kcm NETWORK

K C Mehta & Co LLP
Chartered Accountants

kcmLens

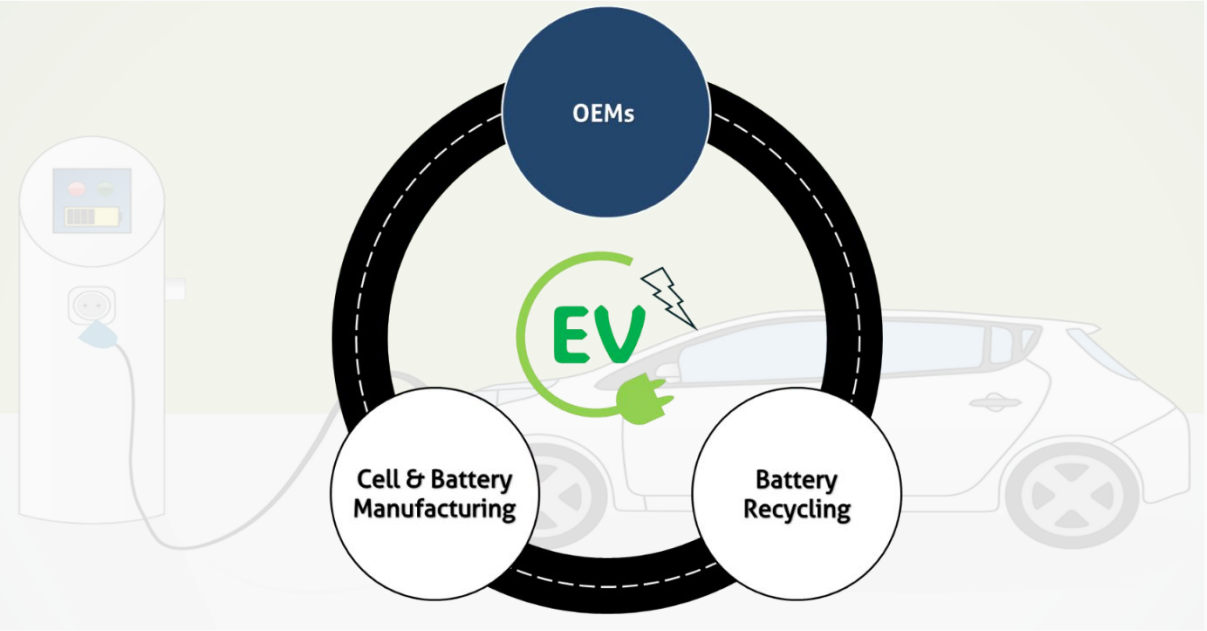
EV Series – Volume 1

Original Equipment Manufacturer (OEMs)

July 2024

Introduction

Introducing kcmLens - a brand-new series of publication from KCM, offering sector specific. Under this series, we shall pick one sector, outline the value chain of that sector, and offer a deep dive analysis through the Lens of each segment of the value chain. This publication helps in developing a holistic understanding of the entire sector. The idea is to not only collate insights and updates on a particular sector for the readers, but to also present important takeaways from K C Mehta & Co LLP on that sector.



With that, we are pleased to present the very first kcmLens series, **The EV Series**. We all have observed an increase in the number of green license plates on the road. But does that observation correctly reflect the actual industry scenario? We shall understand that using facts and figures through this kcmLens series. The EV series involves analysis of the EV value chain which primarily includes following segments: the Original Equipment Manufacturers (OEMs), the Battery & Cell Manufacturers and the Battery Recyclers (deliberately ignoring mining, extracting and refining segments of the value chain for focussing on the "EV Loop").

The first publication of The EV series is on EV OEMs where we would understand the EV OEM market, key players & their strategies, customer needs and behaviour, regulations involved, government support available and various developments in the EV OEM segment.

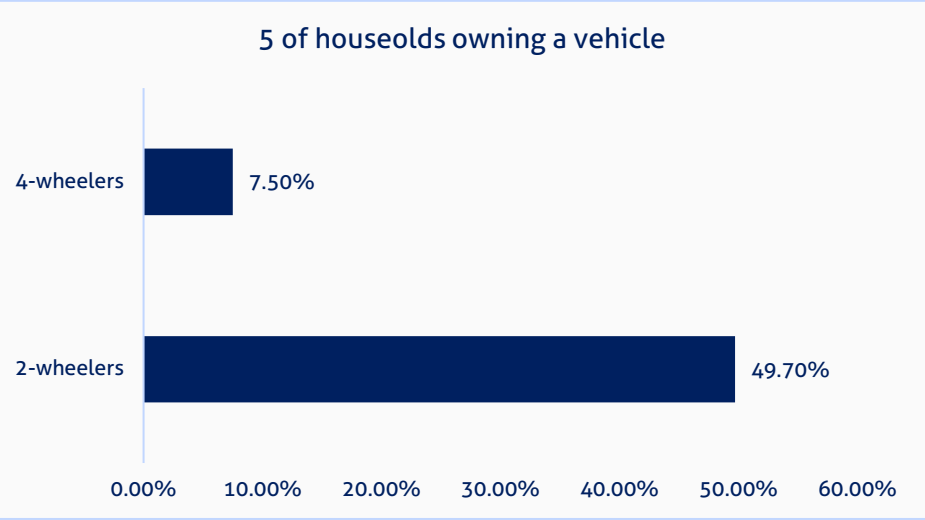
Contents

Understanding the Industry

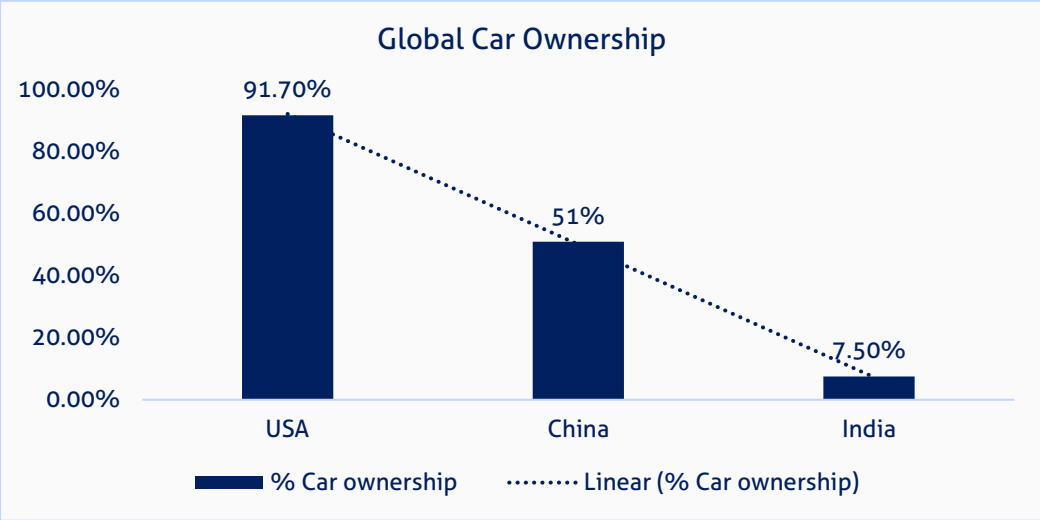
Coverage

Growth potential of the Indian Automotive Industry

- India is currently the world's 3rd largest, and one of the fastest growing automotive markets in the world with a market size of ₹ 12.5 lakh crore (USD 151 billion).
- The sector is expected to cross ₹ 24.9 lakh crore (USD 300 billion) by 2030, contributing over 7.1% to India's GDP.[1]



Source: National Family Health Survey 2021



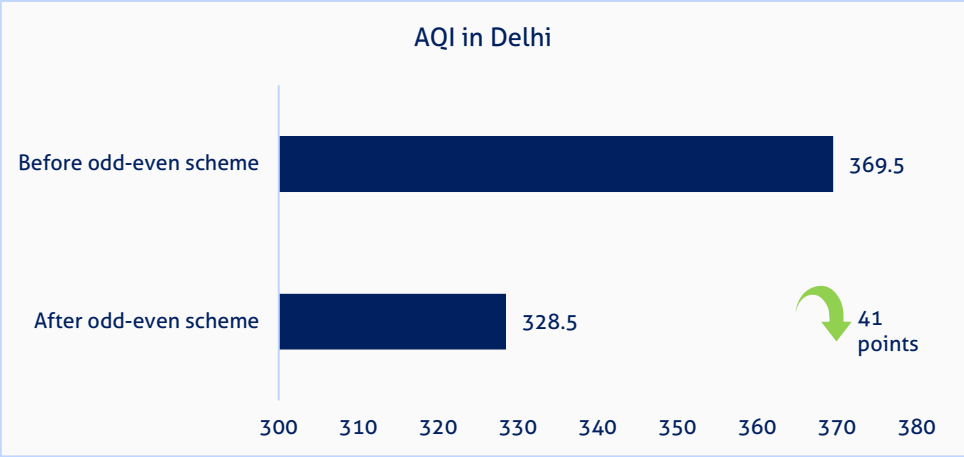
Source: U.S. Census Bureau's 5-Year American Community Survey | Statista - Vehicles & Road Traffic

- This indicates a tremendous growth opportunity for the auto sector in India in the coming years as income levels in the country rise!

Understanding the Industry

Downside of this growth!

- On the flip side, **road transport accounts for 12% of India's energy-related CO_2 emissions** and is a key contributor to urban air pollution.[2]
- In 2023, **India was the world's third most polluted country** out of 134 countries.
- Using the conventional ICE vehicles adversely impacts the air quality, which is measured through the average Air Quality Index (AQI).

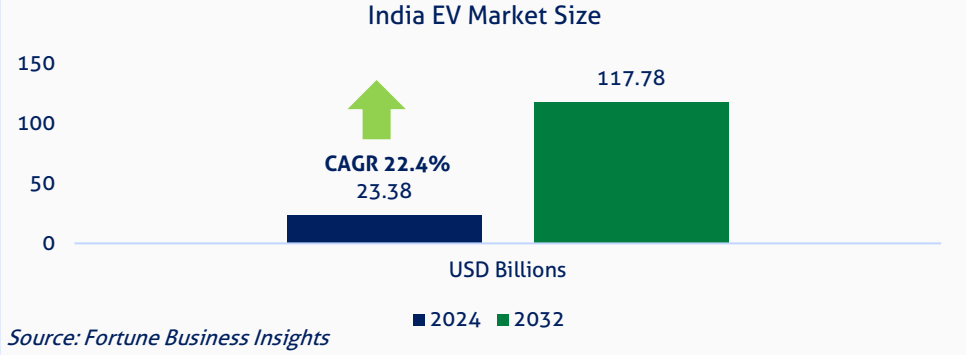


So, can we work towards a 'sustainable growth'?

One major step in this direction is to improve air quality by adapting to Electric Vehicles (EVs) since they produce zero direct emissions.

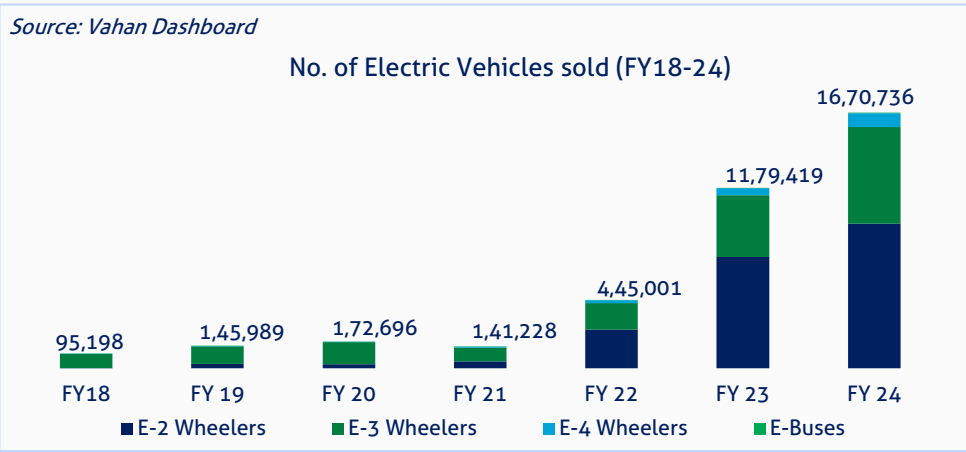
The Indian EV Industry - poised for strong growth!

- The electric vehicles industry is at a growing stage in India, with the share of EVs in India's auto sales for 2023 pegged at 6.38%.[3]
- This growth is underpinned by increasing demand, improving infrastructure and continued government support.



Source: Fortune Business Insights

Source: Vahan Dashboard



Understanding the Industry

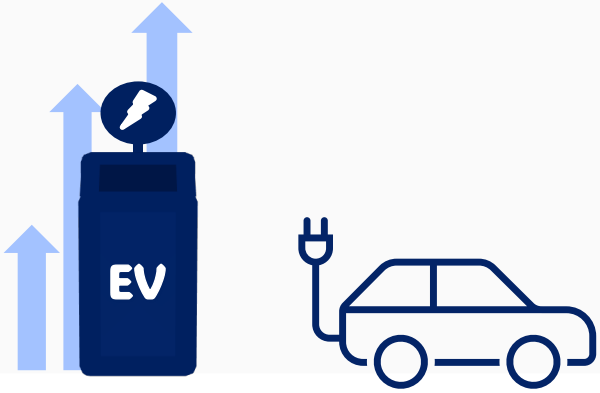
What factors will lead this growth?

Technological Advancements: Continuous advancements in battery technology, including improvements in energy density, cost reduction, charging speeds, and durability, are pivotal.

Infrastructure Development: Expansion of charging infrastructure, including fast-charging networks and home charging solutions, is essential for alleviating range anxiety and improving convenience for EV owners.

Government Policies: Government is increasingly incentivizing EV adoption to achieve its environmental goals and has set an ambitious target to achieve 30% electric mobility by 2030.

Supply Chain Localization: Efforts to localize the EV supply chain, including manufacturing of batteries and other critical components, with a view to reduce dependency on foreign suppliers and enhance supply chain resilience.



Competitive Landscape

Two-Wheeler EV Market: A late mover's win!

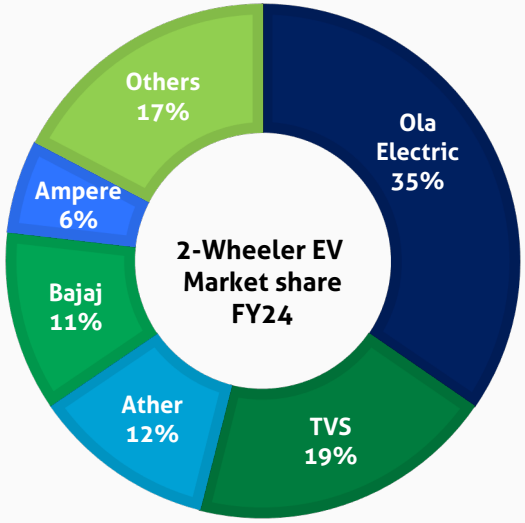
It is interesting to note is that TVS & Bajaj, despite being veterans of the two-wheeler industry in India, have a combined market share lower than that of Ola Electric, a company founded in 2017.

Ola Electric dominated the two-wheeler EV market on account of following:

1. Investment in leadership, technology, and strategic partnerships.
2. On point positioning of the product and marketing appeal.
3. Creating an EV ecosystem (battery manufacturing and charging infrastructure); leading to greater control over the value chain.
4. Investment in manufacturing capacity; thus, offering a wider range of scooters at a competitive price.

Ather, founded in 2013, is at the 3rd position despite being one of the first players in the segment. This was a result of excessive focus on product without any consideration on customer needs, economics, and marketing.

Other key players include Okinawa Autotech, Hero Motocorp, Mew Electrics, Okaya EV, Kinetic Green, Wardwizard, etc.



Source: Vahan Dashboard

Competitor Benchmarking

Particulars	Ola	TVS
Price range	75,000 - 1,31,500	85,000 - 2,50,000
Driving range	95-195km	60-150km
Battery capacity	2-4 kwh	2.2-5.1 kwh
# EV Models in market	4	2
Installed Capacity (EVs)	4,50,000	1,00,000
Market share	35%	19%
R&D as % of Sales (FY23)	19.30%	1.88%
Planned CAPEX	₹ 1226 crores	₹ 1000 crores
# Dealership across India	935 (Own experience centres)	712 (Traditional dealership)

Competitive Landscape

Coverage

Four-Wheeler EV Market: The classic first mover advantage!

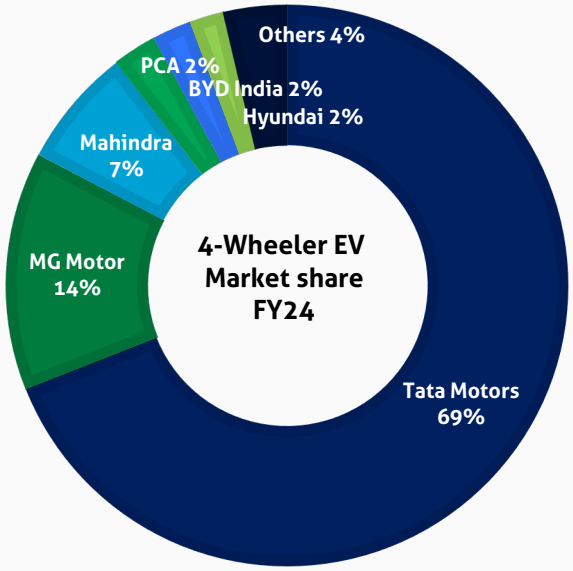
Tata Motors entered the EV segment early with the launch of the Tigor EV in 2019 and the Nexon EV in 2020, creating a first-mover advantage for itself.

Through its "Tata UniEVerse", it has synchronized efforts to develop a holistic e-mobility ecosystem, including charging solutions, innovative retail experiences, and easy financing options. Tata was also the largest beneficiary of FAME II scheme introduced in March 2019.

If we look at Tata Motor's ICE Passenger Vehicle (PV) business, the market share of Tata is 13% in the ICE 4W PV market, which is in sharp contrast to its position in the EV market. From 2004-2014, Tata suffered heavily in its PV business on account of its strong position in Commercial Vehicle (CV) segment. Tata cars had become synonymous with Taxis!

However, Tata quickly pivoted to EV business and established itself as the market leader, creating a strong brand identity for it's EV 4W PV. Now, as it expands into EV 4W CV business, it must tread carefully to avoid past mistakes.

One strategy would be to launch various models in a short duration to differentiate between PV and CV segment.



Source: Vahan Dashboard

Competitor Benchmarking

Particulars	Tata	Mahindra
Price range	7,99,000 - 19,49,000	15,49,000 – 19,39,000
Driving range	250 - 465 km	375 - 456 km
Battery capacity	19.2 - 40.5 kwh	34.5 - 39.4 kwh
# EV Models in market	5	1
# EV Models to be launched	10 by 2025	7 by 2030
Production Capacity	3,00,000	2,00,000 (3W & 4W)
Market share	69.01%	6.87%
R&D as % of Sales (FY23)	5.86%	3.27%
Planned CAPEX	~37,000 crores	12,000 crores
# Dealership across India	326	740

Competitive Landscape

Coverage

Takeaway: Is the 'first mover' always at an advantage??

- We saw two contradicting examples in our competitor analysis.
- In the E-2W space, Ather, despite being the first mover, lost the market to Ola Electric. On the other hand, in the E-4W space, Tata is still the market leader and enjoying the advantages of being the first mover.

Our take-

- Being the first mover has both advantages as well as disadvantages.
- It definitely gives a competitive advantage to the company, but it can soon turn tables if the company does not focus on sustaining that competitive advantage through appropriate strategic decisions.
- Ather failed to sustain its advantage despite having an excellent product because it couldn't safeguard its position. It couldn't handle its business economics, nor could it create a brand and position in minds of the mass market. It focused too much on the early adopters who valued its technology – but the product and its positioning did not change as the demand evolved to cater to the mass market.
- Ola Electric on the other hand, despite being a late entrant, capitalized hugely on the prevailing brand awareness of its 'OLA' brand in the market. If you are a commuter in a metro city, think how many times you will interact with 'OLA' brand? Further, Ola Electric created a product that catered perfectly to the 'mass market' despite its product not being the best! Because the best wasn't what the market demanded!

OLA

Vs.

ATHER

TATA MOTORS

Vs.

Mahindra ELECTRIC

Competitive Landscape

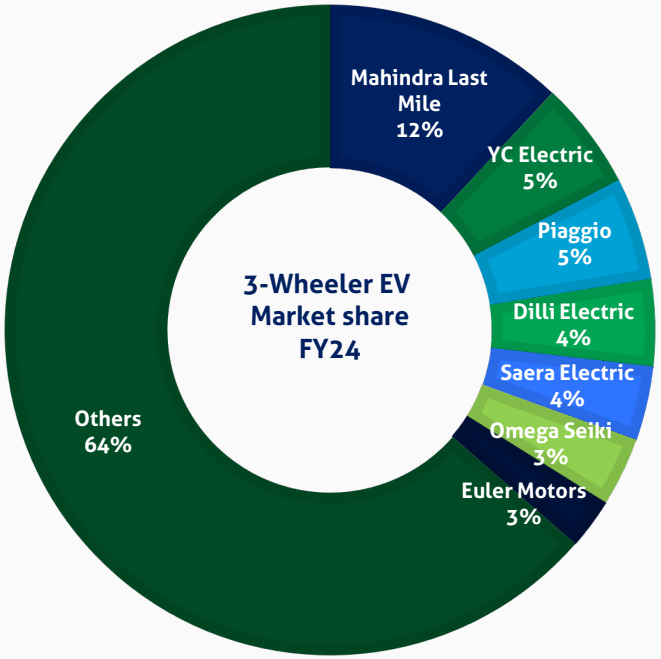
Three-Wheeler EV Market: Too many takers of the pie!

The three-wheeler electric vehicle market is highly fragmented on account of following reasons:

1. Three-wheelers can be made with cheaper lead acid batteries, thus allowing small local manufacturers to enter the market.
2. Given the higher adoption rate for E-3W due to their low cost and increased demand for last mile mobility, the market is attracting more investment as demand is on the rise.
3. Barriers to entry are low due to low investment needed in manufacturing, marketing, as well as design; as customers look for durability rather than aesthetics.
4. Customer requirements are diverse; passenger and cargo transport, low-speed and high-speed vehicles, different dimensions and carrying capacities, etc.

Mahindra Last Mile Mobility, YC Electric and Piaggio, are leading the market with their strong product portfolios, competitive pricing and wide distribution network.

Other players in the market include Mini Metro EV, Champion Polyplast, Unique International, Hotage Corporation, Energy Electric, Altigreen Propulsion, J. S. Auto, Atul, Auto, etc.



Source: Vahan Dashboard

Competitive Landscape

Coverage

E-Buses Market: Tata continues to reign the CV market!

Around 7,800 electric buses were sold till FY24 of which 3,700 electric buses were sold in FY24.[4]

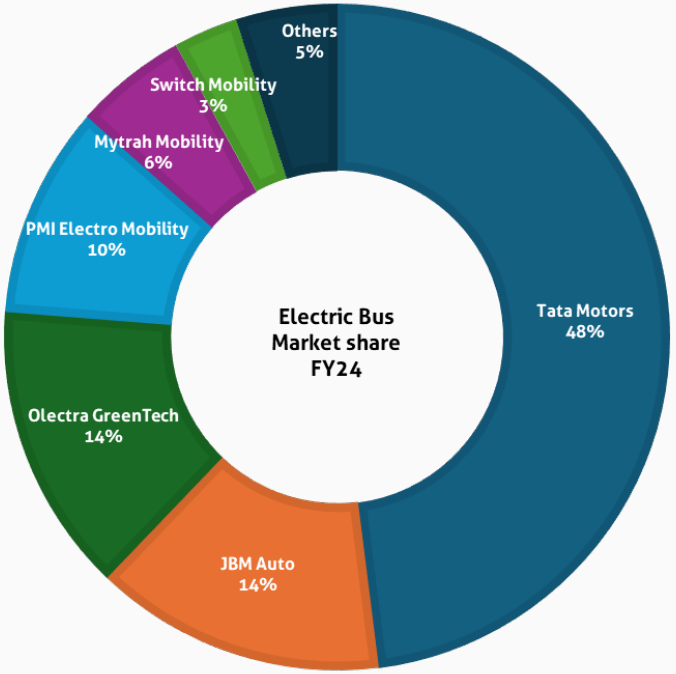
Tata Motors, JBM Auto, and Olectra are the leading players in this market.

Tata being an incumbent in the ICE Bus industry, followed its E-4W strategy to quickly pivot to the new energy source. It was able to leverage its existing wide network of dealers and decades old industry clout to outpace its rivals in the industry.

Surprisingly, ***Ashok Leyland (Switch Mobility)***, which is one of the largest bus manufacturers in the world, has been on the backfoot due to its late entry in electric bus business.

JBM Auto is the second biggest player and has a strong presence in electric tarmac buses, used across a number of airports in India.

Olectra pushed itself to the 3rd spot, beating its peers, by entering into a JV with Chinese auto major BYD. Its tie up with BYD ensures a steady supply chain of critical components available in China. Olectra, in fact, was the biggest player in the E-buses market before the pandemic.



Source: Vahan Dashboard

What's in for the end user?

Coverage

EV 2-Wheeler comes with substantial cost savings!

Electric 2W v. ICE 2W

Assuming annual distance of 9,000 kms for a period of 5 years.

	E2W	ICE 2W
Upfront Cost		
Acquisition Cost	1,32,500	94,350
Insurance Cost	11,000	7,500
Running cost over 5 years		
Maintenance Cost	-	6,200
Fuel Cost	13,500	84,600
Total Cost of Ownership	**1,57,000**	**1,92,650**
Savings in cost	**35,650**	
Savings (%)	**18.5%**	

Note:

1. Products compared are Ola S1 Pro and Honda Activa.
2. Road Tax and Registration Fee for EVs are exempt in all states of India except Gujarat, Telangana; partly exempt in Kerala and Madhya Pradesh.

EV 4-Wheeler also saves cost, albeit, not as much as 2W

Electric 4W v. ICE 4W

Assuming annual distance of 12,000 kms for a period of 5 years.

	E4W	ICE 4W
Upfront Cost		
Acquisition Cost	19,49,000	17,69,600
Insurance Cost	80,590	78,694
Running cost over 5 years		
Maintenance Cost	15,000	40,000
Fuel Cost	66,667	3,37,500
Total Cost of Ownership	**21,11,257**	**22,60,794**
Savings in cost	**1,49,537**	
Savings (%)	**6.6%**	

Note:

1. Products compared are Nexon EV and Nexon.
2. Road Tax and Registration Fee for EVs are exempt in all states of India except Gujarat, Telangana; partly exempt in Karnataka, Kerala and Madhya Pradesh.

What's in for the end user?

Coverage

Minimize CO2 emissions by using EVs

EVs are renowned for their eco-friendly attributes, zero tailpipe emissions, and compatibility with renewable energy sources.

The environmental consciousness of the Indian consumer has fueled EV adoption. 67% of the potential buyers In India referred to the *'environmental impact of their decision'* as a reason to purchase an EV. This indicates a strong consumer sentiment for EVs driven by environmental and sustainability considerations.[5]

Type	ICE small motorcycle (97.2 cc)	Electric motorcycle (3.5 kWh)	Electric motorcycle (2.7 kWh)	ICE scooter (109.5 cc)	Electric scooter (2.9 kWh)
Well-to-tank g CO_2 eq./km	11	28.7	21.7	12.8	31.7
Tank-to-wheel g CO_2 eq./km	38.3	-	-	43.4	-
Vehicle production g CO_2 eq./km	4.9	5	3.9	4.7	4.2
Battery production g CO_2 eq./km	-	2	1.6	-	1.7
Total g CO_2 eq./km	**54.2**	**35.7**	**27.2**	**60.9**	**37.6**
Life-cycle Green House Gas savings compared to ICE	**-**	**34.13%**	**49.82%**	**-**	**38.26%**

Source: International Council on Clean Transportation Briefing-August 2021
g CO2 eq./km = grammes of carbon dioxide equivalent per km

What's in for the end user?

Coverage

Takeaway: Are consumers rational?

- We saw the working of cost savings from EV 2-Wheelers & EV 4-Wheelers. But will the consumers work out the savings for themselves before making the buying decision?

Our take-

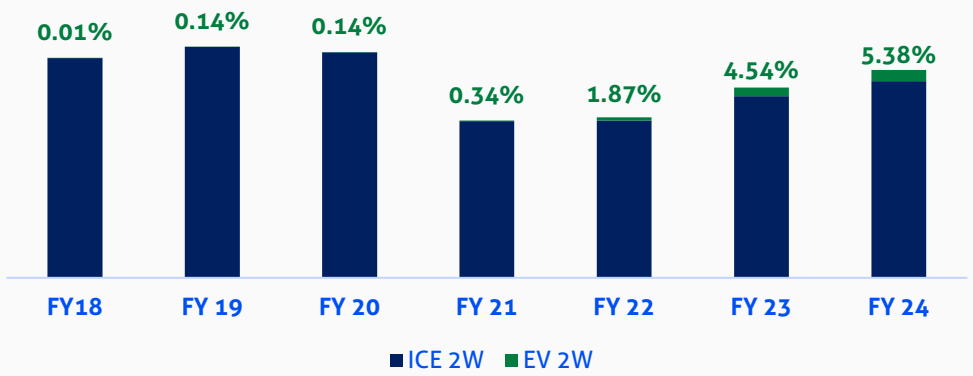
- As per a survey, 45% of millennials said they had become more impatient than they were 5 years before, showing tendencies for instant gratification. With increased consumption of social media and quick commerce, people would tend to seek pleasure or benefit on immediate basis without delaying the same. A delayed gratification is a rational thinking process wherein a person would choose pain to get rewarded in the long run.
- Applying the above principles to the case in point, if people start choosing instant gratification over delayed gratification, it is possible for them to avoid the pain of high upfront cost of EVs though the same would provide a long-term benefit in the form of cost savings. This might result in low EV adoption unless there is a substantial reduction in the upfront costs of the EVs.
- One reason why people avoid delayed gratification is that future is uncertain and therefore it is better to claim the benefit right now. In the present case, if EV OEMs work towards reducing this uncertainty by providing necessary information and commitments on quality, resale opportunities, technology, etc. it can help the customer in making the 'rational' decision.

What is holding us back then?

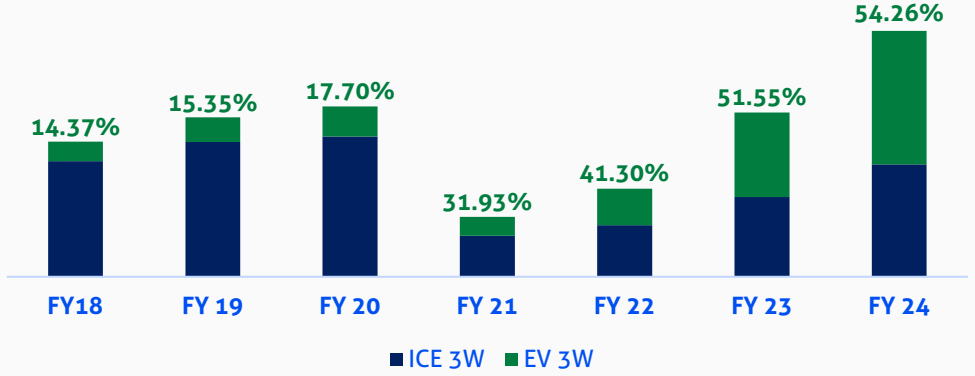
Coverage

EV Penetration in India... not as great as we thought!

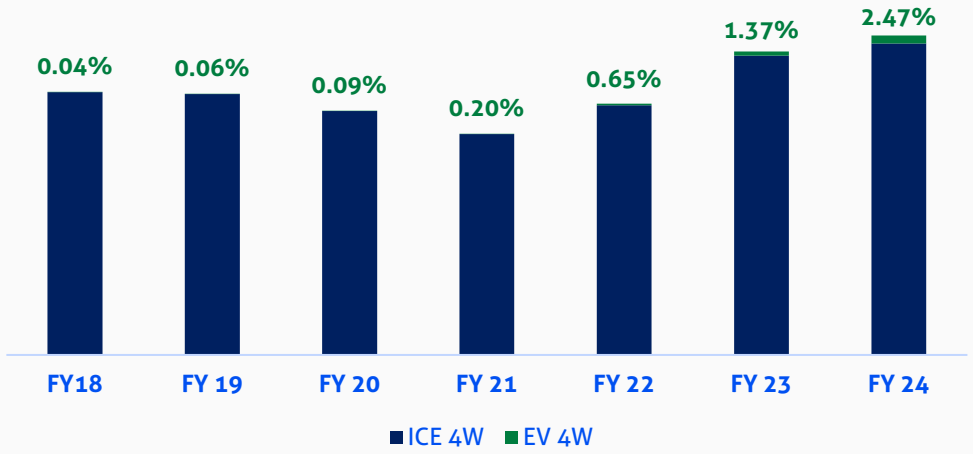
Sale of 2-Wheelers



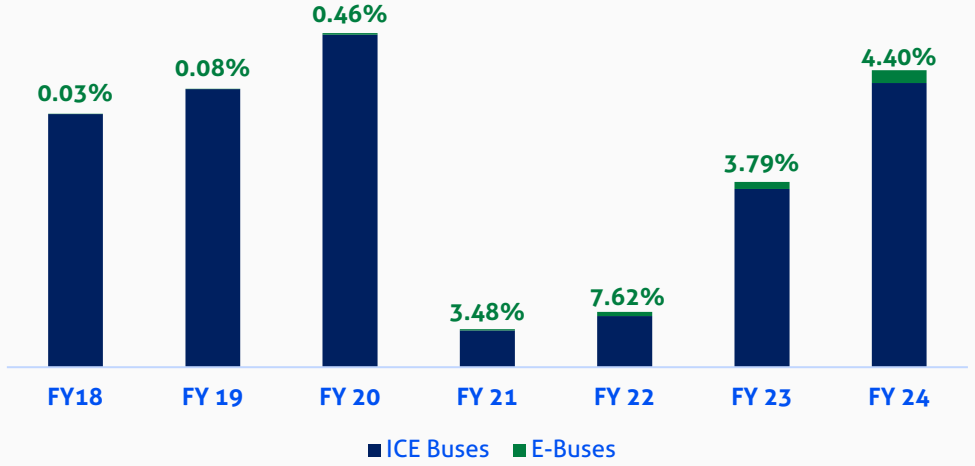
Sale of 3-Wheelers



Sale of 4-Wheelers



Sale of Buses



What is holding us back then?

Major factors behind low penetration

- **Range Anxiety –** This is the fear that EV may run out of battery power before reaching destination. Over 95,000 km of highways and expressways have been built during the last 10 years, resulting in more Indians using the road for long distance travel. However, the maximum range allowed by the most affordable EV in India is 250 km. Compared to this an affordable ICE car like Tiago, with a mileage of 20 km and fuel capacity of 35 liters, provides a range of 700 km in one tank. In the Indian context, the problem is further intensified due to extreme heat, which can further reduce the EV range by ~40%.
- **Lack of charging infrastructure –** Currently only 12,146 public EV charging stations are operational in India. Of these charging stations, about 50% are in Maharashtra, Delhi and Karnataka, resulting in a skewed distribution of stations.[6] However, Indian Oil, HPCL, and BPCL together, are aiming to set up charging facilities at 22,000 pumps and have, in fact, achieved about 40% of this target.
- **High charging time –** Most of the people consider charging an EV to be inconvenient as compared to refueling an ICE vehicle, as it takes more time to charge the battery *(~1 hour for fast charge and ~7 hours for regular)*. Brands such as Delta and RIOD offer fast charging equipment, however, the same comes with an additional cost of approximately ₹50,000, thus making it unattractive.
- **High upfront cost –** The initial outflow for purchasing an EV is more than an ICE vehicle. For instance, the Ola S1 Pro is available for ₹ 1,43,500 whereas a Honda Activa sells for ₹92,500, making the EV costlier by Rs. 51,000. Although vehicle financing solutions are available, the terms of credit for EVs are usually unfavorable vis-à-vis the terms for ICE vehicles. This is primarily on account of the information asymmetry that exists among financial institutions regarding the EV technology.

Regulatory Framework

Coverage

Battery Waste Management Rules

Producers who put batteries on the market are mainly responsible for making sure that those batteries are refurbished or recycled as required by ***Extended Producer Responsibility (EPR)*** obligations.

According to the rules, an entity engaged in manufacture, import or sale of battery will be covered under the term 'Producer'.

Hence, OEMs are considered as 'Producers' under the law and are required to fulfill EPR obligations which include:

- Collection and recycling targets
- Prohibition on landfilling and mandatory recycling
- Registration and reporting on the CPCB portal
- Proper labeling of batteries
- Engaging with authorized recyclers and refurbishers

Our take-

Considering the primary obligation for waste management lies with the OEMs, they must prepare a supply chain strategy to keep a tab on disposal of end-of-life batteries in the coming years while also ensuring that prescribed percentage of recycled input is used in the manufacturing of upcoming EVs.

Other Regulations

Corporate Average Fuel Efficiency (CAFE) Norms

- The CAFE Norms set limits on CO_2 emissions of a manufacturer's entire vehicle fleet, not just individual models. They set an individual target of CO_2 per km for each OEM, computed from kerb weight & vehicles sold, which the OEM must meet.
- To meet CAFE targets, automakers are incentivized to produce and sell more electric & hybrid vehicles. EVs receive "super credits" that count as multiple vehicles in the CAFE calculations, allowing easier meeting the target of CO_2 per km.

Our take- Though an important step towards decarbonization and environment protection, it does not exactly consider market realities for OEMs. Government must work towards creating demand side incentives to make CAFE Norms economically viable and lucrative.

Charging Infrastructure Regulations

- The regulations prescribe minimum infrastructure requirements for Public Charging Stations (PCS) like transformer, charging equipment, parking space, etc. It also allows private charging at homes/offices and delicenses the setting up of PCS by any individual/entity.

Our take- This regulation is important for boosting demand of EVs as it addresses the concerns over charging infrastructure. This measure coupled with government support for incentivizing purchase of EVs can help in increasing the penetration of EVs.

Government Support

Faster Adoption and Manufacturing of Electric Vehicles (FAME)

In 2015, as a part of the National Electric Mobility Mission Plan, FAME scheme was launched. **FAME I** was implemented from April 2015 to March 2019 with an outlay of ₹895 crore.

FAME II – the second phase was launched in April 2019 with higher outlay of ₹10,000 crore, which provided demand incentives in the form of upfront subsidies to consumers and supported domestic manufacturing through localization requirements.

The demand incentives were available for E-buses, E-4W (EV, hybrid & plug-in hybrid), E-3Ws and E-2Ws.

Under the FAME scheme, incentive is passed on through the OEMs, who would then claim reimbursement of from the Government.

FAME II was phased out on March 31, 2024, and was temporarily replaced by the EMPS (covered further in detail).

The Government is planning to introduce **FAME III** with an outlay of about ₹10,000 crore, in the upcoming Union Budget, 2024.

FAME III will additionally focus on implementing stricter norms for ensuring the use of local components to bolster domestic manufacturing of EVs; and incentivize the use of electric trucks as a new segment besides electric two-wheelers and three-wheelers.[7]

Electric Mobility Promotion Scheme (EMPS) [April – July 2024]

EMPS is used as a bridge scheme to prevent disruption in EV sales due to the phasing out of the FAME II subsidy program in March 2024.

The Scheme has an outlay of ₹500 crore and targets to boost the adoption of electric two-wheelers and three-wheelers in the country. Unlike FAME II, EMPS does not cover E-buses and E-4Ws.

To encourage advance technologies, incentives are only extended to vehicles equipped with advanced batteries.

The Scheme provides for a demand incentive (reduced purchase price of EVs) of ₹5,000 per kWh of battery capacity of the vehicle; with a cap at 15% of the ex-factory price of the vehicle. Further, it also specifies the maximum ex-factory price of vehicles eligible for the incentive.

OEMs must fulfill prescribed criteria to avail the demand incentive.

In addition to commercial use vehicles, privately or corporate-owned electric two-wheelers will also be eligible under the scheme.

Our take- This Scheme does not offer demand incentives for the 4-wheeler category, which is struggling to penetrate the EV market. Further, there is a proposal on further reducing the CO_2 emissions limit under new CAFE Norms, which would mean OEMs would have to sell more and more EV cars in a market where there are no government incentives for the buyer. It would thus be expected from the Government to offer demand incentives for 4-wheelers in the upcoming FAME III scheme.

Other Policies

Production Linked Incentive (PLI) scheme for the Automotive Sector

The government approved the PLI Scheme for the Automotive Sector with a budgetary outlay of ₹25,938 crore, applicable for a total of five consecutive financial years, until March 31, 2028

This scheme provides incentives to boost domestic manufacturing of advanced automotive technology products, including electrical vehicles, and attract investments in the automotive manufacturing value chain.

E- Bus schemes

The government aims to introduce 50,000 electric buses over the next five years under the National Electric Bus Program (NEBP).

In addition to this, they have also announced the PM e-Bus Sewa Scheme, providing $2.4 billion to deploy and operate 10,000 electric buses across 169 eligible cities.

These buses will start hitting the roads in 2024, with deployments completed by 2026.

What's making NEWS?

Coverage

Are Hybrids killing the EV market?

- Hybrid vehicles can become a formidable rival to EVs as a substitute product.
- In 2023, 24% of consumers in India preferred hybrid car whereas only 10% of them preferred EV.
- Despite higher taxes and similar base cost structures, hybrids outsold EVs in first and last quarter of 2023
- GST rate for EVs is 5% whereas for hybrids it is 43%
- Bestseller in hybrid, Toyota Hyryder costs ₹19.34-23.44 lakh whereas bestseller in EV, Tata Nexon costs ₹16.82-22.63 lakh
- In 2023, 51 new models of hybrids were launched in India compared to just 29 for EVs!
- Incentivizing hybrids might end up undermining the EV story in India! On the other hand, without incentives, penetration of strong hybrids is likely to remain below 15% even by 2030.
- It would be interesting to see how the Government reacts to this in the upcoming Union Budget with the new FAME III policy.

Our take-

Hybrids can be seen as a bridge for transition from traditional fuels to fully electric. Though it costs slightly more than an EV, it addresses the range anxiety, charging convenience issues of the customers, and it can ride the 'EV buzz' to replace ICE vehicles, before EV takes over.

India's first big EV IPO

- Ola Electric has recently received IPO approval from SEBI and plans to raise ₹5,500 crores through primary issue at a potential valuation of USD 7 billion!
- The deal would also include a secondary sale of ₹1750 crore whereby 95.12 million shares will be offered for sale to public. Half of the total shares offered for sale will be sold by the founder and CEO, Bhavish Aggarwal.
- Its value in the last round of funding was USD 5 billion.
- The bankers and brokerage houses are bullish on account of expected increase in EV adoption, better cost economies for OLA, greater model possibilities, foray into electric-bikes, and entry into cell manufacturing.
- The company plans to use ₹1,600 crores, ~29% of the IPO proceeds, on Research & Development to build a fully integrated e-Mobility business.
- Around ₹1,226 crores, ~22% of the proceeds, shall be used towards CAPEX for capacity expansion of its cell manufacturing plant from 5 GWh to 6.4 GWh.

What's making NEWS?

Coverage

Tata's ambitious growth plans in a 'hot' market!

- For FY 24, Tata Motors had the highest R&D spend to revenue ratio of ~6.77% among global automotive OEMs.[8]
- Tata plans to invest ₹16000-18000 crores in the EV division by FY2030, targeting a 20% share of the Indian PV market by that period. This would involve launch of 6 new E-4Ws in the PV category, in addition to the existing 4 models.
- It aims to 'mainstream' EVs in India by offering a wider product range at competitive price points. To achieve the ambitious targets, Tata also plans to invest heavily in increasing its e-car dealerships to 50 in the coming 24 months.
- To solve for the infrastructure gaps in India, it plans to collaborate with private charge point operators to increase the public charging points tenfold in the country.
- Tata Motors plans to take on BYD and NIO in China with the launch of an electrified Jaguar Land Rover (JLR) Freelander by leveraging its Chinese JV, CJLR (Cherry – JLR).
- Tata has also invested heavily into hydrogen fuel cells as an alternative drivetrain technology in the commercial vehicle sector. It plans to build a massive factory, in collaboration with Cummins, to produce thousands of hydrogen ICE engines per year.

Integrating the Value chain is the key in EV industry!

- JSW group and SAIC Motors entered into a JV agreement to create a robust EV ecosystem with forward and backward integration of the supply chain.
- MG Motor India signed an agreement with Epsilon Group for EV charging solutions, and battery recycling & second-life expertise.
- Mahindra Last Mile Mobility Ltd partnered with Ecofy to offer tailored financing options for E-3Ws.
- Mahindra & Mahindra partnered with Adani Total Energies E-Mobility Limited to create an expansive EV charging infrastructure across the country.
- TVS Motors and Jio-BP announced collaboration to create a robust EV charging infrastructure.
- Olectra Greentech renewed its collaboration with BYD to build E-Buses till 2030.

What's happening globally?

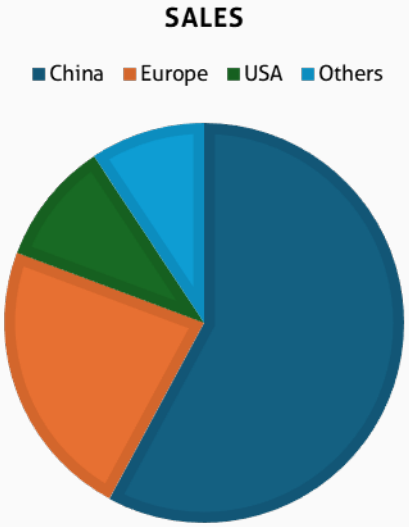
China leads the way in EV sales...

Global Market

The global EV market in 2023 was ~USD 388.1 billion, with the global EV fleet reaching 40 million by 2024. It is estimated that around 17 million EVs would be sold across the world in 2024 alone. The global market is expected to grow at a CAGR of 13.7% from 2023 to 2030, reaching USD 951.9 billion by 2030[9].

95% of the EVs sold in 2023 were in China, Europe and USA[10].

In 2023, BYD outpaced Tesla to become the best-selling EV company in the world with a global market share of around 20%[10].



...and in supply!

Global Supply & Trends

China accounts for roughly 60 % world's EV supply.

China has the capacity to produce 40 million vehicles, whereas the Chinese demand for the same is ~22million! To manage this overcapacity, Chinese OEMs rely on bulk exports. This would mean exporting their low cost EVs to North America & Europe where there is an existing EV market. This put the US and European OEMs like Tesla, Volkswagen, BMW in a spot as cheaper EVs entered their market.

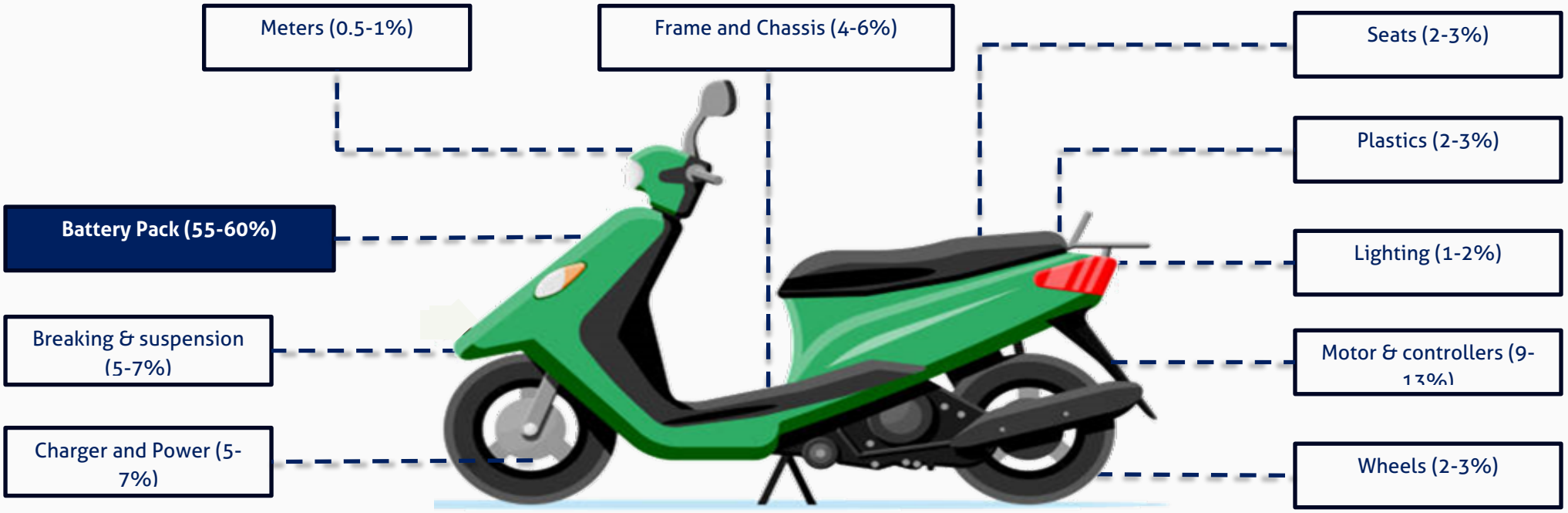
The US government imposed 100% duty on Chinese EVs in May this year to support the local OEMs, which were struggling to liquidate their inventory. Further, even Canada and the European Union are deliberating imposition of tariffs on Chinese EVs.

To counter this, Chinese OEMs are planning to set up facilities in countries such as Mexico & Brazil, which have a favorable tariff system with the US. Through this, Chinese EV Makers seek to override the tariffs on "Chinese EV" and manage their overcapacity.

In contrast to the above action taken by the US and the EU, we are observing increasing presence of Chinese EVs such as BYD and MG Motors in India. Even Xiaomi is looking to enter the Indian market. It would be interesting to see how the Indian OEMs respond to the technologically savvy EVs from China. **It would be essential for the Indian OEMs to work on creating a robust input supply chain, strong Indian brand identity and technological prowess to effectively counter the Chinese entrants.**

The Key Value Driver of an EV

Coverage



Source: Society of Manufacturers of Electric Vehicles

*In an EV purchase, the **Battery** influences the buying behavior of the customer; be it in the form of range, or cost, or calendar life, or charge time. Hence, it is important to go upstream the value chain and understand the Battery and Cell Manufacturing business – See you in the next publication, **EV Series #2**...!*

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About kcmLens

kcmLens is a special publication prepared by the Strategic Advisory team at K C Mehta & Co LLP. This publication is intended to provide deep dive into the value chain of a particular industry. The idea is to provide the reader an end-to-end understanding of a particular industry through the Lens of each segment of the value chain of that industry. This would act as a ready reference for professionals, who seek to understand their client's business and as an update document for business leaders for tracking recent developments in their industry.

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