

Special Report

Electric Vehicle Trends in India



Contents

Executive Summary 02

Market Overview & Outlook 03

Government Policies and Initiatives 06

Challenges faced by the EV Industry 08

Executive Summary

01

Awareness of green ecosystem boosts adoption of EVs

- In the face of stricter government regulations related to emissions, most automakers worldwide are switching to eco-friendly solutions by producing electric vehicles.
- Increased awareness among consumers on gradually switching to green lifestyle solutions is boosting EV sales.
- Consumers are willing to pay extra for the added value of being environmentally responsible.

02

EV Industry is in nascent stage in India

- The Indian EV market is ranked 5th in the world with market size of ~USD 1.42bn in FY2022 (Mar-22); it is anticipated to expand at 65.1% CAGR to ~USD 47.2bn by FY2029 (Mar-29).
- In India, EVs contribute less than 1% to total vehicle sales; it has the potential to grow to more than 5% in the near term.
- The fragmented EV market in India is in its inflection stages with a lot of new players.

03

Government policies and initiatives

- Increased push from the government to promote EV adoption in the country has opened gates for numerous business opportunities across three segments: mobility, infrastructure, and energy.
- Faster adoption and manufacturing of hybrid and Electric Vehicles (FAME) Scheme, Production-Linked Incentive (PLI) Scheme, and Battery-Swapping Policy are some of the policies launched by the government to speed up the transition to e-mobility.

04

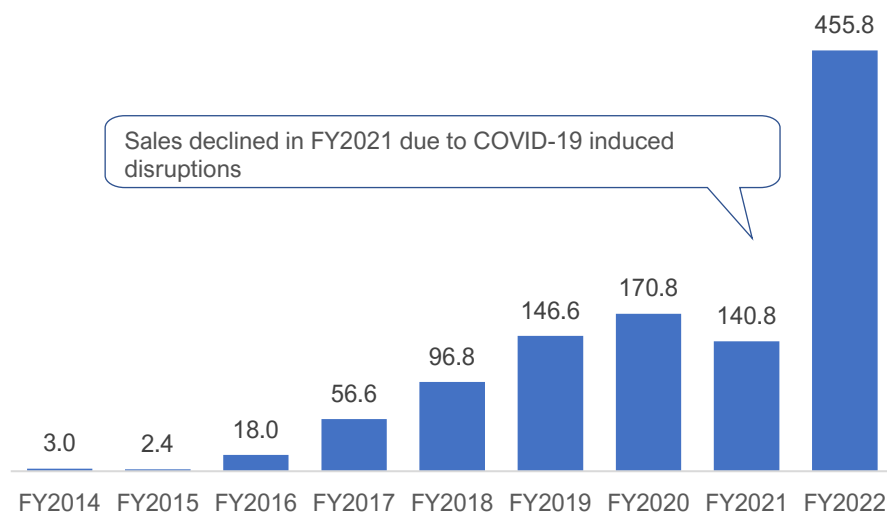
A shift in technology adoption

- With the shift in modes of transport and a series of longstanding challenges, the automobile industry is likely to be driven by major shifts in technology.
- The focus is on developing a stable and reliable infrastructure as well as providing home charging as a dependable and affordable option.
- Companies are tracking real-time data mapping, while automotive giants are looking to include this feature within the vehicles.

Market Overview & Outlook

Currently in its inception stage, India's EV market is poised to emerge as one of the leading electric vehicle markets in the world.

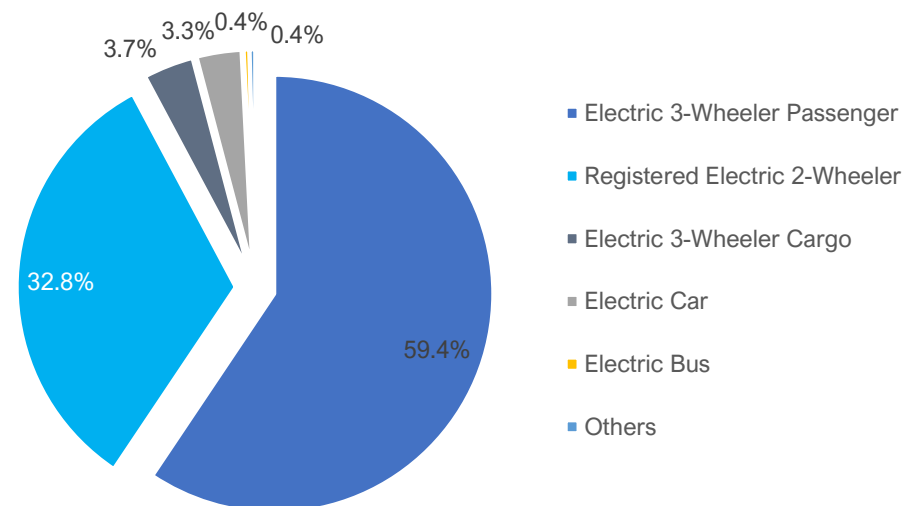
EV Annual Sales Trend in India (in '000)



- EV sales, which accounted for 1.3% of total vehicle sales in India during FY20-21(Mar-21), grew more than three times in FY22 (Mar-22).
- According to NITI Aayog, the total number of EVs in India is expected to reach 28 million units by FY30.
- As per the India Energy Storage Alliance report, a cumulative investment of INR 12.5trn (USD 156bn) in vehicle production and charging infrastructure would be required until FY30 (Mar-30) to meet India's EV ambitions.
- Two-wheelers (scooters, motorbikes) and three-wheelers (autos and rickshaws) dominate India's automotive sector as they play a significant role in last-mile mobility in the country.
- In line with the country's goal to achieve net-zero carbon emission by 2070, NITI Aayog targets EVs to account for 70% of all-electric commercial cars, 30% of private cars, 40% of buses, and 80% of two and three-wheelers by FY30.

Source: JMK Research Estimates, Vahan Dashboard, JMK Research; USD/INR = 80

Vehicle Category-wise Market Share (Apr-2014–Mar-2022)



Market Overview & Outlook

State-wise measures to boost EV sales

Others (191k units)

- Andhra Pradesh plans to achieve 1 million EVs by 2024
- Kerala targets 1 million EVs by Dec-22 and 6,000 e-buses in public transport by Dec-25
- Odisha has set a goal to achieve 20% EVs in all vehicle registrations by 2025, with primary focus on two-wheelers

Assam, Telangana, Gujarat (111k units)

- Telangana government targets to achieve 80% E2Ws and E3Ws, 70% commercial cars, 40% buses, 30% private cars, and 15% electrification of all vehicles by Dec-25
- Assam intends to deploy 200,000 EVs over the next five years, while also offering several incentives to EV manufacturers in the state
- Gujarat allotted INR 8.7bn to support the deployment of 0.2m EVs over the next four years

Bihar, Rajasthan, Tamil Nadu (192k units)

- Bihar has prioritized electrification of rickshaws; set up fast-charging stations at intervals of 50 km on state and national highways and charging stations at commercial and residential locations
- Rajasthan government has proposed State Goods and Services Tax (SGST) refund on all EVs registered before Mar-22
- Tamil Nadu aims to electrify 5% of buses every year by Dec-30

Uttar Pradesh (294k units)

- Targets to roll out 1 million EVs across segments by Dec-24 and deploy 1,000 electric buses by Dec-30
- Achieve 70% electrification of public transportation by Dec-30 on identified green routes in 10 identified EV cities

Delhi (140k units)

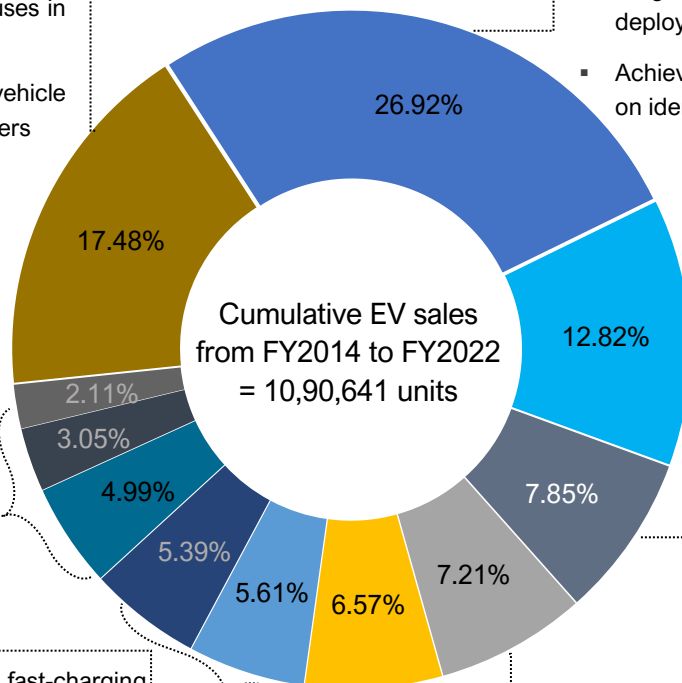
- Plans 50% e-buses for all-new stage carriage buses procured for the city fleet, starting with 1,000 e-buses from Apr-20

Karnataka (86k units)

- Aims to electrify 100% of three and four-wheeler cargo vehicles by Dec-30
- Introduce 1,000 EV buses for local public transport bus fleets

Maharashtra (79k units)

- Targets 10% share of EVs in all new vehicle registrations by Dec-25
- Attain 25% electrification of public transportation and last-mile delivery vehicle in five targeted urban agglomerations



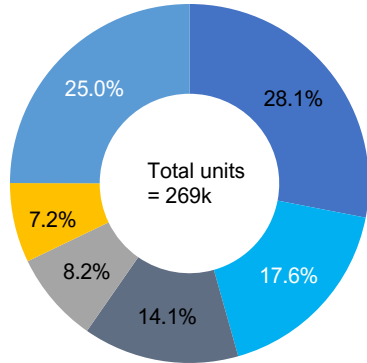
Source: JMK Research Estimates, Vahan Dashboard, Telangana RTO, Company Press Release, JMK Research

India's fragmented EV industry is driven by a few major players

Hero Electric is the oldest player in the market for two-wheelers, while Tata Motors holds the major market share in the four-wheeler segment

Top 5 electric two-wheeler OEMs in India

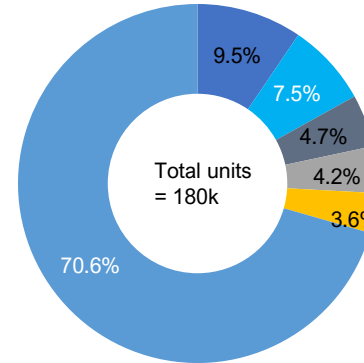
Mar-2022



1. Hero Electric (75.5k units)
2. Okinawa Autotech (47.3k units)
3. Ampere Vehicles (37.8k units)
4. Ather Energy (22.1k units)
5. Pure Energy (19.3k units)
6. Rest of the players (67.2k units)

Top 5 electric three-wheeler OEMs in India

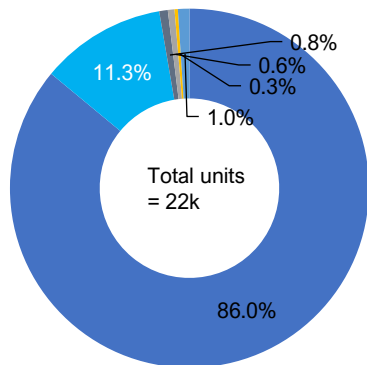
Mar-2022



1. YC Electric (17.1k units)
2. Mahindra Electric (13.4k units)
3. Saera Electric (8.5k units)
4. Champion Polyplast (7.5k units)
5. Dilli Electric (6.5k units)
6. Rest of the players (127k units)

Top 4 electric four-wheeler OEMs in India

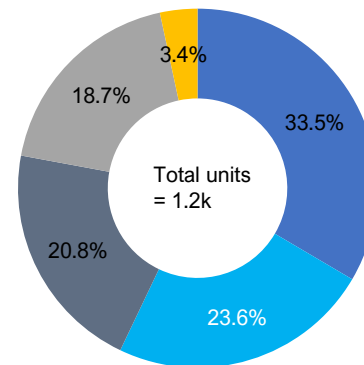
Mar-2022



1. Tata Motors (18.6k units)
2. MG Motors (2.4k units)
3. Mahindra (0.2k units)
4. Hyundai (0.1k units)
5. Rest of the players (0.3k units)

Top 4 electric bus OEMs in India

Mar-2022



1. PMI Electric Mobility (397 units)
2. Tata Motors (280 units)
3. JBM Auto (247 units)
4. Olectra Green Tech (222 units)
5. Rest of the players (40 units)

Source: JMK Research Estimates, Vahan Dashboard, Telangana RTO, Company Press Release, JMK Research

Government policies and initiatives

Promote business opportunities across EV franchising, EV OEM market, battery infrastructure, solar vehicle charging and battery swapping technology

National Electric Mobility Mission Plan 2020 (NEMMP)

- Under the NEMMP, the **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles** in India (FAME India) scheme was launched in **April 2015**.
- FAME I scheme (2015–2019) primarily focused on **demand creation, technology platform, pilot projects, and charging infrastructure**. It had a budget of **INR 8.95bn** (USD 0.1bn) and engaged 22 OEMs that registered 80 models of electric and hybrid vehicles.
- FAME Phase II (2019–2021) is a **three-year extension** of FAME I, with an allocated budget of **INR 100bn** (USD 1.25bn) to support the **electrification of public and shared transportation**. It offers subsidies for **~1.6m EVs** consisting of buses, three-wheelers, four-wheeler passenger vehicles, and two-wheelers. Moreover, the setting up of **charging infrastructure** is supported.
- According to NITI Aayog, all the EVs eligible under the FAME II scheme are expected to **save 5.4m million tons** of oil equivalent (MTOE) demand and 7.4m tons of net CO₂ emissions over their lifetime.

Vehicle Category	Two - wheelers	Three - wheelers	Four - wheelers	Buses	Total
No. of Vehicles incentivized	10,00,000	5,00,000	55,000	7,000	15,62,000
Oil Savings (MTOE)	0.9	2.3	0.8	1.4	5.4
Oil Savings (INR crores)	3,000	7,200	2,500	4,500	17,200
Net Energy Savings (Petajoules)	35.7	73	19.4	41.7	169.9
Net CO ₂ Emissions Savings (Mn tons)	2.6	3.2	0.1	1.5	7.4

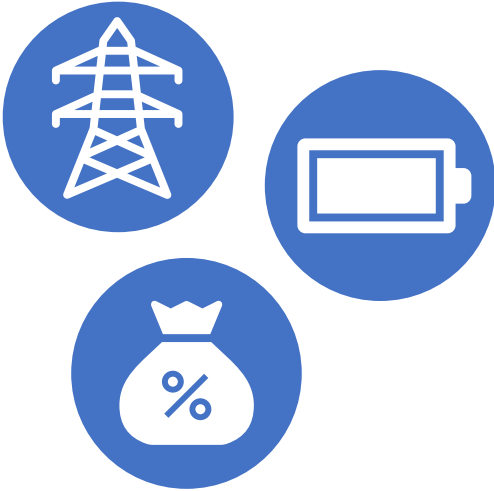
Amendments to FAME II Scheme

- In June 2021, the Ministry of Heavy Industry further **amended** and **extended** the FAME II scheme **until 2024** to push EV demand.
- Under the revised policy, the subsidy per e2W (linked to the battery size) was **increased to INR 15,000 per Kilowatt-hour (kWh)** from INR 10,000 per kWh.
- Additionally, e2W manufacturers producing vehicles with a **minimum range of 80 km** on a single charge and a minimum **top speed of 40 km** per hour would be eligible for a government subsidy, enabling **40% discount for customers** compared to the previous discount of 20%.
- Government subsidies are expected to have a cascading effect on the prices of e2Ws, thus lifting market demand. With this, India is expected to achieve **~6 million sales** of e2Ws by FY25 (Mar-25).

Source: IBEF, NITI Aayog, Rocky Mountain Institute (RMI), India Briefing; USD/INR = 80

Government policies and initiatives

Other schemes introduced by the Government of India

Production-Linked Incentive (PLI) Scheme	Battery Swapping Policy	Other schemes and initiatives
<ul style="list-style-type: none">▪ The scheme offers an incentive of ~INR 261bn (USD 3.27bn) over five years to augment the use of advanced technologies. The government will offer a maximum of 18% incentives considering the incremental turnover of a company.▪ The scheme comprises two components: Champion OEM Incentive Scheme and Champion Component Incentive Scheme.▪ To boost domestic manufacturing and develop advanced technologies lacking in India, the government is offering incentives to companies, thus reducing dependency on imports. It is estimated to generate INR 425bn of investments and create more than 75,000 jobs in the EV sector.▪ This will further help cut down the cost of manufacturing, thereby benefiting the consumer, industry, and environment.	<ul style="list-style-type: none">▪ India intends to achieve net-zero emissions by 2070 by decarbonizing high greenhouse gas (GHG) intensive sectors such as transport and energy.▪ Accordingly, NITI Aayog submitted the first draft of the Battery Swapping Policy 2022 in April 2022, to foster interoperability of two-wheeler and three-wheeler EVs.▪ Implementation is envisaged in two phases: Phase I focuses on metropolitan cities with a population greater than four million, and Phase II will focus on other major cities.▪ The state authorities will be mandated to fast-track the documentation process within five days of application through a single-window clearance portal. This will churn out huge momentum for the otherwise slower procedure of setting up capital infrastructure and land allotment.	<ul style="list-style-type: none">▪ Tax exemption for Indian buyers of up to INR 1,50,000 (USD 1,877) under section 80EEB of income tax while purchasing an EV (2Ws or 4Ws) on loan.▪ Customs duty reduction on nickel ore (a key component of lithium-ion battery) from 5%.▪ State-wise reduction of road tax and other incentives. 

Source: IBEF, NITI Aayog, Rocky Mountain Institute (RMI); USD/INR = 80

Challenges faced by EV industry in India

Scope of growth depends on the availability of capital for OEMs, battery manufacturers, and charge point operators as well as improvements to infrastructure and diversified options for consumers



Battery charging infrastructure: Lack of sufficient charging options and lower density of charging network are among the main reasons for lesser preference for EVs in India. As of Feb-2022, India had 1,640 operational public EV charging points across nine Tier I cities. However, the government has proposed to set up charging stations in a 3×3 km grid area.



Higher prices: The significant (3-4x) price disparity between EV and Internal Combustion Engine (ICE) counterparts is one of the most prominent barriers to the adoption of EVs in India. This results in expensive research and development costs, battery expenses, and a shaky raw material supply chain.



Limited options with lower mileage: As the EV market is in its infant stages, customers have access to limited options. Likewise, lack of longer-range vehicles and heavy battery capacity in existing products pose hurdles to EV adoption in India. Many Indian consumers prefer long-distance travel on a single charge, which is not feasible with the current battery technology installed in electric vehicles.



Dependency on imports: Indian battery makers are highly dependent on imports due to lack of lithium and other chemicals used in battery manufacturing. This is a major setback for foreign companies willing to invest in India's EV industry. Meanwhile, companies in India are joining forces with overseas entities providing resources and are transferring more raw material production chains to India.



500+

Strong, professional team across multi-disciplinary domains

2500+

Global clients

120+

Sectors and sub-sectors researched by our analysts

80+

Countries where we have delivered projects

ABOUT ARANCA



Growth Advisory

CXOs in Strategy, SBUs, Sales, Marketing, CI/MI, Innovation



Valuation & Financial Advisory

CFOs in Start-ups, PE/VC Firms, Corporate M&A Teams, Mid-market Companies



Technology | IP Research & Advisory

R&D, Tech Scouting, Open Innovation, IP Teams, Product Development



Investment Research & Analytics

Brokerage, Hedge Funds, IRPs, I-Banks, AMCs, Investor Relations

Connect with our Team



Ashwinikumar Dole

Associate Vice President
Investment Research

+91 22 3937 9999
ashwinikumar.dole@aranca.com



Pragita Gupta

Senior Manager
Investment Research

+91 22 3937 9999
pragita.gupta@aranca.com



Raashi Shah

Assistant Manager
Investment Research

+91 22 3937 9999
raashi.shah@aranca.com



Aparna Rane

Senior Analyst
Investment Research

+91 22 3937 9999
aparna.rane@aranca.com

For more details: www.aranca.com | <https://www.linkedin.com/company/aranca> | <https://www.aranca.com/knowledge-library>

Decide Fearlessly

From startups to the Fortune 500, private equity and global financial firms, Aranca is the trusted research and advisory partner for over 2500 companies



www.aranca.com



This material is exclusive property of Aranca. No part of this presentation may be used, shared, modified and/or disseminated without permission.
All rights reserved.