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## LED LIGHTING- TRENDS AND OPPORTUNITIES IN INDIA

**Dr.V.VENKATESWAR RAO**

Dean of Management, PACE Institute of Technology and Sciences, Ongole

**Dr.M.SRINAGESH**

DIRECTOR of Research and Development,  
Pace Institute of Technology and Sciences, Ongole

### ABSTRACT

India has massive energy needs in view of a large population and growing economy. As more Indians gain access to available electricity and the convenience it provides, the pressure on the nations energy infrastructure will only grow and more severe. Adoption of LED'S in India could significantly reduce lighting load, peak demand and overall energy consumption. The Indian government is greatly pushing for increased adoption of LED's through initiatives like the Bachath lamp yojana , LED village campaign and promoting LED usage in street lighting. There is a very environmental lobby pushing for the growth of LED's because of their lack of mercury content and other hazardous substances.

Keywords:- Environmental lobby, Mercury content, etc

### Introduction:

In present day lighting markets the LED Luminaries market is dominated by LED down lighters, followed by LED panel lights, tube lamps and led spot lights. LED Down lighters are most popularly sold in the range of 3-6 watts while LED tube lights are predominantly sold in 10-15 watts. Philips and Osram are the market leaders across the categories. The unorganized sector accounts for a bulk of the LED luminaries but is less prevalent in LED tube lamps. Retail stores followed by the hospitality sector are the primary customer segments, accounting for more than 50% of the LED luminaries –CFL's are seeing maximum replacement by LED'S in hotels, Restaurants.

### Significance of the study:

We are going through a period of unprecedented urbanization. Today more than half of us call cities our home 20 years from now this figure will have risen to 60% by the middle of the century over two thirds of us will live in urban areas. The rapid expanding conurbations is happening in emerging economies like India, china and other countries of the world. All the people will want to live, work and enjoy their free time in safe, attractive, vibrant and environmentally sound cities. The rise in the urban areas offers great opportunities for economic and social development but at the same time it presents enormous challenges especially in these times of lighting the municipalities and urban areas. to this end the incorporating ideas of innovations in LED lighting technology is fully integrated solutions for cities / municipalities there by offering unprecedented scope . to enhance city / urban life with bright lighting. As per the statistics of today the cities and urban areas are consuming 70%



of the world's electricity consumption. Discussion goes on how these cities will manage to meet the growing energy demand while keeping costs under control. By switching to energy-efficient lighting technologies such as LED, we have introduced a way to save the power of energy. Phillips is driving the lighting industry's transmission towards energy-efficient lighting particularly through LED luminaires. In addition to their capacity to slash energy bills and avoid greenhouse gas emissions, flexible LED lighting solutions we aim to improve the energy efficiency. These solutions offer freedom in terms of controlled lighting efficiency, color, dynamics and design. This capability is driving a shift from quantitative functional lighting towards qualitative intelligent and emotive lighting that transforms urban environments, offering city/urban residents and visitors safety and spectacles, uplifting and inspiring experiences.

### **The led revolution:**

Efficient lighting in homes and streets is a key part of clean revolution. A swift and massive scaling up of clean technologies to create a safe climate boosting economic growth and secure a prosperous future for all the living beings. The lighting revolution is already in process. It is being scribbled by one technology i.e. Lighting emitting diodes .LED's are emblematic of the emerging clean revolution technologies which provides minimal environmental impact that generates immense economic value, and have the power to change our lives for the better. LED is bringing a lighting revolution to our cities and urban areas since the days of Thomson Alva Edison. The quantum dynamics that create a light in LED semiconductor represents as much as a technological step change as been moved from candles to the incandescent lamps in 21<sup>st</sup> century. LED lamps saves the energy from 50-70% compared with conventional technologies result in similar cuts to carbon emissions. Superior control over the light color, intensity and direction allows a novel lighting system that designs and deliver a wide range of social benefits. In door LED smart control systems have shown to improve the students performance and study performance. Out door LED control systems can deliver the improved visibility for pedestrians and traffic as well as reduced light pollution. Well designed LED's are expected to last for 50,000 to 1,00,000 hours or more. LED's are evolving much faster than any other lighting technology while fluorescent tubes have double in efficiency in usage. Today LED's are among the most efficient lighting sources available both in near future they will reach for beyond any competing technology and become the technology of choice for most applications . with energy power savings reaching up to 90% compared to today conventional technologies. The emotional benefits will come primarily to nations that invest in LED research and manufacturing of today. This LED industry will support Hundreds and Thousands of high value of jobs in supply chains that span the globe.

### **Led lighting- the key barriers:**

Primarily LED's are environmentally proven with bright lightings at out door in many settings, but out door maintenance cost's are high They face a particular economic disadvantage in their high-up front costs.



Secondly, major government and corporations are important drivers for the early LED market, but there is a great variation between lighting managers and level of awareness. The recognized energy saving make alert to the current state of LED technology to understand how to proceed in procuring well designed LED solutions. This paper explore the idea how the government can help the LED industry to overcome the barriers by imparting / adopting new technological methods.

### **Key Findings of The Study**

- LED's achieve the expected 50-70% of energy savings and reach up to 80% savings when coupled with smart controls
- Many commercial LED products gives the life span of 50,000 to 1,00,000 hours of consumption, and LED products generally show a very little change in color.
- The catastrophic failure rate of LED is very low
- The public prefers LED products and around 90% of survey respondents support is observed
- Even with this energy savings the vast majority of tested products exceeded the local lighting standards.

### **Conclusions**

It has been observed that LED's are now mature enough for scale-up in most outdoor applications and that LED combined with smart controls promise will lead to greater savings. Today the challenge for cities to scale –up LED's in the applications to which they are best suited and to overcome economic and financial barriers to do so .To get succeed they must adopt economic models that accurately accounted for long standing savings of LED's and their associated smart control technologies of today. The central and state governments must make commitments to LED's and smart controls, a core part of their energy efficiency policies. Accelerating market development will help LED's and smart controls to become main stream in both outdoor and indoor settings, by providing enormous economic and environmental returns.

Relevant agencies can speed up the development of lighting standards that recognizes LED' technology such as improved visibility provided by white and uniform light.

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