

शु कुमार सिन्हा  
सचिव  
भारत सरकार  
**PRADEEP K. SINHA**  
Secretary  
Government of India  
D.O. No. 9/20/2014-EC



सत्यमेव जयते  
Ministry of Power  
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05.08.2014

Dear *Shri Sharma*,

This is regarding promotion of Light Emitting Diode (LED) bulbs in place of Compact Fluorescent Lamp (CFL) and Incandescent Lamp (ICL). Lighting accounts for more than 15% of the total electricity consumption. The general lighting demand is estimated to be around 40 GW of which the residential demand is about 30 GW and the commercial demand is about 10 GW. The Low Carbon Committee report of the Planning Commission of India estimates that 45-65 TWh of electricity can be saved by 2020 through efficiency measures in lighting.

2. There are approximately 1400 million lighting fixtures in residential and commercial sectors with 50% share of CFL, 25% share of Fluorescent Tube Lights (FTLs) and 25% share of ICL. LED lamps and LED tube-lights relatively have a very small market share. However, LED lamps and LED tube-lights are the most efficient and have a much longer life. They are about 25% more efficient than CFLs, 23% more efficient than T5 tube-lights and 80% more efficient than ICLs. Though the price of LED is relatively high as compared to other light sources, their lifetime cost is much lower. The lifetime cost comparison of LEDs over CFLs and ICLs is attached as Annexure. Moreover, the cost of LED bulbs will come down significantly as the volume increases.

3. The high energy efficiency of LED can be gauged from the fact that a 9W LED bulb would give the same light output as a 12W CFL or a 60W ICL. An ASSOCHAM study of 2011 shows that widespread use of efficient lighting devices mainly LEDs would save India around 34,723 MW of generating capacity. Apart from this, life of LEDs is about 4-5 times that of CFL and 20-30 times that of ICL and they also work over a wide voltage range.

4. In view of the given consideration, I would like to suggest that your Ministry / Department and attached subordinate offices may procure only LED bulbs instead of CFL or ICL for future lighting.

With regards,

Yours sincerely,

*Pradeep K. Sinha*  
(Pradeep K. Sinha)

Encl : as above

**Shri Ram Sewak Sharma,**  
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**Lifetime Cost Comparison of LEDs over CFLs and ICLs:**

Parameters	Unit	LED	CFL	ICL
Projected Lifespan	Hours	30000	6000	1000
Watt per bulb	watt	9	12	60
Cost per bulb	INR	400	120	15
KWh of Electricity used over 30000 hrs	kwh	270	360	1800
Lifetime Cost of Electricity (@Rs. 5.00/kwh)	INR	1350	1800	9000
Bulb Needed for 30000 hrs		1	5	30
Cost of appliances	INR	400	600	450
<b>Total Cost for 30000 hrs</b>	INR	1750	2400	9450

This comparison indicates that LED bulbs are the least-cost option even at today's prices. The benefit would increase as prices reduce and performance becomes better.