

Energy Savings in Home Appliances

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Energy Savings in Home Appliances

- The Domestic Sector accounts for 30% of total energy consumption in the country. There is a tremendous scope to conserve energy by adopting simple measures.
- This handout is a guide which offers easy, practical solutions for saving energy in Home Appliances. Please, take a few moments to read the valuable tips that will save energy & money and ultimately help conserve our natural resources.
- It would be useful to know which gadget consumes how much electricity. Economic use of home appliances can help in reducing electricity bills.

The following table shows the energy consumption of various appliances normally used at home:

Appliances	Rating (Watts)	Operating Hrs/Day	Units/ Month	Cost*/ Month (Rupees)
Incandescent Bulbs	40	6	7	21
	60	6	11	33
Fluorescent Tube Light	40	10	12	36
Night Lamp	15	10	4	12
Mosquito Repellent	5	10	1.5	4.5
Fans	60	15	27	81
Air Coolers	175	8	42	126
Air Conditioners	1500	6	270	810
Refrigerator	225	15	101	303
Mixer/Blender	450	1	13	40
Toaster	800	0.5	12	36
Hot Plate	1500	0.5	22	66
Oven	1000	1	30	90
Electric Kettle	1500	1	45	135



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Appliances	Rating (Watts)	Operating Hrs/Day	Units/ Month	Cost*/ Month (Rupees)
Electric Iron	1500	1	45	135
Water Heater-Instant Type (1-2 ltr capacity)	3000	1	90	270
Water Heater-Storage Type (10-20 ltr capacity)	2000	1	60	180
Immersion Rod	1000	1	30	90
Vacuum Cleaner	700	0.5	11	33
Washing Machine	300	1	9	27
Water Pump	750	1	22	66
TV	100	10	30	90
Audio System	50	2	3	9

* Cost/unit is assumed to be Rs.3.00/Kwh.



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I. Some Useful Tips to Save Energy

1. Lighting

- Turn off the lights when not in use.
- Take advantage of daylight by using light-colored, loose-weave curtains on your windows to allow daylight to penetrate the room. Also, decorate with lighter colors that reflect daylight.
- De-dust lighting fixtures to maintain illumination.
- Use task lighting; instead of brightly lighting an entire room, focus the light where you need it.
- Compact fluorescent bulbs are four times more energy efficient than incandescent bulbs and provide the same lighting.
- Use electronic chokes in place of conventional copper chokes.

2. Fans

- Replace conventional regulators with electronic regulators for ceiling fans.
- Install exhaust fans at a higher elevation than ceiling fans.

3. Electric Iron

- Select iron boxes with automatic temperature cut-off.
- Use appropriate regulator position for ironing.
- Do not put more water on clothes while ironing.
- Do not iron wet clothes.

4. Kitchen Appliances

- Mixers
 - Avoid dry grinding in your food processors (mixers and grinders) as it takes longer time than liquid grinding.
- Microwaves Ovens
 - Consumes 50 % less energy than conventional electric/gas stoves.
 - Do not bake large food items.
 - Unless you're baking breads or pastries, you may not even need to pre-heat.
 - Don't open the oven door too often to check food condition as each opening leads to a temperature drop of 25°C.



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- Electric Stove
 - Turn off electric stoves several minutes before the specified cooking time.
 - Use flat-bottomed pans that make full contact with the cooking coil.
- Gas Stove
 - When cooking on a gas burner, use moderate flame settings to conserve LPG.
 - Remember that a blue flame means your gas stove is operating efficiently.
 - Yellowish flame is an indicator that the burner needs cleaning.
 - Use pressure cookers as much as possible.
 - Use lids to cover the pans while cooking.
 - Bring items taken out of refrigerators (like vegetables, milk etc) to room temperature before placing on the gas stove for heating.
- Use Solar Water Heater – a good replacement for a electric water heater.

5. Electronic devices

- Do not switch on the power when TV and Audio Systems are not in use i.e, idle operation leads to an energy loss of 10 watts/device.

6. Refrigerator

- Regularly defrost manual-defrost refrigerators and freezers; frost buildup increases the amount of energy needed to keep the motor running.
- Leave enough space between your refrigerator and the walls so that air can easily circulate around the refrigerator.
- Don't keep your refrigerator or freezer too cold.
- Make sure your refrigerator door seals are airtight.
- Cover liquids and wrap foods stored in the refrigerator. Uncovered foods release moisture and make the compressor work harder.
- Do not open the doors of the refrigerators frequently.
- Don't leave the fridge door open for longer than necessary, as cold air will escape.
- Use smaller cabinets for storing frequently used items.
- Avoid putting hot or warm food straight into the fridge.



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7. Washing Machines

- Always wash only with full loads.
- Use optimal quantity of water.
- Use timer facility to save energy.
- Use the correct amount of detergent.
- Use hot water only for very dirty clothes.
- Always use cold water in the rinse cycle.
- Prefer natural drying over electric dryers.

8. Air Conditioners

- Prefer air conditioners having automatic temperature cut off.
- Keep regulators at “low cool” position.
- Operate the ceiling fan in conjunction with your window air conditioner to spread the cooled air more effectively throughout the room and operate the air conditioner at higher temperature.
- Seal the doors and windows properly.
- Leave enough space between your air conditioner and the walls to allow better air circulation.
- A roof garden can reduce the load on Air Conditioner.
- Use windows with sun films/curtains.
- Set your thermostat as high as comfortably possible in the summer. The less difference between the indoor and outdoor temperatures, the lower will be energy consumption.
- Don't set your thermostat at a colder setting than normal when you turn on your air conditioner. It will not cool your home any faster and could result in excessive cooling.
- Don't place lamps or TV sets near your air-conditioning thermostat. The thermostat senses heat from these appliances, which can cause the air conditioner to run longer than necessary.
- Plant trees or shrubs to shade air-conditioning units but not to block the airflow. A unit operating in the shade uses as much as 10% less electricity than the same one operating in the sun.

By following these simple hints one can save energy to a large extent.



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II. Electrical Safety Tips for Homes

1. Electrical Hazards

- Shocks:
 - Electric Shock causes an involuntary grip which prolongs the period of contact.
 - More the period of contact, more the damage.
 - Passage of current through the heart, stops the blood supply to the brain, resulting in loss of consciousness and termination of breathing.
 - When a person standing at a height receives an electrical shock, it is most likely that he will fall.
 - Personal sensitivity to electrical shock varies from person to person.
- Burns:
 - Whenever an electrical flash appears, and if a part of a body comes within flashing distance, burns can be caused.
 - Burns may be caused by short circuits as well, because a short circuit could create an electrical fire.

2. Preventive Measures:

- Allow only a qualified person to attend to your electrical repairs.
- Service your electrical equipment at frequent intervals through a competent electrician.
- In case of a short circuit or a fire, switch off the mains instantly. Make sure that you have easy access to switch off the supply source quickly, in case of an emergency.
- Make sure your extension cords are free from cuts, improper insulation, or joints.
- Ensure pins of your plugs are tight and not loose.
- Use switches of the correct current rating and preferably with indicators to indicate whether the switch is ON/OFF.
- Use appliances with 3 pin plugs and connect them to 3 pin sockets.
- Do not overload electrical outlets or use extension cords in place of additional outlets.
- Switch off electrical appliances when not in use.
- Provide proper earthing for the building.