

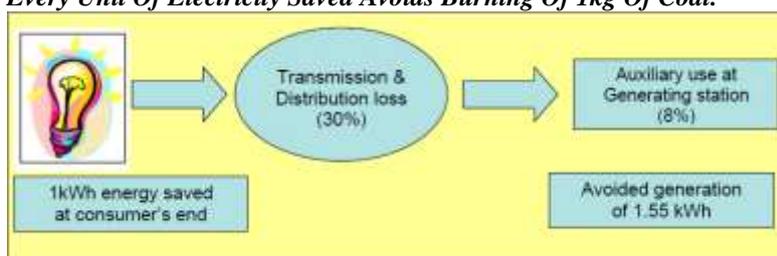
Technological Tips for Saving Domestic Energy and Thus Reducing Environmental Pollution

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Abstract: Modern era is the age of technology. Lifestyle of human being is mobilized and controlled by electrical and electronic gadgets. All the domestic appliances consume energy. The amount of consumption depends on climate, type and handling methods of appliances. Judicious use of this domestic energy can reduce environmental pollution as there is large emission of pollutants from fuel.

Every Unit Of Electricity Saved Avoids Burning Of 1kg Of Coal.



Domestic energy consumption can be reduced by replacing incandescent bulb with CFL or LED which saves much energy. Some technological tips if followed; can reduce domestic consumption to a large extent.

Key words: Domestic energy consumption, Pollution, Technological tips

I. Introduction

Domestic appliances work on the principle of converting electrical energy to mechanical or chemical energy. This consumption has increased too much due to frequent demands of modern people.

Large emission of pollutants from fuel is increasing at alarming rates. Technologists and environmentalists are worried about the existence of our planet "THE EARTH". Reducing domestic energy consumption has become need of the era. This problem can be solved by following tips for reducing consumption.

One unit of electricity saved by the consumer can avoid 1.55 units of electricity generation, which saves about 1kg of coal. In other words a reduction of just 50w on the consumer side that works out to 6 hours a day] avoids coal usages of 110 kg per year. Use of incandescent bulb wastes about 95% of electrical energy as it gets converted into heat and only 5% is used to convert light. Use of fluorescent tube light and CFL [Compact Fluorescent Light] consume comparatively much lesser electricity and light emitted by these lamps does not release any heat. There is no loss of energy and are more effective.

Consumer saves Rs.26 per month if he replaces one 60W bulb with a CFL!!



II. Tips For Saving Energy Consumed By Lights

- Paint the walls with white or lighter shades which enhance the reflection and makes energy saving possible.
- In office, instead of light falling from behind they should be made to fall straight from the top, thereby making light fall straight on the area of reading/writing. Hence a low watt tube light would be enough.
- Wiping off dust accumulated on the bulb/Tube light quite often would give better results.
- By using 36 watt slim tube lights in place of 40 watt one, gives the same light and save up to 10% energy.
- Use one 100 watt bulb instead of two 60 watt bulbs. This would reduce the power consumption.

- Many people use the zero watt (candle) bulbs during night, due to the belief that this bulb does not draw power. But, this bulb consumes 15 watt of electricity. Hence a zero watt bulb when not needed should be switched off.
- Zero watt bulb uses 12 to 15 watt power

III. Tips On Fans And Air Conditioners

- The ceiling fan should be at a height of 7 feet from the floor level.
- Save electricity by adopting electronic regulators to the fans.
- Clean off dust on the fans often and get the motors overhauled from time to time to get rid of unwanted sound causes due to friction and save electricity too.
- Replace cooler pads at the beginning of each season to maximize cooler's effectiveness. Chemical water treatments to reduce scale build-up. The water should flow over the entire surface of the cooler pads.
- During severe summers an air cooler has a better cooling effect compared to a fan. In comparison to air conditioner, air-cooler consumes only $\frac{1}{4}$ of electricity whereas its cost is only $\frac{1}{10}$ th of the cost of AC.
- Clean the air filters of air conditioner from time to time. Compressors consume more electricity due to accumulation of dust on the filter
- Save energy by switching off the air-conditioner half an hour before leaving the room. The atmosphere in the room will remain cool for the same time.
- Usage of self-closing doors to avoid infiltration of air.
- Bureau of Energy Efficiency India has introduced STAR Labeling. Energy Efficiency Ratio (EER) is



displayed on the label.
efficient air conditioner.

The more number of STARS the more energy

IV. Tips On Usage Of Computers

- The computer should be turned off when not in use. It can be kept at sleeping mode that cuts energy cost by approximately 40%.
- Setting computers, monitors, and copiers to use sleep-mode when not in use helps cut energy costs by approximately 40%. If computer by default is left on, turn off the monitor; this device alone uses more than half the computer system's energy.
- Battery chargers, such as those for laptops, cell phones and digital cameras, draw power whenever they are plugged in and are very inefficient. Pull the plug and save electricity

V. Tips On Usage Of Refrigerators

- The food stuffs to be kept in refrigerator should be at room temperature.
- To save energy temp should be kept between 2.2° C to 4.4° C.
- Refrigerator should not be fully opened. Too much opening consumes extra energy. Do not keep the refrigerator door open unnecessarily.
- Whenever the frost gets more than 5mm thick, it should be defrosted. Defrosting the refrigerator 5-6 times a year reduces power consumption drastically.



- The back side of the refrigerator should be cleaned 3 to 5 times in a year.

- Bureau of Energy Efficiency India has come out with the labeling plan for Frost Free Refrigerators. Labeling provides annual units consumed by the refrigerator when used under test condition for a whole year. For the same capacity, lesser annual units mean more efficient refrigerator.
- More the number of STARS shown on the label, more efficient is the refrigerator.



VI. Tips On Usage Of Washing Machine

- It is better to wash clothes putting full load on the machine. Because the power consumption of machine is same on full load or partial load.
- More power will be consumed if there is a water heater in the machine. Power consumption can be reduced by heating water and putting it in the machine.
- Few clothes should be washed preferably manually.

VII. Tips On Usage Of Television

- Sometimes, when TV, Computer, audio and video equipments are not actually on, electricity consumption continues on remote mode resulting into a wastage of 15% of power. So, appliances when not in use should be COMPLETELY switched off from the power supply. Frequently increasing & decreasing the volume of TV also causes loss of power.
- Switching off the TV COMPLETELY can result in a monthly saving of Rs.25

VIII. Tips On Usage Of Geysers And Water Heaters

- 23 to 27 liters capacity geyser is appropriate
- For family consisting of 4-6 members ALWAYS choose a water heater with a thermostat.
- Choose Gas base/ solar base geysers for water heating.
- Instant geysers are considered to be more efficient than storage type geysers.

IX. Tips On Usage Of Ovens

- Ovens work to its optimum when fully loaded.
- Switch off the oven 15-20 minutes earlier, so that power consumption can be reduced.
- Some manufacturers offer pre-heating ovens. Reduce the pre-heating time and using a good thermostat would help save a lot of power.

Some Ready Calculations

Devices (Capacity & Size)	Wattage	Monthly Electricity Consumption (kWh)		One unit of power will be consumed when you run the device for...	
		One hour/day	Six hours/day		
Bulb {	25	0.75	4.5	40 hrs.	
	40	1.2	7.2	25 hrs.	
	60	1.8	10.8	16 hrs. 40 min.	
	100	3	18	10 hrs.	
CFL {	5 watt	7	0.21	143 hrs.	
	9 watt	11	0.33	90 hrs. 55 min.	
	11 watt	13	0.39	77 hrs.	
	25 watt	27	0.81	37 hrs.	
Fluorescent Tube Lights 48"	with Copper choke	55	1.65	9.9	18 hrs. 11 min.
	with Electric choke	35	1.05	6.3	28 hrs. 34 min.
Night Lamp (Zero bulb)	15	0.45	2.7	66 hrs. 40 min.	
Ceiling Fan {	36"/48"	50	1.5	9	20 hrs.
	56"	60	1.8	10.8	16 hrs. 40 min.
	60"	70	2.1	12.6	14 hrs. 17 min.
Table Fan 12"/16"	40	1.2	7.2	25 hrs.	
Electric Iron {	Domestic	450/700	13.5 to 21	81 to 126	2 hrs. 13 min to 1 hr. 25 min.
	Dhobi	1000	30	180	1 hr.
Immersion Rod	1000	30	180	1 hr.	



X. Conclusion

This way just by decreasing the unwanted use of electricity during day time, switching off lights, Fans etc. when leaving the room and realizing the importance of energy conservation would only leave HAPPY AND FLUROSCENT FUTURE FOR NEXT GENERATION.