



ELCOMA VISION 2024



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Foreword

Lighting Industry in India has predominantly been making all products in India. The Industry has also been striving to introduce the most energy efficient products to save energy. Besides this, the ELCOMA members also ensure to provide best quality products at the most affordable rates.

In 2012, the Industry decided to launch LED Lighting products in India and prepared a Vision 2020 document as a guide to various steps to be undertaken to reach the goal. Briefly, the plan was that if 1.2 billion LED Lamps, 30 million Street Lights and 50 million down lights were sold by year 2020, we will reduce power consumption in lighting by 5% (from present 18% to 13%) and in energy terms saving more than 27000 MW of power.

Looking at Vision plan, the government agreed to implement the program as it is, but wanted to hasten it up by completing the program by end of 2018.

EESL was given the task of distribution of LED Lamps to each state in large quantities. Therefore EESL started procuring large quantities of LED Lamps. The Industry was not prepared with such a large quantity and hence had to rely on importing components to assemble in India.

Since the import duty was brought down to zero, it worked out to be very suitable for the Industry to stick to the assembly route for manufacturing lamps. In fact even the largest manufacturers also shifted to assembling of the Lamps.

The entire manufacturing base shifted from manufacturing to assembling of lamps using imported components.

It is now desired to revive the manufacturing of maximum components and finished products in India.

Now a Vision 2024 has been prepared under which the plan is to establish manufacturing facilities for LED Components and accessories to be Made in India. It is estimated that India will consume about 600 to 700 million pieces of LED Lamps per annum, besides which the other segments of products like Battens, Streetlights and Luminaires will help in prioritizing the establishment of manufacturing in India. It is also proposed that about 40% of Indian turnover will be exported to other countries. The Vision 2024 document will analyze details of how and when we will be able to implement the program.

The Vision will also look at various issues faced by the Industry, the roadblocks and desired inputs with the support of government initiatives to reach the desired results.

Acknowledgements



We acknowledge with thanks the contributions made by the ELCOMA team in putting together an industry Vision for 2024. In particular we wish to record our special thanks to the following team members, who devoted their valuable time, providing essential data and technical information that has made this documents possible.

Members of the Vision Committee:

1. Mr. Amal Sengupta, ELCOMA
2. Mr. Nitish Poonia, Signify Innovations India Limited
3. Mr. R. K. Jaggi, Surya Roshni Limited
4. Ms. Uma Lanka, Crompton Greaves Consumer Electricals Limited
5. Mr. Lalit Pradhan, Bajaj Electriclas Limited
6. Mr. Pruthwiraj Lenka, Osram India Private Limited
7. Dr. H.C. Kandpal, Fiem Industries Limited
8. Mr. Amit Tyagi, Surya Roshni Limited

Efforts of Mr. Shyam Sujan, Secretary General, ELCOMA who played a very important role while preparing this document collecting data and successfully conducting several meetings of the Vision Committee are fully acknowledged. His vast experience and knowledge helped in focussing attention on the objectives.

We also thank the ELCOMA Board, Mr. Raju Bista, Mr. Sumit Padmakar Joshi, Mr. Avinder Singh and Mr. Anuj Poddar who played a key role providing support, adding information and also providing industry outlook and forecasts from 2020 to year 2024.

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Last but not the least a very special thanks to Mr. Sunil Sikka, Advisor, ELCOMA, Mr. Shekhar Bajaj, Mr. Sunil Vachani, Mr. P. K. Mukherjee (Formerly associated with BIS) and Mr. Krishan Sujan who have been instrumental in providing useful data, encouragement and helping this vision in perspective for their inputs on the present and the future of the Indian Lighting Industry.



Vision 2024

Mission Statement

To make the Indian Lighting Industry as the central hub for manufacturing and exports for the world.

Vision: Objectives

- Revive and expand manufacturing base in India.
- Organise the establishment of electronic component industry in India.
- Induce international manufacturers to set-up manufacturing hubs and have joint ventures with Indian manufacturers for component manufacturing.
- Pursue Indian government to procure only Indian products having more than 50 percent indigenous components used.
- Government to facilitate chip manufacturing in India.
- Create Centre of Excellence for R&D to undertake research oriented projects in new and emerging technologies focusing on quality and energy efficiency to make India a leading global player in LED technology and manufacturing.
- Export Indian products to international buyers by inviting delegates and organizing their visits to industries manufacturing components and finished products.
- Bring in new technology like smart and intelligent lighting and LiFi technology.
- Make India No.2 manufacturer in the world.
- Check and prevent non-compliant and shoddy products from being sold in the market.

Industry Position

- The Indian lighting industry has seen a **strong growth** of 11% between 2013-2018. The growth was halted in 2020-2021 due to impact of COVID-19.
 - The Industry has moved from GLS lamps to CFLs to LEDs in last decade.
 - Several government initiatives supported this transition, including use of LED in government offices, providing consumers with affordable LED lamps through EESL procurement program and State sponsored Demand Side Management Schemes (DSM)
 - Fast infrastructure development like Urban, Highways, Manufacturing and Agriculture sectors has given great push to demand.
- In Vision 2020, it was estimated to bring down consumption percentage usage of **lighting from 18% to 13%**. But due to high growth in infrastructure, the percentage still remains to around 15%.
 - A move away from CFL, for instance, and adoption of energy efficient products (e.g. LED) and systems (e.g. smart controls) will help a lot in reducing our energy consumption further. Improvement in Lumen per watt (LPW) Power Consumption in LED Lamps from 90 LPW to 125 LPW and more. This will bring down consumption percentage usage of lighting substantially.
- Supported by ongoing government initiatives to promote LED lighting as well as changing consumer preferences, the **Lighting market will grow at an average rate of 7% to 11% by year 2024**.
 - The government has decided to change all street lights and lighting in public spaces to LED lights, and initiated making all LED standards mandatory.

Strengths and Capability Gaps

- However, while the Government and industry are already taking steps to raise demand for energy efficient lighting, there exist **manufacturing side weaknesses in LED lighting products and LED Luminaires**
 - Very high dependency on imported component and LED package with between 50% to 60% of the components being imported.
- Currently, our **strength lies in conventional Luminaires and complete assembly of lamp manufacture**, as well as availability of economically viable labour for assembling the LED products. Not forgetting the past experience of making all Lighting products in India for more than 70 years.



Executive Summary

Imperatives

- In order to achieve Vision, there are various **imperatives for the key stakeholders** in this industry
 - **ELCOMA** : To Collaborate with component manufacturers globally for setting up manufacturing units in India, export promotion, support design of standards for products, application and testing which are green and compliant to national and International Electrotechnical Commission (IEC) compliant, support set-up of testing, R&D and educational centres, conduct annual conferences to educate industry and the consumer about upcoming LED trends.
 - **Industry participants** : Invest in and support in joint ventures to manufacture
 - a) luminaire, LED and electronic component manufacturing facilities.
 - b) consumer awareness programs.
 - c) Building quality and efficient LED products at an affordable price.
 - **State and Central Governments** : Ensure Government Procurement of only India made products where at least 50% local value addition is given
 - Continue demand for energy efficient products like LEDs by using in all public spaces, promoting use of energy efficient lighting through awareness programs and financial incentives, signing MOUs to export lighting products the various countries, reviewing product-wise taxation (to make LEDs relatively affordable). Since Lighting Electronics is classified in the slab of 18%, reduction of GST for finished goods will need to be done.
 - Organize international delegates' visits to Indian manufacturers for export promotion.
 - Connect with global components manufacturing companies to invite them to set up plants in India.
 - Support local manufacturing over imports through subsidies and incentives (manufacturing clusters with strong infrastructure, tax-breaks, low interest capital availability, anti-dumping duty, limited FDI restrictions, etc.). Creating champions, Provide Incentives for exports
 - **Regulators (BIS, BEE, Meity)** : Create green and Indian Centric standards for products and applications and ensure implementation by making standards mandatory; make Energy Conservation Building Code (ECBC) mandatory for large lighting users etc. Check on non-compliant products and bring awareness to consumers.

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be with you.

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hrs
Backup



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- Over voltage & over charging protection
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India Lighting Industry: SWOT analysis

Strengths

- **Moderate demand forecasted** for all types of LED lighting products, driven by increasing awareness, rural electrification and government initiatives
- Large **distribution network**, with a huge number of retail outlets, spread to deep rural areas
- Availability of **huge manpower** (skilled/unskilled) at competitive wages.
- Availability of **natural resources**, except rare earth material
- Strong **manufacturing capability** and capacity for luminaires and light sources which has potential for conversion to LED Lighting manufacturing plants for components and finished products.

Weakness

- The Indian lighting industry is less energy efficient compared to other countries, and there is significant scope for improvement
- High import dependency on electronic components majority of value-add for Indian LED market is done outside of India.
- Productivity per worker is much lower as compared to world.
- No encouragement for Exports as no subsidy by government for global competitiveness.
- Less Govt. support compared to global competitors like China, who has become a global manufacturing hub for LED/ Electronic components through a lot of government support.
- No R&D and Testing lab availability.
- Adoption of skill development programs by Industry lacking.
- High cost of capital due to high interest rates.
- Non-compliant products in the market have adversely affected the organized sector.
- Poor power quality condition, requiring products to have very strong specification, adding to cost.
- Hot, humid, dusty conditions not conducive to LED products demanding product design modification adding to cost.
- Weak and expensive logistics infrastructure, Inefficient & high transportation cost

India Lighting Industry: SWOT analysis



Opportunities

(A) Manufacturing

- Huge potential to move LED and electronic component manufacturing to India

	ELECTRONIC COMPONENT MFG.	LED CHIP MFG.	LED CHIP PACKAGING	LED LIGHT ASSEMBLING	LUMINAIRE MFG. & ASSEMBLING	R&D
Current situation	<ul style="list-style-type: none"> • 30 to 35% manufacturing in India, rest imported from China and other countries 	<ul style="list-style-type: none"> • 100% imported Manufacturing controlled by <10 large global players with patented technology. 	<ul style="list-style-type: none"> • 100% imported 	<ul style="list-style-type: none"> • 85% assembling in India 	<ul style="list-style-type: none"> • About 50% in India 	<ul style="list-style-type: none"> • No R&D to design India Centric products
Current factors harming industry	<ul style="list-style-type: none"> • Import of sub-standard products leading to <ul style="list-style-type: none"> • Unutilized capacity • No addition of new manufacturing facility • Economical viability 	<ul style="list-style-type: none"> • Industry non-existent, due to IP constraints and very high investment required 	<ul style="list-style-type: none"> • Relatively no infrastructure in India. Requires very large capacity to be competitive 	<ul style="list-style-type: none"> • Lack of scale in the existing market 	<ul style="list-style-type: none"> • Low technological innovation, low focus on designing. High investment not available 	<ul style="list-style-type: none"> • Standard are modified to Indian conditions R&D not done
Case for local manufacturing	<ul style="list-style-type: none"> • Large local demand by lighting as well as other industries • Availability of most raw materials • Need to decrease dependence on imports 	<ul style="list-style-type: none"> • Difficult to manufacture locally due to restricted access to technology and large economies of scale 	<ul style="list-style-type: none"> • Sufficient demand locally; Need to decrease dependence on imports Easy automated manufacturing process (no IP constraints) 	<ul style="list-style-type: none"> • Availability of labour force • Need to decrease dependence on imports Rising labor cost in China, making India cost competitive 	<ul style="list-style-type: none"> • Availability of large labor force • Availability of raw materials Existing manufacturing plants • Strong capability 	<ul style="list-style-type: none"> • All standards should be controlled by BIS and brought under Quality Control Order instead of three government organizations regulating the same standard for same product
Support needed to grow domestically	<ul style="list-style-type: none"> • Facilities like SEZ to be provided at existing manufacturing units with strong logistics support and financial incentives • Assured demand for locally manufactured products 	<ul style="list-style-type: none"> • SEZs with strong logistics support and financial incentives • Encourage international chip manufacturers to set up plants in India 	<ul style="list-style-type: none"> • Utilization of lighting manufacturing clusters, with strong logistics support 	<ul style="list-style-type: none"> • Design and technology support from large LED industry to medium sized assemblers • Encourage small co-maker business 	<ul style="list-style-type: none"> • Training institutes to create sufficient skilled labor for both design and manufacturing • Export MOUs with neighboring countries to support export • Use BRICS relationship for export development 	<ul style="list-style-type: none"> • Govt. funds to be provided to ELCOMA for establishing R&D centre for continuous research in Lighting Technology and new product development and grants for R&D



India Lighting Industry: SWOT analysis

(B) Exports

- Post COVID-19, India stands favorite amongst many countries who would like to shift manufacturing base in India. Non-manufacturing countries may also would prefer to import from India.
- India likely to become cost competitive vs. China on export of manufactured goods due to increasing and higher labour costs in China, and a strengthening Yuan, coupled with a weakening Rupee
- Potential to **move component manufacturing in India and add to products greater automation in LED lighting will provide competitive products for exports.**
- **Fast growing Indian infrastructure. Enormous local demand increase will add to finesse in manufacturing quality for export acceptance**
- Smart cities and modernization will provide world-class products for exports
- Generation of employment opportunities for India
- India Centric products, having added features will be preferred products for exports specially ASEAN and tropical countries.
- Indian LED products are most cost effective and have very competitive prices.
- Centre of Excellence in India to help making India centric products and undertaking R&D on finished products.

Threats

- **Low quality, non-compliant imports** (e.g. from China) **flooding the market** and competing with local organized sector
- **Oversupply of EESL products in the past**, leading to risk of dumping of products in India, threatening the local industry
- **Disruptive technological changes** which could take time and money for adoption by local manufacturing plants
- **Forex volatility**, leading to volatility in cost of raw materials for LEDs, most of which are imported today
- **Due to high dependence on imported products, Indian Lighting industry local manufacturing is threatened to die soon.**
- **Due to many issues addressed above, many manufacturing units in India have already closed.**



Garnet

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Wipro Lighting is proud of being one of the most trusted brands in lighting industry. We have continuously focused on embracing the latest & finest technology to deliver highly efficient products for different lighting application areas & have always believed in offering our customers the best in class, latest design, environment friendly lighting products & solutions. Wipro lighting has introduced IOT based smart connected home lighting solutions that are easy to use and can be controlled through mobile app & Voice control assistant. Wipro Lighting has won several prestigious awards for product design, innovation & quality excellence like the Red dot design awards, Frost & Sullivan award for LED lighting visionary innovation leadership and many more.



- **Wide voltage range of 150-300 V**
- **Anti glare design with deep optics**
- **Driver with 2.5 kV surge protection**
- **Good color quality with Ra>80**





Future Trends Expected

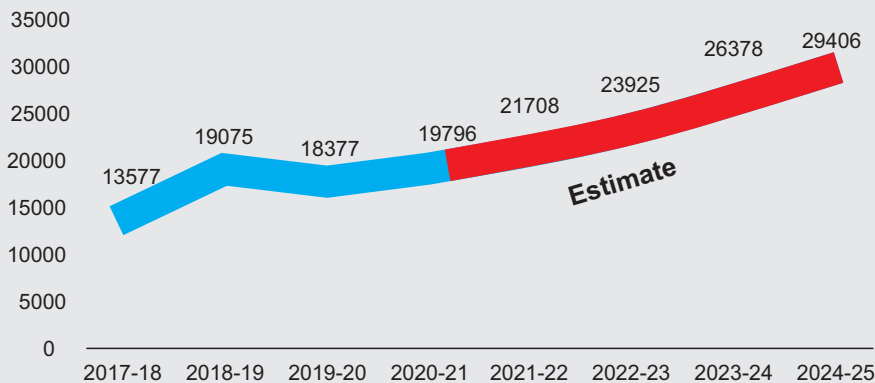
Technology

- Intelligent LED lighting becoming increasingly popular due to decreasing price, efficiency and increasing awareness on security, benefit and energy saving
- Continuously developing newer technology and applications for LEDs which are even more energy efficient (Lumen/Watt increasing) and cost efficient.
- Increased use of controllers with >50% to 60% of Luminaires likely to have controllers in the future

Consumer preferences

- Change in preference in LED Luminaires over Conventional lighting fixture
- Smart control software becoming popular (for occupancy, dimming, security and monitoring, etc.) to save power
- Affordable products
- New variety, innovative products

Trend : Value of Total LED Lighting (INR Crore)

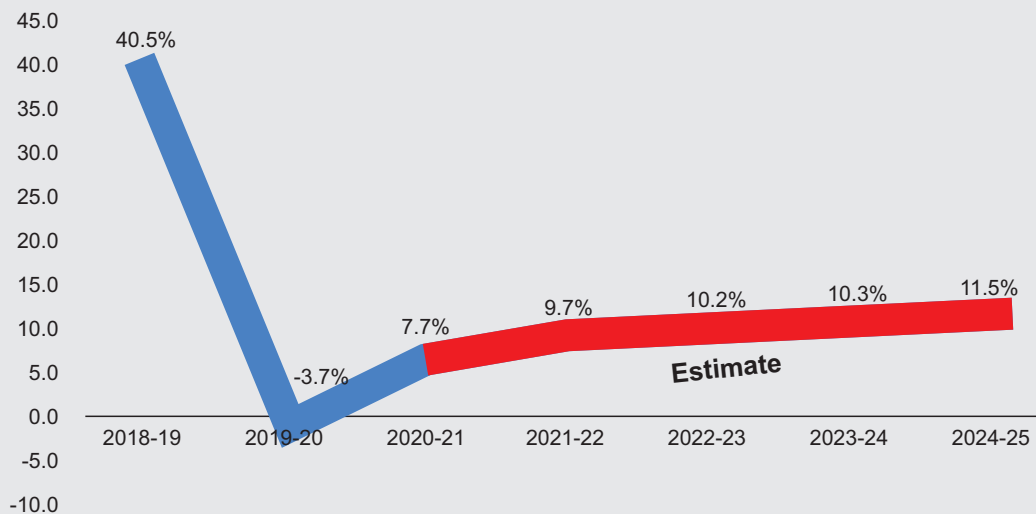


- The above data includes non-compliant products, which are estimated to be around 36%
- Post pandemic growth expected in line with GDP
- Declining value turnover due to reduction in price of end products, whereas there will be growth in product units (Qty)
- 2018-2019 De-growth primarily due to significant price reduction in LED bulbs due to EESL procurement in earlier year.
- Also, significant de-growth in other LED luminaires like flood light, etc
- 2020-2021 Recovery slow impacted by COVID-19

Future Trends Expected

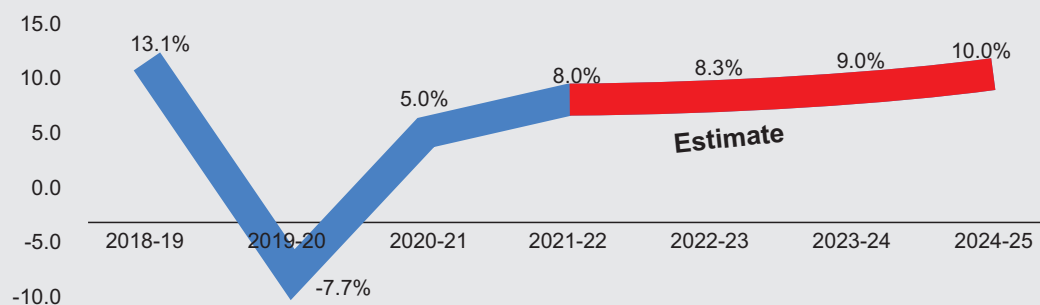


Trend : Growth of LED Lighting (%)



- 2019 - 20 De-growth primarily due to significant overall price reduction in LED Lighting Products and also in bulbs due to EESL procurement in earlier years
- Also, significant de-growth in other LED luminaires like flood light, etc.
- 2020- 21 Impact of Covid 19 leading to loss of sales for close to 3 months+ though recovery in Q3 and similar forecast in Q4 effectively puts the industry on the improved path.

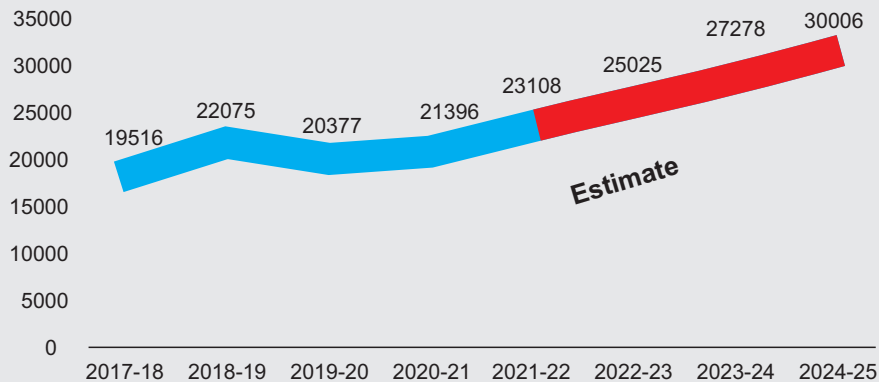
Trend : Total Lighting Industry Growth (%)





Future Trends Expected

Trend : Value of Total Lighting Industry (INR Crore)



- Above data consists of unorganized / non-compliant products which vary from 34% to 40%
- The value is total of LED and conventional lighting

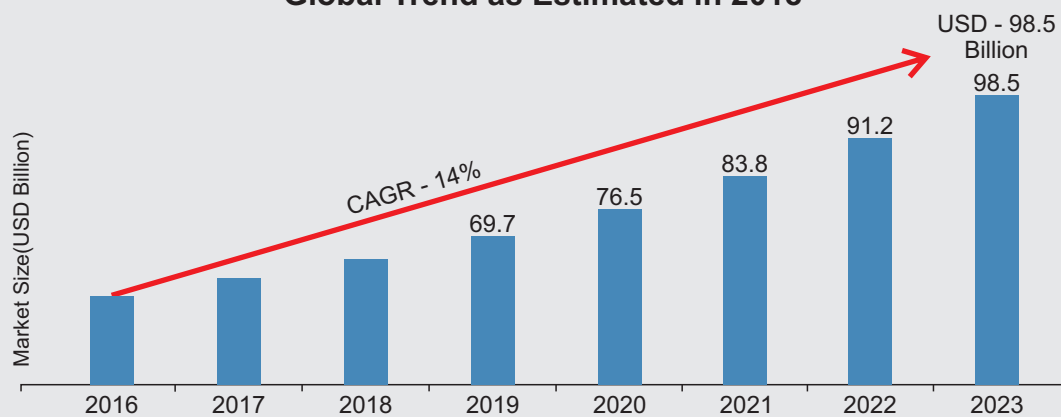
Regulation

- Strict enforcement with strong action on non-compliance of Compulsory Registration Order (CRO) are expected.
- Mandatory LED lamps and Tubular LED lamps standards by BIS, to be covered under Quality Control Order
- 100% Shift to LED for most public lighting applications (e.g. national highways, street lights, parks, etc.) and across all applications.
- Countries across the globe are banning inefficient incandescent lamps in residential lighting; opportunity for India to do the same, by introducing affordable LED filament lamp.

Global LED Market and Post-COVID estimates

The global LED lighting market size was valued at USD 70.0 billion in 2019 and was projected to expand at a CAGR of 14% over the forecast period. Growing stringency of regulations in terms of inefficient lighting technologies and rising government efforts toward sustainable development were projected to be the key growth drivers.

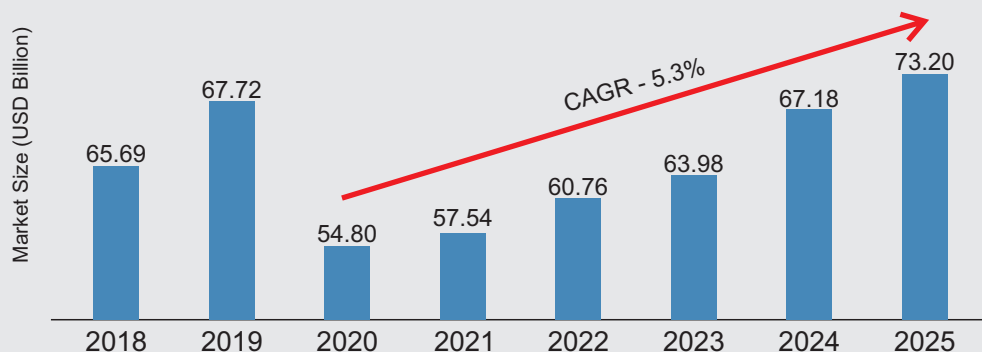
Global Trend as Estimated in 2018



As per a Grand View research report published in 2018, the global LED lighting market was expected to exhibit a good growth potential till 2022. The global market was expected to be valued at USD 92.40 Billion by 2022 and was expected to grow at a CAGR of 13.66% in this period. The global industrial and commercial LED lighting market was expected to reach \$98.5 billion by 2023, according to this report.

However with the COVID-19 Pandemic the Lighting business worldwide has been impacted severely and all estimates have been revised. A new market study published by Global Industry Analysts Inc., (GIA) in June 2021 titled "LED Lighting - Global Market Trajectory & Analytics" predicts that the Global LED Lighting Market will Reach \$73.2 Billion by 2025. This report presents fresh perspectives on opportunities and challenges in a significantly transformed post COVID-19 marketplace.

Revised Global Market Estimates LED Lighting (USD Billion)



Amid the COVID-19 crisis, the global market for LED Lighting estimated at US\$54.8 Billion in the year 2020, is projected to reach a revised size of US\$73.2 Billion by 2025, growing at a CAGR of 5.3%



Global Trends

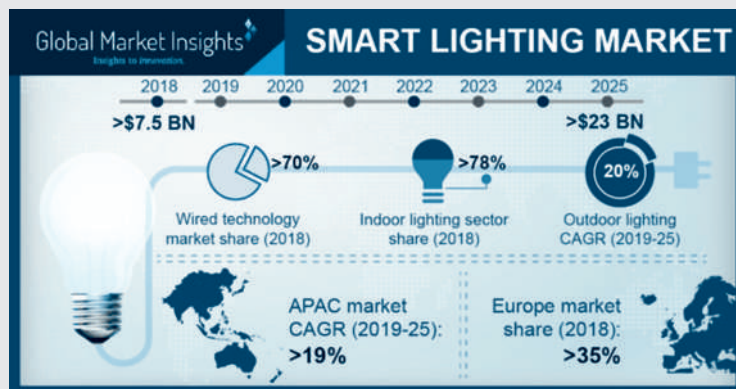
over the analysis period. Lamps, one of the segments analyzed in the report, is projected to record 6% CAGR and reach US\$29.8 Billion by the end of the analysis period. After a thorough analysis of the business implications of the pandemic and its induced economic crisis, growth in the Luminaires segment is readjusted to a revised 4.9% CAGR for the next 7-year period.

The LED Lighting market in the U.S. is estimated at US\$8.5 Billion in the year 2021. China, the world's second largest economy, is forecast to reach a projected market size of US\$13 Billion by the year 2026 trailing a CAGR of 6.6% over the analysis period. Among the other noteworthy geographic markets are Japan and Canada, each forecast to grow at 4.1% and 5.3% respectively over the analysis period. Within Europe, Germany is forecast to grow at approximately 7.3% CAGR.

Smart LED lighting is expected to be critical for IoT in the future. Smart lighting is considered as the gateway for IoT revolution as LEDs can directly connect with software and sensors, allowing control via AI, smartphone or even simple gestures. Rapid penetration is projected for intelligent LED lighting in residential indoor lighting, security lighting, commercial lighting, lighting of public spaces, energy efficiency lighting in commercial and residential spaces, human-centric lighting at offices, homes and also healthcare facilities, and horticulture lighting, among others.

With connected homes and IoT becoming widespread, indoor smart lighting is expected to gain popularity. Growth will be underpinned by the rising focus on lowering energy consumption, efforts made to comply with state and federal environmental regulations and focus on reducing maintenance and operational costs.

Global market for LED Lighting in Indoor applications is estimated at US\$36.4 Billion in 2020, and is



projected to reach US\$49.4 Billion by 2026 reflecting a compounded annual growth rate of 5.6% over the analysis period. Europe constitutes the largest regional market for Indoor segment, accounting for 31.9% of the global sales in 2020. China is poised to register the fastest compounded annual growth rate of 6.9% over the analysis period, to reach US\$10.4 Billion by the close of the analysis period.

Intelligent Lighting and India

A shift toward the implementation of energy efficient, cost-effective systems is expected to proliferate the demand of smart lighting, particularly due to the prevalence of smart city projects across the world including India and is projected to offer lucrative growth opportunities for the industry.

The rise of neighboring Asian countries like Taiwan, Korea, Vietnam as manufacturing hubs, the increasing competition for Indian manufacturers and the possibility that many global countries can be expected to shift manufacturing to India in order to diversify their manufacturing base and future investment are some of the factors that indicate that IoT LED Lighting technology will be the future of Lighting in India and around the world. As predicted globally, IoT will grow at a CAGR of 19%.

Key Imperatives



Objective 2024: To create India made energy efficient LED products for local consumption and export.

Initiative / Imperatives	Ownership / Responsibility		
	ELCOMA	Industry Participants	Government
1. Revive manufacture of finished products in India	✓	✓	✓
2. Establish components manufacturing in India. Induce Foreign investment		✓	✓
3. Government to procure India made LED products with atleast 50% Indian Components both mechanical and electronics			✓
4. Bring chip manufacturing to India	✓	✓	✓
5. Export promotion	✓	✓	✓
6. Create standardized labeling for lighting products to provide consumers the right information for making decisions - lumen output, lumen/ watt, life (in hrs), wattage, light appearance	✓	✓	✓
7. Centre of excellence	✓		✓
8. Skill Training	✓	✓	✓

LED Lamps and LED Luminaire manufacturing capability

Initiative / Imperatives	Ownership / Responsibility		
	ELCOMA	Industry Participants	Government
• Promote local manufacturing by creating a manufacturing support for all LED lighting related products (luminaire and assembling, LED encapsulation, electronic components), with subsidies incentives and other benefits like		✓	✓
• Cheap land, good infrastructure in the form of testing lab, warehousing, uninterrupted cheap power, water, and smooth logistics connectivity to ports and NHs (enabling reduction in logistic cost)			✓
• Provide fiscal incentives to increase capital inflow in manufacturing set-ups through removing FDI restrictions and providing low interest capital			✓



Key Imperatives

Skill and Development Training

Initiative / Imperatives	Ownership / Responsibility		
	ELCOMA	Industry Participants	Government
• Set-up training centres for luminaire design and manufacturing	✓	✓	
• Set-up educational centres promoting study of lighting technology and application. Create a Lighting Diploma Course	✓		✓
• Set-up R&D centres (in collaboration with premier educational institutes) focused on new and efficient lighting technologies , with funding from industry participants and premier institutes	✓	✓	
• Conduct annual conferences and seminars to educate the Indian industry about latest global development in lighting (lighting technology, manufacturing technology and testing) and for export promotions	✓		
• Skill programs for Front end and Back-end staff training on products and service.	✓	✓	✓

Regulations: BIS/CRO- Compliance

Initiative / Imperatives	Ownership / Responsibility		
	ELCOMA	Industry Participants	Government
• Strict adherence for CRO compliance			✓
• Awareness programs via Media and other to inform consumers to buy only CRO compliant products			✓
• Conduct enforcement raids on non compliance of regulation, provide feedback to Govt. for action	✓	✓	✓
• Make BIS standards for Retrofit LED Lamp, TLED and UV-C light products mandatory under Quality Control Order	✓	✓	✓
• Insist IEC to make another layer in standards to add India specific features.			✓

Exports

Initiative / Imperatives	Ownership / Responsibility		
	ELCOMA	Industry Participants	Government
• Create a market for exports by signing MOUs with the ASEAN, BRICS and Gulf countries for LED products and electronic components	✓		✓
• ELCOMA to become member of Export Promotion Council . • Conduct export promotion programs through seminars and workshops	✓	✓	✓
• Invest in organizing foreign delegation visit to Indian factories, conferences and participation in International exhibitions	✓	✓	✓
• Organize networking - International visitors to ELCOMA members - Organize visits to factories	✓	✓	

It is to be noted that for quality control on lighting products, most of Standards are made by BIS in association with ELCOMA. The standards are drawn from IEC and modified according to Indian conditions. MeitY has started regulating these standards per Compulsory Registration Order (CRO). The standards for some products are further regulated by BEE under Labeling program. Unfortunately, there is lack of surveillance to check on unauthorized products sold in the market, Having regulation by three government organizations for the same product has put additional burden on the industry, by cost of testing separately for each organization, time of waiting for testing and certification.

It is proposed to just have only one standard by BIS and make them mandatory for full regulation and control



STELLUX-P



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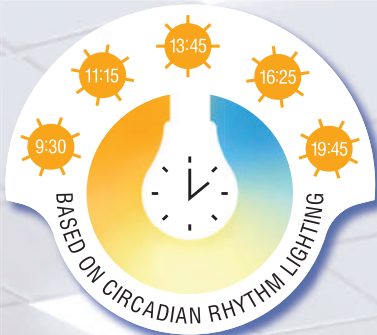


STELLUX-H



TREND 1

NEW AGE LIGHTING EVERY OFFICE DESERVES



Provides end-to-end
HCL solution

Crompton's wide range of **Human Centric Lighting** simulates natural sunlight to improve workplace productivity.



Enhances
Mood



Reduces
Stress



Provides
Visual Acuity





Centre of Excellence for Lighting Technology by ELCOMA

ELCOMA in cooperation and support with government proposes to establish a Centre of Excellence. The COE would be part of a broader Lighting Demand Side Management institution, aimed at promoting the adoption and commercialization of energy efficiency technologies and services in India, which would have a direct impact on the reduction in growth of greenhouse gas (GHG) emissions and restrictive use, re-use and disposal of Hazardous Substances.

It is proposed that the COE is established in several phases. Details of these phases will be worked out once the project is approved. Broadly, the phases will extend in stages to the establishment of a Research and Test Laboratory, Lighting Education course, Energy Efficiency Training Institute, Exhibition & Information Centre, Library etc.

Background

India has diverse conditions like voltage fluctuation, hot weather conditions, humidity and dust from high pollution conditions. All this requires modifications in standards which are originally prepared mainly by IEC and CIE and their full influence is with developed countries that are cold areas and have ideal conditions. After modifying the standards in India, the products are also made accordingly. But due to non availability of R&D Centre, we are not able to undertake tests to ensure that we are going in the right direction.

Objectives and Focus

The COE would aim at becoming the key reference and resource institution on energy efficient lighting technologies in India and would be a unique culmination of cutting edge illumination technology, Lighting architecture and design. It would strive to cultivate integrated design practices for high performance lighting applications and improved aesthetics. Its chief objectives shall be:

- Foster the application of energy-efficient lighting
- Establish key market connections by providing practitioners the hands-on opportunity to explore and learn about lighting efficiency technologies;
- Modify standards and products according to Indian conditions
- Continuous learning on new technology
- Become world class Training Institution
- Lighting and Illumination Technology Exhibition and demonstration Centre
- Interactive and informative center, library and hub
- Indian and International performance data generation
- Relationship department for promotion and awareness programs
- International exchange programs
- Generate employment by Skill and Education Programs.

COE PHASES

PHASE I	PHASE II	PHASE III	PHASE IV
Acquire land and equipment. Construct building, establishment of Information Centre, Library, Training & Education Centre. Start Data collection	Installation of equipment, Start Application Testing Centre, Technology exchange, Design center, off-grid solutions, testing of raw materials and finished products, components etc	Start Lighting courses. Research on product Performance and Effects	COE to become self-sustaining

Present Situation on India Made and Imported Components



9W LED LAMPS

Sl. No.	Main inputs in BOM/ stages for manufacture of LED Products	Value addition required for the inputs to be classified as domestic BOM	Industry average percentage BOM content	
			Import	Local
(a)	LED Emitter	Packaging from imported / domestically fabricated Bare LED Die subject to the condition that the Bare LED Die shall be domestically fabricated using imported/indigenously manufactured inputs	10.00%	0.00%
(b)	Driving Electronics	Domestic assembly from imported / indigenously manufactured parts and components subject to the condition that value of domestically manufactured parts and components (excluding the value of bare PCB) used in the assembly of "Driving Electronics" will be minimum 30% of the total value of parts and components used in the manufactured of "Driving Electronics"	31.00%	4.00%
(c)	Bare PCB including MCPCB	Domestically manufactured using imported / indigenously manufactured inputs	2.00%	4.00%
(d)	Heat Sink or Thermal Management Solutions	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	0.00%
(e)	Secondary Optics	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	0.00%
(f)	System Fixture and Fitting	Domestically manufactured	5.00%	25.00%
(g)	Final Assembly / Testing	Domestically assembled / tested meeting Indian Standards as notified from time to time	0.00%	19.00%
			48.0%	52.0%

TLED 18W

Sl. No.	Main inputs in BOM/ stages for manufacture of LED Products	Value addition required for the inputs to be classified as domestic BOM	Industry average percentage BOM content	
			Import	Local
(a)	LED Emitter	Packaging from imported / domestically fabricated Bare LED Die subject to the condition that the Bare LED Die shall be domestically fabricated using imported/indigenously manufactured inputs	16.00%	0.00%
(b)	Driving Electronics	Domestic assembly from imported / indigenously manufactured parts and components subject to the condition that value of domestically manufactured parts and components (excluding the value of bare PCB) used in the assembly of "Driving Electronics" will be minimum 30% of the total value of parts and components used in the manufactured of "Driving Electronics"	24.00%	5.00%
(c)	Bare PCB including MCPCB	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	13.00%
(d)	Heat Sink or Thermal Management Solutions	Domestically manufactured using imported / indigenously manufactured inputs	1.00%	1.00%
(e)	Secondary Optics	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	0.00%
(f)	System Fixture and Fitting	Domestically manufactured	0.00%	30.00%
(g)	Final Assembly / Testing	Domestically assembled / tested meeting Indian Standards as notified from time to time	0.00%	10.00%
			41.0%	59.0%



Present Situation on India Made and Imported Components

LED STREET LIGHT 150W

Sl. No.	Main inputs in BOM/ stages for manufacture of LED Products	Value addition required for the inputs to be classified as domestic BOM	Industry average percentage BOM content	
			Import	Local
(a)	LED Emitter	Packaging from imported / domestically fabricated Bare LED Die subject to the condition that the Bare LED Die shall be domestically fabricated using imported/indigenously manufactured inputs	20.00%	0.00%
(b)	Driving Electronics	Domestic assembly from imported / indigenously manufactured parts and components subject to the condition that value of domestically manufactured parts and components (excluding the value of bare PCB) used in the assembly of "Driving Electronics" will be minimum 30% of the total value of parts and components used in the manufactured of "Driving Electronics"	18.00%	5.00%
(c)	Bare PCB including MCPCB	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	5.00%
(d)	Heat Sink or Thermal Management Solutions	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	25.00%
(e)	Secondary Optics	Domestically manufactured using imported / indigenously manufactured inputs	8.00%	0.00%
(f)	System Fixture and Fitting	Domestically manufactured	0.00%	15.00%
(g)	Final Assembly / Testing	Domestically assembled / tested meeting Indian Standards as notified from time to time	0.00%	4.00%
			46.0%	54.0%

LED FLOOD LIGHT LUMINAIRE 200W

Sl. No.	Main inputs in BOM/ stages for manufacture of LED Products	Value addition required for the inputs to be classified as domestic BOM	Industry average percentage BOM content	
			Import	Local
(a)	LED Emitter	Packaging from imported / domestically fabricated Bare LED Die subject to the condition that the Bare LED Die shall be domestically fabricated using imported/indigenously manufactured inputs	20.00%	0.00%
(b)	Driving Electronics	Domestic assembly from imported / indigenously manufactured parts and components subject to the condition that value of domestically manufactured parts and components (excluding the value of bare PCB) used in the assembly of "Driving Electronics" will be minimum 30% of the total value of parts and components used in the manufactured of "Driving Electronics"	17.00%	5.00%
(c)	Bare PCB including MCPCB	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	5.00%
(d)	Heat Sink or Thermal Management Solutions	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	25.00%
(e)	Secondary Optics	Domestically manufactured using imported / indigenously manufactured inputs	0.00%	5.00%
(f)	System Fixture and Fitting	Domestically manufactured	0.00%	18.00%
(g)	Final Assembly / Testing	Domestically assembled / tested meeting Indian Standards as notified from time to time	0.00%	5.00%
			37.0%	63.0%

List of Components Currently Imported that are required to be Made in India



COMPONENTS	HSN CODES	TYPE	QTY (PCS.) / UNIT LED BULB	QTY (PCS.) / UNIT LED BATTEN	QTY (PCS.) / UNIT DOWNLIGHT	NO. OF COMPONENTS (MILLION PCS.)
ELECTRONICS COMPONENTS (CAPACITOR)						
Electrolytic Capacitors	85322990	Electronic	2	2	2	1840
MLCC	85322990	Electronic	1	1	1	920
Film Capacitor/Box Capacitor	85322990	Electronic	1	1	1	920
SMD Capacitors	85322400	Electronic	2	2	2	1840
Ceramic Capacitors	85322990	Electronic	1	1	1	920
ELECTRONICS COMPONENTS (RESISTOR)						
Box Fuse/Glass Fuse/ Fusible Resistors	85361060	Electronic	1	1	1	920
Adjustable Resistors (POT)	85334010	Electronic	1	1	1	920
Thermostat (Thermal Switch)	90321020	Electronic	1	1	1	920
SMD Resistance	85331000	Electronic	5	4	4	4300
ELECTRONICS COMPONENTS (SURGE PROTECTION DEVICE)						
MOV (Metal Oxide Varistor)	85333990	Electronic	1	1		870
GDT (Gas Discharge Tubes)	85363000	Electronic	1	1	1	920
Sidactor	85333990	Electronic	1	1	1	920
ELECTRONICS COMPONENTS (DIODE & LED)						
SMD Diodes	85411000	Electronic	1	2	2	1220
Bridge Rectifiers	85411000	Electronic	1	1	1	920
LED CHIPS	85412900	Electronic	12	95	150	38690
ELECTRONICS COMPONENTS (DIODE & LED)						
Relays	85363000	Electronic	1	1	1	920
MOSFET	85412900	Electronic	1	1	1	920
Transistors	85412900	Electronic	1	1	1	920
Inductor / Transformer	85045090	Electronic	1	1	1	920
LED Driver IC	85423100	Electronic	1	1	1	920
COIL / FILTER						
DRUM INDUCTOR	85045090	Electronic	1	1	1	920
Line Filter		Electronic	1	1	1	920
PCB						
BARE PCB	85340000	Electronic	1	1	1	920
MCPCB	85340000	Electronic	1	1	1	920
MECHANICAL COMPONENTS						
HEAT SINK	85399090	Mechanical	1	1	1	920
HOUSING	85399090	Mechanical	1	0	0	620
B22 / E27 Cap		Mechanical	1	0	0	620
Batten End Cap		Mechanical	0	1	0	250
Panel Plastic Housing		Mechanical	0	0	1	50
PC Extrusion		Mechanical	0	1	0	250
OPTICAL COMPONENTS						
DIFFUSER	85399090	Electronic	1	0	0	620
Panels LGP		Mechanical	0	0	1	50
Panel Diffuser		Mechanical	0	0	1	50
OTHER ACCESSORIES						
Heat Spreader	85399090	Electronic	1	1	1	920
THERMAL PASTE	38101010	Mechanical				0
Sleeves		Electrical	1	1		870
Wires		Electrical	4	4	4	3680
PACKAGING						
Packaging Carton		Packaging	1	1	1	920
Total						75140



Summary of key Actions Required

ELCOMA

- **Follow proposed Make in India manufacturing Plan**
- Provide assistance in design of **product specifications and standardized labeling specs** which are IEC compliant and environmentally friendly, as well as 'green' application specifications and testing specs
- Support **set-up of LED testing labs, R&D centres**, educational institutions and training centres
- **Conduct annual conferences and seminars** to educate the industry about **global LED trends and technology** **Initiate export promotion program through exhibits and delegates visits to factories**
- Initiate Export Promotion through Exhibitions, Delegate visits and conferences etc
- **Initiate raids for non-compliant products.**
- **Make important products and component mandatory under Quality Control Order.**

Lighting product manufacturers and sellers

- Support to set-up **manufacturing facilities** for luminaires, LED and electronic component
- Support and invest in **consumer awareness programs**
- Focus on developing affordable LED **products and innovative financing schemes** to make LEDs affordable to the mass market and profitable to the manufacturers.
- Join Export Promotion initiative

Regulators

- Create India Centric **IEC compliant product standards** as well as product labeling standards. **Make the standards mandatory**
- Create a **mandatory and strict energy conservation building code** (ECBC) for large lighting users
- 100% compliance of CRO scheme
- **important products mandatory under Quality Control Order**

Central and State government

- **Conduct consumer awareness programs** highlighting efficient and cost-effectiveness of LED lights
- Generate demand through **use of LED lights in all public lighting, financing models** supportive towards use of LED lights, and **solar powered LEDs** for remote areas
- Launch differential product taxation to **promote efficient lighting sources; Subsidies/ incentives to manufacturers**
- Sign **MOUs with BRICS, ASEAN and other neighboring countries for export** of Indian Luminaires and LED products, as well as for **technology sharing**
- Create **policies on tax incentives and FDI restrictions, which promote the local manufacturing** industry for Luminaires, LEDs and electronic components
- Set-up **manufacturing clusters for electronics and LED lighting products with facilities like** low-cost land, regular power supply, and good logistics network, warehousing etc. for SMEs.
- Provide financing support for R&D **testing labs, and educational institutions** for Lighting technology

Production Linked Incentive Scheme (PLI) for LED Lights Manufacturers in India



The Production Linked Incentive scheme for LED lighting has been announced by Department for Promotion of Industry & Internal Trade (DPIIT) on 16th April 2021. This will boost LED lighting component manufacturing in India and will create an ecosystem by which not only our dependency on imports of components will reduce but it will also create global champions. Our estimate on local BOM percentage content which is currently at a level less than 50%, is expected to reach a level of 70% over a period of next 5 years. With no threshold limits for investment and manufacturing revenue defined, existing finished goods manufacturers can venture on component manufacturing for captive use and thus enabling backward integration in manufacturing. Brief details about the PLI Scheme notification is as given under:

MINISTRY OF COMMERCE AND INDUSTRY
(Department for Promotion of Industry and Internal Trade)
NOTIFICATION

SUBJECT: PRODUCTION LINKED INCENTIVE SCHEME (PLI) FOR WHITE GOODS (AIR CONDITIONERS AND LED LIGHTS) MANUFACTURERS IN INDIA

F. No. P-29014/101/2020-LEI.— Dated 16th April 2021

Introduction

The Government has approved the Production Linked Incentive (PLI) Scheme to be implemented over FY 2021-22 to FY 2028-29 with a budgetary outlay of Rs. 6,238 crore. (For both white goods and LED Lights).

Objective

The Production Linked Incentive Scheme for White Goods (PLIWG) proposes a financial incentive to boost domestic manufacturing and attract large investments in the White Goods manufacturing value chain. Its prime objectives include removing sectoral disabilities, creating economies of scale, enhancing exports, creating a robust component ecosystem and employment generation.

Target Segments

Support under the Scheme will be provided to companies/entities engaged in manufacturing of components of Air Conditioners and LED Lights in India as under:

- LED Lights
 - i. LED Lighting Products (Core Components like LED Chip Packaging, Resistors, Ics, Fuses and large-scale investments in other components etc.)
 - Large Investments
 - Normal Investments
 - ii. Components of LED Lighting Products (like LED Chips, LED Drivers, LED Engines, Mechanicals, Packaging, Modules, Wire Wound Inductors and other components)
 - Large Investments
 - Normal Investments



Production Linked Incentive Scheme (PLI) for LED Lights Manufacturers in India

Quantum of Incentive

- The PLI Scheme shall extend an incentive of 4% to 6% on incremental sales (net of taxes) over the base year of goods manufactured in India and covered under target segments, to eligible companies, for a period of five (5) years subsequent to the base year and one year of gestation period.
- The applicant will have to fulfill both criteria of cumulative incremental investment in plant and machinery as well as incremental sales over the base year in that respective year to be eligible for PLI. The first year of investment will be FY 2021-22 and the first year of incremental sale will be FY 2022-23. Actual disbursement of PLI for a respective year will be subsequent to that year.
- The Scheme is Fund Limited and even in case of over achievement the total pay-out of incentives would be capped at the amount approved by Cabinet.
- All relevant details of the Scheme, for example, base year, eligibility criteria, target segments, quantum of incentive, pre-qualification criteria for different target segments, application period, etc. will be detailed in Scheme Guidelines.

Eligibility

- Incentive under the Scheme shall be provided to Companies making brown field or green field Investments for manufacturing in target segments in India.
- Eligibility of Companies shall be subject to their meeting the pre-qualification criteria for different target segments which will be defined in the Scheme Guidelines.
- More details are available in the notification guidelines.

Tenure of the Scheme

Support under the Scheme shall be provided for a period of five (5) years subsequent to the base year as defined and one year of gestation period for fructifying investment to be implemented over FY 2021-22 to FY 2028-29.

Base Year

FY 2019-20 shall be treated as the base year for computation of cumulative incremental investment and incremental sales (net of taxes) of manufactured goods (as distinct from traded goods) as well as for prequalification criteria.

Selection of Beneficiaries

- Mere assembly of finished goods shall not be incentivized.
- Selection of companies for the Scheme shall be done so as to incentivize manufacturing of components or sub-assemblies which are not manufactured in India presently with sufficient capacity.
- Companies investing in basic/core components shall have a higher priority.

Financial Outlay

- The PLI Scheme will be implemented within the overall financial limits of 6,238 Crores only (Rupees Six Thousand Two Hundred and Thirty Eight Crores only) for implementation of the Scheme over a period of 5 years.

Production Linked Incentive Scheme (PLI) for LED Lights Manufacturers in India



- Incentive per beneficiary: The incentive per beneficiary will be applicable on incremental sales (net of taxes) of manufactured goods (as distinct from traded goods) over base year subject to ceilings as may be decided and the beneficiary meeting the cumulative investment criteria.

Review and Monitoring

The Empowered Group of Secretaries (EGoS) chaired by Cabinet Secretary will monitor the PLI scheme, undertake periodic review of the outgo under the scheme, ensure uniformity of all PLIs and take appropriate action to ensure that the expenditure is within the prescribed outlay. In addition, EGoS will be empowered to make any changes in the modalities of the scheme within the overall financial outlay of Rs. 6,238 crore.

Eligibility Threshold Criteria: LED Lights

SI	Segment	Year	PLI @	MINM. Cum. Incr. Investment	MINM. Incr. Sale	MINM. PLI	MINM. Cum. Incr. Investment	MINM. Incr. Sale	MINM. PLI
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				LARGE INVESTMENT			NORMAL INVESTMENT		
1	LED Lights (Core Components)#	2021-22		100			20		
		2022-23	6%	150	600		40	120	
		2023-24	6%	200	900	36	60	240	7
		2024-25	5%	250	1200	54	80	360	14
		2025-26	5%	300	1500	60	100	480	18
		2026-27	4%		1800	75		600	24
		2027-28				72			24
		Total		300	6000	297	100	1800	88
2	Components of LED Lights*	2021-22		5			2		
		2022-23	6%	10	30		4	12	
		2023-24	6%	15	60	2	6	24	1
		2024-25	5%	20	90	4	8	36	1
		2025-26	5%	25	120	5	10	48	2
		2026-27	4%		150	6		60	2
		2027-28				6			2
		Total		25	450	22	10	180	9

Figures are rounded off for easier readability.

LED Lights: (Core Components like LED Chip Packaging, Resistors, ICs, Fuses and large scale investments in other components etc.)

***Components of LED Lights:** LED Chips, LED Drivers, LED Engines, Mechanicals, Packaging, Modules, Wire Wound Inductors and other components.

COL. (4): Actual disbursement of **PLI** for a respective year will be subsequent to that year. For example, subject to fulfilling the conditions of cumulative threshold incremental investment up to FY 2021-22 over base year and threshold incremental sales of manufactured goods over the base year in FY 2022-23, PLI will be disbursed in FY 2023-24.



Roadmap for Vision 2024

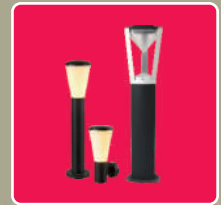
	2021	2022	2023	2024
Manufacturing	<p>Prepare Vision 2024 Document.</p> <p>On localization of components to complete ground work for scouting manufacturers to make the components by January.</p> <p>To qualify as Class I local supplier.</p>	<p>Invite international manufacturers to have joint ventures with ELCOMA members to increase % localization of components.</p> <p>Achieve 60% localization of components by December.</p>	<p>Invite international manufacturers to set up manufacturing facilities of components in India.</p> <p>Achieve 65% localization of components by December.</p> <p>To export lighting products 15-20%</p>	<p>Ensure by end of 2024 all LED lighting products are made in India.</p> <p>To achieve export of lighting products up to 40%</p> <p>Achieve 75% localization of components by December 2024</p>
Consumer awareness programs for LED & Lighting Products	<p>Initiate letters to Govt. Departments to procure only BIS compliant products</p> <p>Prepare social media video</p>	<p>Design awareness program for end-user and do direct mailing.</p> <p>Release social media videos thru WhatsApp</p> <p>Newspaper insertion</p> <p>Launch consumer awareness in Light India Exhibition</p>	<p>Radio jingles in 4 Metros</p> <p>Newspaper insertions</p> <p>Workshop for Govt. procurement departments</p>	<p>Continue with new videos for WhatsApp</p> <p>Workshops for users</p>
Regulation on product and application specs, labelling norms	<p>Initiate with MEITY for QCO for LED LAMPS & TLED</p> <p>Develop safety standard on UV-C</p> <p>Initiate with DPIIT for QCO for UV-C safety standard</p>	<p>Include LED Dimmers under CRO phase 5</p> <p>Revise LED Luminaire standards in reference to IEC</p> <p>BEE Star labelling for LED Battens</p>	<p>BEE Labeling for LED streetlights.</p> <p>Prepare standards for intelligent lighting</p>	<p>BIS Certification for intelligent lighting standard.</p>
Demand generation by government	<p>ELCOMA to send letters to Govt. departments on procurement of only LED products.</p>	<p>BIS & BEE to issue press ads for buying BIS/BEE compliant products.</p> <p>Conference for intelligent lighting</p>	<p>BIS & BEE to issue press ads for buying BIS/BEE compliant products.</p> <p>Conference for intelligent lighting</p>	<p>Conference for intelligent lighting</p>
Export promotion	<p>Prepare Vision Document</p>	<p>Invite 50 to 100 delegates to attend Light India Exhibition and visit manufacturing facilities.</p> <p>Initiate export subsidy by Govt.</p>	<p>Indian delegates to visit BRICS countries, and promote export from India</p> <p>Participate in International Exhibitions</p> <p>Subsidy by Govt.</p>	<p>Invite foreign delegates</p> <p>Participate in foreign exhibitions</p>
Skills development program	—	<p>Skill training programs for front-end & back-end technician.</p>	<p>Product knowledge training courses for sales persons</p>	<p>Product knowledge for intelligent lighting.</p>
Garnering International Support	—	<p>Join various International organizations/Lighting associations.</p> <p>Organize India Expo meeting outside India for export promotion</p>	<p>Send regular communication & invite delegates to visits India factories.</p> <p>Organize India Expo meeting outside India for export promotion</p>	<p>Send regular communication & invite delegates to visits India factories.</p> <p>Organize India Expo meeting outside India for export promotion</p>



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