



# LED Lighting: Soon to be Made 'Wholly' In India

INDIA IS READYING ITSELF TO BE TRANSFORMED AS ONE OF THE LARGEST PRODUCING HUBS THAN TO REMAIN BEING TREATED AS THE EXPORT DESTINATION FOR SUPPLIERS SITTING ACROSS THE GLOBE AND SERVING DIRE INDIAN NEEDS.

**The government is** determined to not leave any stone unturned when it comes to achieving the nation's objective of being self-sufficient in power/electricity. For this, it not only focusing on enhancing local production, productivity and performance levels; but also aiming at meeting the entire country's energy requirements in the meantime. Consequently, there's a big push for LED lighting so as to help save a huge amount of energy, which is a must for an energy-starved nation like India for its usage in other growth trajectories.

It's a proven fact that energy conservation is crucial than equivalent quantum of energy generation. According to industry experts, LED lights can play a greater role by conserving peak power demands in our country by 10,000 MW. Once the incandescent/conventional lamps are replaced by LED lights, it can save almost 100 billion units of power annually thereby saving up to Rs. 43,750 crore per year at its established level of annual consumption of power. Of course, with ever increasing demand of power for lighting purposes across India, the potential for energy saving and financial benefit will indeed be much more.

All this is achievable owing to India's unique strength of young, educated, innovative and committed engineers, who by virtue of their skills continue enhancing the performance of the LED-based lighting products by finding innovative ways to cut costs and mass produce them to be more competitive thereby meeting the global requirements.

In the follow-up, India can be recognised as one of the best sources for LED lights all over the world. If the above strategy is successfully implemented, the Indian LED Industry can make available 24X7 electricity supply to its countrymen.

## 'Make In India' entails amazing potentials

The very foundation of the 'Make In India' drive was put a couple of years back in October 2014, when the government launched a massive energy saving campaign with the introduction of Domestic Efficient Lighting Program (DELP) and Streetlight National Program (SLNP) with a set target to replace 77 crore incandescent bulbs and 44 crore CFLs in domestic usage and more than 3.5 crore conventional streetlights, with LEDs – all within a span of three years.

This, in turn, has boosted the morale of domestic LED manufacturers, as they are hopeful of getting good business out of this campaign. Of these, conversion of around 13 crore light points in domestic usage as well as close to nine lakh streetlights have been reportedly completed till date. While the demand is surging with the project development processes, it seems that the domestic companies do not have the wherewithal to meet this demand.

## LED Technology in India

LEDs are the basic components used in a variety of applications. Initially, it was limited to certain specific lighting needs like automotive, traffic signal, etc. But with



its entry into the mainstream i.e. general lighting applications, there's no looking back for these tiny wonders, in turn, giving a strong thrust to the global lighting market as a whole. No wonder, why LED lighting is one of the fastest growing industries of date.

While the industry estimate stands at Rs. 4,000 crore, which is expected to touch Rs. 21,000 crore by 2020, PHD Chambers figured it out (in 2015) at around Rs. 912 crore (\$143 million), which is expected to grow at a CAGR of 47.3% to touch Rs. 8,298 crore (\$1.3 billion) by 2018. This has majorly been driven by factors such as falling prices of LED lights, increasing initiatives taken by the government, followed by rising concerns with respect to energy conservation.

Going forward, the shipment of tube LEDs is forecasted to reach 1 billion by 2018. The important takers for LED tube lights are offices and commercial spaces, where the switched-on period is for around 15-hours a day. LED tubes can save 50% of power consumption compared to fluorescent tube lights. Meanwhile, the LED industrial lighting segment is gradually opening up with a wide range of opportunities for players in India, who are witnessing immense growth.

However, for the consumer market, LED is

still an expensive technology. Despite faster penetration in this segment, LED lags behind CFL technology, especially in the lamps, tube lights, and bulbs sections owing to its high price. Undoubtedly, there are lot of LED lamp assembling companies in India, which are fully dependent on the import of the very basic LED chip elements.

Contrary to this, **Arun Gupta**, Managing Director, NTL Electronics opines that the consumer segment is already in a high momentum. "Consumers in general are choosing LED bulbs as a preferred mode of lighting, especially in the urban areas. The demand for LED lamps has sky-rocketed due to the increased focus of the government to provide sustainable lighting solutions, which has further fuelled the adoption of LED on the grassroots level," he states.

### Chipping in the Locale

DeCore Nano-Semiconductors Ltd is the only LED semiconductor device maker which has a LED wafer fab in India. According to PHDC, DeCore is India's first commercial compound semiconductor foundry with its 20,000sqm facility located in Special Economic Zone (SEZ) in Gandhinagar, Gujarat. It is capable of producing GaN/InGaN-based, high-

brightness LED chips in volumes, thereby saving India from imports in coming years. Also, the quality of LEDs made by DeCore is nothing less than any leading Chinese vendor. The company manufactures LED chips (bare-die), LED modules and luminaires, which include downlighters, false ceiling, grid lights and tubes.

### Brands that matter

Energy conservation motive drives the need for power-efficient products. No wonder the rural electrification plan has been derived in the same line. Unlike in developed countries, as of now, LED lighting constitutes only a meager part of India's overall lighting market due to it being a late embracer of the technology. Nonetheless, the current scenario evinces a different side where every other businessman is finding it lucrative and is vying to setting up the assembling unit for LED lighting to make most out of it asap.

PHDC's report speaks of a survey, wherein consumers demonstrate their preference for bigger brands over the SME ones available in the market, which are still struggling to make their mark in the lighting segment. The survey lists out popular names in the consumer market, where Bajaj Electricals is the most preferred and trusted brand in India. It is one of the country's oldest business conglomerates focusing on lighting solutions and domestic appliances. It supplies LED lights for home decoration under the brand name Bajaj LEDZ and iLED, besides offering solar lighting solutions.

The second most preferred brand in India is Fiem Industries Ltd, which is a reputed name in the automotive lighting industry with its eight state-of-the-art manufacturing units located across India. The company has recently added additional facilities for the production of automotive lighting and signaling equipment.

Going ahead, amongst the top three LED brands is the global electrical giant, GE that offers a variety of LED lamps ranging from decorative and downlighters to LED strip lights. Its Maple series of lights for commercial applications and the Palm series for streetlight applications have already made their presence felt in the country's lighting arena. The company, as of now, has 15,000 employees including 6,000 engineers deployed in GE's Indian Research Centres in Bengaluru, Mumbai, Hyderabad and Chennai.

Not to forget the names like Havells, Osram, Crompton Greaves, Syska LED, HPL and Surya Roshni, all of which have been very active in the market for quite a few years now, and are setting up manufacturing units in various states across the country. They are aggressively marketing and promoting themselves to gain a strong foothold in the coming years.

### Manufacturers' Perspective

There's no denying of the fact that the 'Make In India' drive is meant to propel and encourage local manufacturing in India, and in turn, to reduce the country's dependence on imports. However, quite a few existing manufacturers that were manufacturing





"GOVERNMENT SCHEMES HAVE MADE MASS MANUFACTURING OF LED LIGHTING A REALITY."

**Arun Gupta, Managing Director  
NTL Electronics**



indigenously right from the CFLs days, had already transformed their respective facilities in to LED lighting manufacturing units long before the said concept was put in to practice.

One such player is NTL, which has always been a strong proponent of domestic manufacturing and is pretty focused on creating lighting electronics and products adhering to stiff Indian conditions. "Since 2002, we have been manufacturing lighting electronics, followed by complete CFL manufacturing for a host of B2B clients. Later in 2009, we graduated to LEDs sensing an early call for the transformation," says Gupta of NTL.

He further adds that NTL has moved from strength to strength. "The commitment to design and manufacture products suitable for Indian power conditions remains our main motivation. Our core strength of manufacturing excellence combined with excellent R&D focus has helped us in the last decade and a half to become the foremost lighting electronics company in the country."

MLS India Private Ltd, an Indian arm of the Chinese conglomerate, is of the view that despite so much thrust from the



"WE NEED TO ENHANCE OUR FOCUS ON R&D, SPECIFICALLY FOR LIGHTING."

**Shobhit Bhasin, National Sales Manager  
MLS India Pvt Ltd**

government in the last few years, LED is yet to grab the needed momentum. "While housing and drivers for LED lights are manufactured locally, the chips/wafers, the most important constituents when it comes to manufacturing LED lighting, are sourced from outside. The condition doesn't project any improvement and would continue like this further for not less than a couple of years," says **Shobhit Bhasin**, the company's National Sales Manager.

Interestingly, MLS India Private Ltd is waiting for the surge in demand to reach a level which would compel them to set up a factory in India. "MLS does have plans to set up its facility here but the low scale on the demand side is coming in the way as a LED manufacturing plant needs huge investments," says Bhasin adding that for a firm footing in a worthwhile market like India, MLS can even buy an existing company with an established chain of distributors and retailers already in-place to help it explore the Indian market.

According to Bhasin, MLS is a \$ 1.3 billion company in China that manufactures and supplies both LEDs and finished products.



"MAKE IN INDIA WILL TRANSFORM OUR COUNTRY AS THE GLOBAL HUB."

**Sandeep Sharma, Vice President  
Eon Electric Ltd**

In all, the company produces 40 billion LEDs per month in its Chinese facility, with which it caters to the markets of South Africa, China and India; while for finished products, it is supplying to 20 other countries but India. "As of now, we are only offering the LEDs to the Indian market. Last year, we supplied 400 million pieces to Indian buyers, which we are hopeful of making a thousand million, this year," he says adding that the current monthly consumption here is only a million pieces. Once it reaches at least 1 billion, they will surely opt to put up a facility.

Speaking further on the 'Make In India' drive, he adds, "In India, we do not spend on R&D to develop new designs and application areas, rather we prefer to copy and replicate the same from overseas. It is high time that we started focusing on enhancing domestic manufacturing. We, being the locals, better understand the taste and requirements, and accordingly develop products that can meet typical Indian requirements. Five to six years down the line, we are optimistic to have a well-established self-sufficient lighting industry, provided there is an increased thrust on skill development for lighting."

### Benefitting India

Almost all the manufacturers restate their firm belief in the concept of 'Make In India' and hope that this ambitious project by the Indian government will be the turning point in the country's manufacturing scenario. This will get a large number of global players to set up base in India, which would eventually bring new technologies, further raising the bar of quality standards and thus showing a way-out to substandard products. It needs no hesitation to mention that in the long run, quality competition will see both the industry and the end-consumer benefit alike from this move.

Gupta is of the opinion that there is exponential growth in the Indian lighting industry following various government initiatives focused on enhancing energy-efficient lighting. "More players are getting into the fray on a daily basis and setting





## A Snapshot of the state of LED Lighting in India

### Factors leading to an increase in demand

- Mandatory energy efficiency regulations for new buildings and facilities
- More investments in Green buildings
- Large size of real estate market
- Growing interest among healthcare, hospitality, retail and IT industry
- Continuously escalating demand from institutions, industries and corporate houses

### Deterrents to the Technology

- The concept of LED in India has been a slow starter compared to China, USA and European Countries, which have embraced this technology and are using it extensively in their respective countries. Some European countries have banned incandescent bulbs way back, which goes on to reflect their seriousness and conviction in the technology adoption.
- Another problem has been the lack of awareness among the masses. For people living in rural areas incandescent bulbs are still prominent and accessibility to LED technology is really cumbersome due to problems in distribution network.

### Hindrances to Manufacturing LEDs

- Absence of National Technical Standards is limiting the extent of awareness about the exact specifications required for manufacturing
- Lack of testing facilities like laboratories and workshops, which is a major cause of concern for manufacturing LEDs in India
- Lack of proper institutions to impart training and teaching courses on lighting

### Government Initiatives

- Government of India has taken a serious note of the benefits of using LED products and after the LEDs came into picture in 2009, it has taken several steps in promotion and awareness among the masses.
- Recently, the Government of India launched DELP and SLNP to make India self-sufficient in power.

### Incentives/schemes for boosting manufacturing LEDs

- LED is a key vertical among the ESDM (Electronic System Design and Manufacturing) products under the Modified – Special Incentive Package Scheme (M-SIPS) of the Department of Electronics and Information Technology that aims at increasing investments in the both urban as well as rural areas. The scheme provides subsidy for investments in capital expenditure - 20% for investments in SEZs and 25% in non-SEZs.
- It also provides for reimbursement of CVD/Excise for capital equipment for the non-SEZ units. For high technology and high capital investment units, like fabs, reimbursement of central taxes and duties is also provided.
- The Government's 'Make In India' drive has marked electronics systems as a core sector and focuses in particular on LEDs with custom duty exemptions for manufacturers to promote manufacturing of LEDs in India

up facilities. With 'Make In India' on the roll, we are hopeful that global majors will look forward to opening up their projects in India, bringing in the much-needed tech advancements and the latest manufacturing techniques into the country," he says anticipating that this will lead to consolidation in the industry too besides providing a level playing field to the existing players.

Notably, the government sector is the single largest user for LED lights in India today. "While SLNP is quite visible in the streets of various states adopting and implementing the scheme, DELP in itself is a very good initiative to propel the early adoption of LED bulbs at the households end. This would not only help save electricity, but also create a movement towards Green lighting at the domestic level," Gupta reiterates adding that schemes like these including increased usage of LED lights for in-cabin lighting as well as the lighting of railway stations, etc. have actually made mass manufacturing a reality in India.

According to **Sandeep Sharma**, vice president, Eon Electric Ltd, with the government's increased thrust on 'Make In India', the motive is not only to make India as the global manufacturing hub, but also to save ample energy in the process to become self-sufficient when it comes to power consumption. "For this, manufacturing, supplying and installing streetlights has been identified as a key area where the use of LED Streetlights can immediately reduce power consumption by up to 70%. It did not take long for Eon to join the bandwagon, which not only involved working with new generation cutting edge technology, but more importantly to participate in a cause that would help our power-starved nation save power, which costs three times lesser than generating such lost power," he asserts.

According to Sharma, following the national drive, today Eon is one of the largest LED street lighting companies having a state-of-the-art manufacturing facility at Haridwar in Uttarakhand, which is well-supported by a team of dedicated project execution professionals based at its head office in Noida, UP. It is important to mention that





→ the company has recently executed a couple of pilot projects of smart street lighting in Aligarh (UP) and Jodhpur (Rajasthan) in association with EESL.

"At Eon, we are committed towards taking up more challenging projects not only in street lighting but also in other energy-efficient lighting projects as well, such as outdoor lighting, indoor lighting, railway station lighting, metro rail lighting, tunnel lighting, etc. to continue to be inspired by our legacy of providing energy-efficient solutions thereby adding more such success stories for future Eonites, in times to come," avers Sharma.

### The Boosters

Gupta stresses that morale boosting steps like subsidy for investment in capital expenditure, reimbursement of CVD/Excise for capital equipment for the non-SEZ units, reimbursement of central taxes & duties will strengthen the confidence of Indian manufacturing fraternity especially in the lighting sector. "Our company is a leading

player in India in our category and will not immediately benefit from the scheme, since it is more targeted at Greenfield projects. But the industry, at large, will derive immense value from the moves," he shares.

Echoing similar sentiments, Bhasin augments that the lighting industry in India needs quite a few big boosters in the form of policies like its counterpart in China where the manufacturers are getting ample government support when it comes to escalating local manufacturing. "Amidst government's keenness, the other side of the coin tells a different story, especially when it comes to the LED-based lighting industry, which is heavily dependent on the imports. Adding to it is the high manufacturing cost due to expensive overseas technology in the absence of dedicated research & development wing," says Bhasin.

India is a price-sensitive market and the consumer here wants cheaper products. Also, lack of awareness is hurting the growth

prospects. A consumer knows that he has to buy LED but of what specification or type of LED lighting is apt for the specific requirement is not clear to him. Even manufacturers, despite being given specific information about the type of LEDs to be used for different applications, don't really bother and end up mismatching the combination to grab bigger profits out of their offerings in the market.

### On the components side

Around 70% of the raw material that goes in LED lighting is imported, as the component market in India is still at a very nascent stage, and the country hardly has any technical giant of international repute to support the electronic components market. As a result, everything is being imported from China. The industry believes that there is a huge potential in the electronics components markets and now with the support of the government's new incentives and policies, this goal can be easily met as quite a few Indian manufacturers want to source these components from local market to offer more affordable products to its valuable customers in India.

### Conclusion

Riding on the piggy back of government initiatives and policies, LED lighting has tremendous scope in India based on its attributes including energy-efficiency, ROI, low/no maintenance cost, environment friendliness, which are talk of the time owing to rapidly deteriorating country's environment and power conditions. EESL's push is also ensuring adoption in the rural areas across the nation; while schemes, such as DELP, are incentivising the urban users to shift to LEDs. Though, the awareness campaign in the mass media from leading players is helping in changing the perspective of common customers, it needs a big push from the government side also to catapult the current market scenario.

