

June 15, 2021

National Stock Exchange of India Limited  
"Exchange Plaza",  
Bandra – Kurla Complex,  
Bandra East  
Mumbai – 400 051  
**NSE Symbol: AMARAJABAT**

**Through: NEAPS**

BSE Limited  
Corporate Relations Department,  
Phiroze Jeejeebhoy Towers,  
Dalal Street, Fort,  
Mumbai – 400 001  
**BSE SCRIP CODE: 500008**

**Through : BSE Listing Centre**

Dear Sirs,

**Sub:** Presentation at the virtual Analyst and Investors meet

Pursuant to Regulation 30 of SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015 and our letter dated June 12, 2021, informing that the Company will be participating in an analyst and investors meet and interacting with institutional and other investors on June 15, 2021.

Please find attached the presentation being made at the said virtual investors meet/call.

We request you to take on record the same.

With regards,

**For Amara Raja Batteries Limited**

**Vikas Sabharwal**  
**Company Secretary**

Encl.: as above

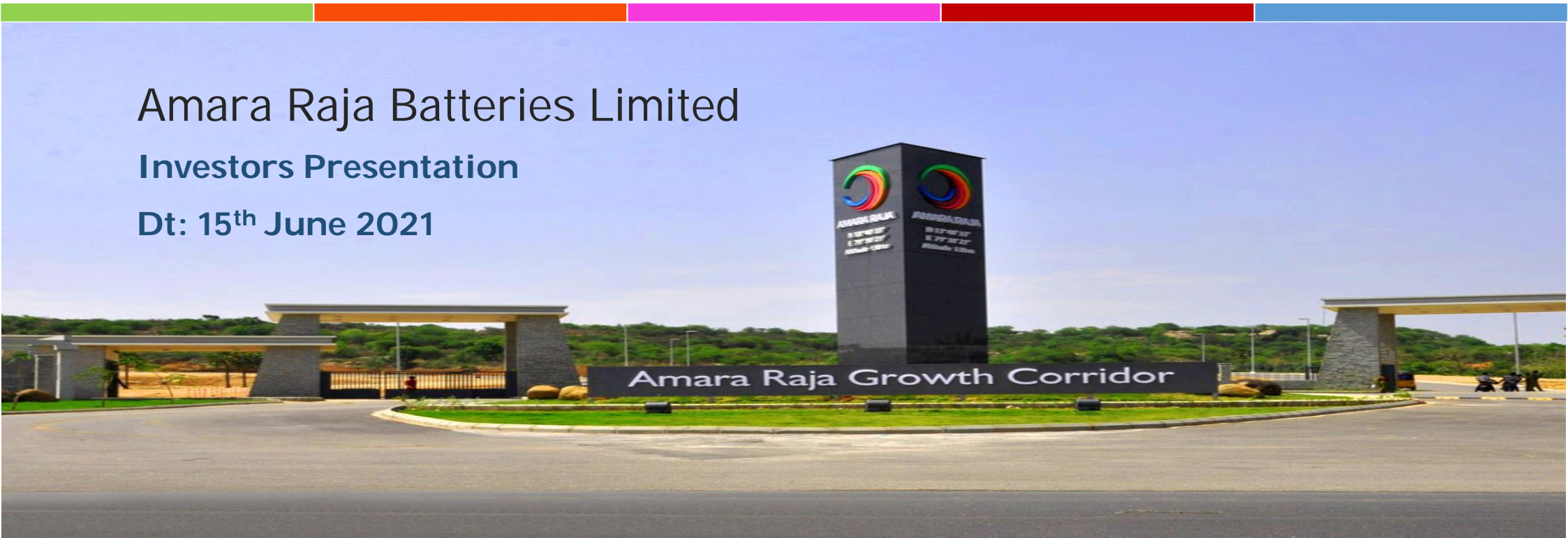


**AMARA RAJA**  
Gotta be a better way

# Amara Raja Batteries Limited

Investors Presentation

Dt: 15<sup>th</sup> June 2021



## Safe Harbor

---

*Some of the statements in this presentation that are not historical facts are forward looking statements. These forward looking statements include our financial and growth projections as well as statements concerning our plans, strategies, intentions and beliefs concerning our business and the markets in which we operate. These statements are based on information currently available to us, and we assume no obligation to update these statements as circumstance change. There are risks and uncertainties that could cause actual events to differ materially from these forward looking statements. These risks include, but are not limited to, the level of the market demand for our products, the highly competitive market for the types of the products that we offer, market condition that would cause our customers to reduce their spending for our products, our ability to create, acquire and build new businesses and to grow our existing businesses, our ability to attract and retain qualified personnel, current fluctuations and market conditions in India and elsewhere around the world, and otherwise not specifically mentioned herein but those that are common to industry.*

# Agenda

---

- Business Profile

- New Strategic Initiatives

  - ❖ Lead Acid Battery Business: Value Maximisation

  - ❖ New Energy Initiatives

## CORE PURPOSE

*To transform  
our increasing spheres of influence  
and to improve the quality of life  
by building institutions  
that provide better access  
to better opportunities  
to more people. . .  
all the time.*



**AMARA RAJA**  
Gotta be a better way



## Vision

---

Through the Amara Raja and through enduring progressive partnerships we will be a Global Leader in Batteries and Battery Technologies and a dominant player in the Indian Ocean Rim.



## INNOVATION

Innovation to us is proactively rebelling for better ways of doing things leading to newer possibilities.

Element

Space

Mind State

Synthesising



# THE AMARA RAJA WAY...®

## EXCELLENCE

Excellence to us is continually enhancing our performance to consistently produce outstanding results with lasting impact.

Element

Wind

Mind State

Disciplined

## ENTREPRENEURSHIP

Entrepreneurship to us is leading with courage and conviction to convert gaps into opportunities, create wealth and contribute to growth.

Element

Fire

Mind State

Creative

## EXPERIENCES

Experiences to us is what we create for our stakeholders which make them feel part of something special, leading to endearing relationships.

Element

Water

Mind State

Spiritual

## RESPONSIBILITY

Responsibility to us is the total ownership of our thoughts and actions in every situation to achieve maximum common good in the best interest of Environment, Society, Customer, Supplier, Employee and Share holders.

Element

Earth

Mind State

Respectful & Ethical

# Amara Raja Batteries Limited



## Automotive Batteries

- ❖ Leading Automotive Battery Brand
- ❖ Largest Exporter of 4W Batteries in India
- ❖ First AGM battery manufacturer for 2W

- ❖ 8 Battery Manufacturing Plants
- ❖ Largest Private Sector Employer in AP
- ❖ Strong work force with average age of 29 years

## ARBL

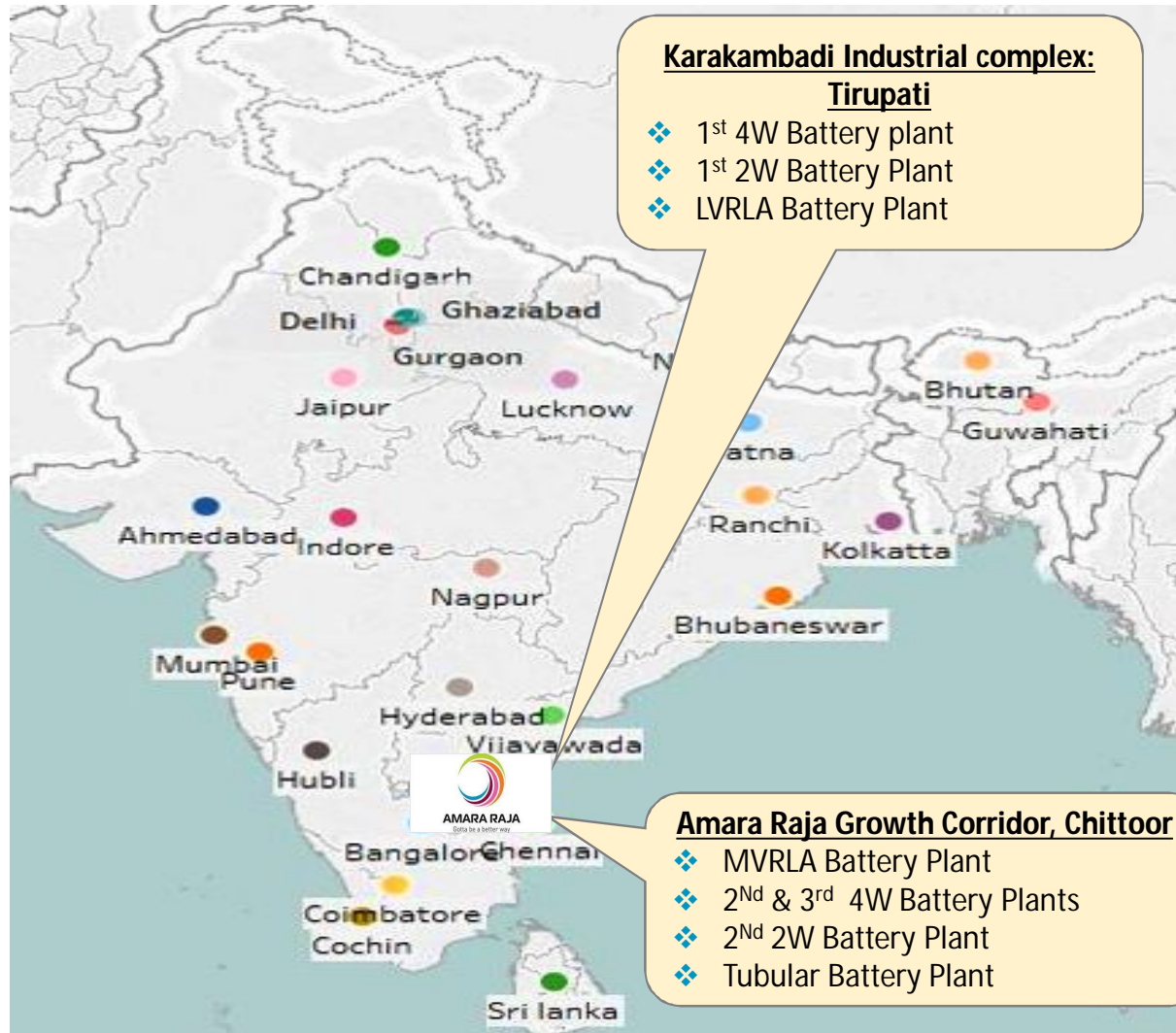


## Industrial Batteries

- ❖ First VRLA Battery Manufacturer in India
- ❖ Market Leader in Telecom.
- ❖ Largest Integrated Facility for MVRLA Batteries.
- ❖ Pioneered Battery Solutions for Indian Railways.



# Manufacturing Locations & Capacities



Current Capacities	
<b>4W Batteries</b>	❑ Annualised Capacity: 14 Mn Nos
<b>2W Batteries</b>	❑ Annualised Capacity: 20 Mn Nos
<b>Industrial Batteries</b>	❑ Annualised Capacity: 2 Bn Ah
<b>Tubular Batteries</b>	❑ Annualised Capacity: 1.4 Mn Nos

# ARBL- Automotive Batteries

## Application Segment & Product Range - **Automotive**

- ❖ Automotive batteries
- ❖ Passenger cars
- ❖ 3 wheelers
- ❖ 2 wheelers
- ❖ Tractors
- ❖ Trucks
- ❖ Inverters
- ❖ Home UPS/Inverters



# ARBL- Industrial Batteries

## Application Segment & Product Range for Industrial Batteries

- ❖ Power Generation units
- ❖ Transmission & Distribution
- ❖ Telecom
- ❖ Railways
- ❖ Offshore units
- ❖ Other Industries



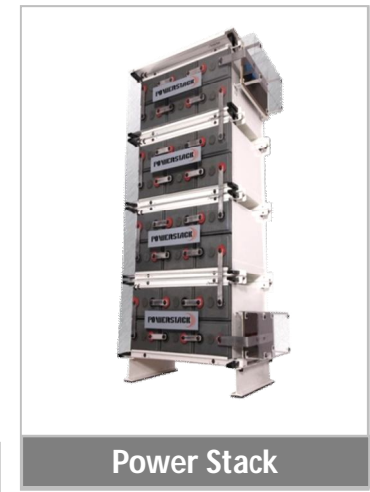
Amaron Sleek



Amaron Volt



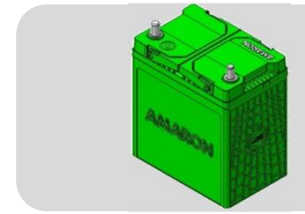
Quanta



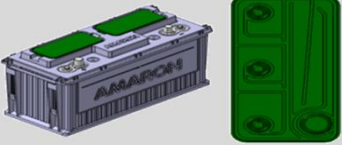
Power Stack

# Innovation : Product Engineering

- ❖ Advanced 3D Modeling & Simulation Analysis for component design and evaluation
- ❖ Product Design and Development through Robust APQP Methodology , Predictive Analysis & comprehensive performance evaluation in accordance with OEM / International standards
- ❖ Value Engineering, DOE and Design for manufacturing

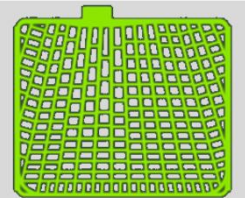


## Liq Arr™ vents



- ❖ Innovative Designs - Design Registrations
  - ▶ Innovate poly and venting designs for stringent OEM specific requirement
  - ▶ Innovative "UPMC" (UNIFORM PRESSURE MAINTAIN COVER) for Motorcycle Battery

- ❖ New Advanced Stamped Grid design for future requirements
  - ▶ Rolled strip, hi speed punching and dividing
- ❖ Formulation of new paste recipes for advanced lead acid batteries (EFB)

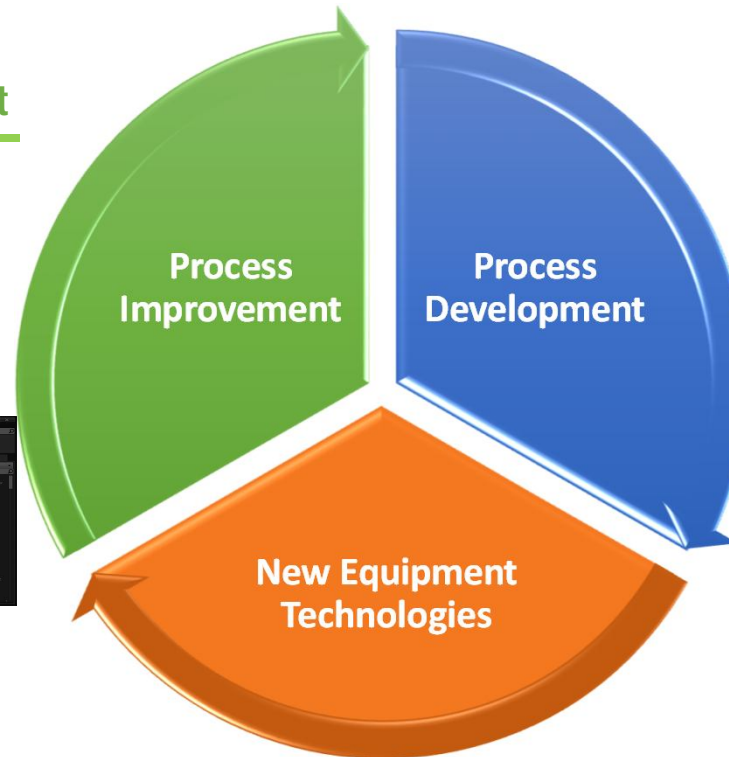
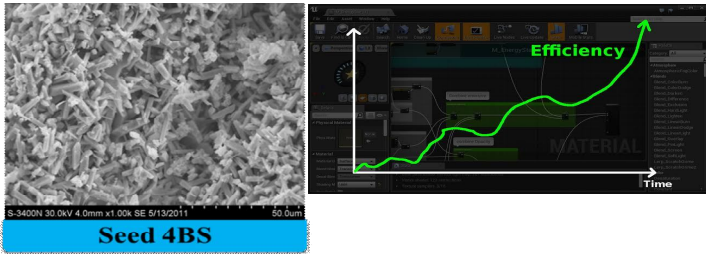


- ❖ Design & Development of EFB /AGM batteries for automotive ,SVRLA for UPS applications
- ❖ High performance battery developed for Honda Motor Cycle Start-Stop application
- ❖ Continuous enhancement of SLI batteries

# Innovation : Process Engineering

## Material Efficiency Improvement

- ❖ Optimized paste recipe & morphology
- ❖ Improved PAM efficiency
- ❖ Material reduction/Ah
- ❖ Retaining performance level



## Gang Vent Cleaning technology for DIN battery

- ❖ Design, Development and Commercialization
- ❖ Enable dump and refill for DIN
- ❖ Cycle time and Energy reduction
- ❖ Throughput improvement



## Advanced Plate Making –Multi Grid Punching & Pasting for 2W

- ❖ Design, Development and Commercialization
- ❖ Lead conservation
- ❖ Higher Productivity
- ❖ Manpower reduction

WORLD  
FIRST



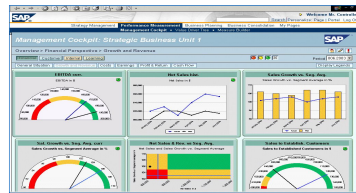
# AR Idea Digital Transformation Journey

Analytics & Mobility Layer  
Transaction Layer  
Automation Layer

## Wave 1



### Business Analytics



### Mobility



## Wave 2

### Employee Portal

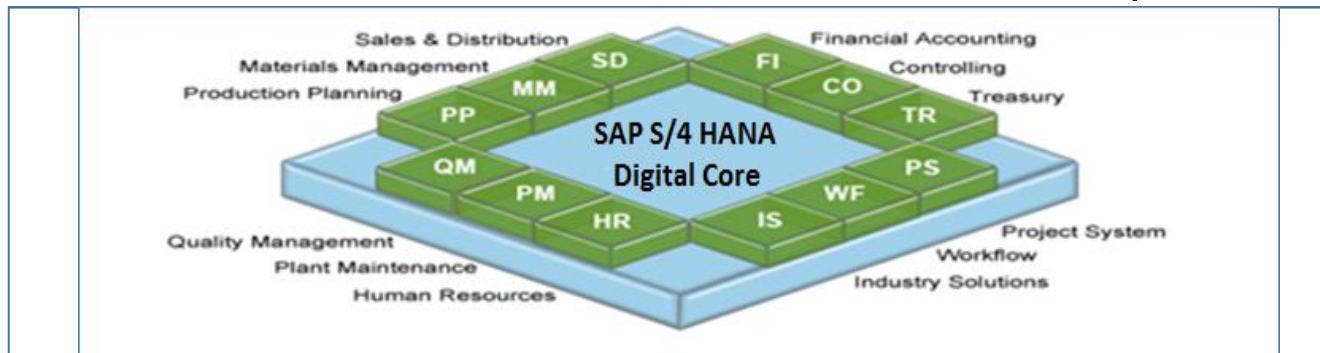
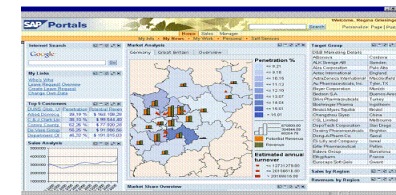


### Vendor Portal



Customers/  
Vendors

### Customer Portal



## Wave 3



Machine/Operational Analytics

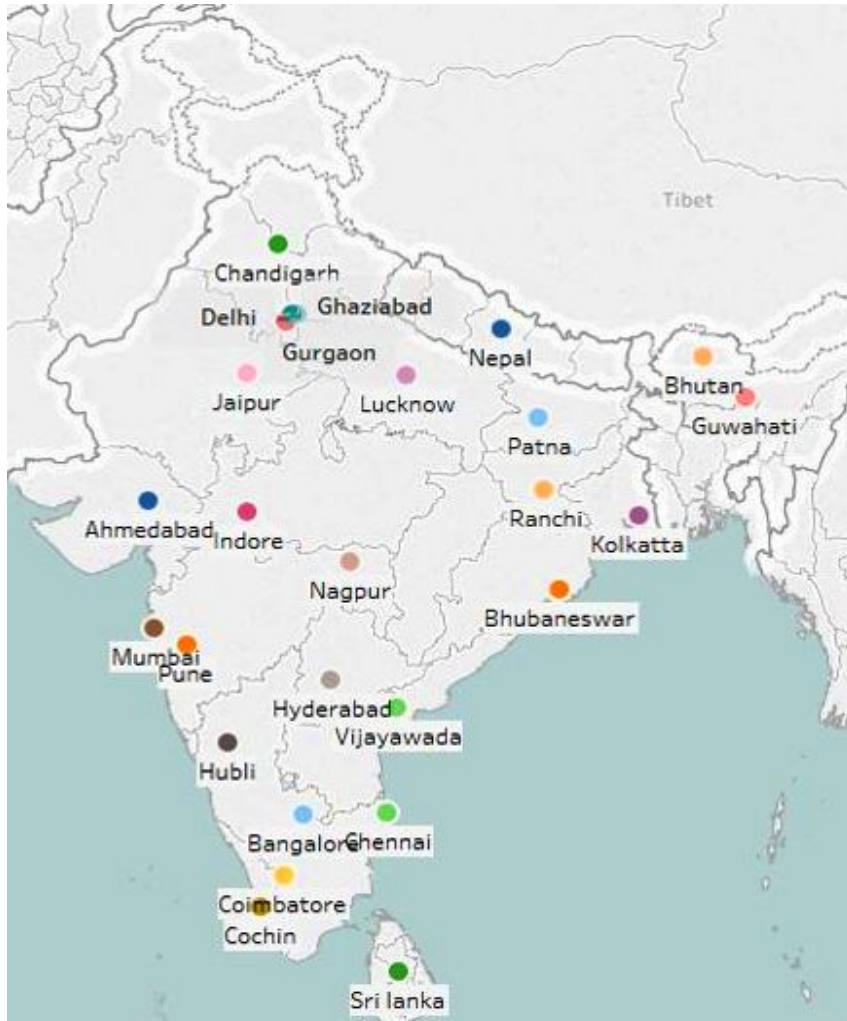
### DAQ/MES



PLCs/  
Machines



# Distribution Network



## Sales & Distribution Network - INDIA

23	32	400+
Branches	Warehouses	Amaron Franchisees
40,000+	1000 +	2000 +
Amaron Dealers	Power Zone Retail stores	Extensive Service hubs.

# Our Customers

## Supplier of choice to Auto OE's



Mercedes-Benz



HONDA



## Private Label Brands



## Industrial Customers



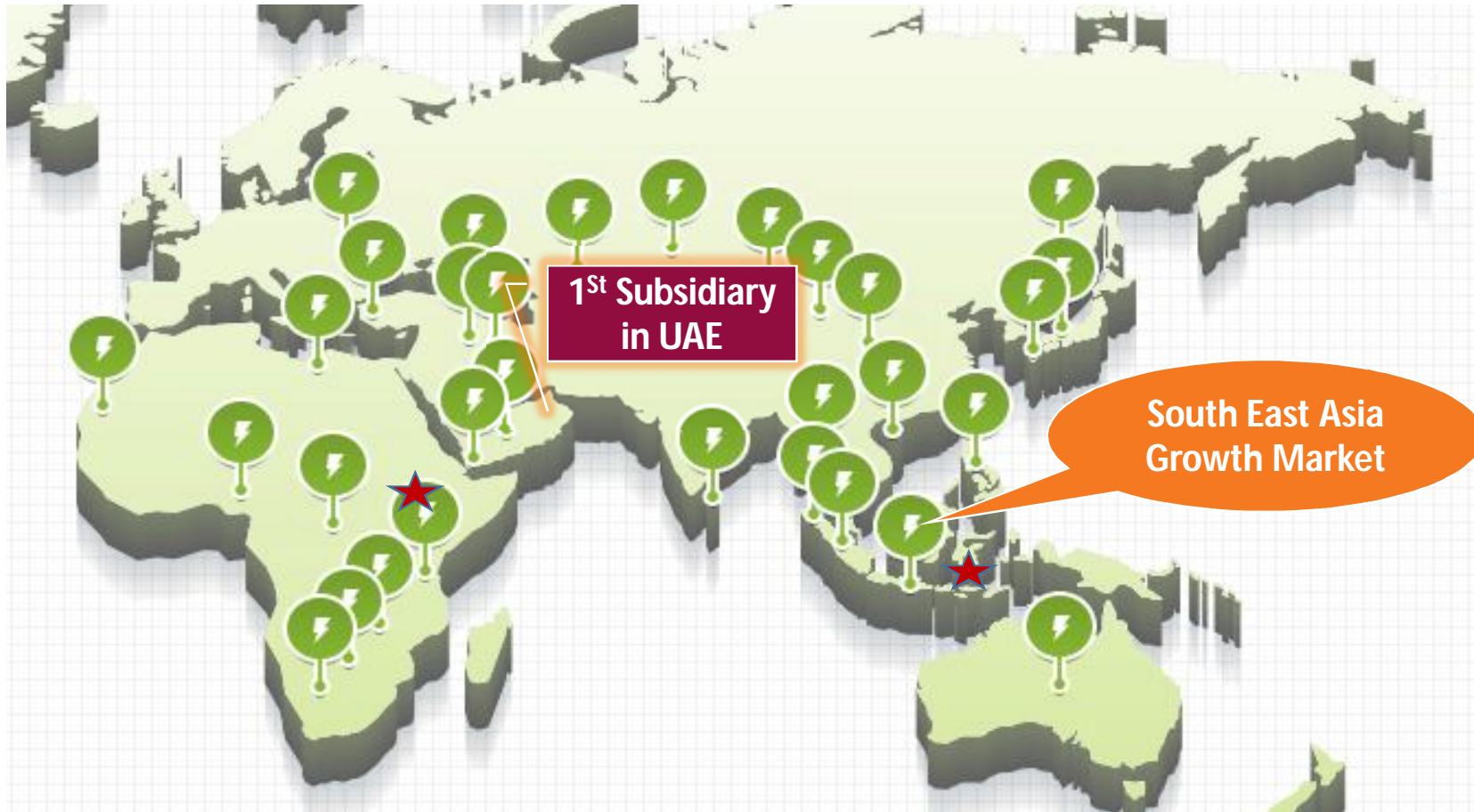
Eaton Towers





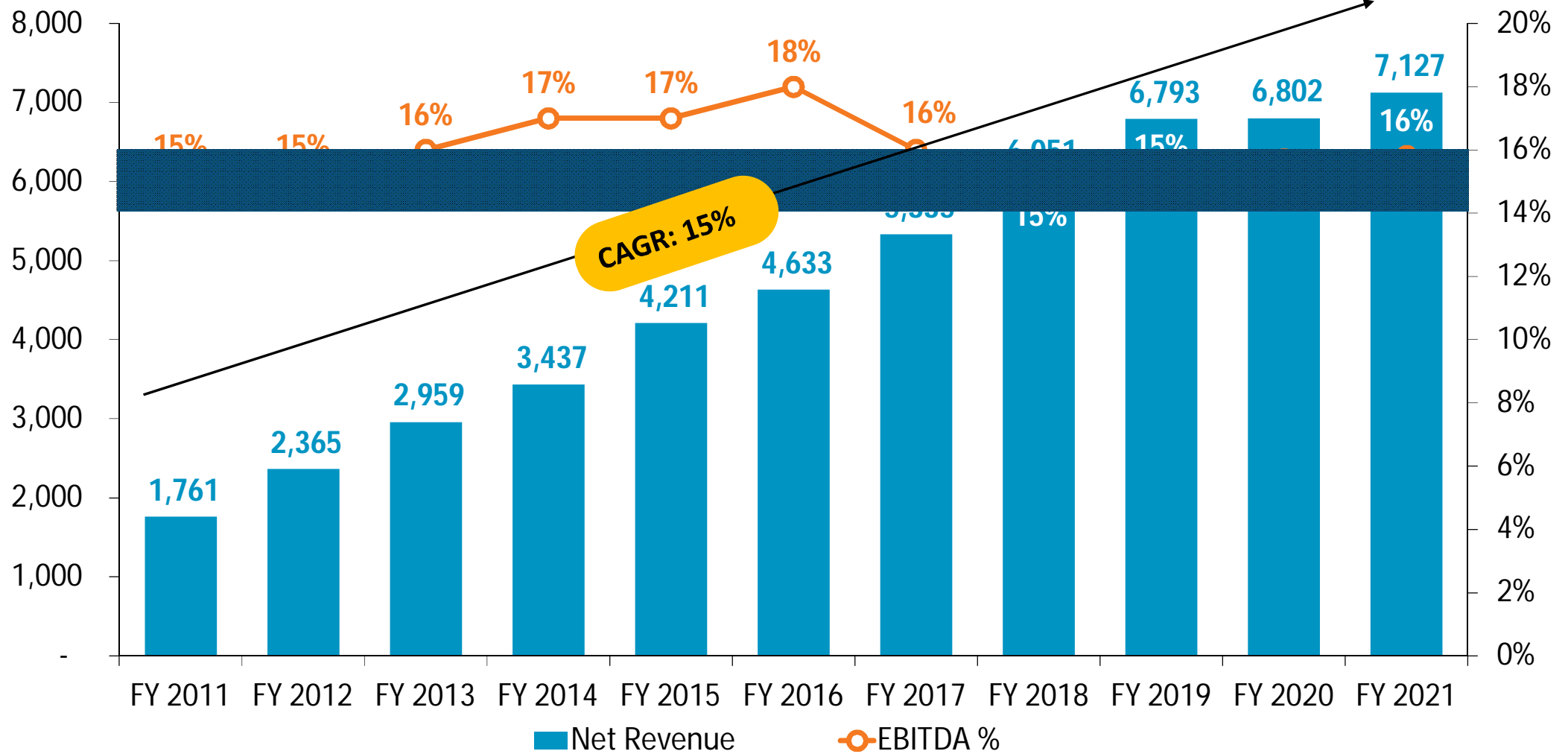
# Exports

## International Markets - 35 Countries and growing



- ❑ 12% of Total Revenue from Exports
- ❑ Last 4 years Revenue CAGR of 25%
- ❑ 40 Distributors
- ❑ Local Sales offices in Nigeria and Indonesia.

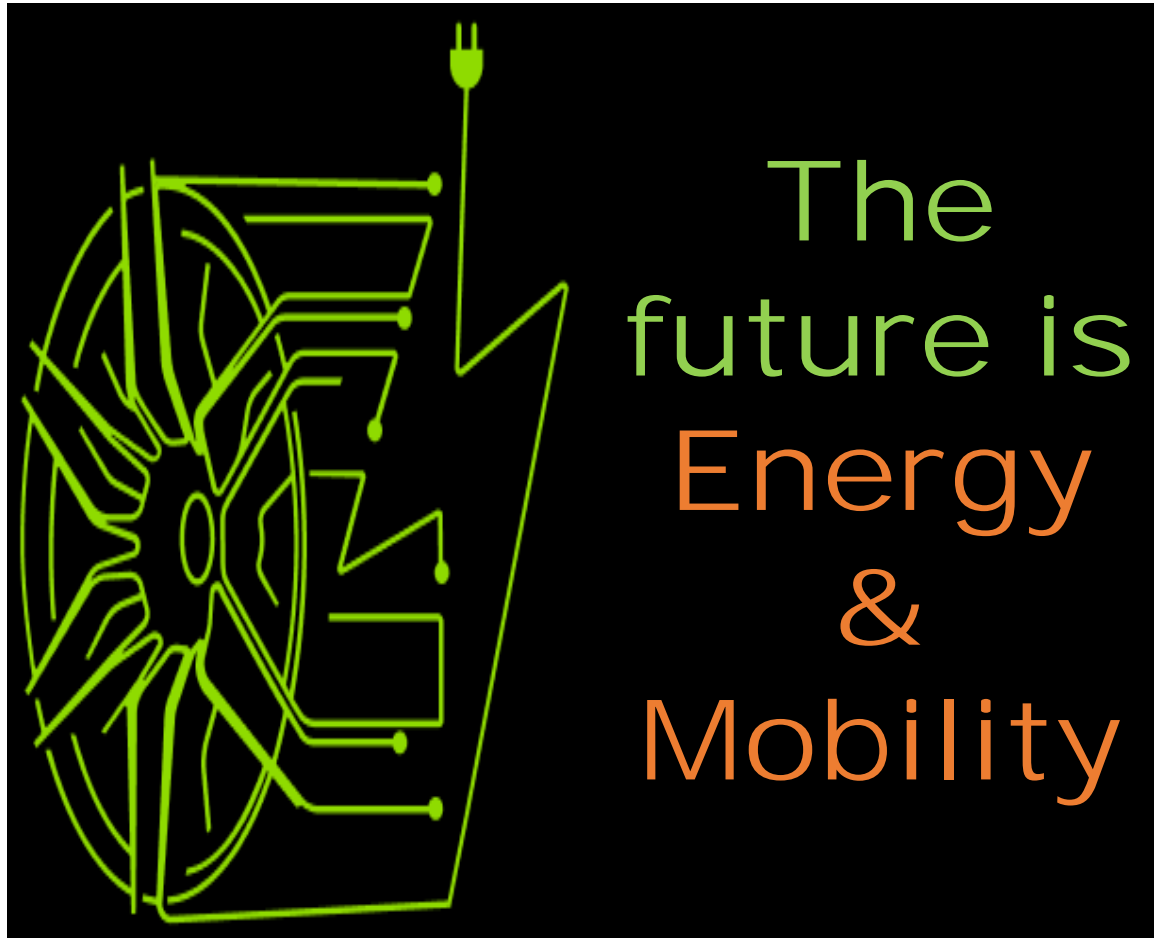
# Financial Performance



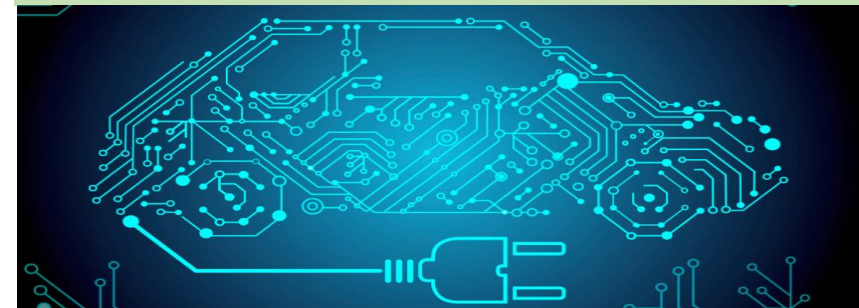
# Section II

# New Strategic Initiatives

# Energy & Mobility : synergistic and exciting growth opportunity



**Lead Acid  
Value Maximisation**



**New Energy  
The New Growth Engine**

# Energy & Mobility Theme

## Lead Acid Value Maximisation

- Focus on improving efficiencies by leveraging improved process control technologies
- International Expansion
- In-Organic Opportunities

## New Energy

- OJCB and POC
- EV Charging Products
- Energy Storage Solutions
- Home Energy Solutions

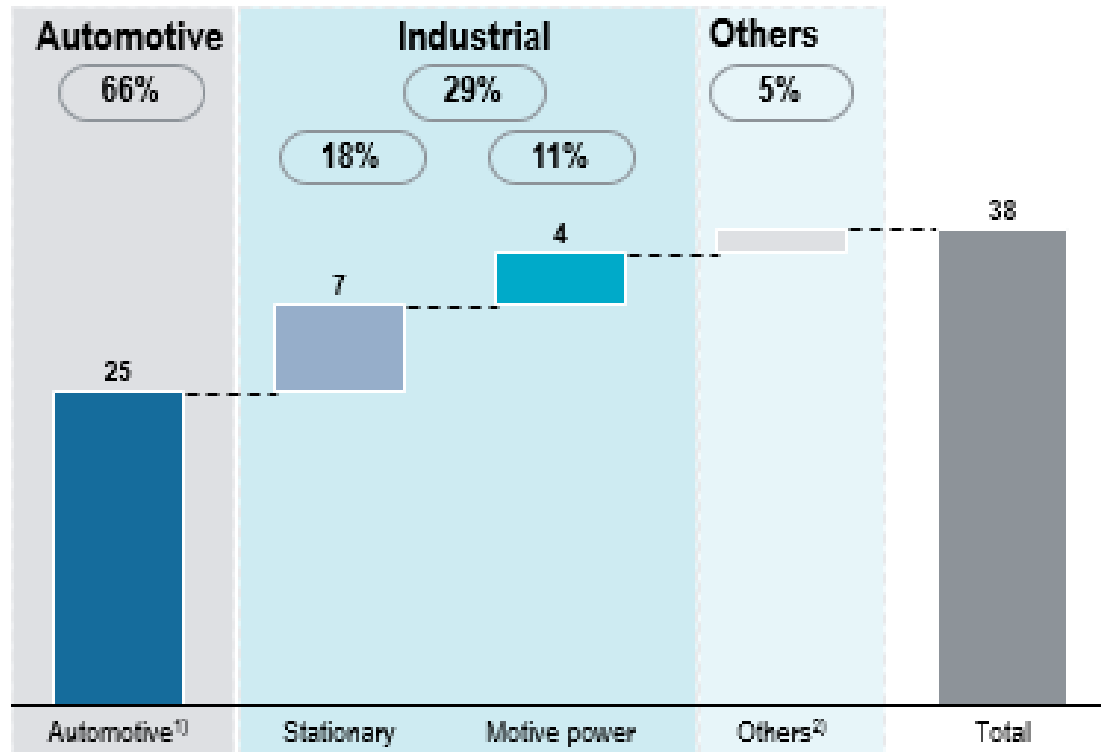
---

# Lead Acid Value Maximisation

# Global Lead Acid Battery market

## Lead-acid battery market overview by application

Market size by application, FY20 [USD bn]



1) Includes e-bikes and LSEVs, 2) Includes applications in marine, medical, portable electronics, etc.

> **Automotive applications** includes PVs, CVs, 2W, 3W, tractors, buses, etc. segments

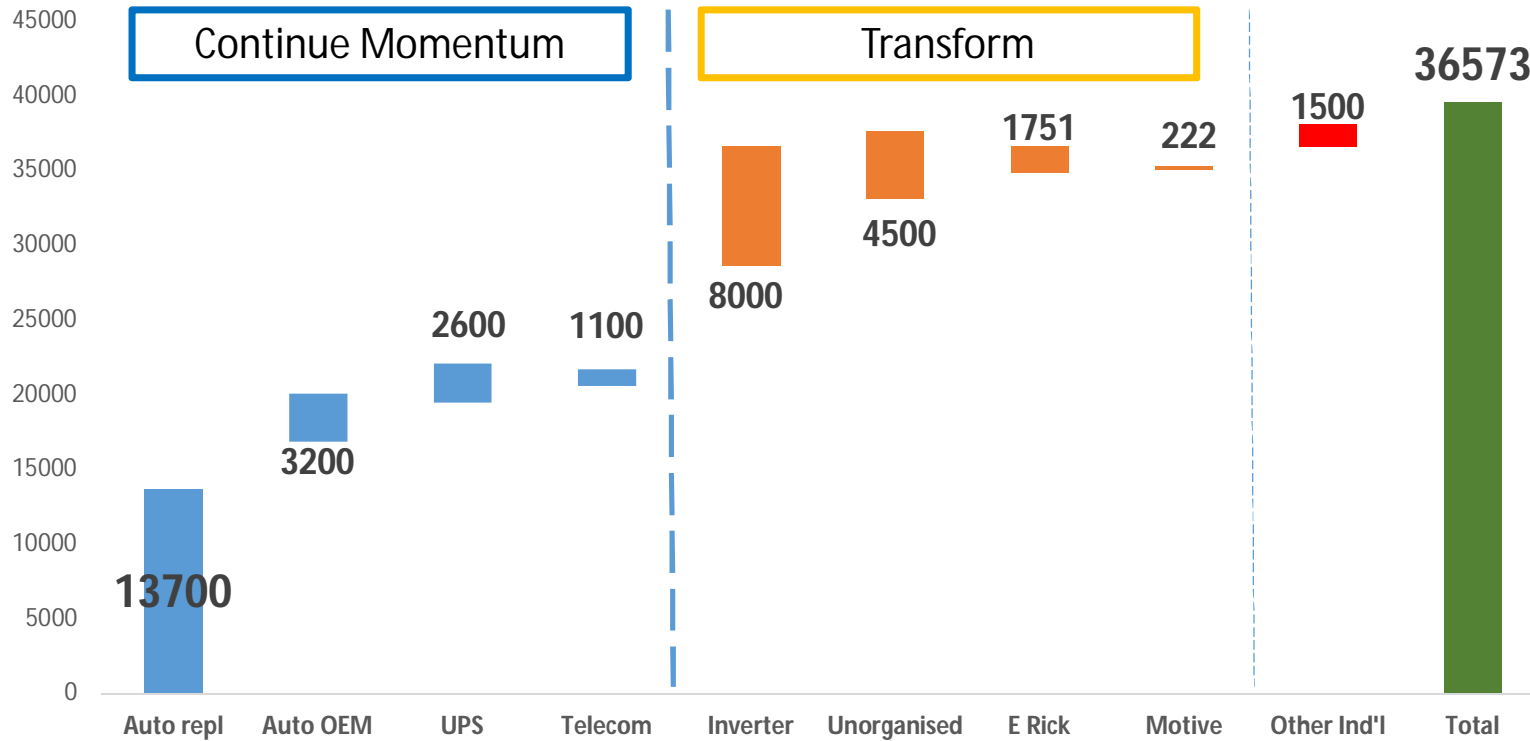
> **Industrial applications**

> **Stationary segment** includes emergency power, local energy storage (ESS), UPS (Uninterrupted Power Supply), grid energy storages, telecom

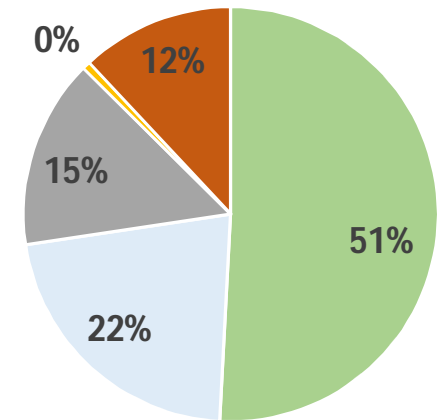
> **Motive power segment** includes forklifts, wheelchairs, golf carts, and automated guided vehicles (AGVs), Railway applications etc.

# Indian Lead Acid Battery Market : Rs 36.5 K Cr

LAB Market Size by Application FY 20 ( Rs. Crs)



- > ARBL has pole positions in Auto, Telecom, and UPS markets
- > Market disruption strategies required for e-rickshaw, inverter, motive



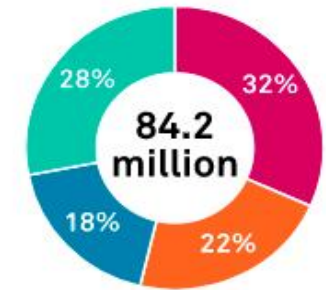
- Auto
- Stationery
- Unorganized
- Inverter
- Motive

1)Others Ind'l : Railways, Submarine, Solar,O&G



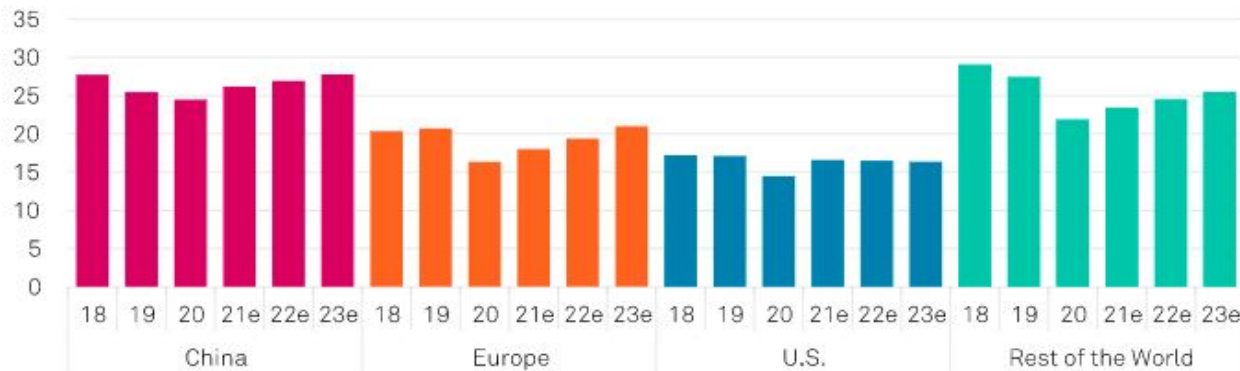
# Global Automotive Sales

2021 sales breakdown  
Estimate\*



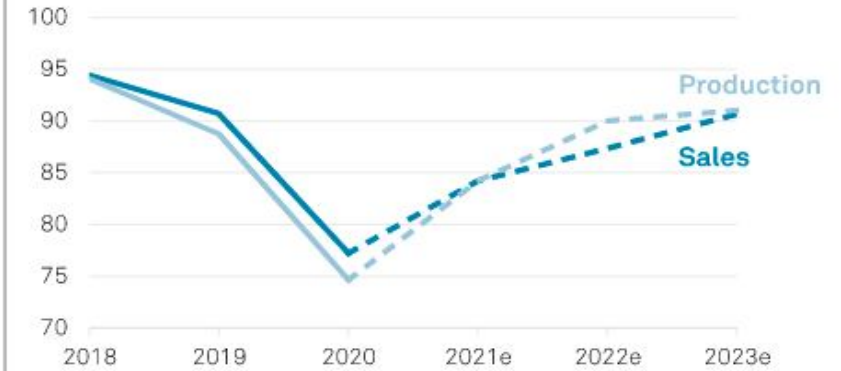
## Regional sales

2018 - 2023e, millions of units



## Global sales versus production

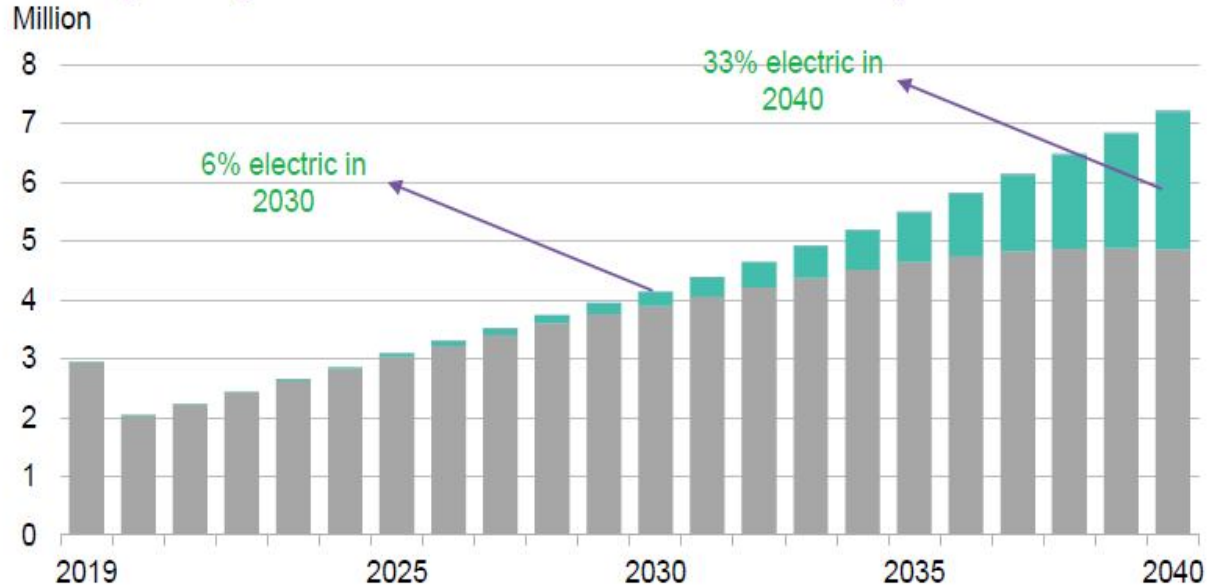
2018 - 2023e, millions of units



\*Percentage change is an average of the estimated range. e--Estimate. Source: S&P Global Ratings. Copyright © 2021 by Standard & Poor's Financial Services LLC. All rights reserved.

# Vehicle Sales Outlook in India by Drivetrain

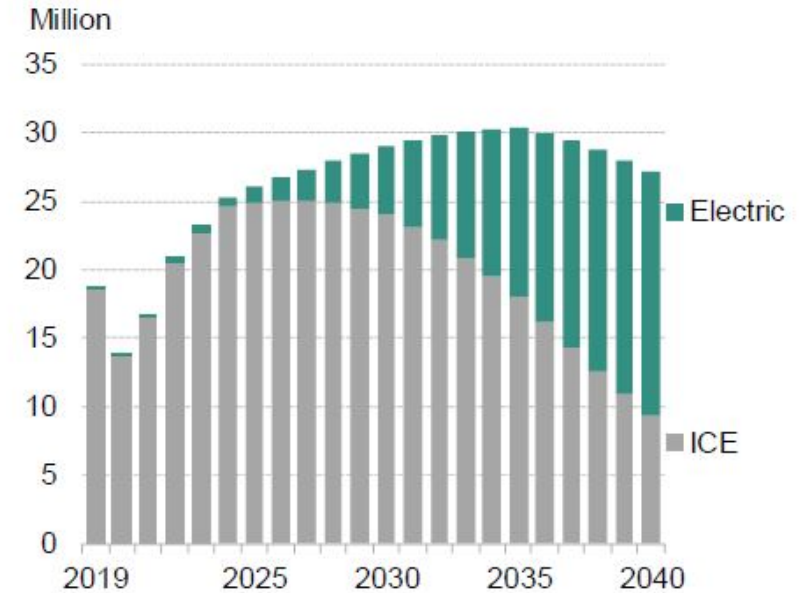
Annual passenger electric vehicle sales outlook in India by drivetrain



Source: BloombergNEF.

- Recovery to 2019 peak will be around 2025
- OE growth back on track post FY23
- **Auxiliary battery to remain Lead Acid (12V) even in Electric Car**

Annual two-wheeler sales in India by drivetrain



Source: BloombergNEF. Note: ICE stands for internal combustion engine

- Electrification will be much more rapid in 2W than 4W
- Shows shift in trend

# Lead Acid Battery continues to be strong in International Industrial Markets

## Europe Demand Forecast 2030

### UPS (Uninterruptable Power Supply) Batteries

- **Lead-based batteries** will remain dominant in 2030 (70%)
- 5% annual growth to be expected up to 2030

### Telecom Batteries

- Almost exclusively **lead-based** today, but Li-ion market share of 11% expected by 2030
- Small annual growth (3%) expected up to 2030

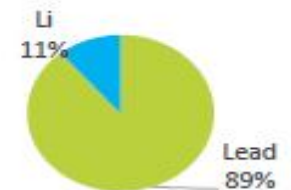
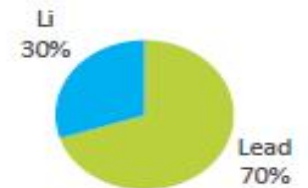
### Motive Batteries

- **Lead-based** batteries (90% market share) still dominant today
- By 2030, **Li-ion** will have majority share
- 4% annual growth anticipated up to 2030

### ESS (Energy Storage Systems)

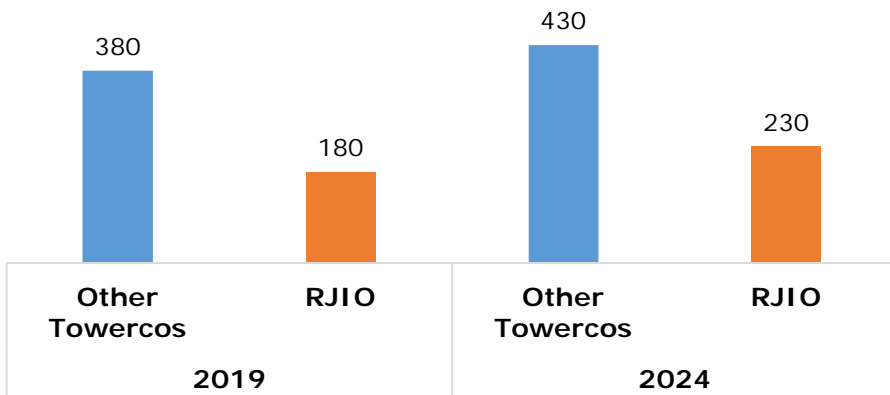
- Today, **mostly Li-ion** batteries
- 10% annual growth expected up to 2030

2030 in GWh

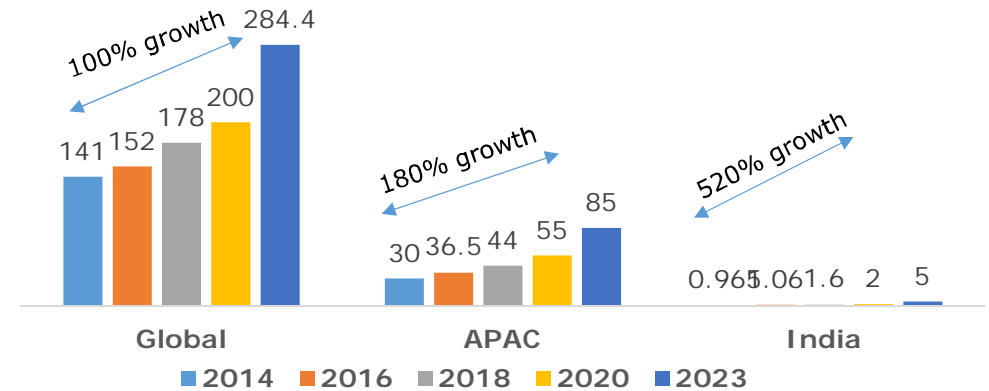


# Lead Acid Battery to dominate select Indian Industrial markets

Telecom Towers in India - '000' K



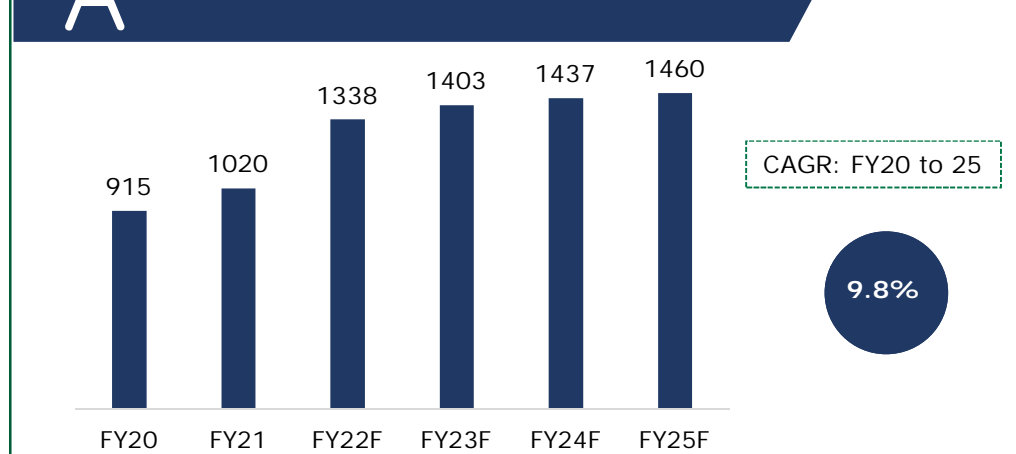
Data Centre Market Outlook (USD Bn.)



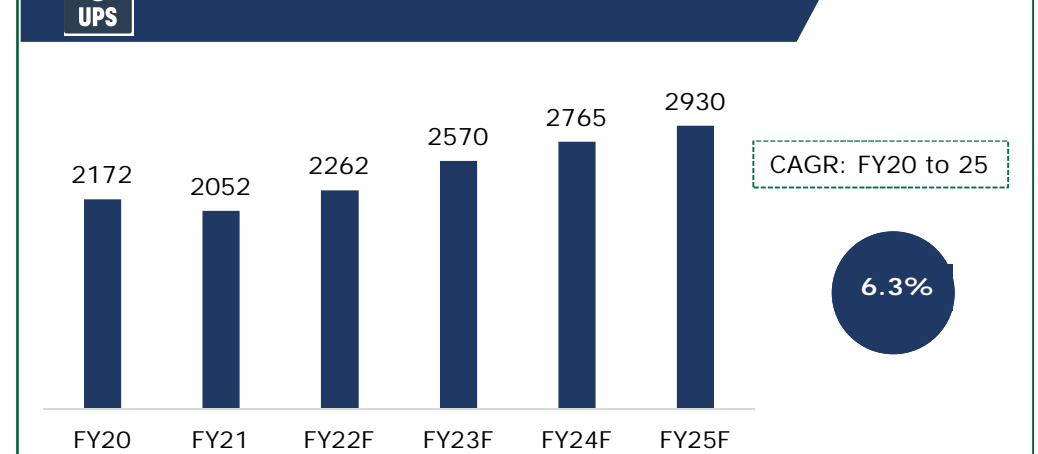
Govt aims to enhance digital economy's contribution to 20% of GDP in 5 yrs



Telecom Volume Growth- LA

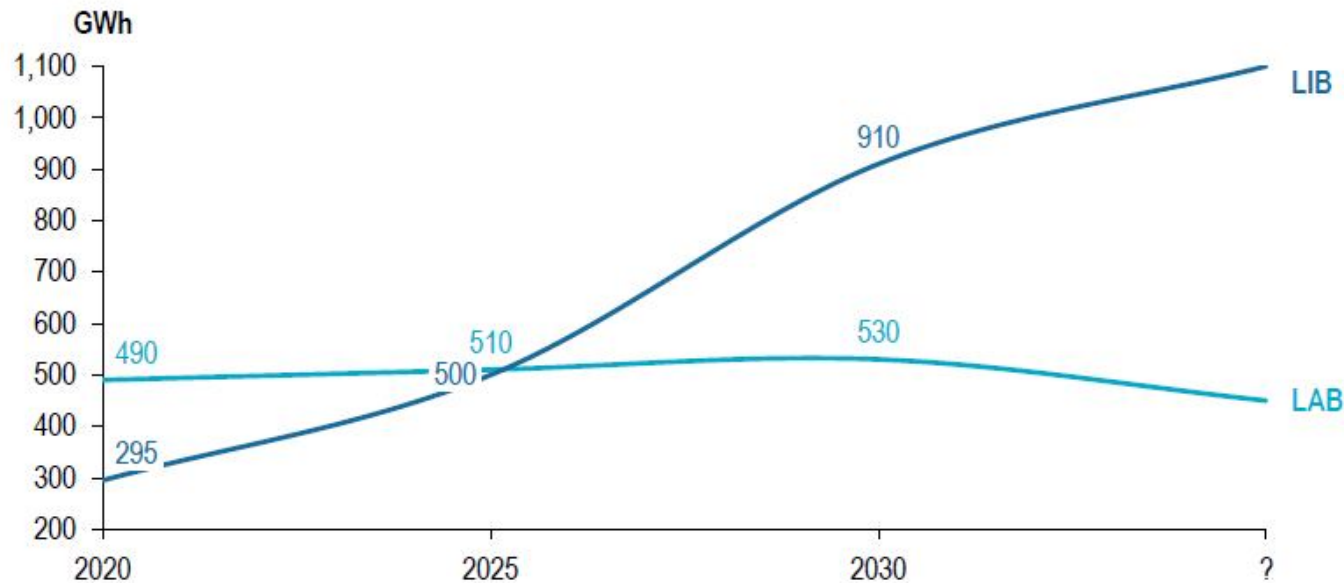


UPS Volume Growth- LA



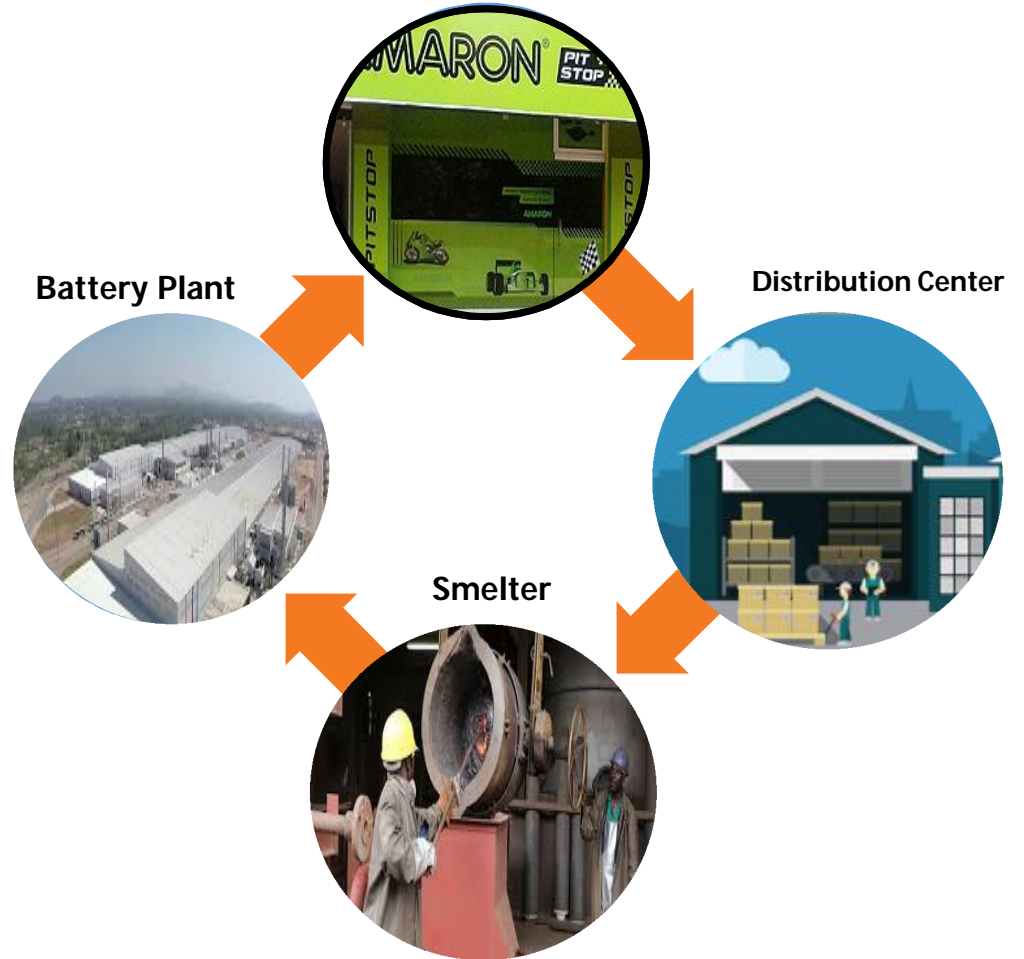
# Lead Acid Battery Demand Outlook – Substantial Opportunities Globally

GWh demand – LAB and LIB demand evolution



- LAB demand stable until 2030
- Flattening will be seen earlier in Industrial than Automotive
- ARBL ~ 15GWh
- Large potential for growth both through organic and Inorganic routes.

# Integrated Approach to Lead Recycling



❑ Backward Integration of Smelting Operations

# Lead Acid Battery Value Maximisation Strategy Outline

**1. Organic Growth**  
Domestic Value  
Maximisation

**2. International Expansion**

MVRLA

Auto

Local Presence (Mfg)

**3. Inorganic Growth**

Motive

MVRLA

Auto

Target Growth Rate of 15% to 17% CAGR over next Five years

# Initiatives for Growth / Value Maximisation

## Value Drivers: Automotive

- ❑ AGM batteries for ICE & Micro Hybrids
- ❑ Auxiliary batteries (AGM) for EV's
- ❑ Introduce SMART batteries

## Value Drivers : Industrial

- ❖ MSG technology for higher wattage
- ❖ Remote monitoring of battery banks
- ❖ Hybrid Energy Storage ( LAB+ LiB Combo)

- ❑ Launch complete ASG range for Automotive : to result in Cost savings
- ❑ Introduction of MSG Technology result superior product performance for UPS,ESS and Telecom

## Efficiency Improvement

- ❖ Deep discharge and high cycle life applications like E-Rickshaws
- ❖ Digitizing of service and distribution operations

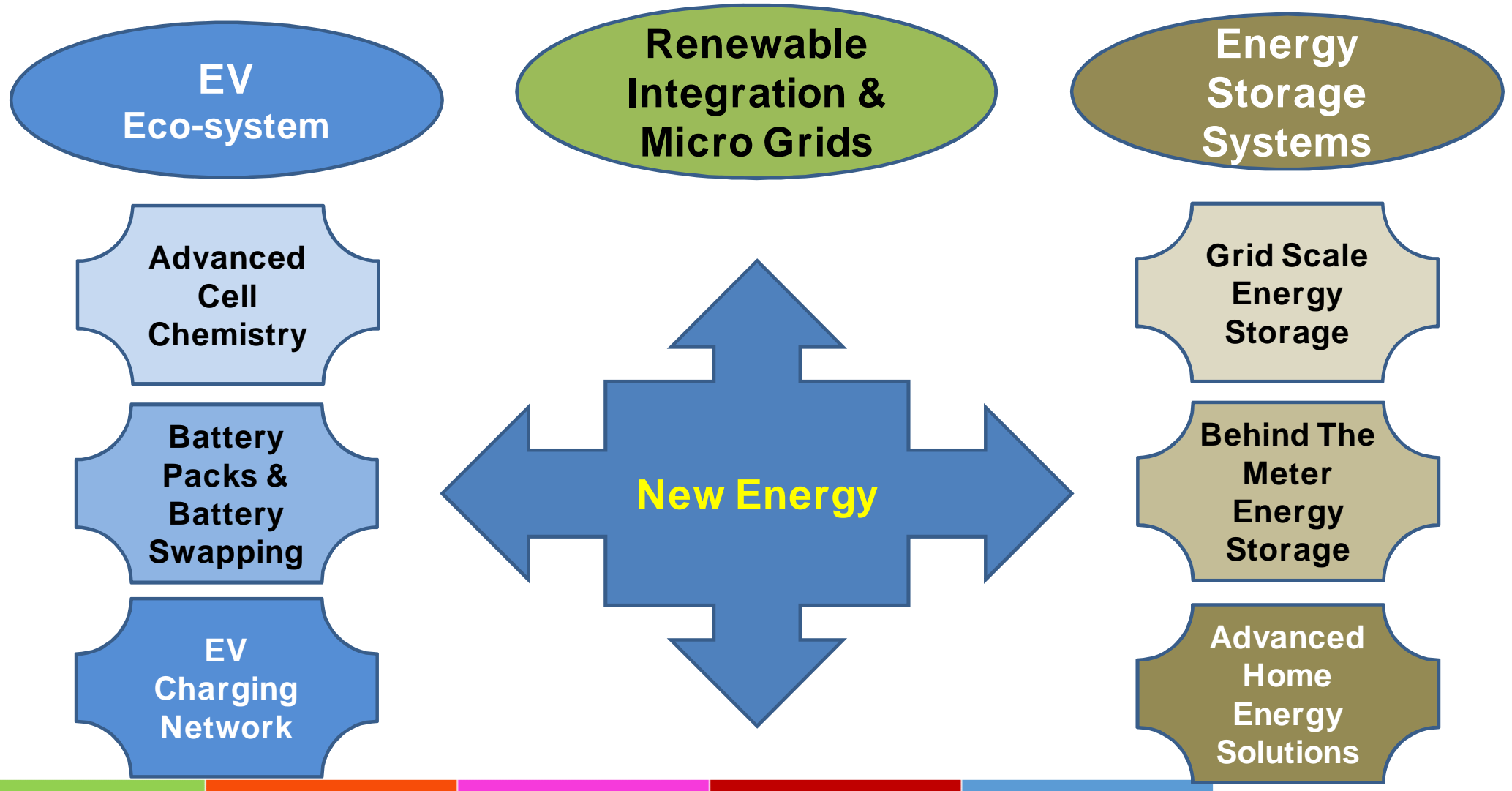
## Superior Products / Solutions



---

# New Energy New Growth Engine

# Opportunity Landscape



# New Energy Portfolio

---

## Li Cell and pack product

- ACC PLI Scheme
- Tech partner search
- Set up Giga Factory
- Scale up Pack capability

## EV Charging products

- AC/DC chargers
- Battery Swapping
- Public charging infra

## Telecom & Data Centre products & Solutions

## ESS

- Grid scale ES storage solutions
- Behind the Meter solutions
- Mini Grids

## Home Energy Solutions

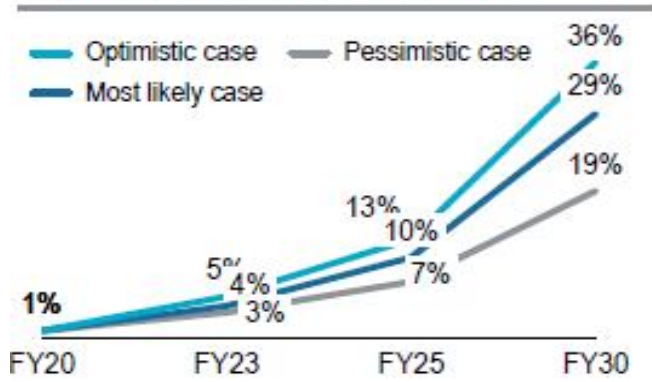
- Solar roof top
- Li HUPS product
- Intelligent Energy Management

## Set E-Hub concept

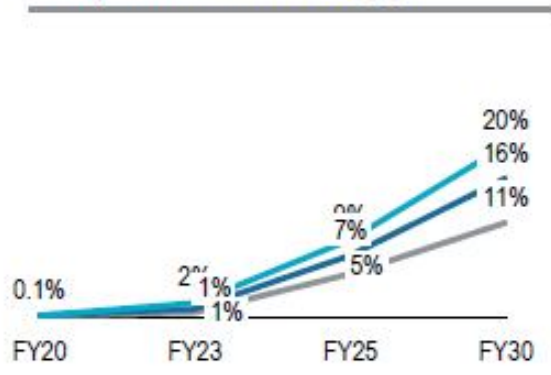
- Start-up eco-system
- Incubation & Accelerator programs
- Early phase investments into innovative technology start ups

# EV Penetration estimates in India

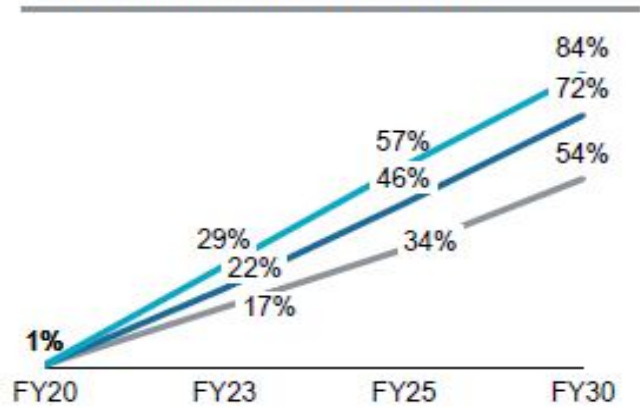
e-2W penetration, FY20-30 [%]



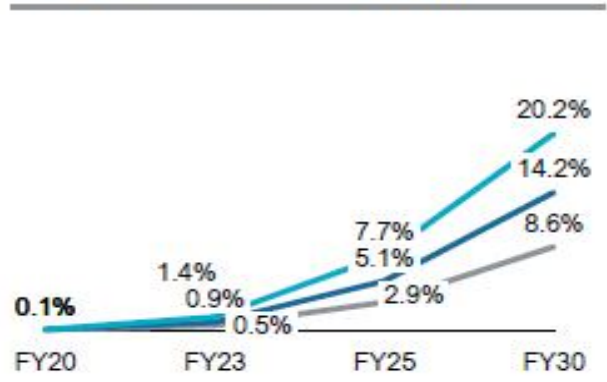
e-PV penetration, FY20-30 [%]



e-3W penetration, FY20-30 [%]



e-LCV penetration, FY20-30 [%]



- E 2W and E 3 W are expected to lead the electrification trend in India due to favourable factors like TCO parity , comparable performance and Govt. incentives
- E3W is expected to be the first segment to have mass adoption due to strong opex advantages for Passenger and Load Carrier Options.



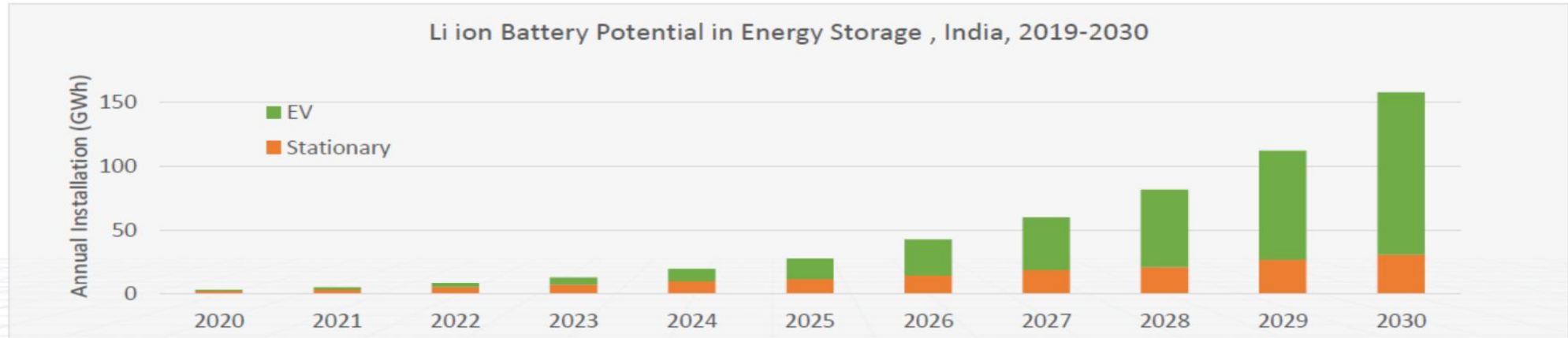
# Indian Li Battery Market: 30 GWh by 2025 and 150 GWh by 2030



Customized Energy Solutions

Analyze · Simplify · Implement

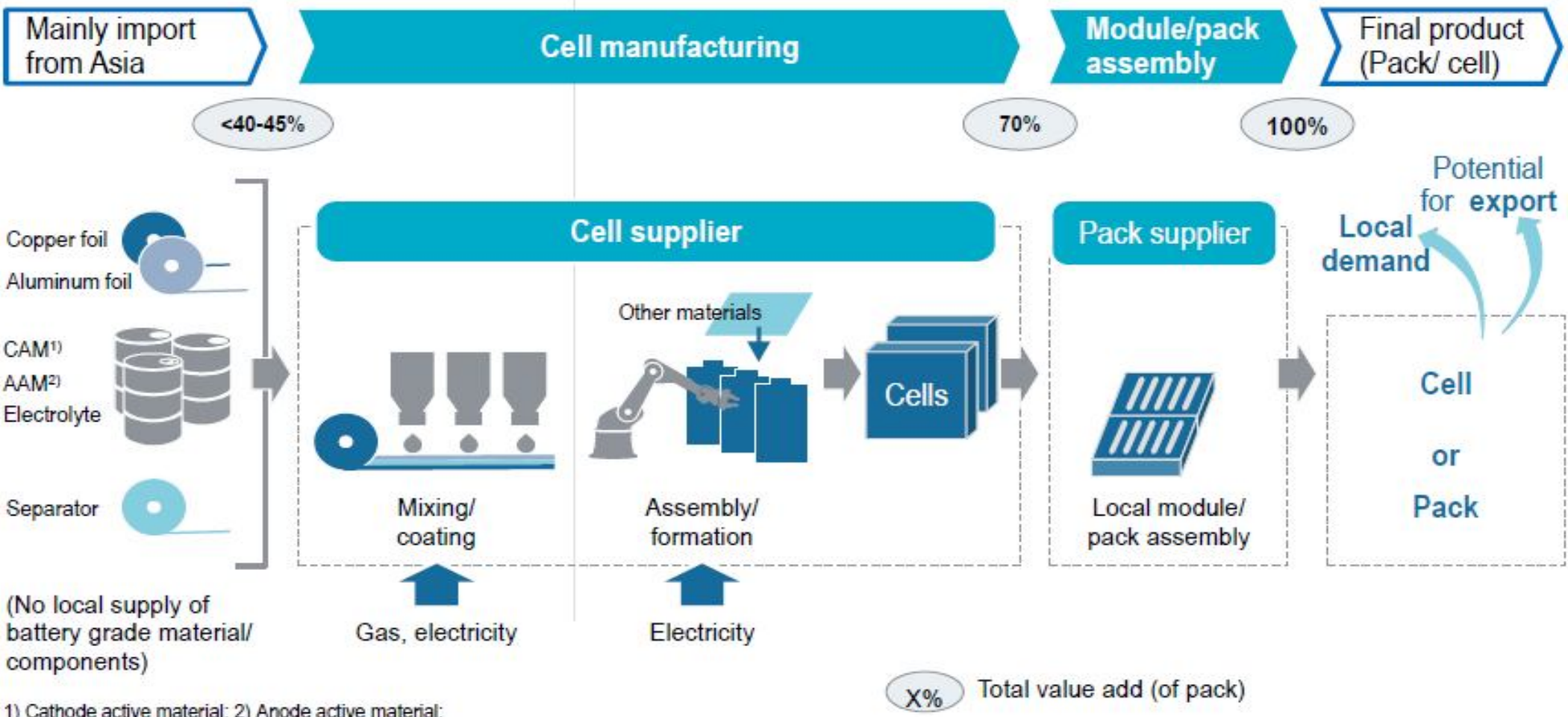
## India Lithium Ion Battery Market



ACC Window

Annual GWh Potential	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Cumulative 2020-2030 GWh
Worst Case	2	4	6	8	11	16	24	34	48	64	86	~300
Base case	3	5	8	13	20	28	43	60	82	112	157	~530
Best case	5	11	21	34	46	59	93	131	187	262	358	~1,200

# Value Creation and Origin



Source: Roland Berger

# What have we done so far...



## Products for eMobility & Standby

**eMobility**  
2W and 3W



**Standby**  
UPS / ESS/ Data Centre

R&D

- Pilot Plant for R&D on cell chemistry / designs



## Technology Transfers & Collaborations

- Pack Assembly Technology license with IITM
- Cells Development – Technology Transfer with ISRO
- Advanced Cell Technology Collaboration – IISC & CECRI (Indo German funded)
- High Voltage Pack Development for e-Car/e-Bus Applications



## Pack Assy Plant Portfolio

- Assembly Plant capacity – 500MWh
- Lines established – 2 line with 200MWh
- Cleanroom grade – 100000 (Class 5 category)



# Advance Research Centre for Energy Storage Technologies ...





# Li Ion Cell Making Lab ( R&D Scale)

R & D (Pilot) Lab facility for making Lithium Ion cells

- ✓ State of art of electrode preparation line
- ✓ Different chemistries along with advanced research can be performed to optimize the process
- ✓ Cell assembly section is compatible of making Cylindrical, Pouch and Prismatic types of li-ion cells
- ✓ Dry Room where the dehumidifiers maintains the Relative Humidity (RH) at 10% and 1%



1. Coating Machine



2. Cylindrical cell winding



3. Laser Welding



4. Pouch Cell Stacking



5. Dehumidifiers

# BMS Product Portfolio

## Capabilities – Battery Management System (BMS)

Battery Safety & Protection

SOH/SOC Estimation

Thermal Management

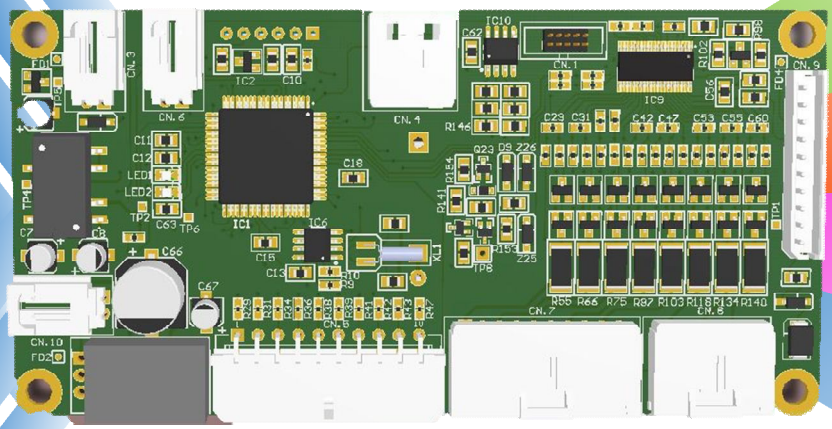
GPS & BLE for comm.

Cell Monitoring

Charge control

Cell Balancing

Geo Fencing



1.5kWh | 2.5kWh | 3 - 3.75kWh | 4kWh | 4.3 - 5.3kWh

Application Areas



Standby 0.5 - 5.3kWh



Standby 0.5 - 5.3kWh



Swapping 1.25-3kWh  
Non Swapping 3 - 5.3kWh

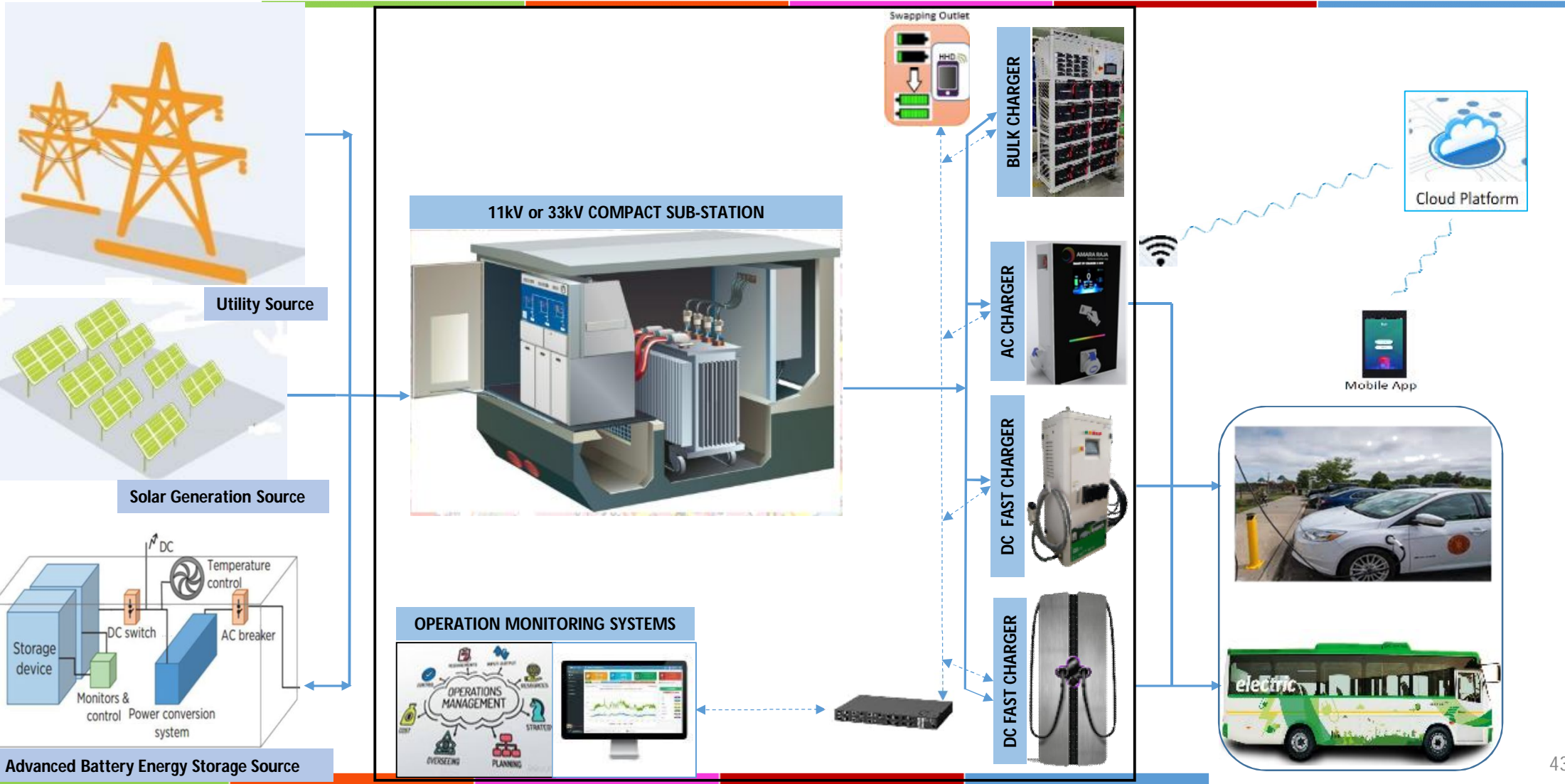
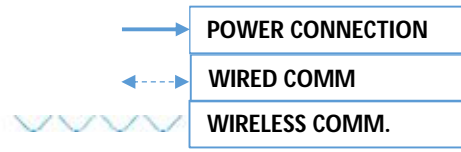


Non Swapping 0.5 - 3kWh

# EV Charging Solutions: EV Charging Products

	Slow AC (Level 1)	Fast AC (Level 2)	Direct Current Fast charging (Level 4)			
						
Power	1.5 KW – 3.3 KW	7 – 22 KW	15 KW	30 KW	50 KW	150 KW
Voltage	230 V	230 V+	230 V+	480 V+	→	
Time to charge a 39 KWH Hyundai Kona Battery	~10 Hrs	5-7 Hrs	~2 Hrs	Battery Swapping	< 1.5 Hrs	< 30 mins
Plug type	 IEC 60309	 TYPE -2	 GB/T	 ANDERSON / HOT PLUGGABLE	 CCS -2/CHADEMO	 GB/T CCS -2/CHADEMO
Availability	✓	✓	Bought out and Available	✓	Available by Q3 2021	
Application Area	Residential Work place Parking Lots Malls	Residential (7KW) Work place Parking Lots Malls	Gas stations, Parking Lots, Dedicated Charging Stations, Malls, Highways			

# Integrated EV Charging Infra





AMARA RAJA

# ACC PLI Scheme – 18100 Cr

## NATIONAL PROGRAMME ON ADVANCE CHEMISTRY CELL (ACC) BATTERY STORAGE



### For Self-Reliance

Govt sees annual  
import substitution  
of around  
**₹ 20k crore**

Net savings of  
**₹ 2.5 lakh cr**  
on account of oil  
import bill reduction

Direct investment  
of around  
**₹ 45,000  
crore**  
expected



Promote  
newer and  
niche cell  
technologies

Reduce import  
dependence,  
support  
Atmanirbhar  
Bharat  
initiative

- Cabinet Approved the scheme on 12<sup>th</sup> May
- Govt Gazette notification issued on 10<sup>th</sup> Jun
- A budget layout of 18100Cr through Production Linked Incentive
- Support to create domestic manufacturing eco-system to enable transition to electric Mobility and renewable energy

---

# Thank you

