"ESDM Sector Growth & Policy Developments"

Changing Business Environment & Opportunity

Presentation to

Taiwan Investment Mission in India

10th April 2019

ELCINA House
New Delhi
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SOME KEY ACTIVITIES OF ELCINA

- Continuous interaction and dissemination of information on Policy & Business Opportunities
- Policy Recommendations to Govt of India & States & Member Issues Resolution
- Organising Key Business Development Events- Source India in Chennai and Strategic Electronics Summit in Bangalore
- Event & Knowledge Partner for electronics productonica India (MMI) with India PCB Tech & ELCINA Pavillion
- India Taiwan Electronics Meet (ITEM) – in Taipei (Annual since 2016)
- ELCINA Desk in Taiwan for supporting Members Business Development
- ELCINA Awards since last 42 Years
- ELCINA Electronics Cluster in Bhiwadi (Ready to Move In from Dec 2018)
- Regular Publications- e-Fortnightly, ELCINA Annual Directory, Electronics Outlook (Bi-Monthly)
- Regional Desks and Chairmen for promoting activities & resolving problems

ELCINA is the oldest & Largest Industry Association in India representing the interests of the Electronics Systems Design & Manufacturing Industry since 1967

ELCINA Desk in Taiwan

- Established an Industry Support Desk in Taiwan with a view to enhance business opportunities and forge closer alliances with the following specific objectives

- *Provide a point of contact for Taiwanese companies*
- *Facilitate business development between Taiwanese and Indian Companies*
- *Plan and facilitate Delegations and visits of Indian Companies to Taiwan and vice-versa.*
- *Organize business promotion and networking events in Taiwan*
- *Share Market Information, Industry and policy information through ELCINA News Letters and database with companies in Taiwan*
- *Find Partners and matchmaking service -collaborations, technology transfer and JVs ventures*
- *Facilitate exchange of knowledge and information and Skill Development forums and platforms*

Contact: Manik Kumar, Associate Director email: india-desk@elcina.tw Taiwan Mobile 963930712 or email yogesh@elcina.com; rajoo@elcina.com

ON THE PATH TO A NEW INDIA: 5 THINGS TO KNOW

1. INFRASTRUCTURE

- *Large-scale infrastructure development in progress*
- *Increase economic growth and job creation. -*
- *Bharat Mala 84,000 Kms ($ 110 Bn) new Road network*

2. TALENT POOL

- *Youngest population – average age 29*
- *India will have world's largest working age population, crossing 1 billion people by 2050.*

3. INNOVATION

Home to over 20,000 startups, India has world's 2rd largest ecosystem - 4 startups are born in India everyday.
Govt Scheme 'Startup India' providing funding and tax benefits

4. INDIA GOES ONLINE

- *Digital transformation of India's rural villages*
- *100,000 km of optical fiber network Connect 239,000 Villages*
- *WiFi in 250,000 educational institutes.*
- *Target to provide wifi hotspots in 400,000 public places*

Source: Feedback Consulting Analysis, Make in India

5. E-GOVERNANCE

e-Governance takes centre stage

- *Maximum Governance, Minimum Government'*
- *World's largest biometric linking system for all citizens – Adhaar (1.19 billion)*
- *Single window portals across services*

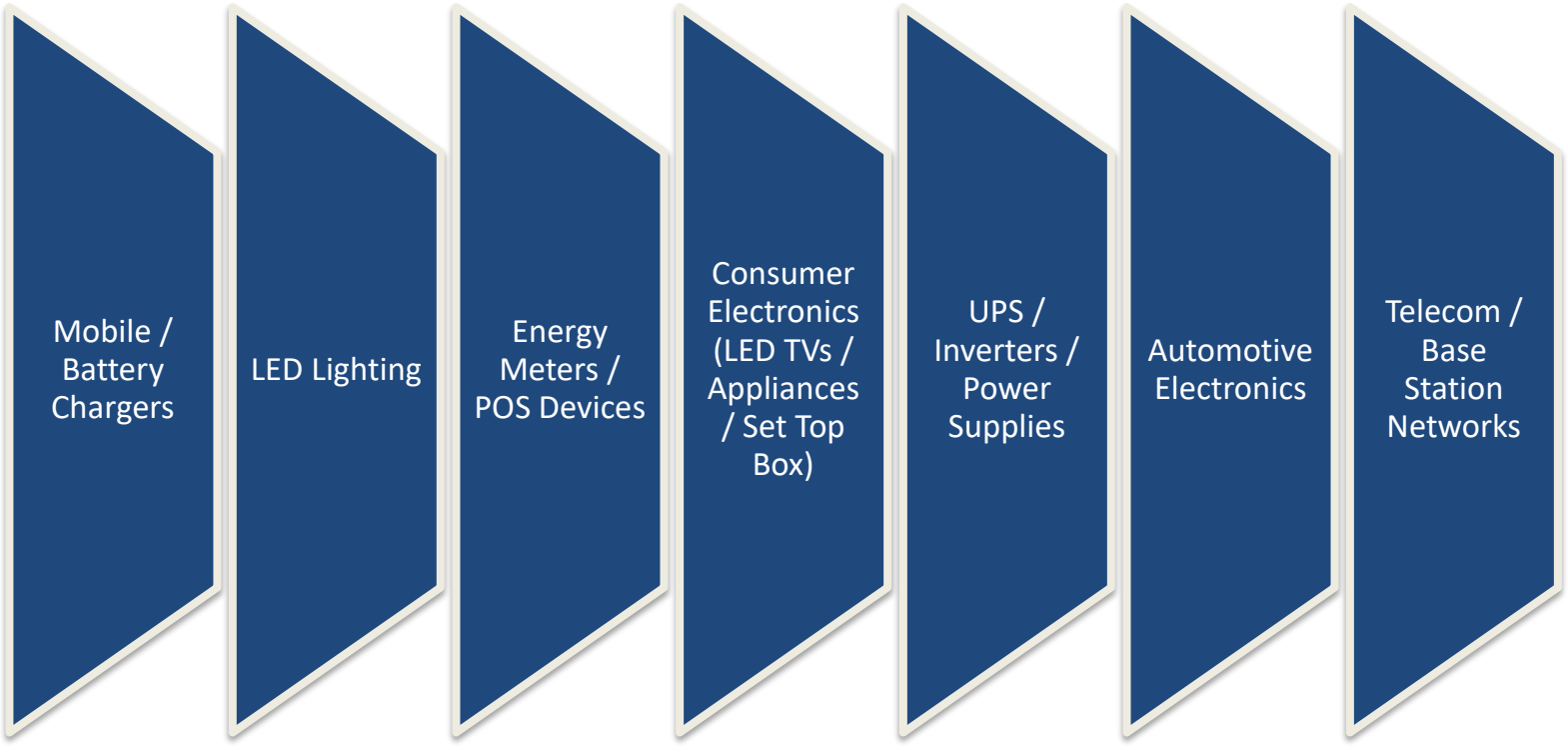
- Indian Market for Electronic Products

Government Initiatives Driving Market

Demand generated from national schemes like-

- *National Knowledge Network (NKN) & National Optical Fibre Network (NOFN); Bharat Net*
- *Digital India –Spreading e-Governance throughout India and creating a knowledge economy*
- *Smart Cities – 100 Smart Cities Program – US $ 31 billion program underway*
- *Solar Energy Mission – 100GW of Solar power including 40GW of Solar Rooftops*
- *National Mission for Energy Efficiency- Opportunities from energy efficiency mission estimated at about US$ 12 Billion (INR 74,000 Crores)*
- *LED Lighting Programme – LED Bulbs and Streetlight (Ujala Scheme) - - 29 million LED bulbs distributed so far (2016 & 2017); 5 million LED streetlights installed*
- *Upcoming Schemes for IoT and Artificial Intelligence (Industry 4.0)*
- *The new EV drive in India has made its impact and EV will be next major driver for the ESDM industry*

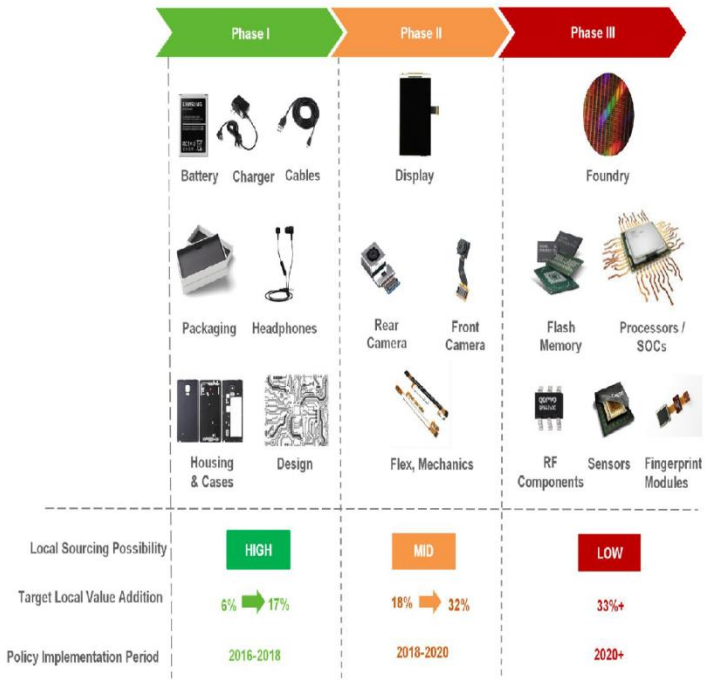
Top Performing Segments in the Country



Source: Mr Richard Puthota, Alpha Assembly

THE PMP PROGRAM - MOBILE

: Make in India: Mobile Phone Phased Local Value Addition Plan



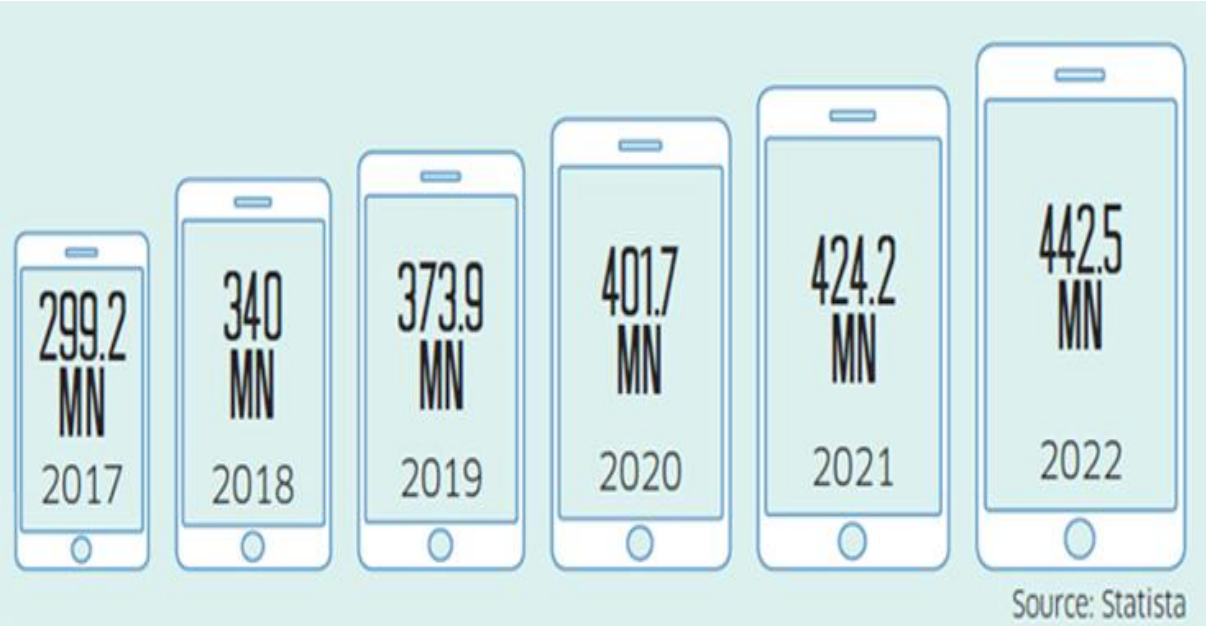
Source: Authors' estimates& Counterpoint Research Data

Year	Sub-Assembly	Status
2016-17	(i) Charger/ Adapter, (ii) Battery Pack, (iii) Wired Headset	Implemented
2017-18	(iv) Mechanics, (v) Die Cut Parts, (vi) Microphone and Receiver,	
	(vii) Key Pad, (viii) USB Cable (Implemented)	
2018-19	(ix) Printed Circuit Board Assembly (PCBA), (x) Camera	ON
	Module, (xi) Connectors	
2019-20	(xii) Display Assembly, (xiii) Touch Panel/ Cover Glass	
	Assembly, (xiv) Vibrator Motor / Ringer	

- Imports of Phones drastically increased in 2015 - post which the Govt has bought in a progressive Phased Manufacturing Program (PMP) to boost domestic production of Mobile Phones
- From 30-35 players, nearly 108 mobile phone assemblers and accessories manufacturers in India

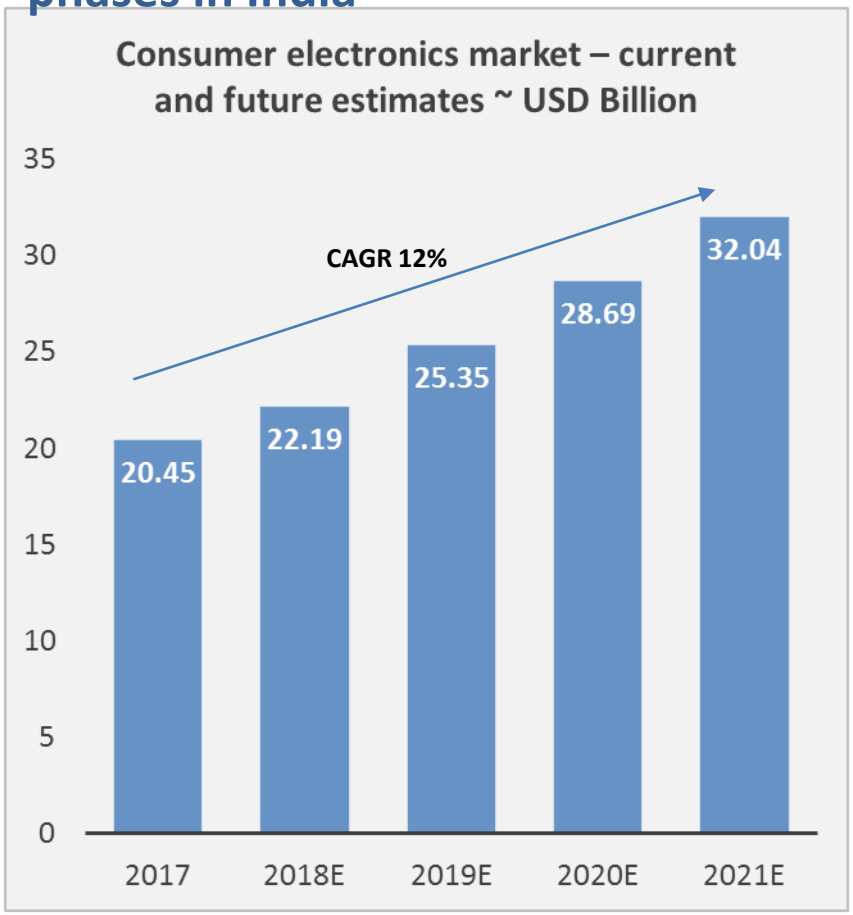
Estimated Growth in Mobile Phone Volumes

- 2014-15 : 60 Mn units valued at Rs.18,900 crore (US$ 2.7 Bn)
- 2015-16 : 110 Mn units valued at Rs.54,000 crore (US$ 7.7 Bn)
- 2016-17 : 175 Mn units valued at Rs.90,000 crore (US$ 12.8 Bn)



- Aiming for 500 Mn units valued at Rs. 300,000 crore (~US$ 43 Bn) by 2019-20.
- Smart Phone share rising from 43% in 2017 to 67% in 2020
- Samsung recently opened its largest mobile phone factory in India
- Mobile manufacturing is a huge opportunity and can be the back bone of the resurgence of Electronics manufacturing in India

Consumer Electronics Industry is seeing one of its best growth phases in India



	2017	2018	2019	2020	2021
AC	1.7	1.9	2.0	2.2	2.5
TV	11.6	12.0	14.0	16.0	18.0
Fridge	3.0	3.5	4.0	4.5	5.0
Washing m/c	1.6	1.8	2.0	2.1	2.3
Mixer	0.8	0.9	1.0	1.2	1.3
Water Purifier	1.5	1.8	2.0	2.3	2.5
Others	0.3	0.3	0.4	0.4	0.4
Overall	**20.5**	**22.2**	**25.4**	**28.7**	**32.0**

- Consumer Electronics Mkt grew @11% CAGR during 2012 -17 to reach US$ 20.5 Billion. Now growing @13% per annum –Estimated to cross USD 32 Billion by 2021
- **Indian CTV market set to reach 20 million units by 2020**
- Customs Duty increased to 20% on TVs to boost domestic production; CD on open cell reduced from 10% to 5%

Source: Feedback estimates from multiple sources - Makeinindia, MeitY, IBEF, Euromonitor, Crisil, Industry Estimates

Assembly Lines = Opportunity for PCBs

Number of SMT Lines as of 2018	**: 1330 – 1350**
Est lines for 2019	**: 300+**
Vs 2017	**: 30% UP**
SMT Lines for Mobile 2018	**: 180 +**
Est Lines for Mobile in 2019	**: 120 +**
Wave Soldering Lines as of 2018	**: 700 +**

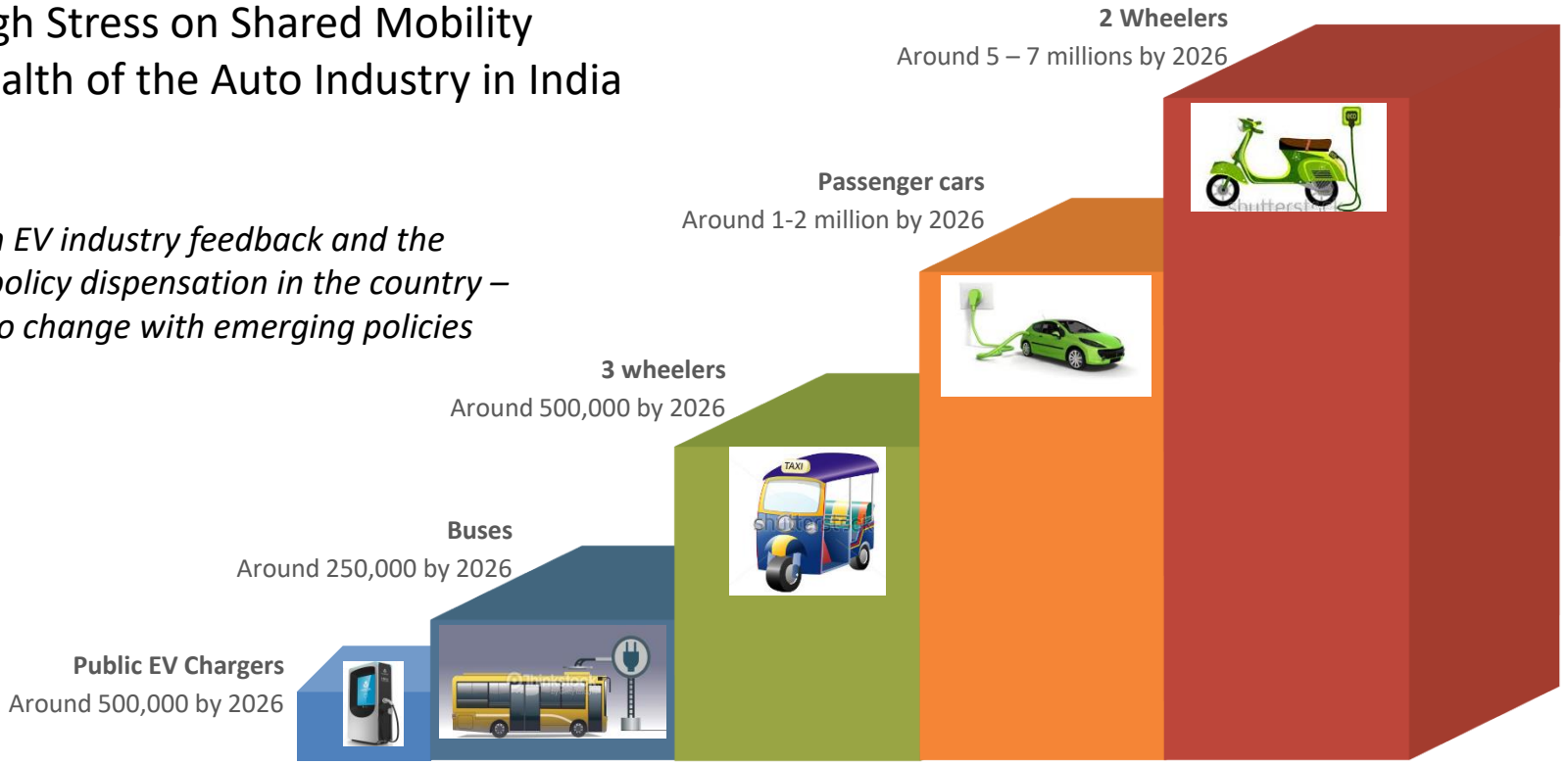
Source: Mr Richard Puthota, Alpha Assembly

Opportunity landscape in EV business in India

Key growth drivers for EV

- High forex risk in Crude imports
- Environmental concerns and Paris accord
- High Stress on Shared Mobility
- Health of the Auto Industry in India

Based on EV industry feedback and the current policy dispensation in the country – subject to change with emerging policies



India's energy import bill is expected to double from around USD 150 billion to USD 300 billion by 2030.

Source: Feedback Consulting Analysis

FAME - I & II
Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India

- FAME-India Scheme- Phase-I was started on 1st April 2015. The scheme, which was initially upto 31st April 2017, has been extended upto 31st March, 2019 or till Notification of FAME-II, whichever is earlier.

- Total outlay of Phase-I of the FAME-India Scheme has been enhanced from Rs. 795 Crore to Rs. 895 Crore.

- The Phase-II of the Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME-India) Scheme proposes-
  - ✓ Push to electric vehicles (EVs) in public transport
  - ✓ Encourage adoption of EVs by market creation and demand aggregation
  - ✓ Holistic growth of EV industry, including providing for charging infrastructure, R&D of EV technologies and greater indigenization.

The scheme was not finalized and now a new PMP program has been announced.

Phased Manufacturing Program for EV's

S.No.	Item Description		Current BCD w.e.f. 30/01/2019	Phased Manufacturing proposal	
				Proposed BCD	Proposed Date of PMP
1	CBU	Bus (HS 8702) & Trucks (HS 8704)	25%	50%	April 2020 onwards
2.	SKD	PV(HS 8703) & 3W (HS 8703/8704)	15%	30%	
		2W (HS 8711)		25%	
		Bus (HS 8702)		25%	
		Truck (HS 8704)		25%	
3.	CKD	Bus (HS 8702)	10%	15%	
		PV (HS 8703) 2W (HS 8711) 3W (HS 8703/8704) & Truck (HS 8704)		15%	
4.	Lithium ion cells (HS 85076000) for use in the manufacture of Lithium Ion accumulator for EVs ()		5%	10%	April 2021 onwards
5.	Battery packs (HS 8507) for use in the manufacture of EVs		5%	15%	
6.	Parts for use in the manufacture of EVs like • AC or DC Charger • AC or DC Motor • AC or DC Motor Controller • Power Control Unit (Inverter, AC/DC Converter, Condenser) • Energy Monitor • Contactor • Brake System for recovering • Electric Compressor		0%	15%	April 2021 onwards

ESDM firms could tap India's virgin EV market

Module	Key Electronic Modules	Specifics
Electric Vehicles	Batteries	Main Battery - Lithium Ion battery / packaged under the front seats, 48V DC system, 200 AH; Aux Battery - 12V, 7Ah
	Battery chargers	Electric vehicles in India do not have an on-board charger beyond 2.5kW or 3kW
	Electronic Controller	3 phase AC Motor Controller with hill hold & restraint
	Power Converter	
	Electric Motor	THREE PHASE SQUIRREL CAGE INDUCTION MOTOR, 25.5 HP (19KW)@3750 RPM , 53 N-m @3500 RPM (±5%),
	Temperature Control	
	Energy Management	Intelligent Energy Management System [IEMS] that controls energy flow from mains to battery power Pack through on board charger
EV Chargers	Home Chargers	230V/15A single phase plug which can deliver a maximum of up to about 2.5KW of power; IEC 60309 Industrial connector to be used from both ends
	Public Chargers Slow (Bharat AC 001 Standards)	Type of each output: A.C., 230V (+6% and -10%) single phase as per IS 12360 and 15 A, 3.3kW Power
	Public Chargers Fast (Bharat DC 001 standards)	10kW/15kW/30kW/50kW; 48V/72V for 2W, 3W, small and medium 4W; Up to 750V or even higher for medium to high end 4W / CV

Source: Feedback Consulting Analysis

- Developments in Policy for Electronics Sector over last ~3 years

Developments in Policy for Electronics Sector

3 cornerstone of policies making in India which has an impact on the Electronics sector

- **Goods and Services Tax** (**GST**) is an indirect tax (or consumption tax) levied in India on the supply of goods and services.
- GST is levied at every step in the production process, but is refunded to all parties in the chain of production other than the final consumer.

National Taxation (GST)

- Goods and services are divided into five tax slabs for collection of tax
  - - 0%, 5%, 12%,18% and 28%
- Most Electronic Products are in the 12 – 18% category with few in 5% range and very few in 28%

- ***NEW INSOLVENCY CODE***
- ***DIGITISATION DRIVE***
- ***E-GOVERNANCE***
- ***E-AUCTIONS***

Business Transparency

Electronics Sector - Make in India

- ***NPE 2.0***
- ***EMC***
- ***SUPPORT R&D***
- ***EXPORT PROMOTION***
- ***PMA***
- ***PMP FOR SELECT PRODUCTS***

Source: Feedback Consulting Analysis

Recent Basic Custom Duty (BCD) Increase on Electronic Items

Push towards Manufacturing in India

Items	Previous BCD	Existing BCD
Microwave Ovens	10	20
Mobile (Smart) Phones	10	20
CCTV	10	15
STB including Android Boxes	10	20
Flat Panel TV's	10	20
LED Lights	10	20
LED Fitting & Fixtures	10	20
Energy Meters	10	15
Smart Watches	10	20
Chargers for Mobile Phones	10	15
Cells of Battery for Mobile Phones	10	15
Battery for Mobile Phones	10	20
Microphone, Headset,	10	15
Medical Devices	10	15
Video Games, Consoles, Parlour Games	10	20

Import Duty (Customs Duty) on above items increased to encourage domestic manufacturing & discourage Imports of Finished goods. The import duty on inputs for these items has been decreased or made zero.

List of electronics items:
GST rates has been reduced from 28% to 18% in December 2018

HS Code	Item
8418	Refrigerators, freezers and other refrigerating or freezing equipment
8423	Electric or electronic weighing machines
8443	Printers which perform two or more of the functions of printing
8504	Static converters
8506	Primary cells and primary batteries- Lithium Ion
8507	Electric accumulators- Lithium Ion Powerbanks
8508	Vacuum cleaners
8509	Electro-mechanical domestic appliances, with self-contained electric motor
8513	Portable electric lamps designed to function by their own source of energy (for example, dry batteries, accumulators, magnetos)
8525	Transmission apparatus for radio-broadcasting or television, digital cameras and video cameras
8527	Reception apparatus for radio-broadcasting
8528	Monitors and projectors, not incorporating television reception apparatus
8536	switches, relays, fuses, surge suppressors, plugs, sockets, lamp holders, and other connectors
8544	wire, cable and other insulated electric conductors
9405	Lamps and lighting fittings including search lights and spotlights and parts thereof
9504	Video games consoles and Machines

National Policy on Electronics

NPE 2012 vs NPE 2019

Comparative Features/Provisions

Provisions	NPE 2012	NPE 2019
Market & TARGET	Market: USD 400 billion by 2020 Exports: USD 80 Billion by 2020	Market: USD 400 Billion by 2025 [4.1]
EMC	Under the scheme, 50% of the project cost for Greenfield EMC and 75% for Brownfield EMC was given as grant.	To include the existing, manufacturing zones/ corridors in the country, with provision for ready-built factories. Inclusion of state participation is emphasized [5.1.6]
PMA/PPO	Policy was notified in December 2013 for providing preference to Domestically Manufactured Electronic Products (DMEP) in Government procurement for its own use.	Scheme to continue on the lines of Public Procurement Order 2017 (PPO 2017). NPE 2019 encourages State Governments to adopt the PPO 2017, in procurement of electronic, including cyber security products. [5.20]
M-SIPS	Provides capital subsidy of 25% for electronics industry located in non-SEZ areas and 20% for those in SEZ areas.	MSIPS Scheme Closed. Proposal to substitute with schemes that are easier to implement such as **Interest Subsidy and Credit Default Guarantee**. Industry Asking to continue MSIPS for 3 more years.

Provisions	NPE 2012	NPE 2019
Quality Registration	"Electronics and IT Goods (Requirement of Compulsory Registration) Order, 2012" mandating Indian Safety Standards for 30 electronic products	CRO to continue in the new scheme [5.2]
Promotion of Exports	To increase the export in ESDM sector from USD 5.5 Billion to USD 80 billion by 2020	NPE 2019 also talks about providing attractive package to promote exports. [4.6]
E-waste Management	Will encourage Industry to follow E-waste Rules 2011 and make a mechanism for a sustainable e-waste disposal	NPE looks at promoting Eco-park in each State for processing e-Waste in environmental friendly manner in PPP mode to integrate formal and Informal operators. [4.15]
Taxation	Provide for a 10 year stable tax regime for ESDM sector Create Inter-Ministerial Working Group to clarify issues relating to electronics products	Promote a forward looking and stable tax regime Provide suitable Direct Tax benefits for ESDM sector [5.1.3]

Provisions	NPE 2012	NPE 2019
R&D and Innovation	• To create an Electronic Development Fund to promote innovation and IP and R&D, commercialization of products etc. in ESDM	• Promote path-breaking research, grass root level innovations and early stage Start-ups in emerging technology areas such as 5G, IoT/ Artificial Intelligence (AI), Drones, Robotics etc. [5.9.3] • Create Sovereign Patent Fund (SPF) to promote the development and acquisition of IPs in ESDM sector. [5.7.5] • Facilitate interaction between academia (including Atal Tinkering Laboratories [5.7.8]
Promotion: Fabless Chip Design Industry	• To facilitate setting up of Semiconductor Wafer Fab facilities and kits eco-system for design and fabrication of chips and chips components	• Electronic Design Automation (EDA) tools and FAB support for early-stage startups. [5.22.11] • Provide support for Indian fabless industry through Venture Capital (VC) funding [5.22.1.4] • Set up Incubation Centres/ Centres of Excellence (CoEs) [5.22.1.5] • Provide export incentives for Fabless chip design companies [5.22.1.7]

Provisions	NPE 2012	NPE 2019
Focus Sub-Sectors	• Strategic and core infrastructure sectors like • Avionics, LED, Solar Photovoltaic, Information and Broadcasting, Telecommunication, Railways, Automotive • Industrial, Medical, Intelligent Transport Systems	• Covers all sub-sectors, including electronic components, sub-assemblies and semiconductors, telecom and broadcasting equipment and fabless chip design. [5.1.7] • Promotion of Electronic Manufacturing Services (EMS) Industry • Promotion of Assembly, Testing, Marking and Packaging (ATMP) lines • Promotion of Electronic Components and incentives for manufacturing of core electronic components (both active and passive, including bare PCBs, chip components, connectors, wound components, switches, relays, ferrites, etc.), lithium-ion cells etc. [2.4]

Other Salient Points in NPE 2019

- Trusted Electronics Value Chain to improve national cyber security profile and control its supply chain across national defense (military, intelligence, space) and critical national infrastructure (energy grids, communication networks, digital economy, etc.). [5.9.3]
- Leveraging Defence Offsets, in consultation with the Department of Defence Production (DDP), for development of electronic components manufacturing. [5.1.5]
- Encourage and incentivize Transfer of Technology (ToT) for core technologies especially in Strategic Electronics. [5.22.4.3]
- Promote research, innovation and support to the industry in the areas of packaging, interconnects and micro photonics
- Drive indigenization of microchips used by strategic and critical infrastructure sectors viz., Defence, space, atomic Energy, telecom, aviation, power, etc., through design and production of such microchips. [4.1.0]
- Provide support for MSME's [5.1.10]

Working to promote Electronics Manufacturing in India

Thank You

ELECTRONIC INDUSTRIEES ASSOCIATION OF INDIA
www.elcina.com

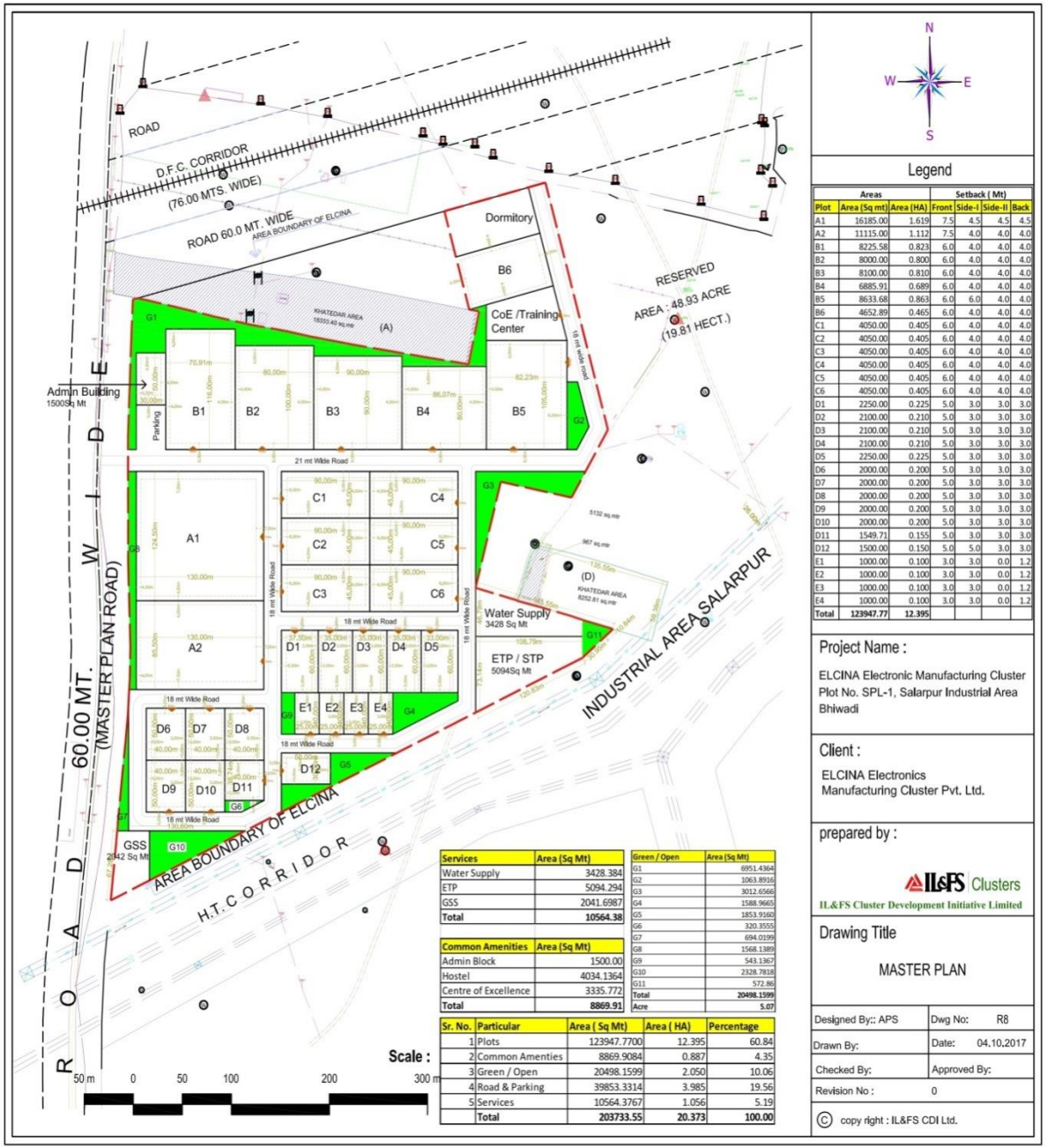
ELCINA Electronics Manufacturing Cluster, Bhiwadi

… at a Glance

❑ Name of the Promoter (SPV):	ELCINA Electronics Manufacturing Cluster Private Limited
❑ Location of EMC:	Plot No. SPL-1, IA Salarpur, Bhiwadi, Rajasthan
❑ Area of EMC:	Total area: 100.70 acres **Area for Phase I: 50.34 acres** (Project to be implemented in 2 phases of 50 acres each)
❑ EMC Scheme Assistance:	The Grant-in-Aid of Rs. 20.24 Crore from MeitY, Govt. of India under the EMC Scheme
❑ Plotted Area for Units (Phase-I) :	30.62 acres (Industrial Plots : 30)
❑ Plots Allotted to Units (Phase-I):	27.39 acres (Industrial Plots : 24)
❑ Estimated Project Cost (Phase-I):	Rs. 46.09 Crores (excluding land cost)
❑ Proposed Investments by Units :	Rs. 700 Crores (approx) in Phase- I Rs. 800 Crores (Estimated) in Phase- II
❑ Indicative Employment (Phase-I):	Direct employment: 5- 6,000 Indirect employment: 10-12,000

Final Master Plan
Phase- I (50 Acres)

- **Total Plots:** 30 Nos.
- **Sale-able Area:** 30.62 Acres
- **Plots sold:** 27.39 Acres
- **Unsold Plots**: 3.23 Acres



Areas			Setback (Mt)			
Plot	Area (Sq mt)	Area (HA)	Front	Side-I	Side-II	Back
A1	16185.00	1.619	7.5	4.5	4.5	4.5
A2	11115.00	1.112	7.5	4.0	4.0	4.0
B1	8225.58	0.823	6.0	4.0	4.0	4.0
B2	8000.00	0.800	6.0	4.0	4.0	4.0
B3	8100.00	0.810	6.0	4.0	4.0	4.0
B4	6885.91	0.689	6.0	4.0	4.0	4.0
B5	8633.68	0.863	6.0	6.0	4.0	4.0
B6	4652.89	0.465	6.0	4.0	4.0	4.0
C1	4050.00	0.405	6.0	4.0	4.0	4.0
C2	4050.00	0.405	6.0	4.0	4.0	4.0
C3	4050.00	0.405	6.0	4.0	4.0	4.0
C4	4050.00	0.405	6.0	4.0	4.0	4.0
C5	4050.00	0.405	6.0	4.0	4.0	4.0
C6	4050.00	0.405	6.0	4.0	4.0	4.0
D1	2250.00	0.225	5.0	3.0	3.0	3.0
D2	2100.00	0.210	5.0	3.0	3.0	3.0
D3	2100.00	0.210	5.0	3.0	3.0	3.0
D4	2100.00	0.210	5.0	3.0	3.0	3.0
D5	2250.00	0.225	5.0	3.0	3.0	3.0
D6	2000.00	0.200	5.0	3.0	3.0	3.0
D7	2000.00	0.200	5.0	3.0	3.0	3.0
D8	2000.00	0.200	5.0	3.0	3.0	3.0
D9	2000.00	0.200	5.0	3.0	3.0	3.0
D10	2000.00	0.200	5.0	3.0	3.0	3.0
D11	1549.71	0.155	5.0	3.0	3.0	3.0
D12	1500.00	0.150	5.0	5.0	3.0	3.0
E1	1000.00	0.100	3.0	3.0	0.0	1.2
E2	1000.00	0.100	3.0	3.0	0.0	1.2
E3	1000.00	0.100	3.0	3.0	0.0	1.2
E4	1000.00	0.100	3.0	3.0	0.0	1.2
Total	123947.77	12.395				

Services	Area (Sq Mt)
Water Supply	3428.384
ETP	5094.294
GSS	2041.6987
Total	10564.38

Common Amenities	Area (Sq Mt)
Admin Block	1500.00
Hostel	4034.1364
Centre of Excellence	3335.772
Total	8869.91

Green / Open	Area (Sq Mt)
G1	6951.4364
G2	1063.8916
G3	3012.6566
G4	1588.9665
G5	1853.9160
G6	320.3555
G7	694.0199
G8	1568.1389
G9	543.1367
G10	2328.7818
G11	572.86
Total	20498.1599
Acre	5.07

Sr. No.	Particular	Area (Sq Mt)	Area (HA)	Percentage
1	Plots	123947.7700	12.395	60.84
2	Common Amenties	8869.9084	0.887	4.35
3	Green / Open	20498.1599	2.050	10.06
4	Road & Parking	39853.3314	3.985	19.56
5	Services	10564.3767	1.056	5.19
	Total	203733.55	20.373	100.00

Project Name :

ELCINA Electronic Manufacturing Cluster Plot No. SPL-1, Salarpur Industrial Area Bhiwadi

Client :

ELCINA Electronics Manufacturing Cluster Pvt. Ltd.

prepared by :

IL&FS Clusters

IL&FS Cluster Development Initiative Limited

Drawing Title

MASTER PLAN

Designed By:: APS	Dwg No: R8
Drawn By:	Date: 04.10.2017
Checked By:	Approved By:
Revision No :	0

Actual Site Pictures

Main Gate House & Security Booth (View 1/2)..

Actual Site Pictures

Main Gate House & Security Booth (View 2/2)..

Actual Site Pictures

INTERNAL ROAD AERIAL VIEW

Actual Site Pictures

Water Storage Tank, Fire Pump House & Rain Water Harvesting System work....

Actual Site Pictures

Electricity NDS connection along with some street lights installed..

Actual Site Pictures

Contd..

Aisan Fiem JV Co's Factory Outside View….

Actual Site Pictures

Contd..

Aisan Fiem JV Co's Factory Inside View….

Actual Site Pictures

Contd..

Aisan Fiem JV Co's Factory Inside View….