to press the light clothing.

7. Air Conditioning

- a. Make sure that the thermostat is working. Keep thermostat setting no lower than 25 degrees Centigrade.
- b. Install the unit in the coolest part of the room.
- c. Keep the unit's filter, condenser and other parts clean.
- d. Air-conditioned room should be well insulated from direct sunlight. Open doors of air-conditioned rooms only when necessary.
- e. Install window type air conditioners at the highest accessible place.
- f. Put off the unit at early dawn and put on the electric fan instead to sustain the cool temperature to last until you get up in the morning.
- g. Operate the air conditioner between 10:00 PM and 7:00 AM when the price of electricity is lower under the TOU scheme.
- h. Choose the right capacity of the air-con appropriate to the size of the room to be cooled.

8. Water Pumps:

- a. Limit the use of automatic electric pumps. If possible, install elevated water tanks instead of pressure tanks to regulate the use of the water pump.
- b. In hot weather, low water level makes water pumps work longer, thus more electricity is used.

Some basic measures are also applicable in the offices and establishments:

1. Switch the air conditioning units 30 minutes after the start of office hours, and switching it off 30 minutes before closing of office hours.

2. Switch off all office equipment running on electricity such as typewriters, computers, copying machines, fax machines, air pots, printers, etc. when not in use. Unplug it after office hours.
3. Regulate the use of water dispensers. Switch on the hot water button only when hot water is needed.
4. Switch off unnecessary lights and exhaust fans.
5. Completely switch off all lights, air-conditioning units, exhaust fans, and other electrical equipment during non-working days.
6. Install high-pressure sodium street lamps to replace the existing mercury vapor lamp as well as for other streets where it may have application.
7. Improved street lighting offers a range of societal benefits not easily incorporated into a standard cost-benefit analysis; lowered maintenance cost and higher lighting levels resulting to increase safety on the streets.
8. Switch on computers and printers only when needed. Place it on stand-by mode while not in use or shut it down if not needed anymore for the rest of the day.
9. Clean lighting diffusers to maximize illumination.
10. Put off the exhaust fans while the air conditioning units are in operation.
11. Check the EER of the air conditioner and the EEF of the refrigerator to be bought. Higher EER/EEF means higher appliance efficiency and lower electricity consumption.

## **GAS MILEAGE TIPS**

### **DRIVING MORE EFFICIENTLY**

1. Drive Sensibly

Aggressive driving (speeding, rapid acceleration and braking) wastes gas. It can lower your gas mileage by 33% at highway speeds and by 5% around town. Sensible driving is also safer for you and others, so you may save more than gas money.

2. Observe the Speed Limit

Gas mileage decreases rapidly at speeds above 80 kph. You can save as much as 25% on gas consumption if the speed is reduced from 120 kph to 80 kph. Observing the speed limit is also safer.

3. Avoid Excessive Idling

Idling gets 0 km per liter. If possible, do not keep your vehicle idling for more than 3 minutes since you consume 2 liters of gasoline per hour at this condition. Cars with larger engines typically waste more gas at idle than do cars with smaller engines.

4. Use Cruise Control  

Using cruise control on the highway helps you maintain a constant speed and, in most cases, will save gas.
5. Use Overdrive Gears  

When you use overdrive gearing, your car's engine speed goes down. This saves gas and reduces engine wear.
6. Minimize the use of air-con when the weather is cool. It adds up to the load of your car engine and consumes as much as 10% more gasoline.
7. Unless necessary, avoid reverse gear maneuvers especially when parking your car.

### **KEEPING YOUR CAR IN SHAPE**

1. Keep Your Engine Properly Tuned  

Fixing a car that is noticeably out of tune or has failed an emissions test can improve its gas mileage by an average of 4.1%, though results vary based on the kind of repair and how well it is done. If your car has a faulty oxygen sensor, your gas mileage may improve as much as 40% once the repair is done. Tune up should be done once every six months.
2. Check and Replace Air Filters Regularly  

Replacing a clogged air filter can improve your car's gas mileage by as much as 10%. Your car's air filter keeps impurities from damaging the inside of your engine. Not only will replacing a dirty filter save gas, it will protect your engine.
3. Keep Tires Properly Inflated  

You can improve your gas mileage by around 3.3% by keeping your tires inflated to the proper pressure. Under-inflated tires can lower gas mileage by 0.4% for every 1 psi drop in pressure of all four tires. Properly inflated tires are safer and last longer.
4. Use the Recommended Grade of Motor Oil  

You can improve your gas mileage by 1-2% by using the manufacturer's recommended grade of motor oil. For example, using 10W-30 motor oil in an engine designed to use 5W-30 can lower your gas mileage by 1-2%. Using 5W-30 in an engine designed for 5W-20 can lower your gas mileage by 1-

1.5%. Also, look for motor oil that says “Energy Conserving” on the API performance symbol to be sure it contains friction-reducing additives.

## **PLANNING AND COMBINING TRIPS**

### **1. Combining Errands**

Combining errands into one trip saves you time and money. Several short trips taken from a cold start can use twice as much fuel as a longer multipurpose trip covering the same distance when the engine is warm. Trip planning ensures that traveling is done when the engine is warmed-up and efficient.

With a little planning, you can avoid retracing your route and reduce the distance you travel as well. You’ll not only save fuel, but also reduce wear and tear on your car.

### **2. Commuting**

If you own more than one vehicle, drive the one that gets the best gas mileage whenever possible.

If possible, take advantage of carpools and ride-share programs. You can cut your weekly fuel costs in half and save wear on your car if you take turns driving with other commuters.

Consider using public transit if it is available and convenient for you.

### **3. Traveling**

A roof rack or carrier provides additional cargo space and may allow you to meet your needs with smaller car. However, a loaded roof rack can decrease your fuel economy by 5%. Reduce aerodynamic drag and improve your fuel economy by placing items inside the trunk whenever possible.

Avoid carrying unneeded items, especially heavy ones. An extra 100 lbs. in the trunk reduces a typical car’s fuel economy by 1-2%.

### **4. Avoid traffic by using alternate routes.**

### **5. It is better to gas up in the morning than at noon. Gas could evaporate while pumping gas when the temperature is high.**

## **BUYING GASOLINE**

1. Shop around for the best quality, price and service. You have spent thousands of pesos on your vehicle so it makes sense to frequent a reputable location that provides you with good service and quality products.
2. Keep track of the kms. per liter and go to the station where the best value is received.
3. Do not buy more octane than you need. Check your owner's manual for octane recommendations and purchase the lowest octane gasoline your vehicle uses without your engine knocking. Once you know your vehicle's octane level, use higher octane only under stressful driving conditions such as pulling heavy trailers or trucks. Using too low an octane can cause engine damage. Using too high an octane for the driving conditions of your vehicle will not give you more power or better mileage.
4. Find the brand of gasoline that works best for your vehicle. Keep track of your kms. per liter. Although almost all gasoline comes from the same pipelines, the additive packages differ greatly between brands.

### **References:**

1. <http://www.fueleconomy.gov/feg/driveHabits.shtml>
2. [http://www.doe.gov.ph/efficiency/power\\_patrol.htm](http://www.doe.gov.ph/efficiency/power_patrol.htm)
3. [http://www.doe.gov.ph/efficiency/demand\\_side.htm](http://www.doe.gov.ph/efficiency/demand_side.htm)
4. Department of Energy's EC Way of Life Campaign Materials