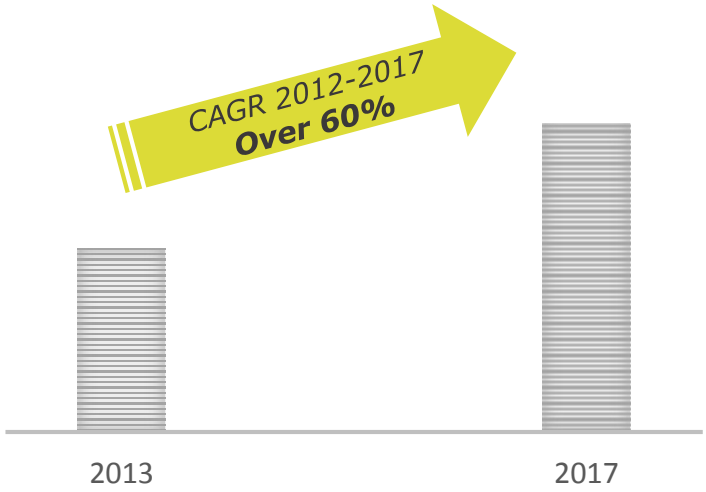
MARKET SCENARIO AND INNOVATIONS IN THE INDIAN MARKET

NEW PRODUCTS IN FOCUS

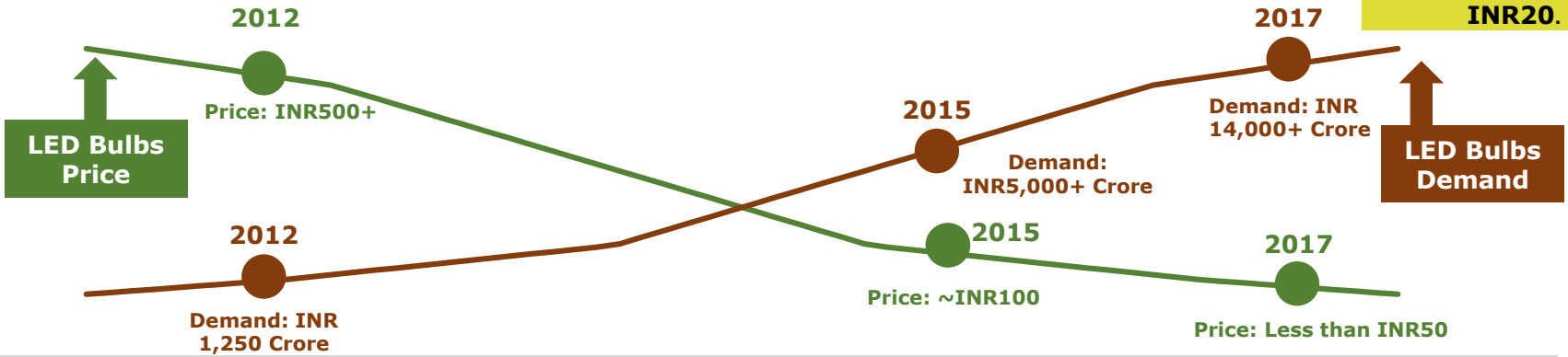
TechSci Research
from NOW to NEXT

INDIA LED LIGHTING MARKET OUTLOOK



Key Driving Factors
Lower Cost of Ownership
Favourable Government Initiatives
Increased Availability
Rising Consumer Awareness
Emerging Middle Class Population

LED Bulbs: Price Vs. Demand

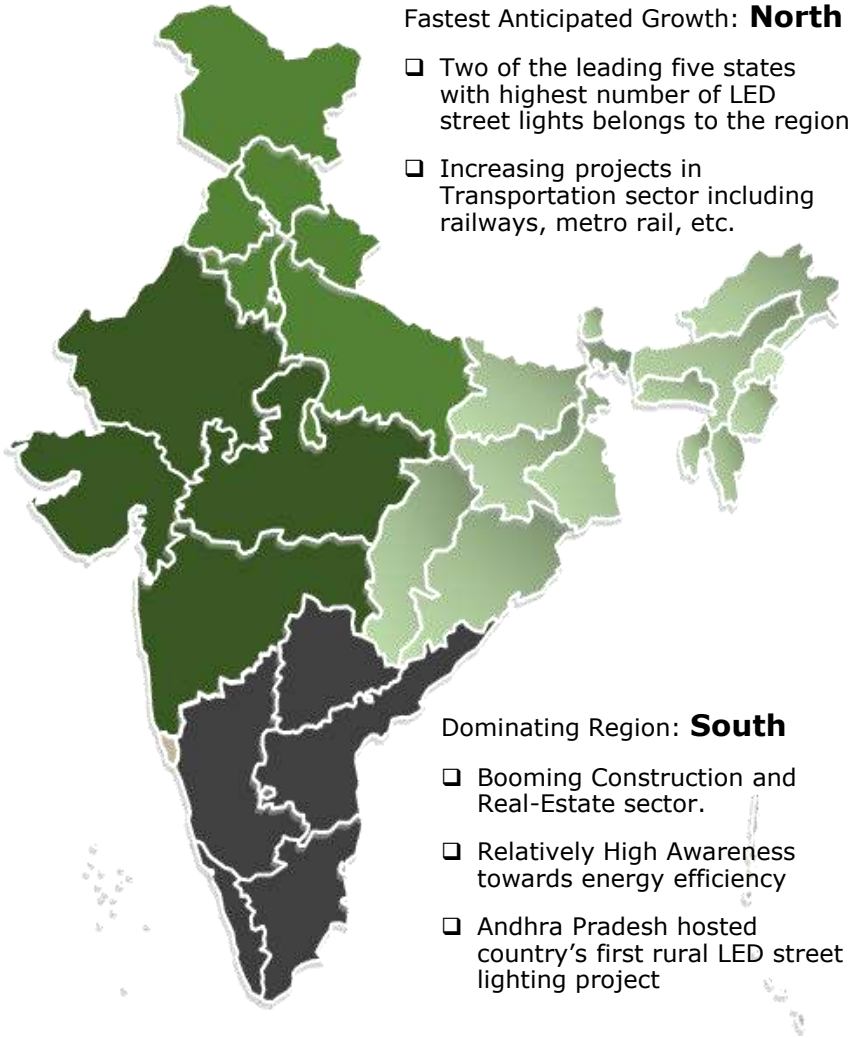


The LED bulb prices are further anticipated to reach INR20.

Over the period of last five years, backed by increased government's initiatives, since last three years, LED bulbs prices has been significantly reduced which has fueled the demand for energy efficient LED lighting solutions.

SEGMENTAL OVERVIEW

Regional Overview



Fastest Anticipated Growth: **North**

- Two of the leading five states with highest number of LED street lights belongs to the region
- Increasing projects in Transportation sector including railways, metro rail, etc.

Dominating Region: **South**

- Booming Construction and Real-Estate sector.
- Relatively High Awareness towards energy efficiency
- Andhra Pradesh hosted country's first rural LED street lighting project

END USER OVERVIEW

RESIDENTIAL

Nature of Market:

Low-Margin | High-Volume

Driving Force:

Demand-driven Market

Growth Drivers:

- Government Initiatives
- Extremely Low unit Prices
- Rising consumer awareness

COMMERCIAL & INSTITUTIONAL

Nature of Market:

Relatively Low-Volume | High-Margin

Driving Force:

Technology-driven Market

Growth Prospects: HIGH

INDUSTRIAL

GLOBAL PERSPECTIVE: DEVELOPED Vs. DEVELOPING

Countries	LED Related Policies Inception Year	Government Policies/Schemes	LED Adoption Segment
Japan (Developed) 	1998	21st Century Lighting Project	Innovators
India (Developing) 	2014	Prakash Path; SLNP; DELP; UJALA; SEEP	Early Majority
Malaysia (Developing) 	2015	LED Lighting Upgrade Project	Early -to- Late Majority

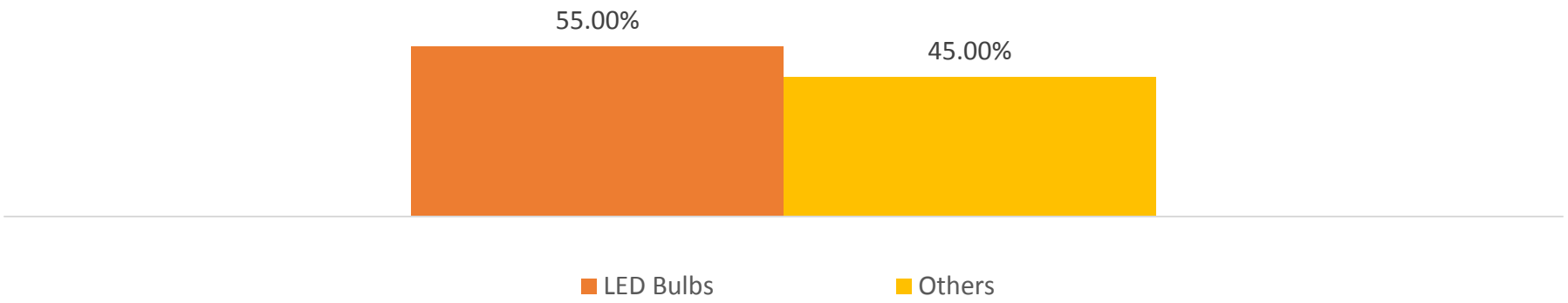
- *SLNP: Street Lighting National Program*
- *DELP: Domestic Efficient Lighting Program*
- *SEEP: Super Efficient Equipment Program*
- *UJALA: Unnat Jyoti by Affordable LEDs for All*

TAILWINDS & HEADWINDS

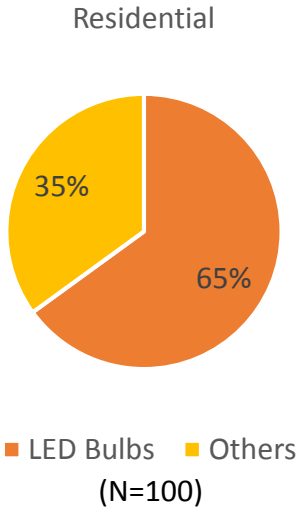
Drivers & Challenges	Probable Impact	
	Short-Term	Long-Term
Investment by the Government in Energy Efficient Lighting Systems	High	Low- Medium
Increasing Disposable Income With Rapid Urbanization	High	High
Global mandate to arrest global warming and migration to technologies like LED	High	High
Lack of Technical Standardization	High	Medium
Thin Margins	Low	Medium-High

Drivers ***Challenges***

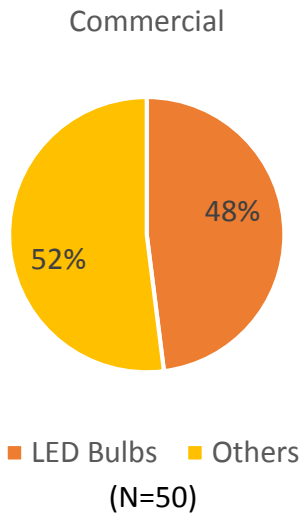
LED Bulbs Vs. Other Product usage pattern (N=200)



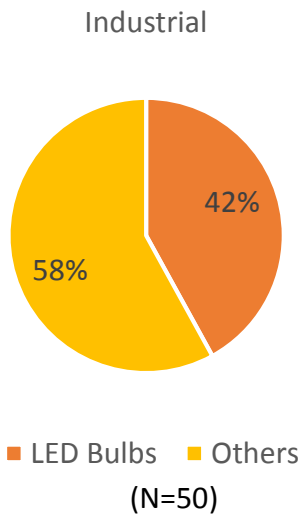
LED Bulbs Adoption : Residential Vs. Commercial Vs. Industrial



(N=100)



(N=50)

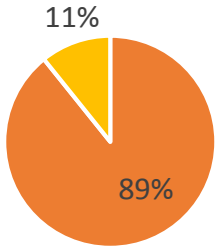


(N=50)

LED Bulbs Replacement : Traditional Vs. New Technological Product

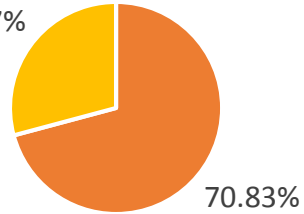
Residential

N=65



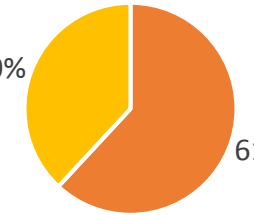
Commercial

N=24



Industrial

N=21



- Traditional LED
- Technologically Advanced Product

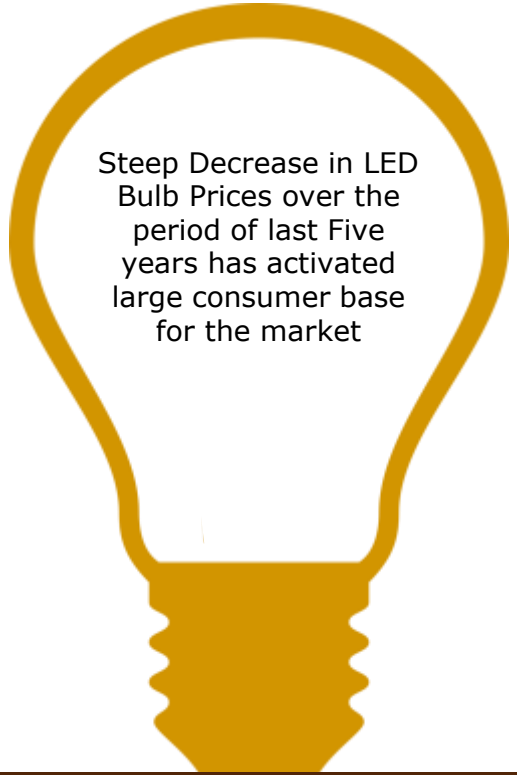
Factor Influencing Purchase Decision – By Rating (N=110)

Parameters/End User	Residential	Commercial	Industrial
Price	High	Medium	Medium
Quality	High	High	High
After Sales	Low	High	High
Technology	Low	High	High
Energy Efficiency	High	High	High

High Medium Low

PRODUCT OF TOMORROW: LED BULBS

MARKET
DRIVEN INNOVATION

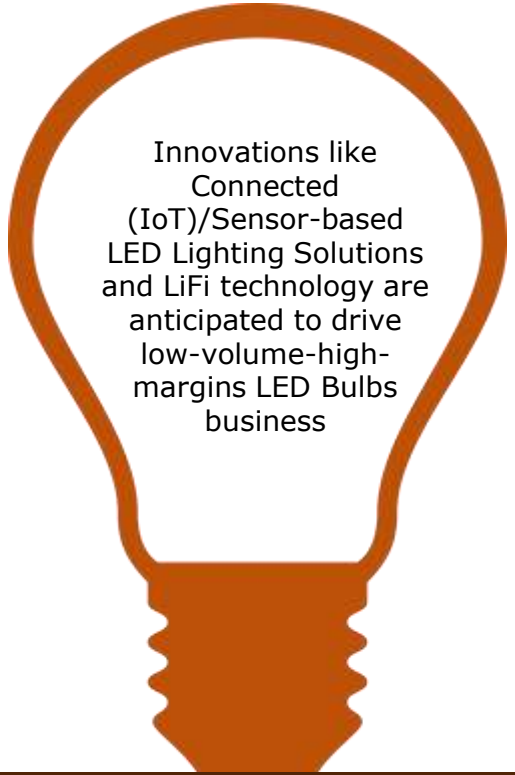


Strategy of the Past

OPERATION
DRIVEN INNOVATION

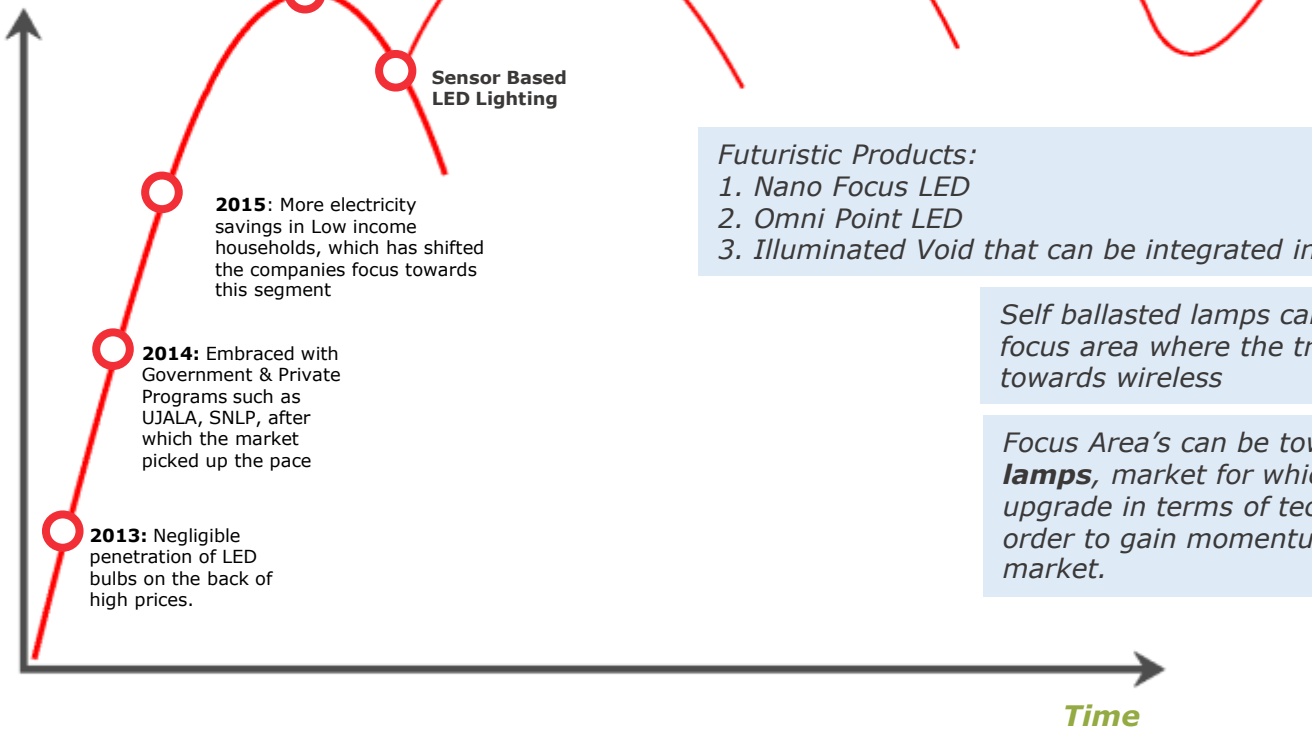
Current Strategy

TECHNOLOGY
DRIVEN INNOVATION



Strategy of the Future

LED & INNOVATIONS



*Companies such as **Phillips** & **Wipro** are actively participating in LiFi development be it in India or partnering with global companies.*

Futuristic Products:
1. Nano Focus LED
2. Omni Point LED
3. Illuminated Void that can be integrated in the wall

Self ballasted lamps can be another focus area where the trend is moving towards wireless

*Focus Area's can be towards **retrofit lamps**, market for which needs an upgrade in terms of technology in order to gain momentum in the market.*

Sensor Based LED Lighting:

Motion detector devices have revolutionized the concept of Indoor Lighting, it can now be controlled by occupancy detectors.

Benefits:

1. Adjustable time, lux (Brightness) (manually)
2. Ease of deployment with added features - compatible with almost any light fitting
3. Technology helps in savings electrical power consumptions
4. Detect intrusions in all directions : for e.g. Wireless Security Motion Sensor Led Light

Internet of Things : Connected Lighting System

Parameters that can be observed or monitored using IoT:

Energy Measurement: Analyzing energy consumption & heath data will help in proving cost effectiveness of LEDs deployed.

Analyzing energy consumption in stipulated time will help in identifying energy theft.

Effect of Dimming: Connectivity of streetlights with IOT will help in analyzing the positive effect of light dimming in terms of energy saving. This will also help in analyzing management of lux in the street lights during the operational hours

Light Fidelity (LiFi) :

Expected to be next big revolution, to transmit the data using LED bulbs.

Need to connect the country's remote area which can't be reached by fiber but have electricity, will be provided with internet connectivity through this technology in future.

In a latest development Indian government commenced a pilot project on LiFi in which Ministry of IT & Electronics has tested a network which uses LED and light spectrum to transmit data speeds as high as 10 gbps in a kilometre radius.

TechSci Research
from NOW to NEXT

THANK YOU