



ELCOMA VISION 2020

Vision Document

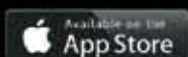
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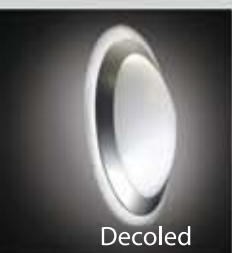


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Foreword

It is difficult to imagine our society without electric lighting. In fact the levels of economic developments in a country can best be judged by the per capita usage of lighting by its citizens. Over the years the demand of lighting has increased with more and more applications being introduced to help a more effective and meaningful lighting. Citizens are learning to work, to learn and to indulge in leisure at all times of the day and night and this has been made possible because of the contributions of electric lighting.

The flexibility of our working hours, the demands by our complex tasks, the introduction and progress of information technology and a paperless office environment, the speed at which we travel, all demand seamless illumination to ensure optimum performance. Day moves to night while we also shift from outdoor to indoor demanding visual accuracy, comfort and guidance to go on with our activities without making any serious promises.

The lighting industry has kept up with these demands and aspirations by continuously introducing new and more efficient technologies, by changing and improving lighting design and creating a more effective total system approach. Lighting has progressed over the last century from Edison's light source to today's energy efficient, task oriented economic proposition. The Lighting Industry has further initiated to reduce energy consumption for lighting from present 18% of total power consumption to 13% by year 2020 by introducing more energy efficient products and working with government to execute various schemes and awareness programs to achieve this.

The industry has been proactive and has always ensured production of all products in India. This tradition will continue for LED lighting products as well. The future promises even more involvement and contributions from lighting and 'Vision 2020' proposes to project what the Indian Industry visualizes for lighting by the end of this momentous decade.

Acknowledgements



We acknowledge with thanks the contributions made by the ELCOMA team in putting together an Industry Vision for 2020. In particular we wish to record our special thanks to the following who devoted their valuable time, providing essential data and technical information that has made this document possible.

Members of the Vision Committee:

1. Mr. Deepak Gupta, Halonix Technologies Private Limited
2. Mr. Nikhil Gupta, Philips India Ltd.
3. Mr. R. K. Jaggi, Surya Roshni Limited
4. Mr. Swaroop Bolar, Crompton Greaves Ltd.
5. Mr. V. P. Mahendru, EON Electric Ltd.
6. Mr. R. Baraneetharan, Bajaj Electricals Ltd.
7. Mr. Sandeep Singh, NTL-Lemnis India Pvt. Ltd.
8. Mr. H. R. Vaish, Instapower (P) Ltd.
9. Ms. Bhavna Kasturia, Osram India (P) Ltd.

Efforts of Mr. H. S. Mamak, Advisor, Elcoma who played a very important role while conducting successfully the several meetings of the Vision Committee are fully acknowledged. His vast experience and knowledge helped in focusing attention on the objectives.

We also thank Mr. Shyam Sujan, Secretary General, ELCOMA who played a key role in providing industry data, information and also preparing a forecast document and industry outlook from 2014 to year 2020.

Our gratitude to the Leaders of the Indian Lighting Industry together with the Governing Body of ELCOMA who initiated the decision for a vision document and offered their fullest support and cooperation to the team.

Last but not the least a very special thanks to Ms. Swati Jain and Joydeep Battacharya of Bain & Company, who have been instrumental in putting the Vision in perspective and have brought out a professional Vision 2020 document that projects the Past, the Present and the Future of the Indian Lighting Industry.



Vision

Mission Statement

To make the Indian Lighting industry a leader in energy efficient lighting and environmental consciousness by reducing the share of national energy consumption for lighting from 18% to 13%, and develop a sustainable world-class, global manufacturing hub for modern lighting products

Vision 2020: Objectives

1. Generate consumer demand for energy efficient lighting products to enable energy consumption for lighting to reduce from 18% to 13% of total power consumption
 - All inclusive adoption of energy efficient lighting, including rural sector
 - Launch cost-effective products catering to the mass Indian consumer
2. Develop LED Testing infrastructure to support the increasing demand for high quality products
3. Develop strong domestic manufacturing capability for LED lighting products and Luminaires to reduce dependence on imports and become an export hub for ASEAN and Gulf countries
 - Local luminaire manufacturing and product assembling capability to fulfill local as well as export demand
 - Local electronic component manufacturing capability to reduce reliance on imports
4. Develop India into a world leader and export hub in designing for LED Luminaire, Control Gear and Systems by leveraging our existing skills in this area
 - Develop India into a world leader in smart controls for lighting products, while building upon our ITES strength
5. Promote R&D and Education in Lighting and build skilled manpower
6. Make the Indian Lighting Industry a global leader in environmental consciousness

Industry size

- The Indian lighting industry has seen a **strong growth** of 59%, growing from Rs. 8,500 Cr in 2010 to Rs 13,500 Cr in 2013
 - This has been driven by the move from GLS lamps to CFLs and, more recently, to LEDs
 - Several government initiatives supported this transition, including use of CFLs in government offices, providing consumers with CFLs through DSM schemes, free lamps to BPL houses, etc.
- However, the percentage usage of **lighting continues to be a high 18% of the total power consumption** in our country (much higher than the developed countries, which account for 12-15%)
 - A move away from GLS, for instance, and adoption of energy efficient products (e.g. LED, CFL) and systems (e.g. smart controls) will help a lot in reducing our energy consumption
- Supported by ongoing government initiatives to promote LED lighting as well as changing consumer preferences, the **LED market will grow to Rs 21.6k Cr by 2020**, an exponential growth of 41% CAGR from Rs 1,925 Cr in 2013, making the LED market ~60% of the total lighting industry (Rs 37.6k Cr) in 2020
 - The government has decided to change all street lights and lights in public spaces to LED lights, and initiated making all LED specifications mandatory; notifications to commercial buildings to change existing downlights exclusively to LED are in progress
 - All existing government schemes to distribute CFL are being modified with LED lamp distribution

Strengths and capability gaps

- However, while the Government and industry are already taking steps to raise demand for energy efficient lighting, there exist **supply side weaknesses in LED lighting products and LED Luminaires**
 - Limited testing capacity for LED lighting
 - Heavy dependence on imports for electronic components and LED chips, as well as end product



Executive Summary

- Currently, our **strength lies in conventional Luminaires and complete range of lamp manufacture**, as well as availability of a strong labour force for assembling LED products
 - However, our involvement in luminaire design and research needs strengthening
- India has been very **successful in manufacturing CFL and this can be replicated in LED** as well
 - Additional help in matching the incentives (e.g. cheap land, lower interest rates) offered by some of our neighbouring countries (like China, Sri Lanka) for manufacture of LEDs is needed
- Further, **Indian manufacturing has potential to become more cost competitive vs. China** with increasing labour costs in China compared to India, and a weakened INR vs. a strengthening CNY
- Large volumes of low quality imports in recent years have affected consumer confidence in new technologies, thus increasing the **need for quality-control on supply in the market**. Additionally, customers have been using **increasing amount of smart controls in lighting**

Vision

- Over the next few years, **the Indian Lighting industry should focus on the following areas**
 - Create demand for energy efficient lighting products to reduce India's lighting power consumption
 - Expand domestic capacity for LED testing, to support this increasing demand
 - Set Indian standards for all products and applications and make these standards mandatory
 - Enhance manufacturing capabilities in LED Luminaires, electronic components and LEDs and design capabilities for Luminaires, control gear and systems

- Support skill development across all discipline required by the lighting industry through R&D centres, educational institutions, and training centres
- Evaluate opportunities to optimize manufacturing and disposal processes to reduce the environmental impact

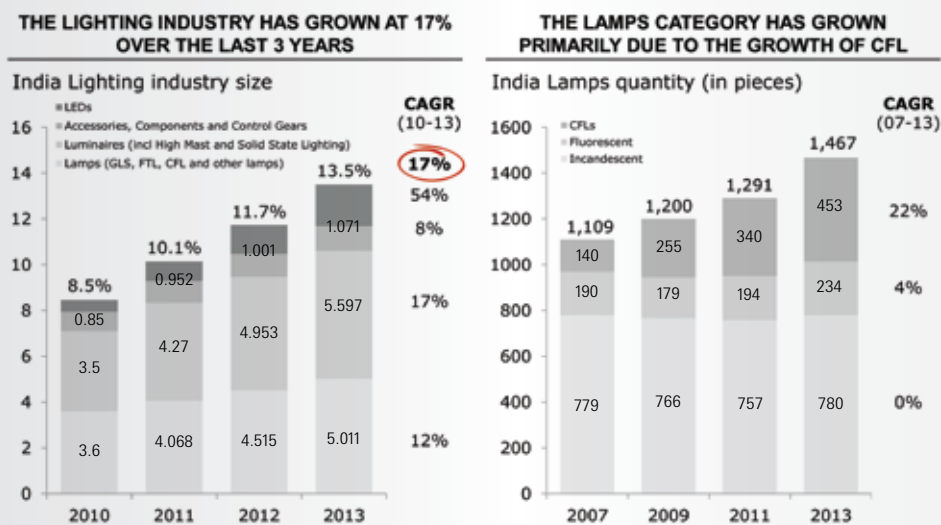
Imperatives

- In order to achieve these, there are **various imperatives for the key stakeholders** in this industry
 - **ELCOMA:** Initiate export promotion, support design of standards for products, application, and testing which are green and IEC compliant, support set-up of testing, R&D and educational centres, conduct annual conferences to educate industry about upcoming LED trends
 - **Industry participants:** Invest in and support a) luminaire, LED and electronic component manufacturing facilities, b) R&D centres, testing labs, and training centres for Lighting design and manufacturing, c) consumer awareness programs, and d) development of affordable LED products
 - **State and Central Governments:**
 - Create 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 to neighbouring countries, reviewing product-wise taxation (to make LEDs/ CFLs relatively lower price)
 - 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.)
 - **Regulators (BIS, BEE, DietY):** Create green and IEC compliant standards for products and applications and ensure implementation by making standards mandatory; pass regulation to phase out inefficient lighting sources like GLS lamps and magnetic ballast; make a strict energy conservation building code (ECBC) mandatory for large lighting users



Background of the Lighting Industry

The Indian lighting industry has grown to Rs 13,500Cr in 2013 from Rs 8,500 Cr in 2010, a growth of 17% CAGR. Within the lamps segment, the growth has been driven by CFLs, while ICLs and FTLs have seen minimal growth in volumes



Source: ELCOMA Data

The Lighting industry, supported by ELCOMA and govt. has been taking multiple steps to become more environmentally conscious, and these are likely to continue with increasing focus on LEDs

Promote energy efficient lighting

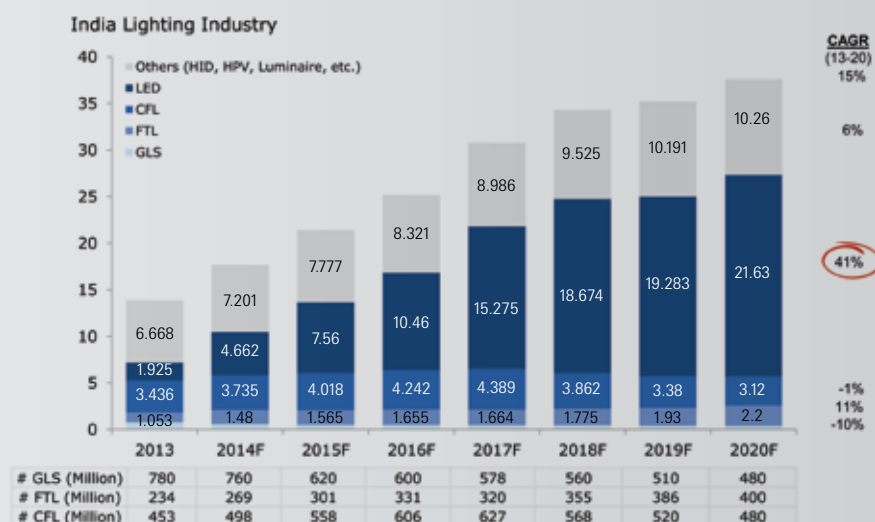
- Starting 2004, multiple initiatives were taken to exponentially increase adoption of energy efficiency CFLs vs. ICLs
 - Awareness programs were conducted for decision makers of state governments to educate them about CFLs and their benefits. This drove a change from GLS to CFLs in government offices
 - Localized marketing initiatives were launched to increase consumer awareness
 - National and localized schemes helped to increase demand for CFLs
 - CFLs provided to consumers for free initially, to be paid for through Rs 10/ month for 10 months via electricity bill
 - 1+1 free scheme for CFLs
- The increasing adoption also helped in decreasing prices of CFLs
- As a consequence, CFL consumption increased from 20M units in 2004 to ~500M in 2014 (a CAGR of 38%)

- More recently, similar initiatives have been taken to promote LEDs (even more energy efficient) in the past few years, and are likely to continue
 - The government plans to change all street lighting to LEDs (potential of Rs 12,000 Cr of LEDs over the next 3 yrs and another Rs 39500 Cr of LED lights from 2017 to 2020)
 - The government has initiated sending notifications to commercial buildings to change existing downlights exclusively to LED
 - Under RGGVY scheme, the government plans to provide LED Lamps to BPL houses
 - Existing DSM schemes by state governments for distribution of CFL are now being replaced with LED lamps

Environmentally safer products

- Regulations have been introduced to make the mercury containing lamps by reducing their mercury content
 - CFL: Mercury content reduced from 15-20mg of liquid mercury/ lamp, to <5mg of amalgamated mercury (by end of 2014). Further plans to reduce to <3.5mg/lamp by 2015 and <2mg/lamp by 2020
 - Fluorescent lamps: Initiated steps to reduce mercury content with amalgam pellets to <5mg/lamp by 2015 (from the current 15-16mg/lamp)

The LED industry is projected to grow dramatically on the back of the initiatives being taken by the government. It is expected to be ~60% of the overall lighting industry by 2020.



Source: ELCOMA Data



India Lighting Industry: SWOT analysis

Strengths

- Huge demand forecasted for all types of lighting products, specially LED and CFLs, driven by increasing awareness and rural electrification
- Large distribution network, with a huge number of retail outlets
- Availability of huge manpower (skilled/unskilled)
- Availability of natural resources, except rare earth material
- Strong manufacturing capability and capacity for luminaires and light sources (GLS, CFL, FTL) which are ready for conversion to LEDs manufacturing plants

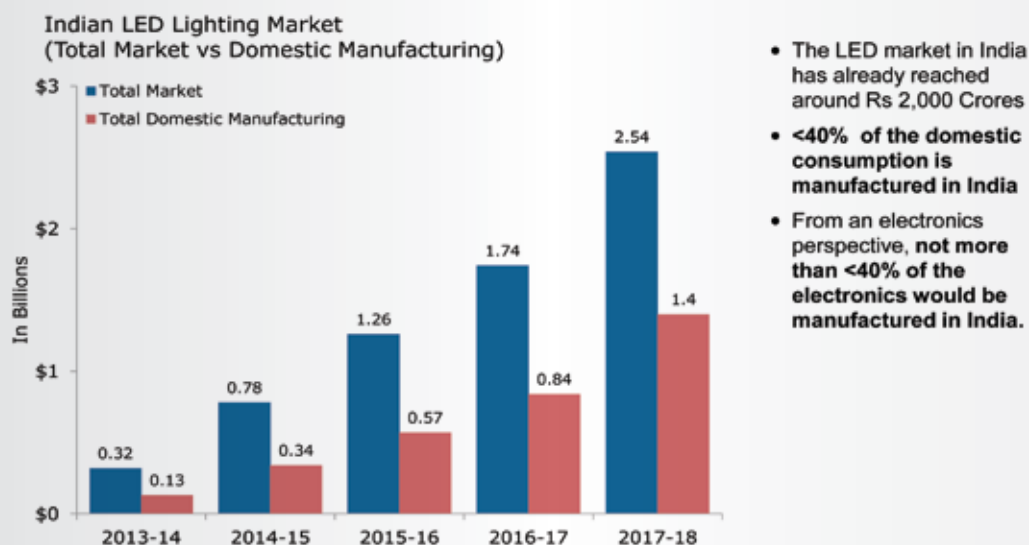
Weakness

- The Indian lighting industry is less energy efficient compared to other countries; significant scope for improvement

Note: %ages across multiple years (2011-2013). Shaded part is the range, where exact data not available

Source: Literature search

- Low capability for domestic production of electronics; majority of value-add for Indian LED market is done outside of India



Note: Total Market (TM) from ELCOMA; Total Domestic Manufacturing (TDM) extrapolated from ELCOMA data assuming the same proportion of TDM to TM as per IESA-F&S report, 2014

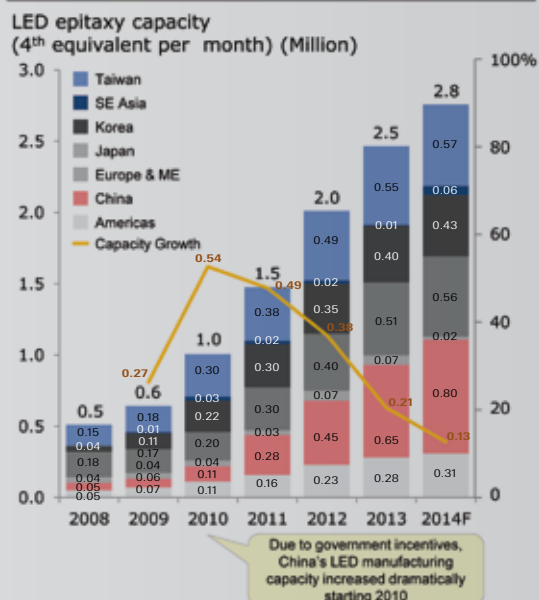
Source: ELCOMA Analysis, IESA- F&S, 2014

- Less Govt. support compared to global competitors like China, who has become a global manufacturing hub for LED/ Electrical components through a lot of government support

STRONG INCENTIVES FROM GOVERNMENT PROMOTING LED MANUFACTURE...

- Strong support from central government to promote the LED industry in multiple forms, starting 2010
 - Tax breaks, free land and accelerated depreciation
 - Subsidies worth up to \$1.8M per MOCVD tool (used for LED manufacture, costs about \$2-2.5M) given in 2010 and onwards
 - Many LED lighting companies eligible to receive RMB 2.2 billion (\$349 million) in subsidies currently
- Further, the government provided a **guaranteed market for the Chinese LED makers**
 - The 12th Five Year Plan dictates that **70% of LEDs used in China will be made domestically** by 2015
- As a result of these incentives, many suppliers from Korea and Taiwan shifted their expansion plans to mainland China in order to benefit from the stimulus program

... HAS LED TO CHINA HAVING MORE THAN 20% OF GLOBAL LED MANUFACTURING CAPACITY



Source: Semi Opto/LED Fab Forecast, Feb 2013, Literature Search

- Low R&D and Testing lab capability
- Lack of skill development programs and institutions
- No availability of rare earth materials
- High cost of capital due to high interest rates
- Low consumer confidence, due to poor quality products in the market
- Low awareness among consumers about benefits of LEDs/ CFLs, consumers scared by the cost without understanding the benefits
- Poor power quality condition, requiring products to have very strong specification
- Weak logistics infrastructure
- Inefficient & high transportation cost



India Lighting Industry: SWOT analysis

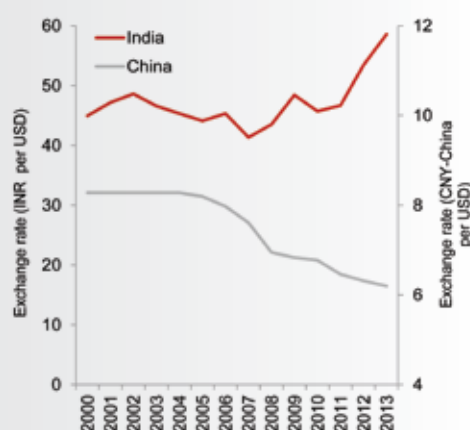
Opportunity

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

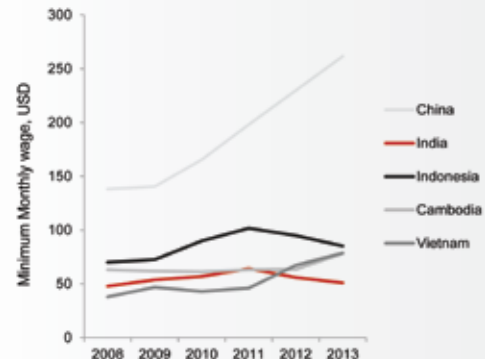
	ELECTRONIC COMPONENT MFG.	LED CHIP MFG.	LED CHIP PACKAGING	LED LIGHT ASSEMBLING	LUMINAIRE MFG. AND ASSEMBLING
Current situation	<ul style="list-style-type: none"> <40% manufacturing in India, rest imported from China and other countries Third largest imported item in country 	<ul style="list-style-type: none"> 100% imported Manufacturing controlled by <10 global players with patented technology 	<ul style="list-style-type: none"> 100% imported 	<ul style="list-style-type: none"> <40% assembling in India 	<ul style="list-style-type: none"> Majority of domestic consumption for LED luminaires imported <ul style="list-style-type: none"> Domestic manufacturing focused on outdoor lighting; majority of indoor products imported
Current factors harming industry	<ul style="list-style-type: none"> Cheap imports from China leading to no new manufacturing capacity building/ existing capacity unutilized 	<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 poorer infrastructure in India 	<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
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
Support needed to grow domestically	<ul style="list-style-type: none"> SEZs 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 mfg to set up mfg plants in India 	<ul style="list-style-type: none"> LED 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 neighbouring countries to support export

- 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

CHINESE YUAN HAS BEEN BECOMING STRONGER, WHILE INR HAS BEEN WEAKENING AGAINST THE DOLLAR



LABOUR COSTS IN CHINA HAVE BEEN RISING; INDIA HAS ONE OF THE LOWEST LABOUR COSTS IN SE ASIA



*Costs are soaring...Increases in land prices, environmental and safety regulations and taxes all play a part. **The biggest factor, though, is labour.** ...a survey of over 200 Hong Kong-based manufacturers operating in the Pearl River Delta showed that wages have already risen by 10% this year.

Economist, Mar, 2010

Source: EIU; Euromonitor, Economist

- Potential to move to greater automation in lighting (including dimmability option) via a strict and mandatory Energy Conservation Building Code (ECBC). This would also leverage India's software skills for automation
- Fast growing Indian infrastructure (projected to grow by 5-7% CAGR over next 5 years)
- Scope for more environment friendly products and their disposal
- Generation of employment opportunities
- LED demand generation supported by various government initiatives like with JNN Solar Mission, DeitY Electronic Policy, Rural Electrification
- Potential to create greater demand for LEDs/CFLs via ban of inefficient Halogen lamps

Threats

- Low quality, cheap imports (e.g. from China) flooding the market and competing with locally manufactured product
- Oversupply of LED manufacturing capacity in future years, 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
- Adoption of Global Protectionist Policy by many countries, closing out the option of exporting locally manufactured products
- Forex volatility, leading to volatility in cost of raw materials for LEDs, most of which are imported today



Future Trends Expected

Technology

- LED lighting becoming increasingly popular due to decreasing price and increasing awareness about benefits
- Continuously developing newer technology and applications for LEDs which are even more energy efficient (Lumen/Watt increasing) and cost efficient (\$/Lumen decreasing)
- Increased use of controllers with >70% of Luminaires likely to have controllers in the future

Consumer preferences

- Luminaires preferred over basic lighting fixture
- Smart control software becoming popular (for occupancy, dimming, security and monitoring, etc.) to save power

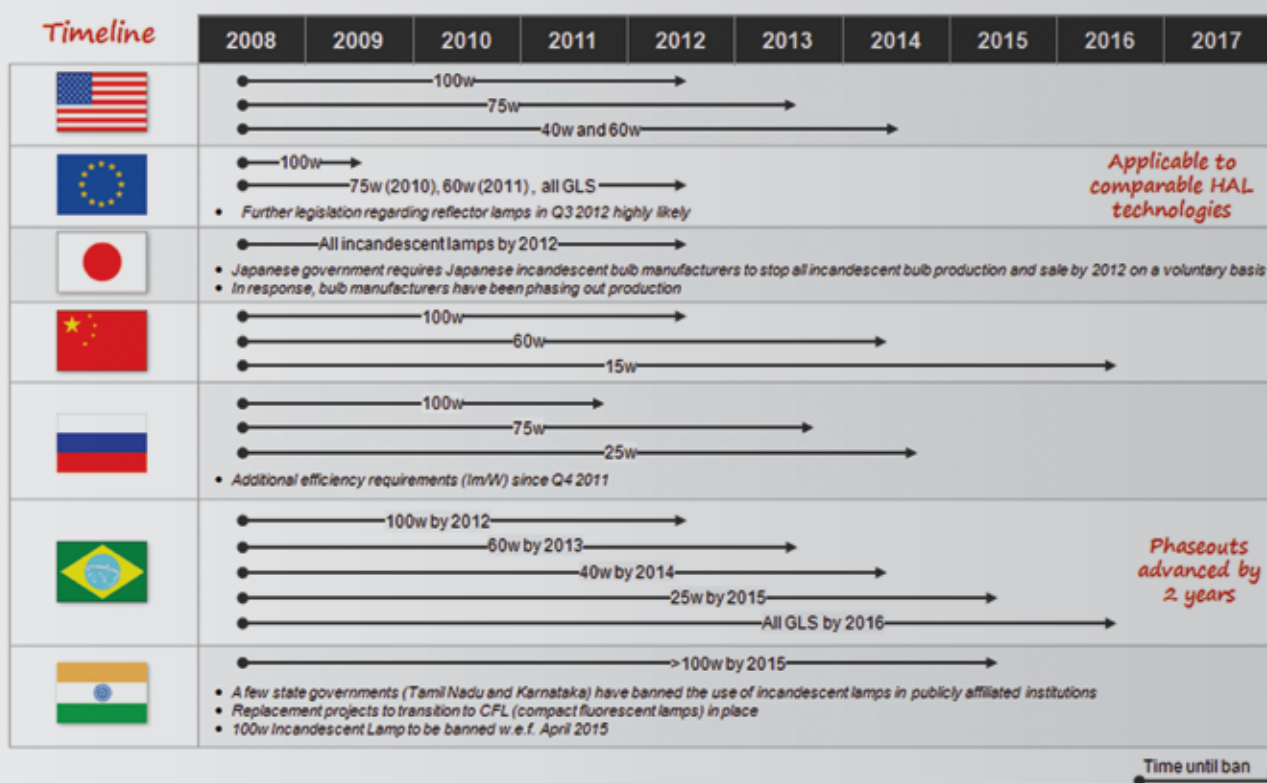
Global Competition

- Rise of other Asian countries as manufacturing hubs, increasing competition for Indian manufacturers
- Many global countries want to shift manufacturing to India in order to diversify their manufacturing base (e.g. Japan, Europe)

Regulation

- Stricter regulations for quantity of mercury in CFL and FTL, as well as for proper end of life disposal for CFLs/ FTLs
- Mandatory standards for LED, Luminaires and controls
- Shift to LED for most public lighting applications (e.g. national highways, street lights, parks, etc.)

- Countries across the globe are beginning to ban inefficient incandescent lamps in residential lighting; opportunity for India to do the same, in phased manner.



Note: Time of year the ban comes into effect: US, Russia = January 1; EU = August 30; China = September 30; Brazil = June 30

Source: 'Lighting the way, 2012' McKinsey report, ELCOMA



Key Imperatives

Consumer demand for energy efficient lighting products

Initiative/ Imperatives	Ownership/ Responsibility		
	ELCOMA	Industry participants	Government
• Conduct consumer awareness/ education programs to educate about lifetime value of energy efficient lighting products and not just upfront value	✓	✓	✓
• Launch innovative financing schemes to make energy saving LEDs affordable and attractive to all strata of consumers, even in rural areas		✓	✓
• Develop affordable LED solutions suited to the lower income strata in India		✓	
• Promote and subsidize use of solar powered LEDs in remote locations with no access to power	✓		✓
• Design and make mandatory strict product specification standards, compliant with IEC (covering Safety, Performance and Reliability) for all products (LEDs/ CFLs) to boost consumer confidence.			
• Make energy conservation building code (ECBC) mandatory for large lighting users to promote use of LEDs	✓		✓
• 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	✓	✓	✓
• Demand generation by government (urban development, NHAI, Municipal Corporations)	✓		✓
• Phase-out GLS (as with other countries) through government regulations limiting production, application and product range of GLS products		✓	✓
• Create differential taxation/ VAT for lighting products based on energy efficiency to promote green technology and reduce power consumption (ELCOMA to propose, govt. to implement) - Reduce VAT to <5% for LED lighting products (energy efficient product)	✓		✓

LED Testing facilities

Initiative/ Imperatives	Ownership/ Responsibility		
	ELCOMA	Industry participants	Government
<ul style="list-style-type: none"> Add NABL approved LED testing facilities to support growth of LEDs established through funding support <ul style="list-style-type: none"> Labs managed by ELCOMA (in association with and funded by research/ educational institutes) Labs funded by industry, government (MoP, DietY, etc.) 	✓	✓	✓
<ul style="list-style-type: none"> Define lifetime testing specifications for all critical components used in Lighting Fixtures (LED, ELCO, passive components, MOFSET reflectivity etc.) <ul style="list-style-type: none"> e.g. test for driver, aging test, Voltage, Surge, Switching Testing Criteria, etc. 	✓		✓
<ul style="list-style-type: none"> Abolish import duty on testing equipment 			✓
<ul style="list-style-type: none"> Ensure faster processing for NABL accreditation for testing labs 			✓

LED and LED Luminaire manufacturing capability

Initiative/ Imperatives	Ownership/ Responsibility		
	ELCOMA	Industry participants	Government
<ul style="list-style-type: none"> Promote local manufacturing by creating a manufacturing cluster via SEZ for all LED lighting related products (luminaire and assembling, LED encapsulation, electronic components), with tax incentives and other benefits like <ul style="list-style-type: none"> 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) 		✓	✓
<ul style="list-style-type: none"> Provide fiscal incentives to increase capital inflow in manufacturing set-ups through removing FDI restrictions and providing low interest capital 	✓		✓
<ul style="list-style-type: none"> Create a market for exports by signing MOUs with the ASEAN and Gulf countries for LED products and electronic components 	✓		✓
<ul style="list-style-type: none"> ELCOMA to become member of Export Promotion Council. 			
<ul style="list-style-type: none"> Conduct export promotion programs through seminars and workshops 	✓		



Key Imperatives

Design hub for LED Luminaires, Control gears and systems

Initiative/ Imperatives	Ownership/ Responsibility		
	ELCOMA	Industry participants	Government
• Set-up research and design facilities for LED Luminaires, control gears and systems		✓	✓
• Sign MOUs with strategic partners on technology sharing with India			✓
• Generate demand for improved designing and software systems through awareness and stricter standards for lighting in public areas, commercial complexes and industrial areas, designed to save power, (e.g. via ECBC)	✓	✓	✓

Research, education and 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	✓		✓
• 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	✓		

Environmental Consciousness

Initiative/ Imperatives	Ownership/ Responsibility		
	ELCOMA	Industry participants	Government
• Reduce mercury content in the CFL and FTL, via appropriate regulations		✓	✓

Summary of Key Actions Required



ELCOMA

- Initiate export promotion program through seminars and workshops
- 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

Lighting product manufacturers and sellers

- Support set-up of LED testing facilities, R&D centres, training centres for luminaire design and manufacturing
- 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

Regulators

- Launch regulations to phase out inefficient lighting sources (e.g. ICLs)
- Create 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

Central and State Government

- Conduct consumer awareness programs highlighting 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 consumers to use CFLs/ LEDs
- Sign MOUs with 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.
- Provide financing support for testing labs, and educational institutions for Lighting technology
- Support research and design facilities for LED Luminaire, control gear and system design
- Make LED standards mandatory
- Impose anti dumping duty on LED products



Smart solutions.
Strong relationships.

CROMPTON'S CRI Technology, Render More Colour with Less Power

Showcase details like never before with CG LED Retail Lighting's High Color Rendering Index and Energy Efficient Technology that highlight what needs highlighting.



LED MR16



LED Highlighters



LED Track Lights



LED Downlight



CG LED RETAIL LIGHTING BENEFITS



High Colour Rendering Index

CG LED Solutions deliver a CRI of more than 90 that is nearest to that of the sun's value, reflecting colors truly and naturally.



Low Maintenance

CG LED Solutions have an outstanding operational life time expectation of up to 35,000 hours i.e. almost 4 years of continuous operation.



Energy Efficient

CG LED Solutions are the most efficient way of illumination with an estimated energy efficiency up to 50% when compared to conventional lighting Solutions.



Precise Optics

CG LED Solutions have options with Optical Beam of 10°, 25°, 36°, 50°, 60° in WW & CDL versions.



High Durability

CG LED Solutions are built with sturdy components that are highly rugged and extremely durable with built in over voltage, over temperature and short circuit protections.



Controls

CG LED Solutions are compactible to work with centralized controls on dimmers and sensors.

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Roadmap and Key Milestones

Roadmap for ELCOMA

	H2 2014	2015	2016	2017	2018	2019	2020
Consumer awareness programs for LED & CFLs	Identify Partners for awareness program (e.g. MoP, State Govt.)	Design awareness program (ELCOMA and partner)	Workshop and exhibition	Workshops & Awareness Programs	Workshop and exhibition	Workshops & Awareness Programs	Workshop and exhibition
Regulation on product and application specs, labelling norms	BEE labelling for LED lamps	BIS standard for street lighting and luminaires Standards for Fluorescent lamp Hg content <5mg/lamp, CFL Hg<3.5mg/lamp	BEE labelling for street lights	Make all standards mandatory Mandatory ECBC for large lighting users	Make National Lighting Code Mandatory	Mandatory use of smart controls in large public areas and commercial complexes	Standards for CFL Hg content to be <2mg/ lamp
Demand generation by government	Prepare street lighting program. Initiate phase out of >60W GLS lamps	Notification for LED VAT reduction to <5% by all states Plan and execute retrofit lamps program	Notification for retail outlets to change all downlighting to LED. Anti-dumping duty	Phase out >40W GLS lamps Introduce affordable replacement by energy efficient lamp		Phase out >25 W GLS	
Export promotion			Foreign delegates to visit India	Indian delegates visit to Asian countries Export MOUs with neighbouring countries for Luminaires and LED	Foreign delegates to visit India	Indian delegates to visit Europe, USA	
Lighting excellence centre (LEC) for R&D, testing and education	With an educational institution 1. Create first R&D LEC 2. Get NABL accreditation 3. Add testing facility	Add education program to LEC	Create 2 nd LEC		Create 3 rd LEC		
Skills development program	Elcoma joins Electronic Skills Development Council	Organise skills development programs. Setup training institute for Luminaire design,mfg	Set-up design institute for Luminaires	Continue Skills Development for Technical, Marketing, Product development, etc.			
ELCOMA newsletter	Preparation of newsletter	Launch first issue		Continue quarterly launch of newsletter			
Garnering International Support	Garner technical support from GLA and ISA						

Key Milestones

Area	Topic	Measure	Current value	Target (year to achieve target)
Consumer demand	• Energy consumption	• Lighting power consumption, as proportion of total power consumption	• 18%	• 15% (2017) • 13% (2020)
	• LED market in India	• Size of LED market (# LEDs or value of LEDs sold)	• Rs. 2000Cr	• Rs. 10K Cr (2016) • Rs. 21k Cr (2020)
LED testing	• LED Testing	• Capacity for LED testing	• 3 labs	• 15 labs (2017) • 20 labs (2020)
LED Luminaires and Electronics Manufacturing	• Manufacture of LED Luminaires	• Proportion of India's LED Luminaire consumption manufactured in India	• <40%	• 60% (2017) • 80% (2020)
	• Export of LED Luminaires	• Proportion/ Value of total domestic Luminaire production exported	• <5%	• 25% (2020)
	• Manufacture of electrical components for LEDs	• Proportion of Electronic components (by value) for LEDs mfg in India, manufactured locally	• ~20%	• 40% (2020)
R&D/ Training	• Education in Lighting engineering	• # Annual students seats available in Lighting Engineering (undergrad + post grad)	• 0	• 50 (2015) • 250 (2017) • 500 (2020)
	• R&D centres for lighting technology	• # R&D centres and level of investment required	• 0	• 3 centres (Rs 150 Cr for set-up) (2020)