

Energy Saving Tips

Become more Energy savvy. By applying simple methods, Electricity can be saved and cost on Energy bills can be reduced

Fluorescent Tube Lights (FTL) T – 12 Vs T – 5 & Savings of 9 Crores Unit/Rs. 40.5 Crores

The majority of fluorescent tube lights (FTL) fittings being used at present is T-12, the popular 40 W 'fat' (38 mm diameter) tubes, fitted with copper or aluminium ballast (choke). More recently these have given way to highly efficient T-5 the 28 W 'ultra slim' (16 mm diameter) tubes fitted with Electronic chokes. The life of T-5 is about 18,000 hours, compared to 4,000 to 5,000 hours of T-12.

Lighting accounts for about 15-20% of electricity consumed in the country. The majority of the lamps and fixtures used are incandescent light bulbs or General Lighting System (GLS), with Low Efficiency.

- 90-95% of Electricity consumed by GLS is wasted as heat and only 5-10% gets converted into visible light.
- Energy Efficient Lamps such as (FTL) and Compact Fluorescent Lamps (CFL) consume much less Energy, offer the same light and are cool to touch.

The higher cost of T-5 of Rs. 450 has payback in about two years.

Compact Fluorescent Lamps (CFL) vs GLS (Incandescent)

Replacement of GLS with CFLs: A 60 watt (W) bulb, replaced with 15 W CFL, gives the same light and offers the following savings:



Replacement of a T-12 tube light with T-5 offers the following savings:

Parameter	T-12 TL 40 W regular	T-5 TL 28 W ultra-slim	Savings
Cost in Rs.	45	500	-
System wattage (Watts)	55	31	24
Tube + choke	(40 + 15)	(28 + 3)	(12 + 12)
Light output (lumen)	2,450	2,900	450 gain
Annual consumption in units	99	56	43*
Annual running cost is Rs.	445	252	193
Total cost over 8 yrs (T-5 life) Rs.	3560	2,016	1,544

*at 6 hours per day usage in 300 days

1 crore = 10 million

1 US \$ = Rs. 45 (approximately)

Parameter	60 W bulb	15 W CFL	Savings
Cost in Rs.	10	150	-
Wattage (W)	60	15	45
Life (hours)	1,000	8,000	-
Annual Consumption (units)	108	27	81*
Annual running cost at Rs. 4.5 per unit	486	121	365 #
Total cost of over 4 Years(CFL life) in Rs.	1944	484	1460

*at 6 hours per day usage in 300 days

1 crore = 10 million

1 US \$ = Rs. 45 (approximately)

The higher cost of CFL is paid back within 6-7 months.

Domestic tariff varies from 145 paisa to 550 paisa per unit, based on consumption and non-domestic tariff varies from 395 to 600 paisa per unit.

- **Appeal for conservation based on Savings and Environment protection:** On an average, it is estimated that a family consumes about 200 units per month. Saving of 1 unit per day requires only little care such as avoiding the use of lights during day-time switching off lights when leaving the rooms, good housekeeping methods and attitudinal change towards Energy conservation.
- **Saving of 9 crore unit/month (Rs. 40.5 crore approximately):** If every household saves just one unit per day, about 30 lakh middle class residential consumers in a State (i.e. Andhra Pradesh), may save 9 crore units (90 MU) per month, which works out to savings of about Rs. 40.50 crore per month at the rate of Rs. 4.5 per unit.

The power shortage and the heavy investments at the rate of Rs 6 crore per MW of additional capacity can be avoided.

- **Coal savings:** 90 MU per month, means resource saving of 45,000 tons of Coal per month or 5.40 lakh tons of coal per year
- **CO₂ Emission savings:** About 7.35 lakh tons of Co₂ Emissions per year all from one unit saving, per day, per household.
- **Positive attitude and Energy Efficiency:** Energy conservation is a continuous activity and should come as a second-nature. The change of attitude and positive approach will change the situation from “Can you do it?” to “You can do it”. The fastest growing source of Energy is “Efficiency”.



Courtesy: www.ge.com

- **Say “NO” to GLS bulbs** and replace the existing ones by CFL in Bathrooms, Toilets, Lobbies, and Corridors etc. except for reading purpose.

Energy saving tips – domestic

1. **Use of right illumination:** Use the right illumination by replacing incandescent bulbs with tube lights. Remember – a 40 watt tube light gives twice as much light as a 100 watt incandescent bulb! That is saving 60% in Electricity bills, in addition to more light!
2. **Save 2/3rd energy:** Replace traditional chokes of tube lights with Electronic chokes which only consume one-third Energy compared to the traditional chokes.
3. **Saving in Drawing room:** Drawing room does not need too many lights when guests are not visiting. Use dimmer switches to adjust the amount of lighting you may need at any time. This will help you save valuable power.
4. **Save 20-40% due to paintings:** In rooms use light colors for walls, which helps reduce lighting requirements up to 40%.
5. **Use of light as per task/requirement:** Rearrange the furniture to make your lighting task-based. Reading, Studying, Cooking and Sewing require more light. Watching TV or conversing requires much less. Use CFLs in Puja room, Kitchen, Verandah, Bathrooms etc.
6. **Save 20-30% by cleaning light:** Keep lights and fixtures clean and dirt-free. Dust and dirt reduce lighting levels as much as 20-30%
7. **Keeping cool the best way:**
 - Switch off lights and fans: switch off light and fans when leaving a room
 - Lubrication saves: clean and lubricate your fans regularly
 - Replace old regulators with Electronic regulators: this will help reduce Electricity consumption significantly
8. **Make light of heavy duty home appliances:**
 - Buy only those appliances you really need and of the right size. Try to get the maximum benefit from them with minimum power consumed
 - Avoid using kitchen machines every day i.e. grind spices (masalas) once or twice a week, unless the household is big enough to require its use everyday
 - Use washing machine every alternate day, or as and when full load of clothes are collected

9. **Geyser & Hot water:** Ensure installation of thermostat-controlled geysers. For a hot water bath, mix water in a bucket and try to avoid geyser showers, which consume more power (up to 90 liters of hot water for a bath). Get the heater element in the geyser changed every 5/6 years for enabling heating to be faster and save valuable power.



10. Use AC Optimally & Effectively:

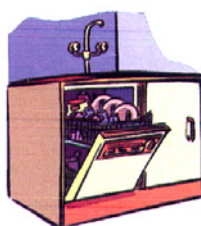
- Consider Using the AC optimally – for an hour or two less everyday. An AC switched off for an hour can keep a 40 watt tube light on for 50 hours!
- Maintain AC temperature around 24 – 25°C (Human Comfort Level)
- Keep windows shut after switching off the AC to keep the room cool for some more time. You would be saving significantly on power consumption.
- Clean the AC filter at least once a fortnight. A choked filter means poorer quality of cooling and more power consumed

11. Savings on refrigerators:

- Use optimum size: choose refrigerators according to the need of the family. Oversized refrigerators mean more power consumed.
- Cool the food sufficiently before storing in refrigerators
- Check the seal or gasket lining of the fridge
- Avoid opening the fridge door frequently
- Defrost the fridge once the ice gets more than ¼ inch thick. Regular defrosting reduces power consumption.



12. **Use high power consuming equipments when necessary:** Ovens, Hair dryers and Vacuum cleaners should be sparingly used. They consume more power.
13. **Savings on Ironing:** Ensure that you've collected the Clothes first, before starting Ironing. Avoid creasing of clothes when hanging them on clothesline for faster and smoother Ironing. Start with ironing clothes that require low temperature keeping clothes that require higher temperature towards the end.



14. **Use TV radio, stereo system only when required:** Radio, TV and stereo systems are low consumers of power, nevertheless, switch them off when no one is listening or watching. Switch off Electronic Gadgets from the mains instead of switching them off from the remote control or placing them on stand-by.
15. **ISI mark for Savings:** Look for the ISI mark when buying desert coolers, ACs, water pumps and domestic appliances such as Electric Irons. It guarantees substantial Energy savings. Non-ISI appliances may be good bargains, but they are sub-standard and their components being inefficient consume more Electricity than what is optimally required.



16. Avoid wasteful use of water:

- Use water from containers instead of keeping the tap running when brushing teeth, Shaving, Mopping the floor, watering the plants and Washing the car.
- Use Dual type flushing systems
- Use submersible pumps instead of Jet pumps.

Save water – conserve power
Unintentional wastage of water

Activity	Method adopted	Qty. used Ltr	Method to be adopted required	Qty. Ltr	Qty. saved Ltr.
Brushing teeth	Running tap for 5 min.	45	Tumbler or glass	0.5-1.00	44.5-44
Washing hands	Running tap for 2 min.	18	Half filled wash basin	2.0	16.0
Shaving	Running tap for 2 min.	18	shaving mug	0.5	17.5
Shower	Letting shower run while applying soap & staying under shower for too long	90	Wet down, tap off; apply soap; rinse off	20.00	70.00
Flushing toilet	Using old fashioned large capacity cistern	13.5 or more	Dual system short flush liquid waste, full-flush solid waste	4.5 9.0	4.5 or more
Watering plants	Running hose for 5 min.	120	Water can	5.0	115
Washing floor	Running hose for 5 min.	200	Mop and bucket	18.0	182.00
Washing car	Running hose for 10 min.	400	Buckets (two)	18.0	382.00

17. **Save fuel:** Save 15% fuel by practicing proper driving skills and by proper maintenance.
18. **Use solar power:** Use Solar Power intensively for generating more Energy – Green Energy is economical for utilities.
19. **During evening peak load (6.00 pm to 9.00 pm):** minimize the use of Gadgets like Grinders, Washing machines etc.

Reference book:

The Bulletin on Energy Efficiency
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