

EAC International Consulting

*Presentation on “Future of EV
in India (2030) and
Implications for Ancillary
Industries*



May 2024, VDMA EV symposium





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- A. EAC International Consulting – *Introduction and EV Expertise***
- B. Future of Electric Vehicles in India – *Opportunities 2024- 2030*
- C. Implications For Ancillary Industries – *Decoding Opportunities into Strategy*

OUR EXPERTISE – CONSULTING IN GROWTH MARKETS

30 years of consulting experience in Western and Eastern Europe, Asia and Americas – we are experts for strategy and globalization

OUR OFFICES AROUND THE GLOBE

- Munich
- Shanghai
- **Mumbai**
- Kuala Lumpur
- New York City

OUR REGIONAL EXPERTISE

- China
- India
- Southeast Asia
- Northeast Asia
- Western & Central Eastern Europe
- Americas

OUR FUNCTIONAL COMPETENCIES

- Strategy
- Operational Excellence
- M&A
- Sustainability

OUR INDUSTRY COMPETENCIES

- **Industrial Engineering**
- **Mobility**
- **Energy & Environment**
- **Chemicals & Specialties**
- Building & Infrastructure
- Pharma & Healthcare
- Consumer Goods
- Exhibition

*EV relevant
assignments*



EAC accomplished numerous projects for international clients in the e-mobility and battery industry both in Asian growth markets and in Europe

Confidential – ongoing project

- Assessment of addressable market for factory automation products in 10 different applications incl. EV batteries

Confidential – ongoing project

- Transparency on EV investments expected in India and implications for client’s 2030 targets



**EV Powertrain
(2W/3W)**

- Customer launchpad- decoding India and South-East Asia attractiveness

Strategic discussions with >35 OEMs across Asia - Formed JV with Uno Minda in India



TI Fluid Systems

Fluid Control systems

- Global footprint analysis – focus on EV growth and investments

Assessed EV relevant countries in LATAM, EMEA, China, and APAC Global investment/ divestment strategy for next 10 years



E-mobility components

- Location assessment for E-mobility research hub Eastern Europe

Screening and selection of best-fit location in Eastern Europe for establishment of first E-mobility hub with strategic significance



flat-rolled Aluminum products

- Market expansion strategy & competitor benchmarking for battery housing materials in China

Conducted interviews with battery manufacturers and tier I suppliers in China



OEM

- Strategic Sales Channel Modelling and Risk Assessment for e-vehicle in China



E-mobility components/ R&D

- Location BOT concept and partner selection for e-mobility R&D segment in CEE and Egypt



比亚迪汽车

OEM

- Strategic workshop on market growth potentials and legal framework for e-buses in Europe



Chemical - Polycarbonate materials

- Strategic dialogues with leading suppliers of EV batteries and EV charging stations in China and the USA



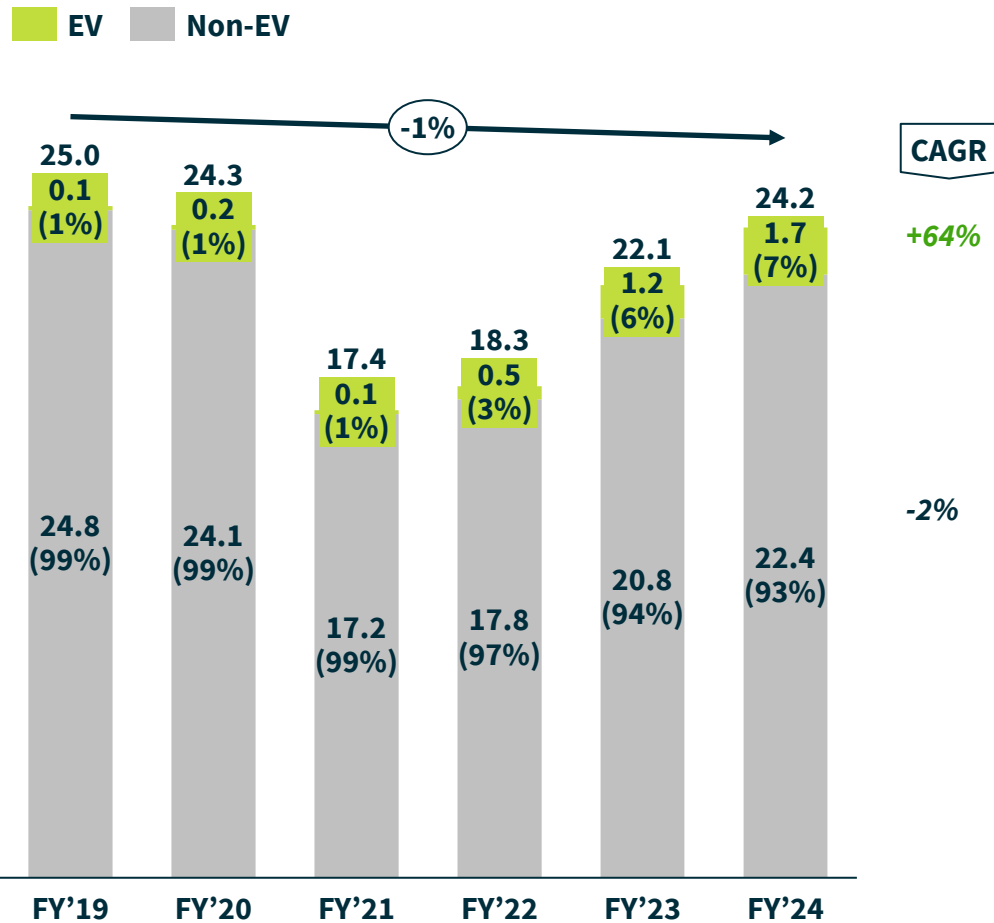
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INDIA EV MARKET – STATUS QUO

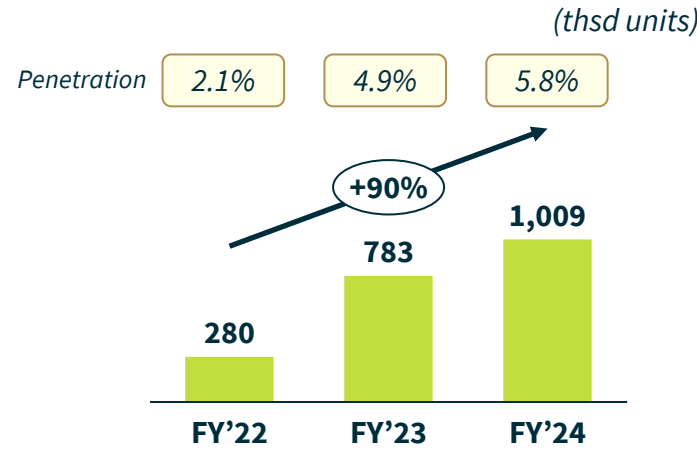
EVs accounted for 1.7 mio units of total vehicle sales in FY'24; e-2W contributed 58% of total EV sales volume followed by e-3W¹⁾ (36%) and e-4W (6%); e-3W achieved higher market penetration due to favorable cost economics

AUTOMOBILE SALES VOLUME DEVELOPMENT FY'19 - 24 (MIO UNITS)

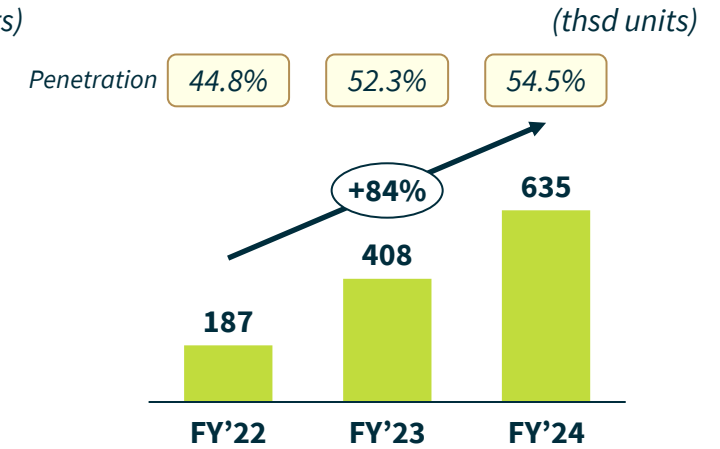


1) Includes e-rickshaw

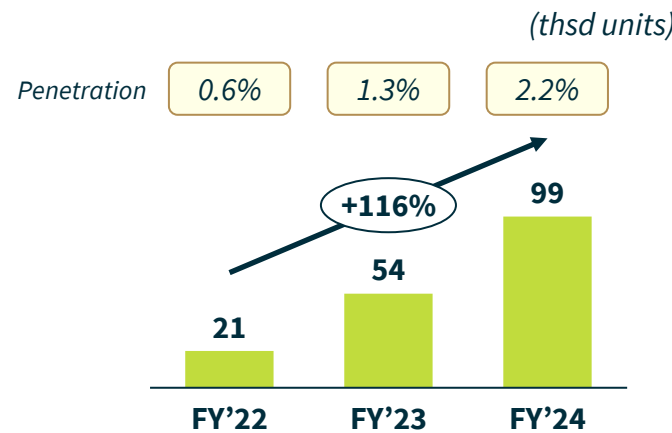
E-2W MARKET (58% OF TOTAL EV)



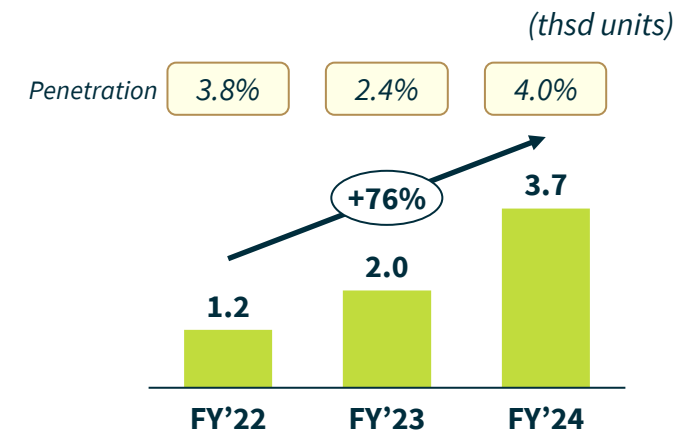
E-3W MARKET¹⁾ (36% OF TOTAL EV)



E-4W MARKET (6% OF TOTAL EV)



E-BUSES MARKET (0.2% OF TOTAL EV)



WHAT IS PUSHING THE GROWTH?

Strong government push, support from investors, focus on R&D, environmental concerns, and increasing confidence of consumers are driving growth for EV in India

■ **All the pieces are coming together at Ministry and regulatory level**

- *More than 10 ministries and government organisations are focus on creating the growth-conducive environment, addressing topics such as*
 - ▶ *Incentives (consumers & manufacturers)*
 - ▶ *Charging infrastructure development*
 - ▶ *Localisation (PMP, PLI- 18 products under AAT list)*
 - ▶ *Driving R&D initiatives*
 - ▶ *Import duties – protecting domestic investors*
 - ▶ *Securing critical raw materials internationally*

■ **Products are delivering “perceived value” to Customers**

- *Total cost of ownership reducing faster - up to 50% cheaper than ICE*
- *Concerns addressed on speed, safety, per charge/ range, service reliability, charging infrastructure/ fast charging, looks, etc.*

■ **Focus on R&D**

- *Innovation and R&D focus by local OEMs; For e.g. Ather has world's largest R&D centre for E2W with employing ~1000 in R&D*
- *Support from academia and premier institution, f.e. like IITs are actively researching and refining EV technology at e-mobility labs (Guwahati, Madras, Indore, Delhi)*

■ **Strong support from Investors**

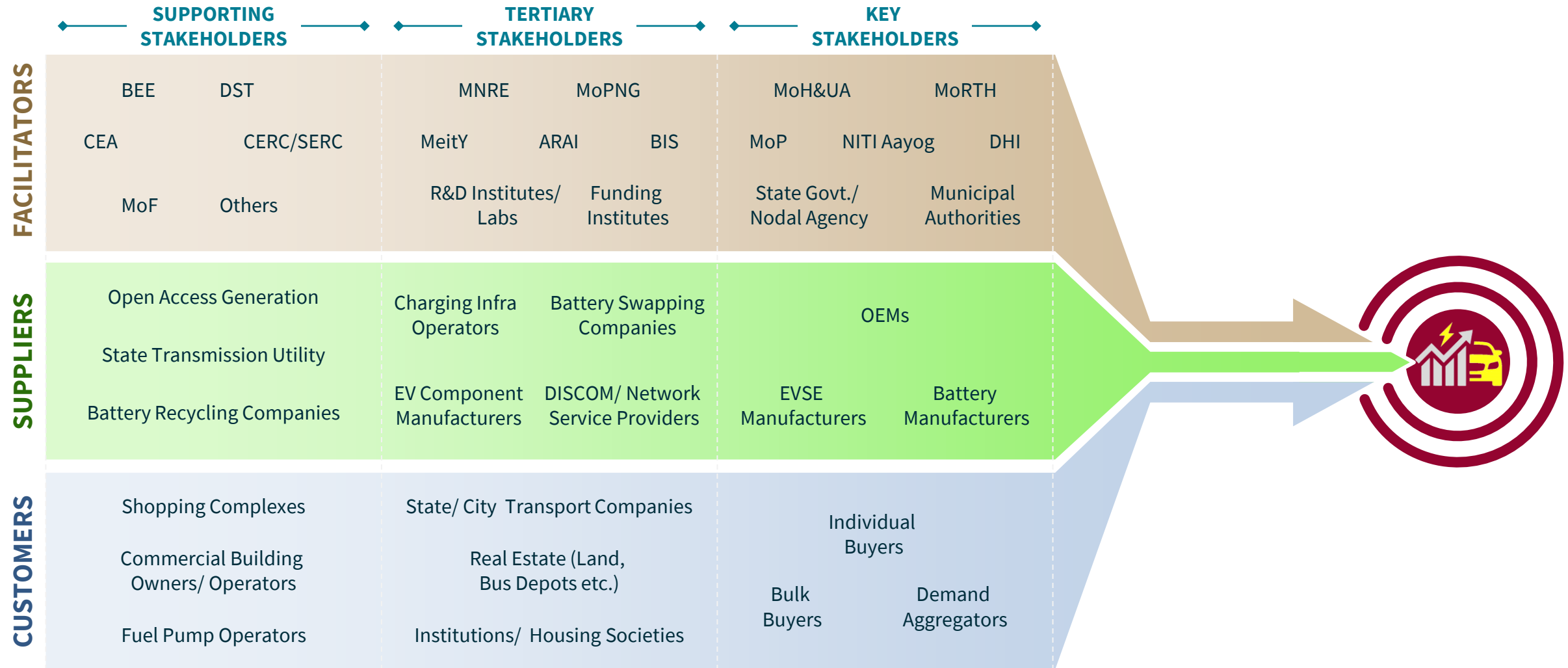
- *Investment community recognizes EVs as a high-potential area*
- *In last 5 years, >3.5 bln EUR have been invested by PE/ VC firm in to battery tech, OEMs, components, charging infra, ride sharing etc.*

■ **Other important factors**

- *Environmental concerns*
- *High import dependence of natural gas and crude oil*
- *Regulatory norms*

ALL PIECES ARE COMING TOGETHER – STAKEHOLDERS

The overall stakeholder landscape for e-vehicles is highly complex involving manufacturers, individual buyers, government agencies, private institutions; expectations mapping and benefit for all becomes imperative to ensure exponential market growth



POLICY UPDATE RECENT AND EXPECTED DEVELOPMENTS

Recent policies like EV policy, EMPS and PMP mainly focus on developing India as a mfg. destination with high share of component imports while expected development focuses on improving R&D technology levels to reduce imports of critical components

E-vehicle Import Policy

- Policy launched in March 2024, which focuses on **attracting investment** in the e-vehicle space from global EV manufacturers to promote **India as a manufacturing destination for EVs**
- **Import duty concessions** for companies **setting up manufacturing units**

Electric Mobility Promotion Scheme (EMPS)

- Replaced FAME policy with Electric Mobility Promotion Scheme in 2024 to **accelerate the faster adoption e-2Ws and e-3Ws through** offering subsidies and promoting domestic manufacturing with a focus on advanced battery technologies (*limited to 4 months as of now till 31st July*)

Phased Manufacturing Program (PMP)

- **Timelines** of the PMP for the **import of PCB and power modules** under the FAME II was **extended until 30th June 2024**

National Programme on Power Electronics, Machines and Drives

- MeitY proposed programme to focus on **technology dissemination, promotion of start-ups and MSMEs, collaborative R&D** programs and **enabling ecosystem**

R&D focus policy under The Department of Science & Technology

- **Need for designing research programmes** through Centre of Excellence (CoE) concept – which includes:
 - **Industry led technology development** of battery, motor, power electronics and charging infrastructure
 - **Manufacturing technology R&D program** to encompass both lower and higher TRL¹⁾ technologies

1) Technology readiness level

Adoption of policies and mandates by 12 major states not only supplements national manufacturing efforts but also fortifies the EV ecosystem in India

PARAMETER	DELHI	ANDHRA PRADESH	UTTAR PRADESH	MAHARASHTRA	UTTARAKHAND	KARNATAKA	MADHYA PRADESH	KERALA	TAMIL NADU	BIHAR	PUNJAB	TELANGANA
<i>EV Target</i>	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	
<i>Policy adoption mandates</i>	✓	✓					✓				✓	✓
<i>Mandate for Discoms</i>	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓
<i>Incentives for EV Charging Infrastructure</i>	✓		✓	✓			✓		✓	✓	✓	✓

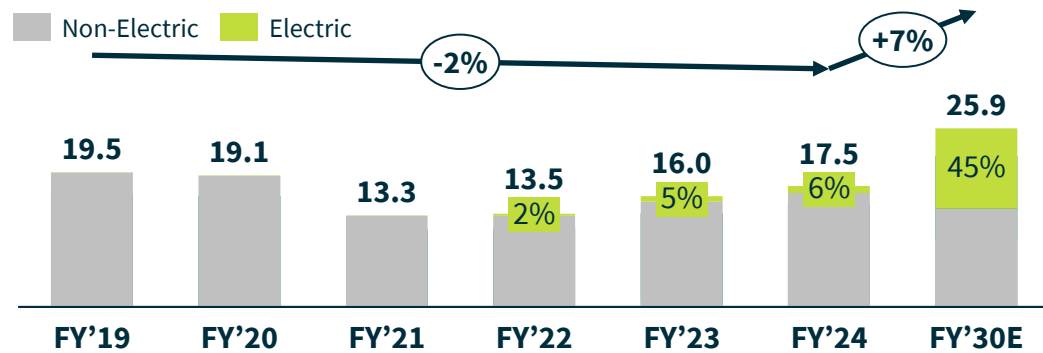
Adoption of policies and mandates by major states not only supplements national manufacturing efforts but also fortifies the EV ecosystem in India

PARAMETER	DELHI	ANDHRA PRADESH	UTTAR PRADESH	MAHARASHTRA	UTTARAKHAND	KARNATAKA	MADHYA PRADESH	KERALA	TAMIL NADU	BIHAR	PUNJAB	TELANGANA
<i>Manufacturer Incentives</i>		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Promotion of Auto-ancillary manufacturer</i>		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Provision for Industrial Clusters for EV/ Ancillary Mfg</i>		✓	✓			✓		✓	✓	✓	✓	✓
<i>Battery Recycling Provisions</i>	✓	✓	✓		✓	✓	✓		✓		✓	
<i>R&D</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

E2W – STATUS QUO AND OPPORTUNITIES

E2W sales is estimated to reach ~11 mio units by 2030 with capacity expansion to 15 mio units from 3.6 mio units currently; Localization levels are already >50%; EAC estimates investment of 700 mio EUR during 2024-30

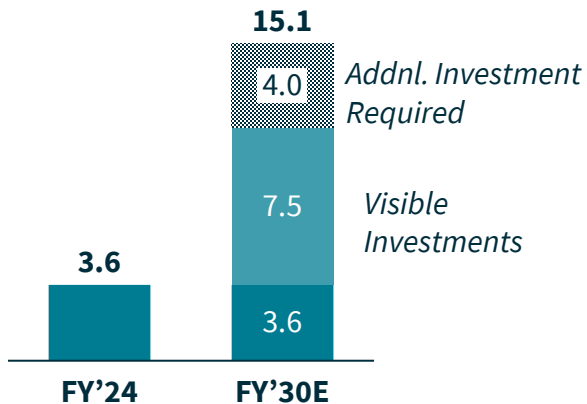
TOTAL 2W SALES (MIO UNITS) & SEGMENT PENETRATION (%) OF E2W



7 out of top 10 E2W manufacturer have announced to double the capacity by year 2027 and 2030 incl. Ola, Greaves, TVS, Bajaj, Hero electric, Okinawa, Jitendra

Considering the capacity expansion plans, EAC estimates an investment of ~700 mio EUR in E2W market during 2024-30 to add 11 mio units capacity

CAPACITY OF E2W (MIO UNITS)



MARKET SHARE – TOP 5 OEM IN FY'24

OEM	% Share
Ola Electric	34.3%
TVS Motors	19.9%
Ather Energy	11.8%
Bajaj Auto	11.2%
Greaves/Ampere	5.7%

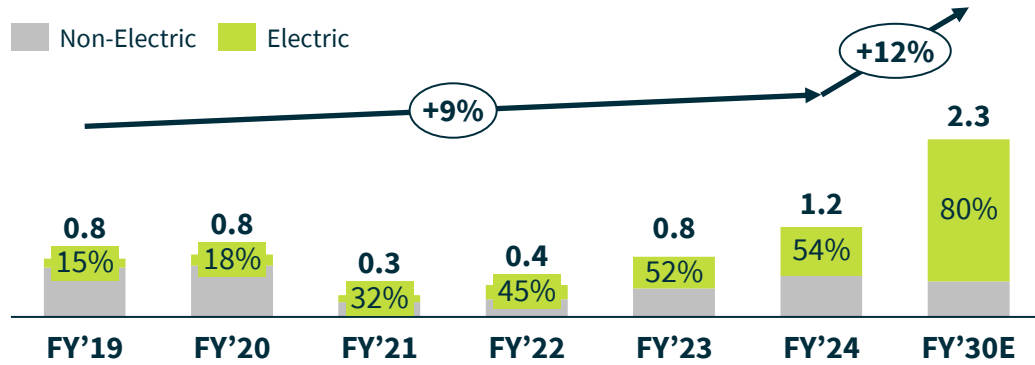
Most of the 2 wheelers have already achieved >50% of localization; however, ~70% import dependency on products like lithium-ion battery cells, e-motor magnets, and other electronics

As per Niti Ayog report, without technology improvement and no reduction of battery cost- penetration can be limited at 22%; while Combination of technological improvement and incentives can achieve 100% penetration

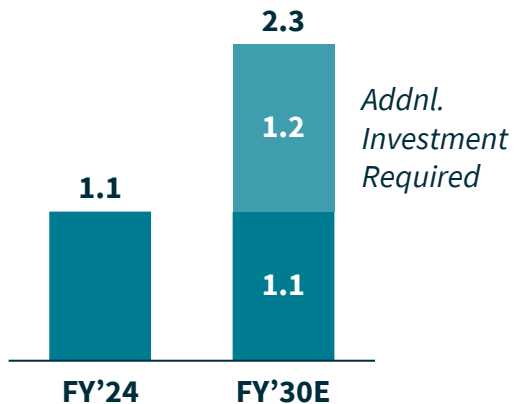
E3W – STATUS QUO AND OPPORTUNITIES

Increasing penetration and all-round focus from OEMs, Industry Players (like Amazon & Flipkart) and Govt. of India, will ~2x the E3W requirement by FY'30 & provides an excellent opportunity for E3W components suppliers to cater this demand

TOTAL 3W SALES (MIO UNITS) & SEGMENT PENETRATION (%) OF E3W



CAPACITY OF E3W (MIO UNITS)



MARKET SHARE OF TOP 5 OEM IN FY'24

OEM	% Share
Mahindra Last Mile Mobility	9.7%
YC Electric	6.7%
Saera Electric	4.7%
Dilli Electric	4.1%
Piaggio Vehicles	4.0%

Highly unorganized with 60% of total market share

>50% market is unorganized and captured by >400 local manufacturers; top 11 players accounts for ~45% of the market

Key growth drivers: Collaboration with e-commerce firm such as amazon (Mahindra), Flipkart (Bajaj); TCO – 53% cheaper than CNG variant & 88% cheaper than Diesel Variant

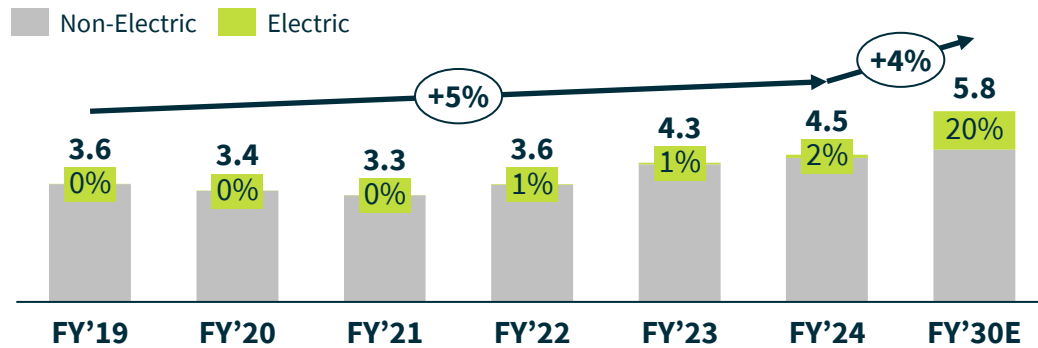
Capacity addition: No major expansion plans are announced by top 11 OEMs; however, capacity addition of 1.2 mio units is expected considering industry momentum (est. investment would be 300-350 mio EUR)

New investors: Biliti Electric (Hyderabad plant with 24,000 units) and Omega Seiki (Karnataka plant with 225 mio EUR with for 60,000-1000,000 units)

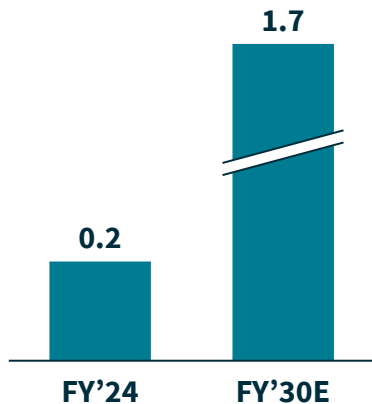
1) Avg. Daily Running 100 km for 3 years 2) Total Cost of Ownership

E4W OEMs are prioritizing investments in charging infrastructure to boost EV adoption in India; in response to industry growth, import-dependent OEMs are investing in localizing their EV production within the country

TOTAL 4W SALES (MIO UNITS) & SEGMENT PENETRATION (%) OF E4W



CAPACITY OF E4W (MIO UNITS)



MARKET SHARE OF TOP 5 OEM IN FY'24

OEM	% Share
Tata Motors	69.0%
MG Motor	13.7%
Mahindra & Mahindra	6.8%
Hyundai	2.0%
PCA Automobile (Citroen)	2.5%

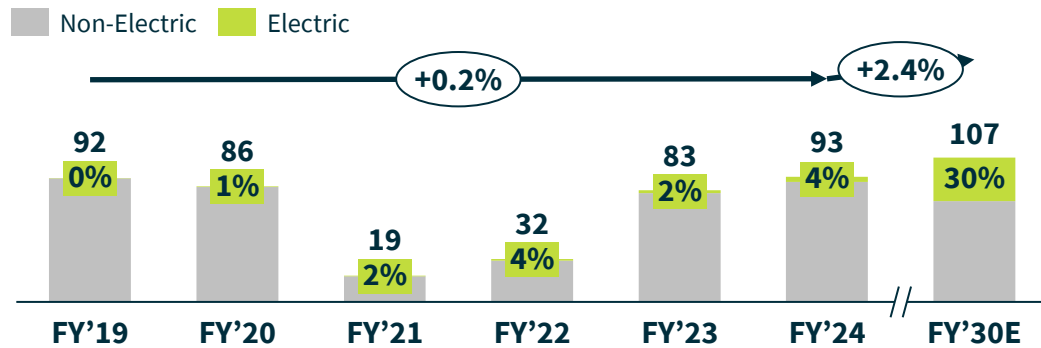
- **Cumulative investment announcement is 6-7 bln EUR**
 - **Hyundai** aims to produce its first locally manufactured EV in its Chennai plant by end of 2024, followed by KIA
 - **Mercedes** plans to invest ~22 mio EUR to set up an EV manufacturing plant in Pune
 - **BMW** plans to start local manufacturing of EV in India and aims to increase the share of EV sales from 9% to 25% by 2030
 - **Maruti Suzuki:** Aims 20% sales share by 2031
 - **Tata targets** sales share target 50% from EV by 2030
 - New players
 - ▶ **Vinfast** is to set up 150 thsd units PA manufacturing plant
 - ▶ **Ola to invest** 800 mio EUR to produce 140 thsd EV
- **Strong competition from Hybrid cars:** Achieved similar penetration as EV despite of having higher GST (43%); Toyota dominates the segment

Localization levels are around 30-40%, while Tata Motors has ~60% of localization levels and aims to reach 85% by 2025

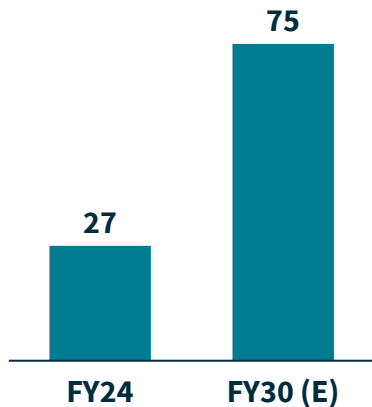
E-BUSES – STATUS QUO AND OPPORTUNITIES

E- buses industry is driven by various government initiatives like 40% target, PM E- bus seva scheme, etc; OEMs like JBM Auto and Switch mobility have investment plans of combine ~720 mio EUR for capacity expansion

TOTAL BUSES SALES (THSD UNITS) & SEGMENT PENETRATION (%) OF E-BUSES



CAPACITY OF E-BUSES (THSD UNITS)



MARKET SHARE OF TOP 5 OEM IN FY'24

OEM	% Share
Tata Motors	48.0%
JBM Auto	14.2%
Olectra GreenTech	14.1%
PMI Electromobility	10.3%
Mytrah Mobility	5.5%

Top 5 OEM contribute 92% of the total market share

Government Focus:

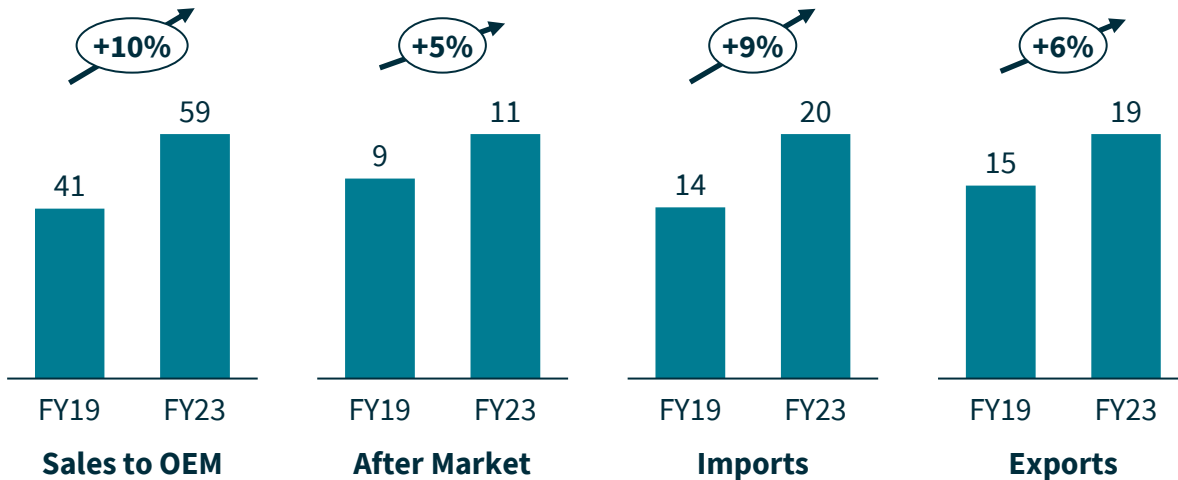
- Government target 40% of bus fleet to be electric by 2030
- Government plans electrifying 800 thsd diesel buses over next 7 years
 - 200 thsd state transport undertaking (STU) buses
 - 550 thsd private buses
 - 50 thsd school & transport buses
- Government introduced “PM E-bus Seva” scheme; plans to deploy 10 thsd e-buses nationwide
- Government to set up fund worth 360 mio EUR in collaboration in US government to provide financial assistance to EV bus manufacturers

OEM Investment Plans: (estimated investment ~1 bln EUR)

- JBM Auto plans to invest 55.4 mio EUR in capacity expansion; targets annual production capacity to 20 thsd buses per annum
- Switch Mobility (Ashok Leyland) to invest 665 mio EUR in capacity expansion with plans to setup multiple facilities in India

Auto component industry have showcased growth of 7% CAGR; >5.5 bln EUR investment announcements for EV powertrain components – critical for ensuring EV localization while reducing imports

GROWTH OF AUTO COMPONENT INDUSTRY (BLN EUR)



Imports are expected to reduce in the future with the support of government policies to promote local manufacturing and exports







- EVs accounts for ~2.7% of total component consumption
- Top 3 export destinations: USA (28%), Germany (7%), Brazil (4%)
- Top 3 import sources: China (30%), Germany (11%), S. Korea (10%)

PLANNED INVESTMENT ANNOUNCEMENT BY AUTO COMPONENT PLAYERS

Company	Planned Investments (Mio EUR)		Investment Avenue
Fasmho Energy	167	Mar'24	Collaborated with Cyantron to invest 167 mio EUR in the joint development of high voltage battery systems
Servotech Power	11.4	Mar'24	Set up EV charger components facility
JSW	1,664	Feb'24	Investment in Odisha for an EV component mnfg. complex in Paradip
MM Forgings	11	July'23	EV powertrain components ((motors, controllers etc.) for e-2W and e-3W
Musashi	7.7	Jun'23	Collaboration with Bharat New-Energy Company to manufacture e-axles in Bangalore (motor, PCU, gearbox)
Agartas	1,500	Jun'23	To set up 20 GWh Li-ion cell manufacturing in Gujrat
Hyundai	1,000	May'23	New unit to assemble 178 thsd battery packs over next 10 years
MG	554	May'23	New battery assembly unit in Gujarat
Toyota	532	May'22	Local production of electric powertrain part and components in Karnataka

EV KEY COMPONENTS – HIGH LOCALIZATION POTENTIAL







With PLI¹⁾ push and indigenous battery & motor production along with domestic semi-conductor manufacturing boom, makes India an attractive destination for EV component manufacturers to invest

COMPONENT (% cost contribution)	LOCALIZATION		KEY INVESTMENTS
	STATUS QUO	POTENTIAL 2030	
Battery (30% to 35%)			<ul style="list-style-type: none"> ▪ Under PLI for ACC – Ola (20 GWh), Rajesh Exports (5 GWh) & Reliance New Energy (5 GWh) ▪ Other Investments – Tata Group (20 GWh), JSW (planned 20 GWh), Amara Raja (16 GWh) & Exide (12 GWh)
	<ul style="list-style-type: none"> ▪ Lack of domestic Lithium ▪ Cost Competitive Chinese Li-ion Batteries 	<ul style="list-style-type: none"> ▪ An outlay of 2 bln EUR by the govt. under PLI¹⁾ to develop 50 GWh of manufacturing capacity of Advance Chemistry Cells (ACC) 	
Motor (10% to 15%)			<ul style="list-style-type: none"> ▪ Mecwin – Invested ~6 mio EUR in Karnataka to manufacture EV motors & controllers ▪ Valeo to invest in Pune, Maharashtra to supply powertrain (incl. Motor, inverter & gearbox) to Mahindra & Mahindra for an order value of ~1 bln EUR
	<ul style="list-style-type: none"> ▪ Lack of rare earth magnets like Neodymium ▪ Approx. 40% of the reserves are with China 	<ul style="list-style-type: none"> ▪ PLI¹⁾ outlay of 3 bln EUR to localize Electric Motors for EV under AAT²⁾ components ▪ Govt. proposed national programme on PEMD³⁾, investing in R&D to develop alternate motor technologies like Synchronous Reluctance Motors 	
Power Electronics (10% to 15%)			<ul style="list-style-type: none"> ▪ CG Power, Renesas, Stars Microelectronics formed a JV investing ~0.9 bln EUR Outsourced Semiconductor Assembly and Test facility in Sanand, Gujarat ▪ RIR Power Electronics Ltd proposed to invest 57 mio EUR to manufacture SilicoCarbide (SiC)
	<ul style="list-style-type: none"> ▪ Lack of domestic suppliers for critical sub-components like semi-conductors 	<ul style="list-style-type: none"> ▪ PLI outlay of ~9 bln EUR, to support up to 50% of project cost/CAPEX for Semiconductor Fabs, Display Fabs, Sensor Fabs, & Integrated Circuits 	

1) Production Linked Incentives 2) Advances Automotive Technology 3) Power Electronics, Motor & Drive



Other key EV components like Body, Battery & Thermal Management Systems, HVAC¹⁾ and Control Units, have achieved moderately high localization but there is still substantial scope of localization with majority of the components covered under PLI²⁾

COMPONENT (% cost contribution)	LOCALIZATION		RATIONALE
	STATUS QUO	POTENTIAL 2030	
Chassis & Body (10% to 15%)			<ul style="list-style-type: none"> Special technology or raw-material not required Domestic expertise already exists
Battery Management & Thermal Management System (10% to 15%)			<ul style="list-style-type: none"> Growing domestic players with software expertise Ex. Govt.'s support for ARAI³⁾ e-Mi4 initiative
Others (HVAC, Control Units) (10% to 15%)			<ul style="list-style-type: none"> Expertise exist in developing control units, however, requirement to adapt for Electric Vehicles



Few key investments

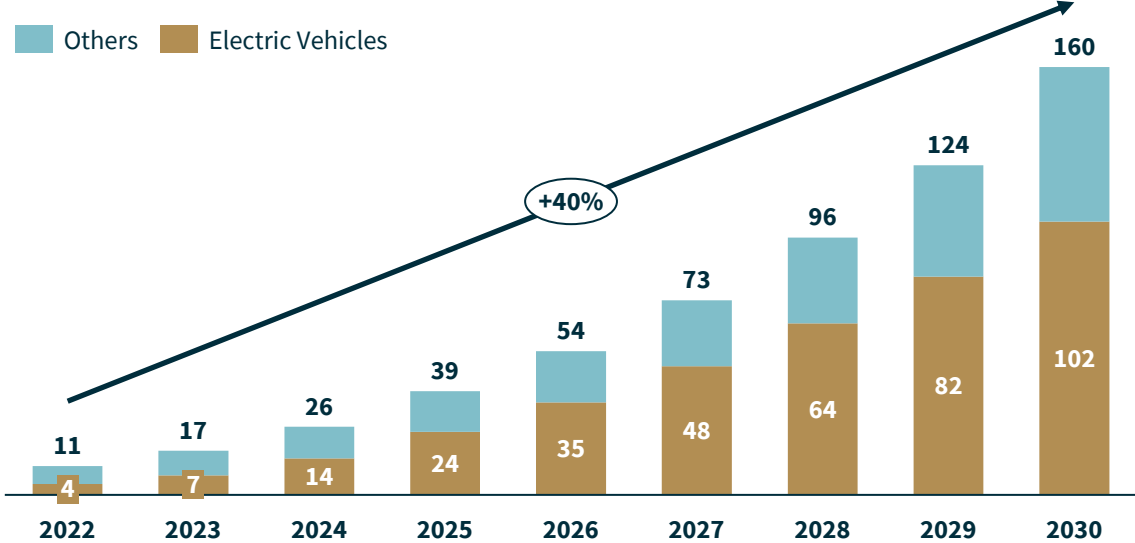
- Fasmho Energy** partnering with **Cyantron** to invest **167 mio EUR** to jointly develop **high voltage battery systems**
- Norma Group** to manufacture **0.7 mio units** of **Thermal Management System** (cooling water systems for the power electronics system) in Pune, Maharashtra **for Indian OEM's E-SUV fleet**

1) Heating, Ventilation & Air Conditioning 2) Production Linked Incentives 3) Automotive Research Association of India

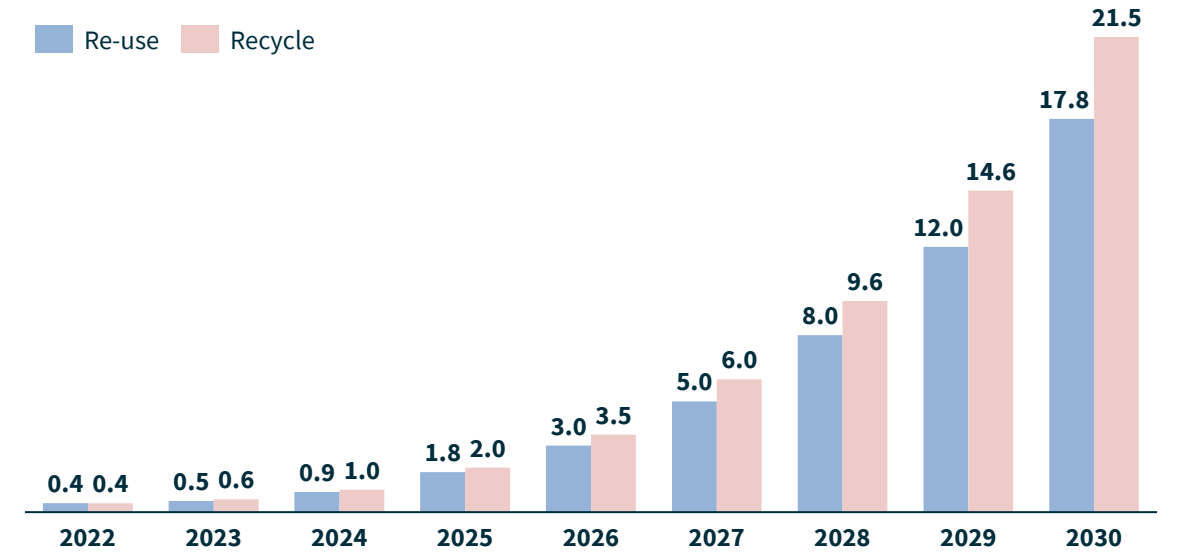
POTENTIAL OF BATTERY REUSE AND RECYCLING IN INDIA

India’s total demand for EV batteries from 2022 to 2030 is estimated ~380 GWh during 2022-30 and recycling demand of 60 GWh while lacks commercial scale recycling due to technology deficit – *high potential business segment*

ANNUAL BATTERY DEMAND, 2022-30 GWH



ANNUAL REUSE AND RECYCLING BATTERY VOLUMES FROM EVS (2022-30) GWH



- **With increasing EV penetration by 2030, the overall demand for battery energy storage in India from 2022 to 2030 would be 600 GWh of which 64% (381.4) GWh will be catered to by EV**
- **Battery demand are met by import from China due to limited local manufacturing and access to raw materials**

- **Batteries from E2Ws and E3Ws have a lower 2nd life as they have more charging and discharging cycles due to which re-use volumes would be mainly from E4Ws, e-buses and e-trucks which could be mainly used for stationary storage applications**
- **60 GWh of battery volumes to be recycled during 2022-30**

Others include grid applications, consumer electronics and behind the meter (telecom, storage)

New policy - Battery Waste Management 2022 mainly focuses on '*Extended Producer Responsibility*' where the producer/ importer shall meet the collection and recycling targets; multiple states are also promoting reuse and recycling of batteries

CENTRAL GOVERNMENT POLICIES

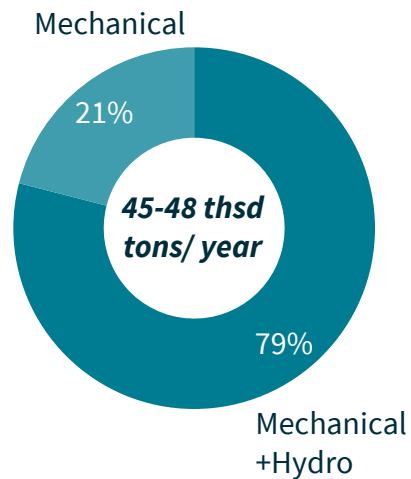
- **Battery Waste Management Rules, 2022** by The Ministry of Environment, Forest and Climate Change, this new rules has replaced Batteries (Management and Handling) Rules, 2001 under the Environment Protection Act, 1986
 - **Covers all types of batteries**, viz. EV batteries, portable batteries and industrial batteries
 - Applicable to **stakeholders** such as producer, dealer, consumer, entities involved in collection, segregation, refurbishment and recycling of Waste Battery
 - **Key features:**
 - ▶ **Extended Producer Responsibility (EPR)** – Producers and importers are responsible for collection and recycling/refurbishment of waste batteries and not end up in landfilled or incinerated
 - ▶ **Proper collection infrastructure**
 - ▶ **Material recovery and resource conservation**
 - ▶ **Standards and certification for battery recycling facilities**

STATE GOVERNMENT POLICIES

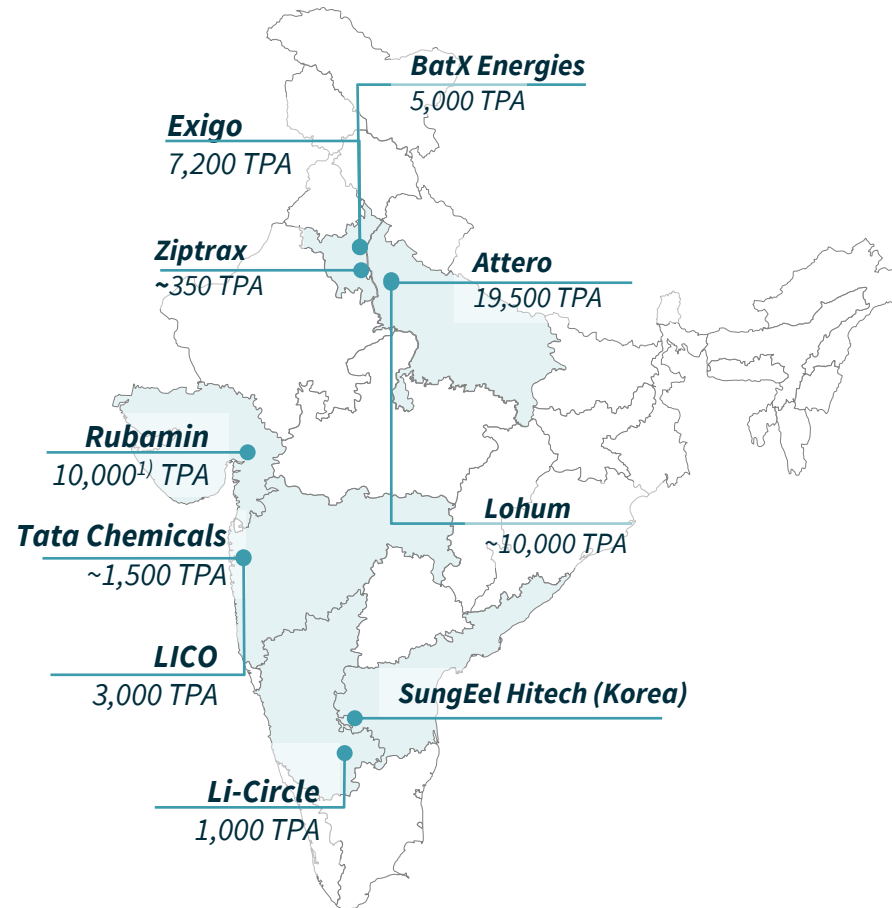
- **States actively promoting & attracting investments for battery recycling include** Andhra Pradesh, Assam, Chhattisgarh, Haryana, Jharkhand, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh and Andaman & Nicobar
 - **Punjab EV policy** encourages automakers and private players to issue schemes to promote buyback of used battery packs
 - **Telangana EV policy** intends to facilitate reuse of EV batteries in stationary storage applications and encourages collaborations between battery manufacturers, EV manufacturers, energy storage operators and recyclers
 - **Uttar Pradesh EV policy** large anchor and service units will be provided capital interest subsidy for setting up recycling centres
- **Chandigarh and Manipur promote the reuse of EV batteries along with recycling**
- **Delhi EV policy aims to set up battery collection centres and collaborate with manufacturers for recycling**

India has limited battery recycling capacity of 45-48 thsd tons/ annum and lacks proper infrastructure and technology for collection and storage – creating significant investment opportunity for recyclers and machinery suppliers

RECYCLING CAPACITY IN INDIA, 2024



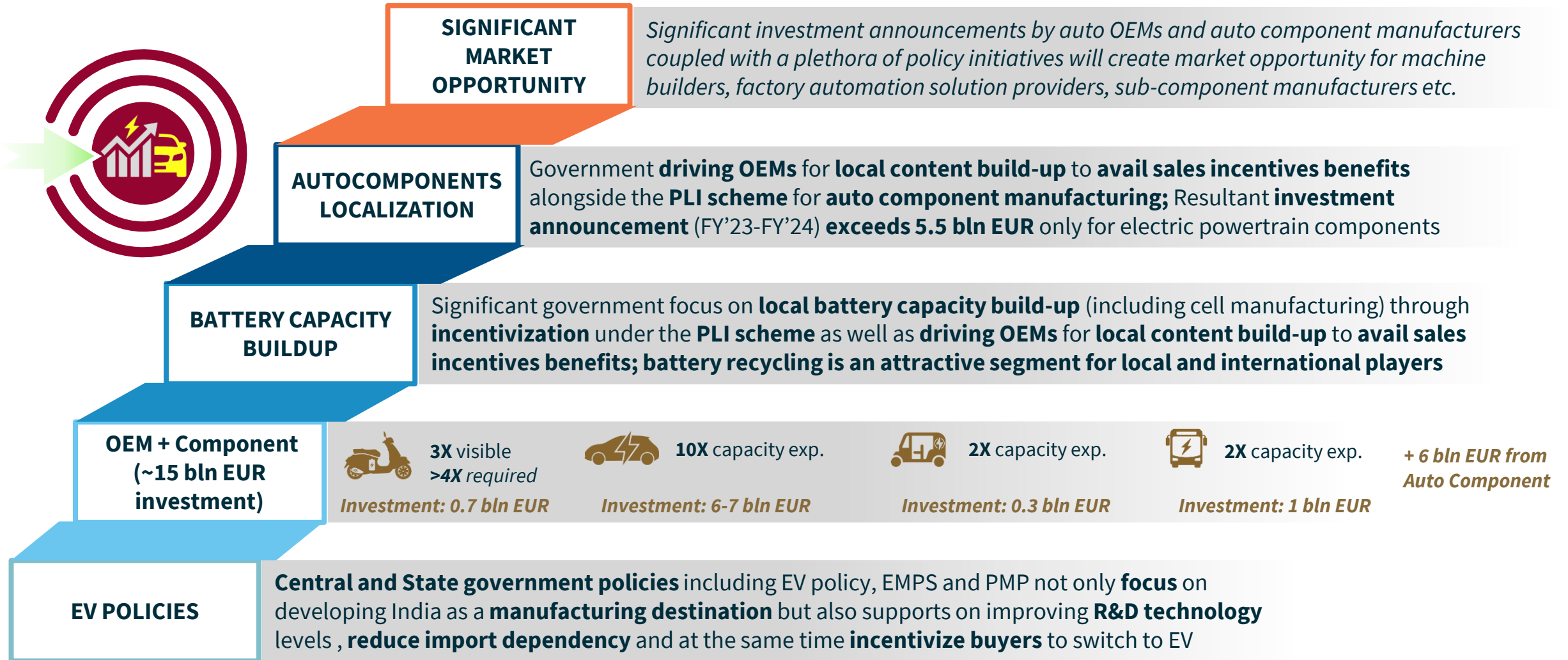
BATTERY RECYCLING PLAYERS AND CAPACITY IN TONS/ ANNUM



1) Expected to be operational in July 2024 (phase 1)

- **India currently lacks a system for commercial-scale recycling** and waste batteries are stockpiled and disposed of in landfills
 - **Infrastructure** for collecting, storing, and recycling Lion battery waste currently has a **technology deficit**
- **Several companies have already started recycling lithium-ion batteries on a small basis while recycling capacity in India is limited**
- **Home-grown companies like Attero, BATX and Tata Chemicals are leading the Indian LIB recycling market**
- **In India, companies mainly follows hybrid strategy (mechanical + hydro) for recycling technology followed by mechanical process**
- **Machines such as shredders, crusher, granulators, separators, leaching equipment, electrolysis equipment, screening equipment, conveyors, dust collection system, analytical equipment**

The EV industry in India is on the cusp of inflection with significant focus on localization and capacity augmentation; this will in turn also benefit allied industry participants including machine builders, factory automation companies etc.



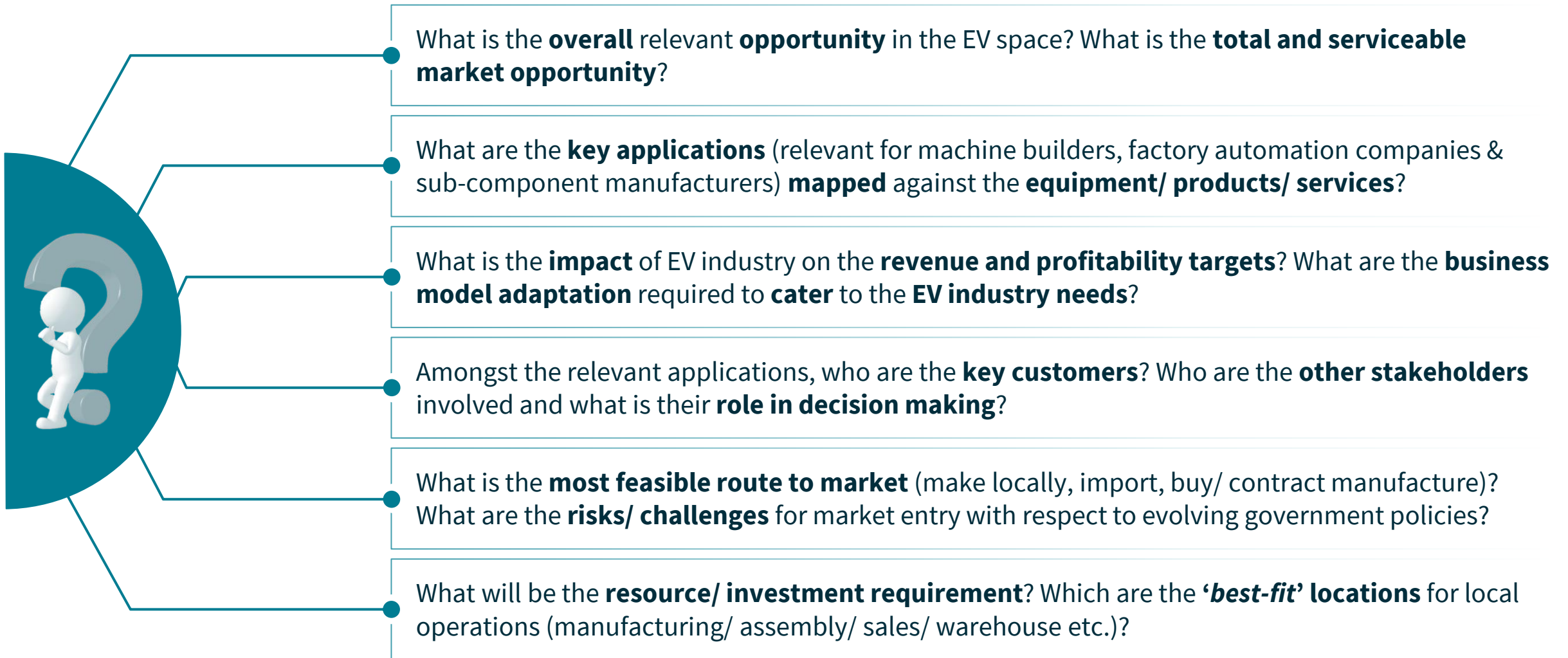


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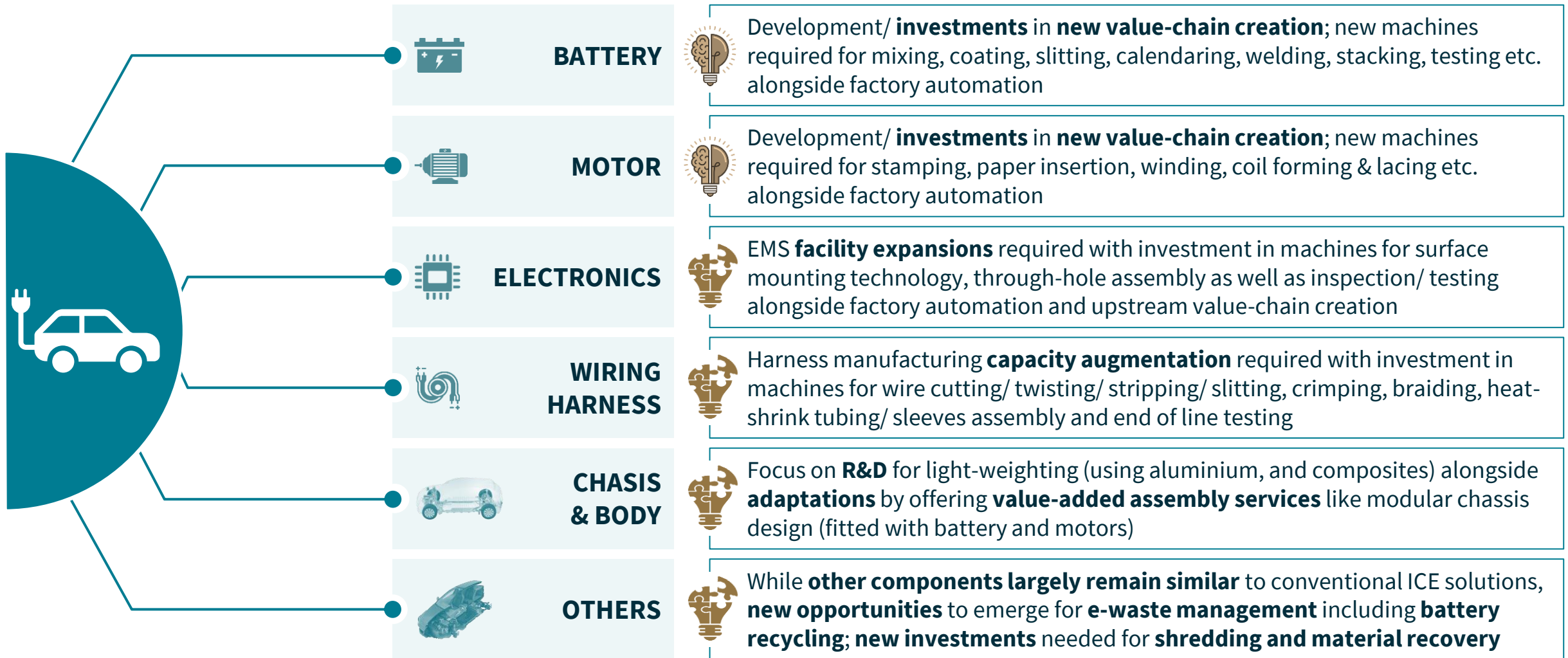
- A. EAC International Consulting – *Introduction and EV Expertise*
- B. Future of Electric Vehicles in India – *Opportunities 2024- 2030*
- C. Implications For Ancillary Industries – *Decoding Opportunities into Strategy***

KEY STRATEGIC QUESTIONS FOR ANCILLARY INDUSTRIES

While the EV industry in India is undoubtedly expecting an exponential growth over the coming decade, it is imperative for ancillary industry companies to plan their depth/ level of participation in this growth story



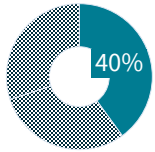
Differences between conventional automotive and EVs coupled with government push for localization to drive investments in EV relevant ancillary industry thereby also driving demand for new investments as well as capacity/ competence build-up



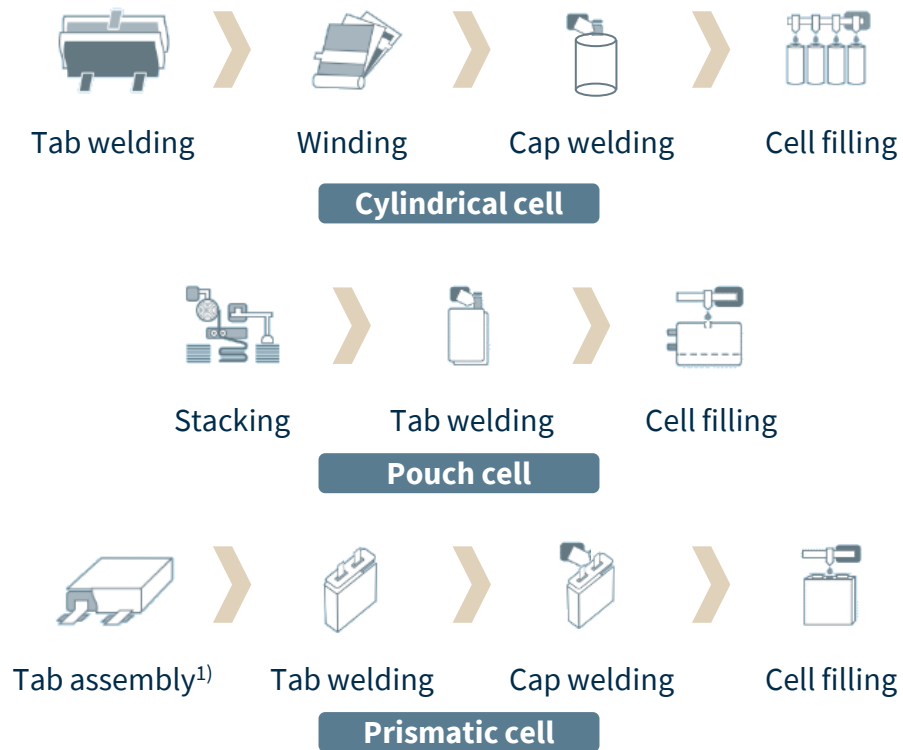
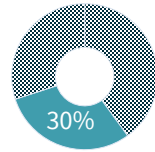
Multiple applications from electrode manufacturing to final assembly may require components and machines relevant to your businesses and thereby it is essential to assess the entire production process to establish business relevance

EAC Project Example

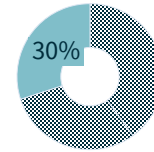
ELECTRODE MANUFACTURING



CELL FABRICATION/ ASSEMBLY



CELL FORMATION & INTEGRATION



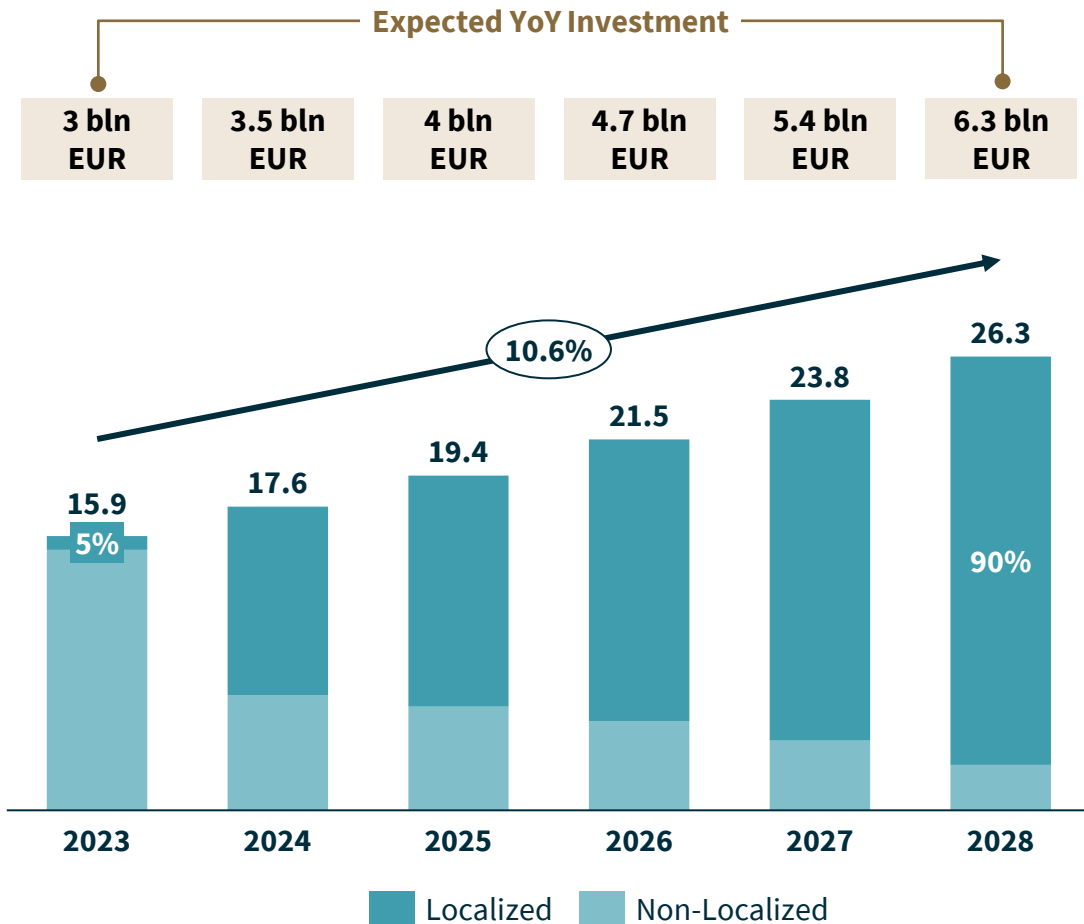
Share of CAPEX in integrated battery manufacturing facility

OPPORTUNITY ASSESSMENT – LI-ION BATTERY MANUFACTURING AUTOMATION MARKET

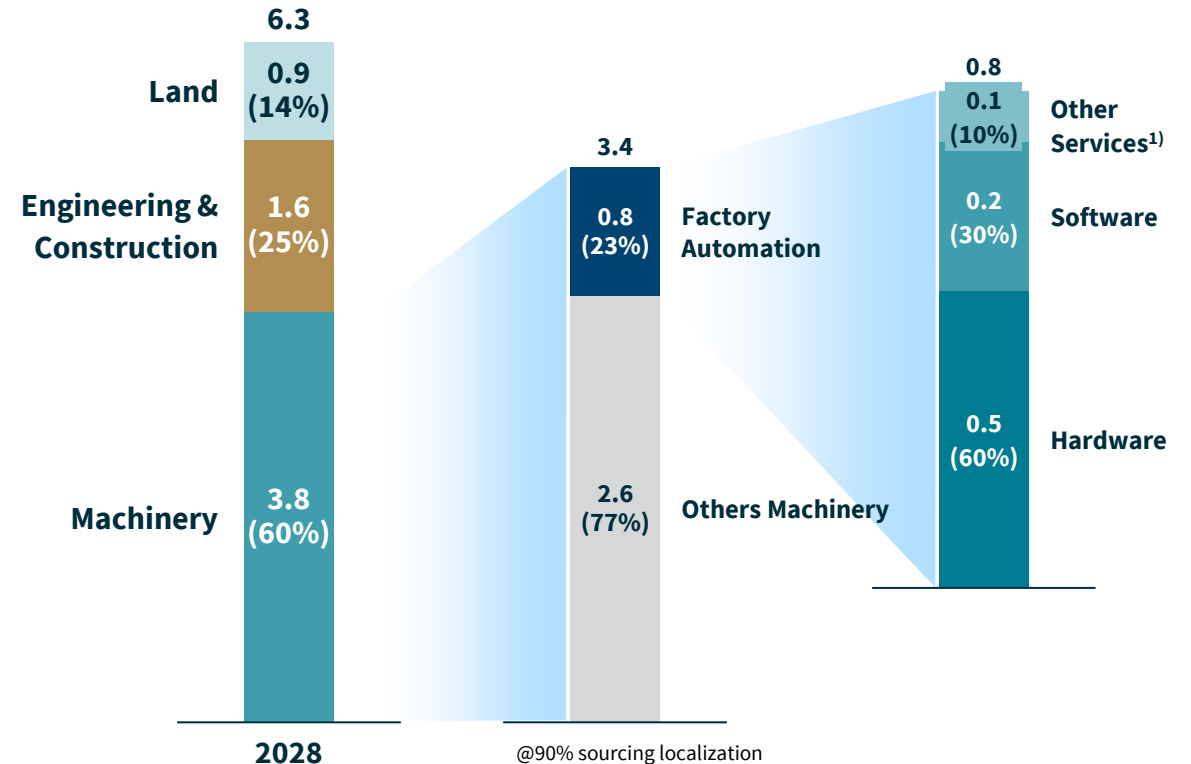
Driven by government support, localized battery demand in India to grow from 5% in 2023 to 90% in 2028; this would entail cumulative investment of ~27 bln EUR in 2023-28 period; resulting factory automation demand in 2028 estimated at 0.8 bln EUR

EAC Project Example

BATTERY MANUFACTURING MARKET DEVELOPMENT, 2023-2028F (BLN EUR)

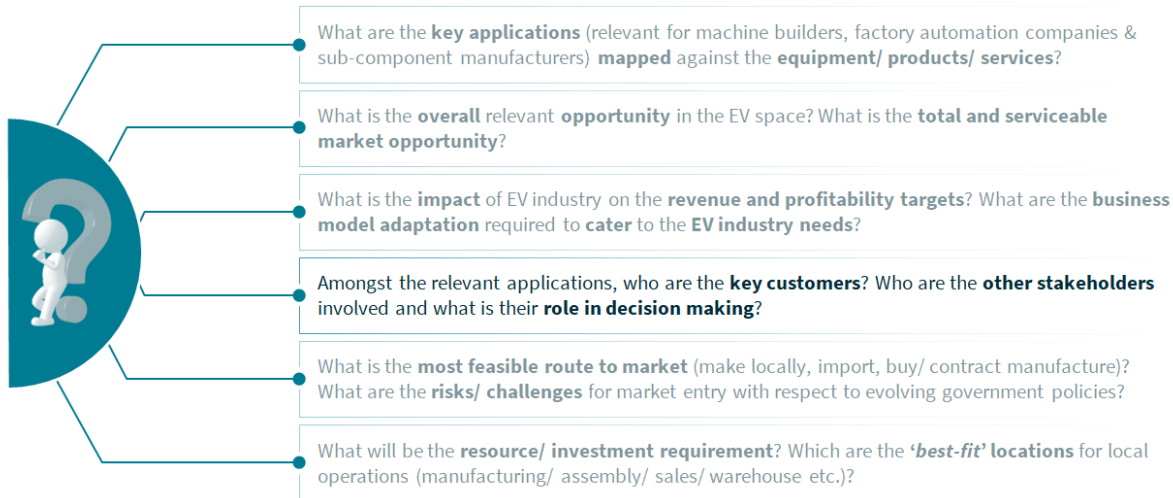


FACTORY AUTOMATION DEMAND FOR BATTERY SEGMENT IN 2028 (BLN EUR)



EAC supported EV powertrain manufacturer to develop India business plan and provided implementation support to select most suitable contract manufacturer, incorporated company and recruit India MD

IDENTIFYING KEY CUSTOMERS



CASE STUDY – FRIWO GERÄTEBAU GMBH

EAC Project Example

Background

- FRIWO – a manufacturer of electric powertrain, requested EAC to share macro-level insights/ attractiveness of applications in India for EV and recommend Go-to-market strategy considering potential in electric 2-wheelers

EAC Support

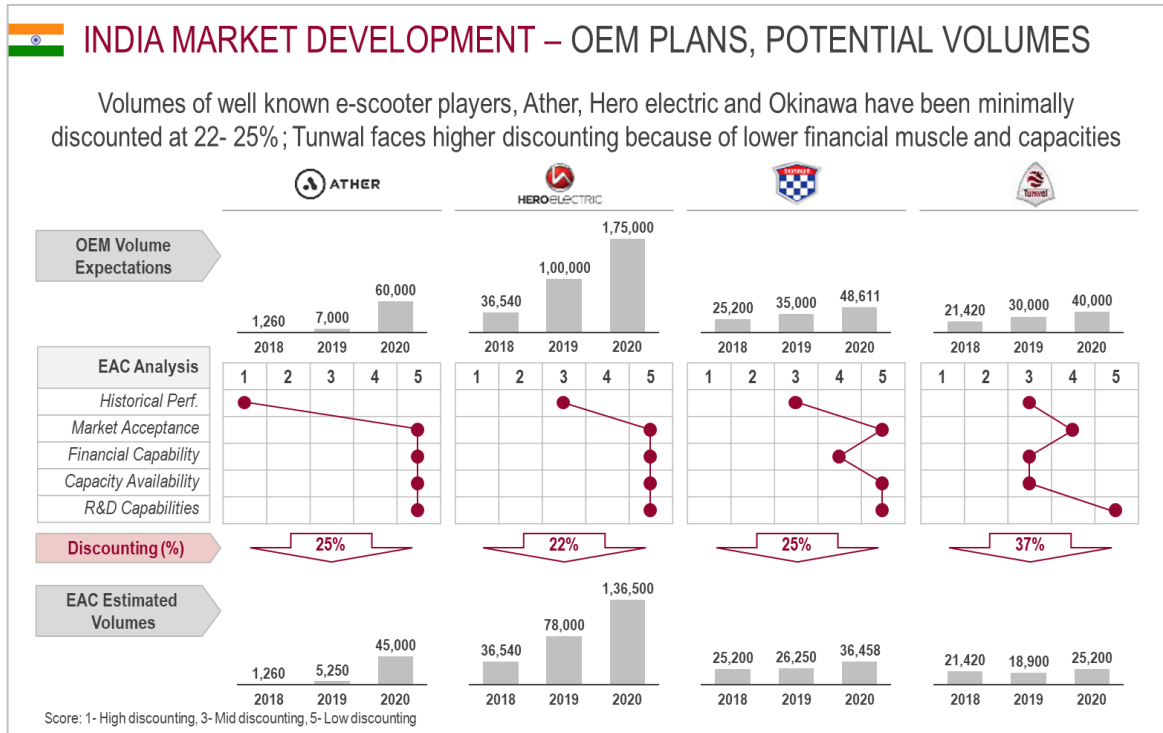
- Market potential assessment for EV power train components
- **Sales implementation support** to develop **high potential leads – included joint visits to potential customers and evaluation of sales potential based on procurement willingness**
- Development of India business plan including revenue and profitability targets

Results

- Developed India Business Plan with sales forecast for 5 years
- Provided implementation support to select most suitable contract manufacturer, incorporated company

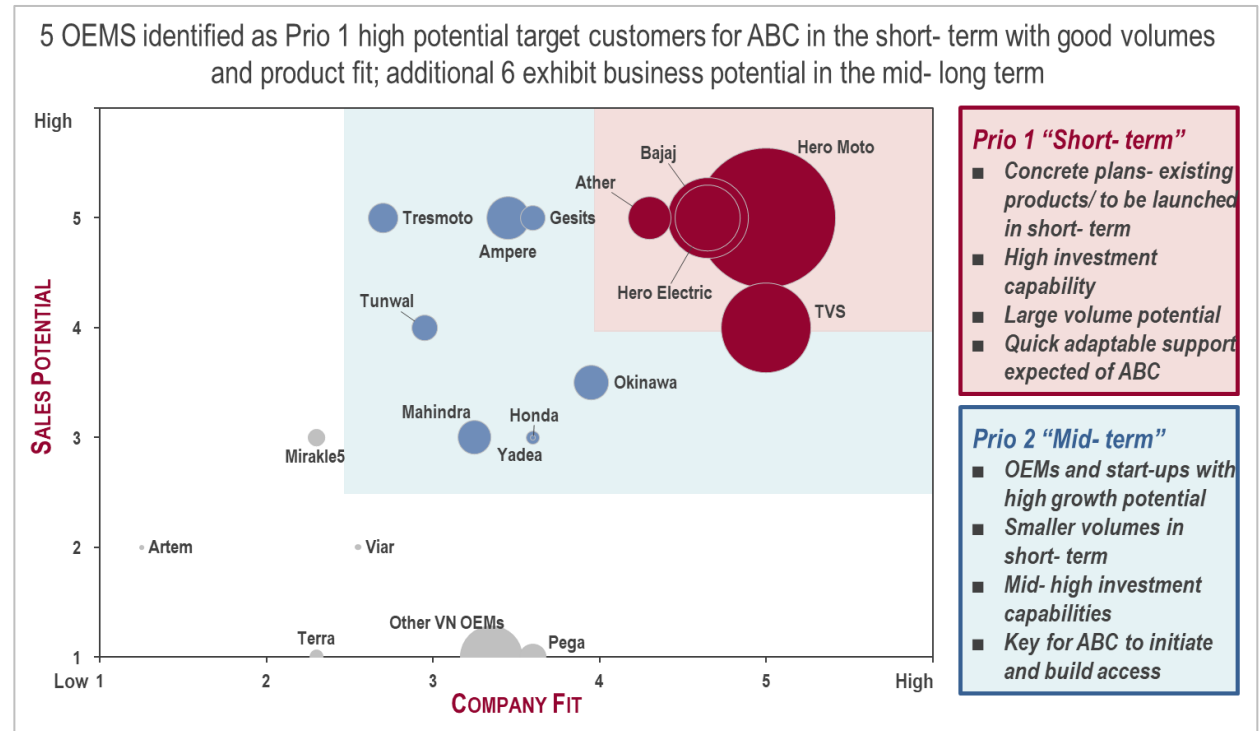
ESTIMATING ADDRESSABLE MARKET DEMAND

Its important to critically assess announcements based on OEM track record and market conditions followed by prioritization of potential customers to plan sales implementation roadmap



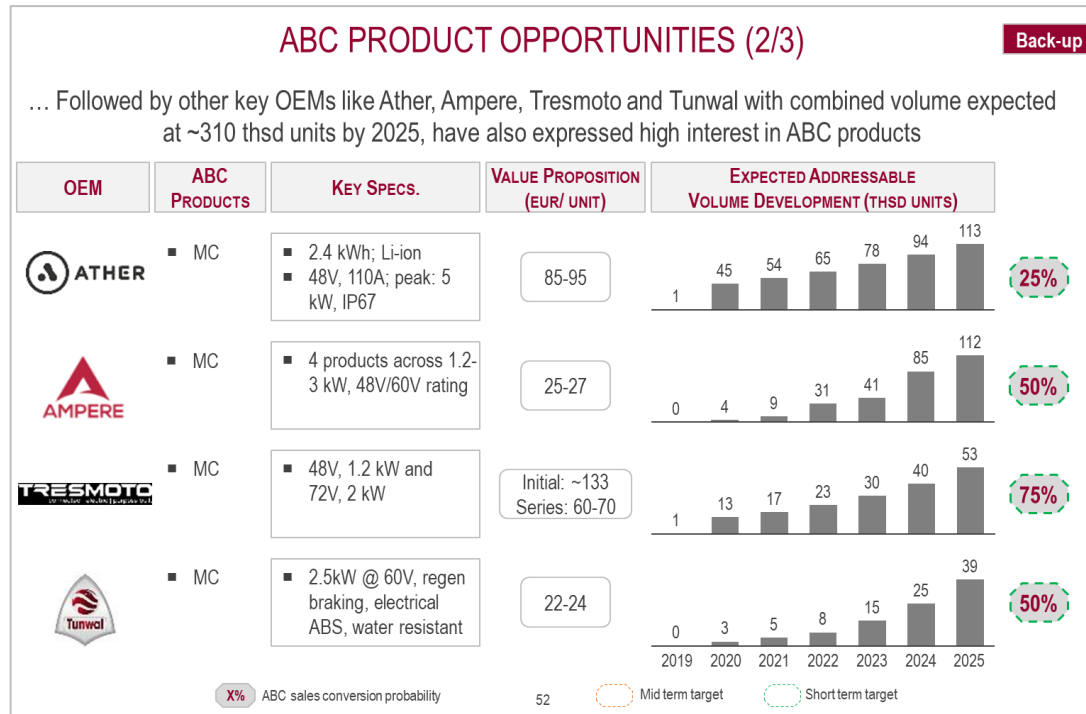
Critical assessment of expansion announcement based on OEM track record, market acceptance of products, financial capability, capacity availability, R&D capability, and market conditions

Prioritization of OEM/ tier-I accounts as per sales potential and company fit parameters such as technology relevance, quality conscious, etc.



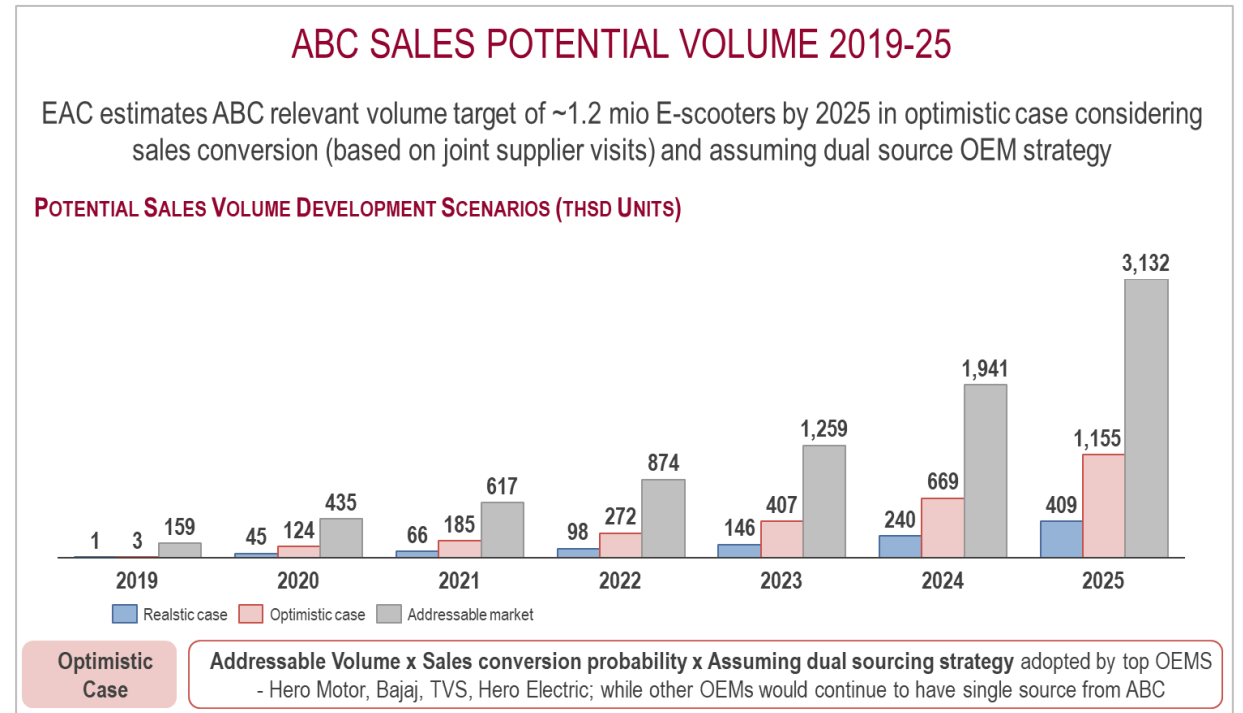
ADDRESSABLE MARKET TO SALES POTENTIAL

Several rounds of discussion with purchase, strategic sourcing, and management teams at customers provides you basis to apply probability factor to create optimistic, realistic, and pessimistic sales development scenarios



Estimating volume development per year and applying probabilities based on discussion with purchase, strategic sourcing, and management

Creating optimistic, realistic, and pessimistic sales development scenarios for business plan estimations and strategy formulation



EAC AROUND THE GLOBE – WHERE YOU FIND US!



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