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Government of India
Ministry of Communications and Information Technology
Department of Electronics and Information Technology
(Industrial Promotion - Electronics Hardware Manufacturing [IPHW] Division)

Minutes of Meeting to ascertain the manufacturing capabilities of LED/LED based Lighting Products in India held on May 17, 2012 under the Chairmanship of Dr. Ajay Kumar, Joint Secretary, Department of Electronics and Information Technology (DeitY)

Following were present:

1. Dr. Ajay Kumar, Joint Secretary, DIT - **In Chair**
2. Shri Gaurav Dave, Joint Secretary, NMCC
3. Dr. S. Garg, Energy Economist, BEE, Ministry of Power
4. Dr. (Mrs.) Niloufer Shroff, Scientist 'G', R&D in Electronics Group, DeitY
5. Dr. M. V. Ramana Rao, President, LEDMA
6. Shri Venkata Atluri, CEO, MIC Electronic Ltd., Hyderabad
7. Shri Deepak Loomba, MD & CEO, De Core Science & Technologies Ltd., Noida
8. Shri Sanjeev Khosla, Chairman, Sanarti Group, New Delhi
9. Shri Amrit Manwani, Managing Director, Sahasra Electronics Pvt. Ltd., Noida
10. Shri C.N. Shetty, CEO, Artemis Opto Electronic Technologies Pvt. Ltd., Mumbai
11. Shri Shishir Mehta, General Manager, NTL Electronics India Ltd., Noida
12. Shri B. S. Sethia, Director, Elin Electronics Ltd.
13. Shri S. R. Subhan, AGM, MIC Electronics Ltd., Hyderabad
14. Dr. R. C. Chopra, Senior Advisor, CII
15. Shri Rajoo Goel, Secretary General, ELCINA
16. Shri Rajiv Jain, Associate Director, India Semiconductor Association (ISA)
17. Shri S.K. Marwaha, Addl. Director (IPHW Division), DeitY

2. Chairman welcomed the members to the meeting and informed that this meeting has been convened as a follow-up to the meeting held on May 3, 2012 in the National Manufacturing Competitiveness Council (NMCC) under the Chairmanship of Member Secretary, NMCC, wherein the discussions, inter-alia, covered promotion of indigenous manufacturing of LED / LED based Lighting Products. The Government of India is making all out efforts for manufacturing sector to play a bigger role in the country's economy. The National Manufacturing Policy document emphases that the growth of the manufacturing sector has to be made sustainable, particularly ensuring environmental sustainability through green technologies, energy efficiency and optimal utilization of natural resources and restoration of damaged/ degraded eco-systems.

3. It was noted that Light Emitting Diodes (LEDs), the Solid State Lighting (SSL) devices, offer the electrical lighting market new and revolutionary light sources that save energy, improve quality, performance and service. It is expected that in the 12th Five Year Plan, LED technology will contribute towards reducing energy demand in a big way in the area of lighting and industrial application. India has the necessary expertise in the design, development and manufacture of world class LED products in all the application domains of LEDs. There is a need for creating a comprehensive infrastructure in the country encompassing chip manufacture, packaging, luminaire manufacture and solution development.

4. The Chairman stated that during the discussions in the meeting held in the NMCC on May 3, 2012, it was generally observed by all concerned that LED segment has tremendous potential for India and manufacturing of the same needs to be supported. As part of the RGGVY, about two crore LED based lights are proposed to be distributed by Ministry of Power to people below poverty line during the 12th Five Year Plan. This would provide a huge boost to the LED demand and the same can be used as an opportunity for manufacturing. The purpose of the meeting was to ascertain the manufacturing capabilities of LED / LED based Lighting Products in India that will serve as input to Ministry of Power to provide a road map for notifying the preference to domestically manufactured LED based lighting products under the policy for preference to domestically manufactured electronic goods (Ref. Notification No.8(78)/2010-IPHW dated 10.2.2012) so that investors could plan suitably.

5. Shri Deepak Loomba, MD & CEO, De Core Science & Technologies Ltd., Noida informed that they have set up South Asia's first nanosemiconductor fab with the capability of growing compound semiconductors, nitride crystalline heterostructures, in-house characterization, post growth processing, fabrication and dicing in Gandhinagar. The facility is located in SEZ. The company has the capability of growing the crystals from high purity gases, processing them and making white light emitting dies ready for packaging into luminaries. De Core Science and Technologies Limited has established at Noida-one of the largest LED packaging units in South Asia, with an installed capacity of 350 MW of solid state lighting products per annum.

The technology/ know-how for the entire production process have been adapted through in-house expertise. Some of the processes have been developed in-house and the relevant IPRs are also being protected. The technology proposed to be commercialized under this project is based on Vertical Chip architecture, which has been developed inhouse and is highly innovative and involves very high level of sophistication. The ready for packaging LED chips would be used for manufacturing LED lighting products and also sold to other customers worldwide.

6. It was noted that LED lighting manufacturing market can be divided into 4 segments:

(i) Crystal growth and die/chip fabrication, getting processed LED wafer or LED Chip as a final product.

(ii) Die/Chip Packaging: This involves bonding of the Chip, deposition of phosphor, binning and packaging. The output for this segment is a potted and bonded LED which can now glow white when given potential/current (A blue LED chip which is majorly used emits blue light which after deposition of phosphor would emit white light). There are Low power LED packages which are used for decorative, signal and back panel lighting where light output is not the key criteria and Mid / High power LED packages which are mainly used for illumination.

(iii) Light Engines: Light Engines are an array of LED emitters incorporated with a thermal management and power supply.

(iv) LED Luminaires: LED luminaires are ready to install LED products which have an array of LED emitters, Optics and power supply incorporated in a Metal housing, usually Aluminium which provides thermal management. These LED luminaires cater to various indoor and outdoor requirements including street lights.

7. Dr. Sandeep Garg, Energy Economist, BEE, Ministry of Power and Dr. Ramana Rao, President, LEDMA expressed that LED based lighting products have huge potential

in the country and there is a need to encourage domestic manufaturing. They were of the view that DeitY should play a lead role in promoting domestic manufaturing of LEDs / LED Products and the policy for preference to domestically manufactured electronic goods in Government procurement needs to be leveraged in this regard.

8. The Chairman mentioned that under the policy for preference to domestically manufactured electronic goods in Government procurement, for providing two crore LED based lights to people below poverty line during the 12th Five Year Plan, (a) the percentage of total procurement value for which preference to domestically manufactured LED lights is to be provided and (b) the value addition in terms of Bill of Material (BOM) required for the LED lights to qualify as domestically manufactured needs to be notified by Ministry of Power. As per policy, the minimum percentage specified for (a) above is 30%. The Chairman emphasized that there will be no compromise on quality and cost.

9. After detailed deliberations, it was noted that LED based lighting products value chain essentially comprises following four main components:

(i) LED Emitter (Light source: Packaged LED chips)

(ii) LED Driver (Power source: comprising of PCB, electronic components)

(iii) Optics / Diffuser

(iv) Lighting Fixture (Housing which also aids Thermal management)

Enough capacity exists in the country for die packaging, assembly of LED driver and lighting fixture / luminaire manufacturing. The bare PCB and certain electronic components for LED driver are being manufactured indigenously. The members were unanimous in their view that the entire demand can be met indigenously and to start with, domestic value addition in the range of 30 - 40% can be achieved easily.

10. The meeting ended with a Vote of Thanks to the Chair.

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