

Special Report

India's Electric Vehicle Transition Roadmap



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Indian Electric Vehicle Market

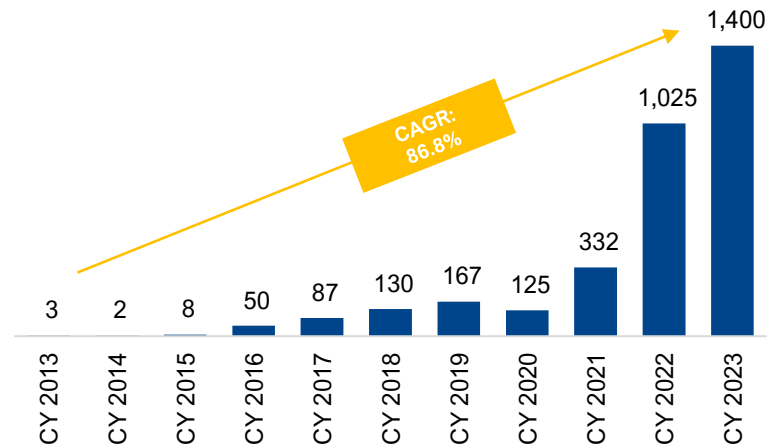
Industry Overview



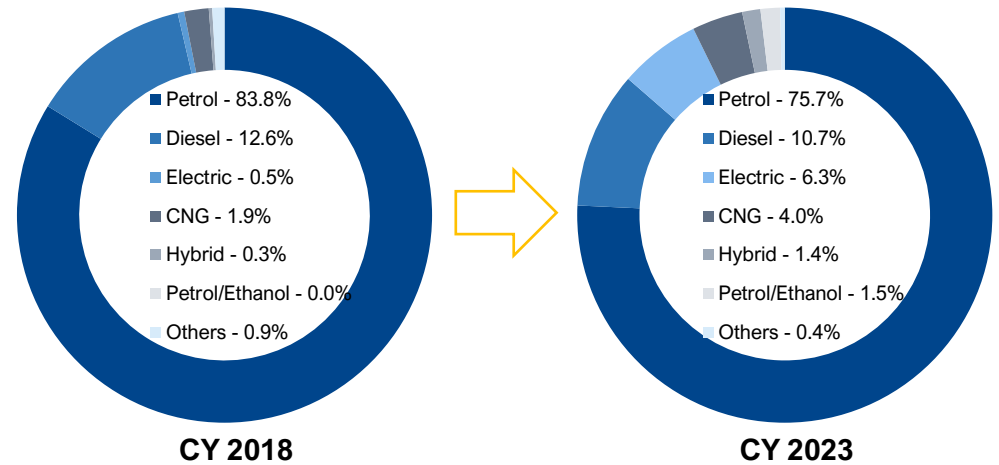
Electric vehicles (EVs) have recently gained remarkable traction as an efficient alternative to traditional ICE¹ cars. Advances in battery technology, growing charging infrastructure, and increasing consumer demand have made EVs a feasible option for many globally.

EV Registration

Unit '000s



Comparative Analysis of EV Share



Need for Transition

- As India is the **world's third largest importer of oil** by volume, the transition from oil would aid the country both environmentally and economically.
- By 2030, the government is **targeting 30% EV penetration**, with the segment's volumes set to cross **annual sales of 10 mn units**.
- As per CEEW², on achieving this target, India could **save up to \$14 bn on its oil import bill**.

Growth in EV Space

- From 2018 to 2023, the share of petrol and diesel vehicles reduced from 96.4% to 86.4%. This has been partly replaced by EVs (BOVs³), which **increased from ~0.5% to 6.3%**.
- The share of hybrid vehicles went up from 0.3% to 1.4%. These vehicles burn gasoline (fossil fuel) and thus emit some gases.
- EVs have no tailpipe emissions** and are completely environment friendly.

Investment Opportunities

- The automobile industry contributes **>7% to India's GDP** and **~49% to manufacturing GDP**.
- With growing EV awareness and demand, deals worth **\$2.5 bn were announced in the EV ecosystem** during January to October 2023 vis-a-vis \$1.8 bn in CY 2022 (up **42%**). This includes funding for OEMs⁴, battery tech, and EV charging infrastructure.
- This is also supported by **100% FDI through the automatic route in the EV space**.

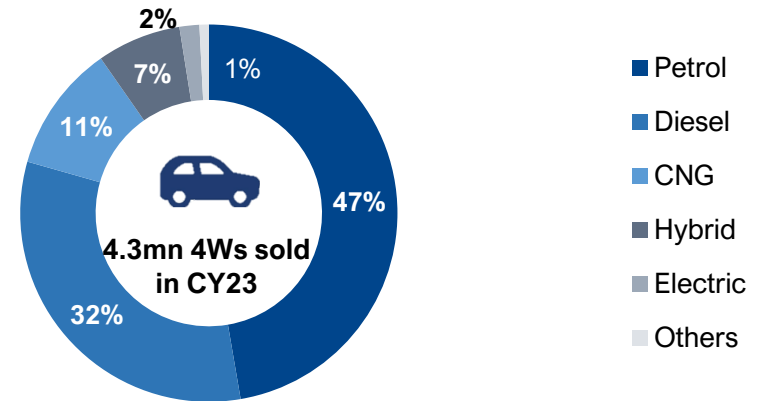
Note: (1) Internal-Combustion Engine, (2) Council on Energy, Environment and Water; (3) Battery Operated Vehicle (4) Original Equipment Manufacturers, (5) Data for CY 2023 is up to 6th Dec'23
Source: vahan.parivahan.gov.in, Aranca Research

Electric Four-Wheeler Market

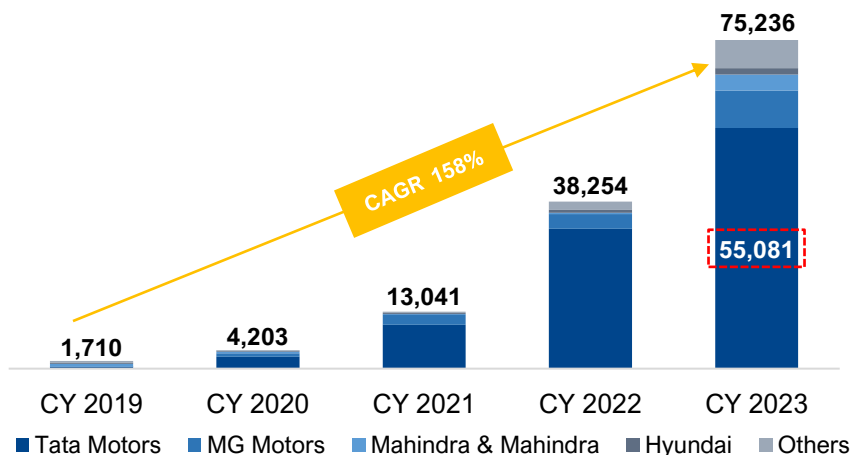
Industry Overview

- The **share of electric four-wheelers (E4Ws)** in India has grown in last five years **from 0 to ~2%**. As per McKinsey, 70% of tier I car consumers are willing to opt for an electric car as their next vehicle compared to the global average of 52%.
- Though the ICE vehicle market has seen growth in recent years, the rapid transition to electrification indicates a conclusive inflection point for India.
- **E4W registrations have almost doubled** to 75,238 in 2023 from 38,254 in 2022.

E4W Share



E4W Players



- Tata Motors dominates the E4W segment with a **market share of ~75%**.
- Unlike the E2W industry, where startups have been the biggest players, **Tata Motors, being a legacy brand, has bucked the trend** and remains unchallenged in the E4W market.

Note: (1) Data for CY 2023 is up to 6th Dec'23; Source: vahan.parivahan.gov.in, McKinsey Report, Aranca Research

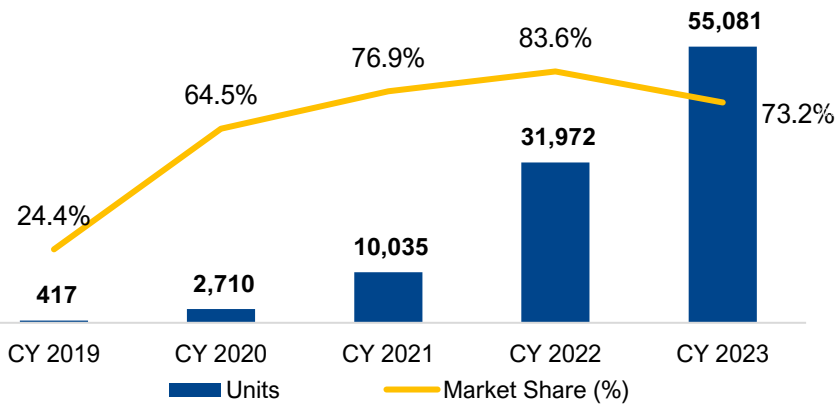
Electric Four-Wheeler Market

Case Study: Tata Motors EV



Since the introduction of the EV concept to the Indian public, Tata Motors has pioneered in establishing itself as the most reliable and accessible entry point for consumers.

Tata Motors EV – Registrations and Market Share



Strategy

- While many manufacturers were creating EV models from scratch, Tata Motors took the cost-effective step of **converting an existing ICE model into an EV.**
- EVs were **priced only 20–25% higher** than conventional cars.
- The Nexon EV model starts at **~INR1.5 mn.** In many states, the **EV was launched at a lower rate than the automatic diesel variant** owing to various government incentives.



- Tata Motors is **focused on EVs, commercial vehicles, and heavy trucks**; hydrogen trucks are next in line.
- The brand has **no plans to bring in hybrid vehicles**, a technology that ICE market leader Maruti Suzuki, along with its alliance partner Toyota, has adopted.
- It has **committed ~\$2 bn (~INR165 bn)** for EVs through its subsidiary Tata Passenger Electric Mobility in FY2024.

Positive Feedback

Word of mouth seeded early success for Tata Motors' E4Ws.

Government Incentives

The government's policy on **GST reduction** (5% on EV vs 28% on ICE) and **tax deduction on interest on EV loans** boosted sales.

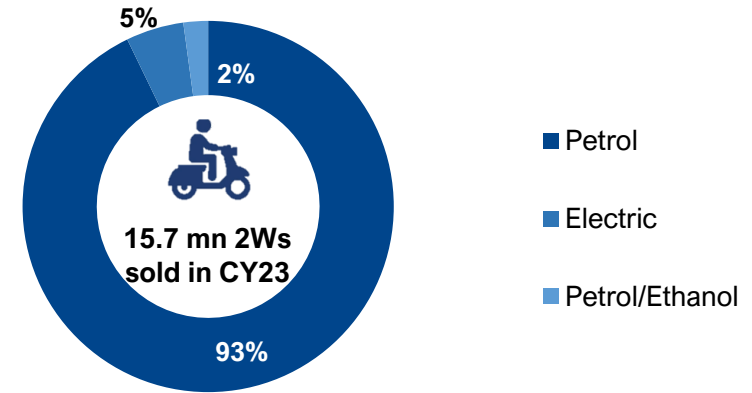
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Electric Two-Wheeler Market

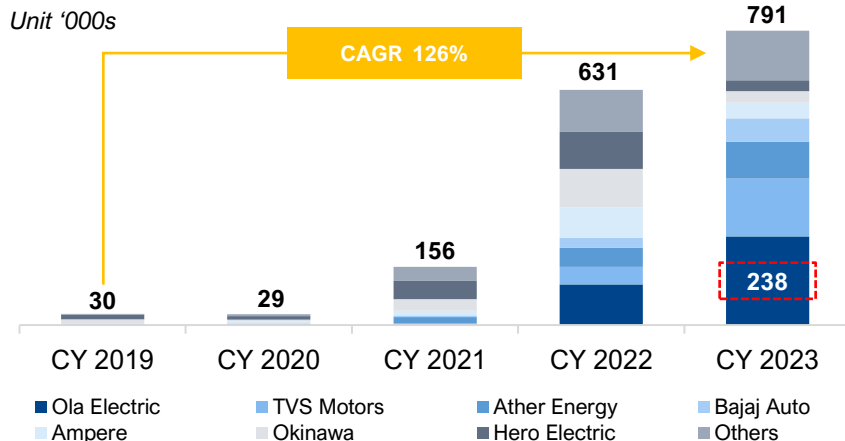
Industry Overview

- India is one of the world's fastest-growing markets for E2Ws. E2W registrations have **gained traction in the last three years**, with 0.2% of total E2W registrations in 2020 to **5% in 2023**.
- The spike is attributed to the need for **personal mobility**, increased **environmental awareness**, rise in **gasoline prices**, and **FAME incentives** by the government.
- According to a report by IBEF¹, **E2W sales penetration in India might surpass 80% by 2030**. However, concerns about battery life, vehicle safety, and lack of charging infrastructure could pose a challenge in achieving this goal.

E2W Share



E2W Players



- Total E2W **registrations in 2022 jumped by 3x YoY** to 631,462.
- The E2W market is dominated by three key players: **Ola Electric with ~30% share** in 2023, followed by **TVS Motors (~20%)** and **Ather Energy (~13%)**.
- Despite being the first major entrant in India's EV market without an automotive manufacturing background, **Ola was quick to usurp the market share of players such as Okinawa and Hero Electric**.

Note: (1) India Brand Equity Foundation, (2) Data for CY 2023 is up to 6th Dec'23; Source: vahan.parivahan.gov.in, Aranca Research

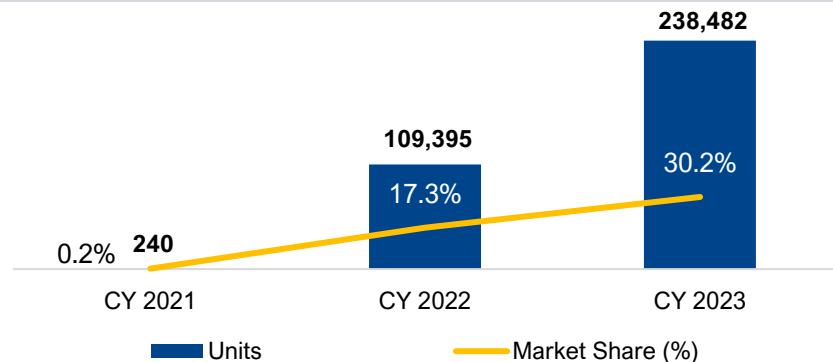
Electric Two-Wheeler Market

Case Study: Ola Electric

OLA ELECTRIC

Ola Electric sparked a revolution in the E2W Industry with the launch of Ola S1.

Ola Electric – Registrations and Market Share



Company Overview

- Ola, originally known for its ride-hailing services, **pivoted toward electric mobility** with a strong focus on 2Ws and **created a subsidiary Ola Electric** to achieve its E2W ambition.
- Leveraging its brand identity, **Ola captured ~17% market share in 2022**, its year of launch, with 109,395 registrations.



Business Strategy

- Ola has amped up its R&D spending to **pursue a vertical integration** strategy.
- It intends to **develop competencies** in cell and motor technology, and **autonomous driving**, thereby controlling technology and manufacturing cost.
- Ola is working on **enhancing customer experience** by providing top-notch service and maintenance.



Scaling Up

- With the aim of sustaining its market leader position and catering to rising demand, Ola has **set up a factory in Tamil Nadu** that has an **annual capacity of 10 mn E2Ws** across 10 assembly lines.
- It is dubbed the “**future factory**” as the plant is highly automated with **3,000 robots** deployed for production.



Road Ahead

- Over the next 2–3 years, Ola plans to roll out a **multi-faceted strategy**.
- It is looking to launch a series of EV products, including **more scooters, motorcycles** (by 2024), **sedans**, and **SUVs** (by 2025).
- Next, it wants to launch a **Robotaxi** with autonomous capabilities to complete the product range.

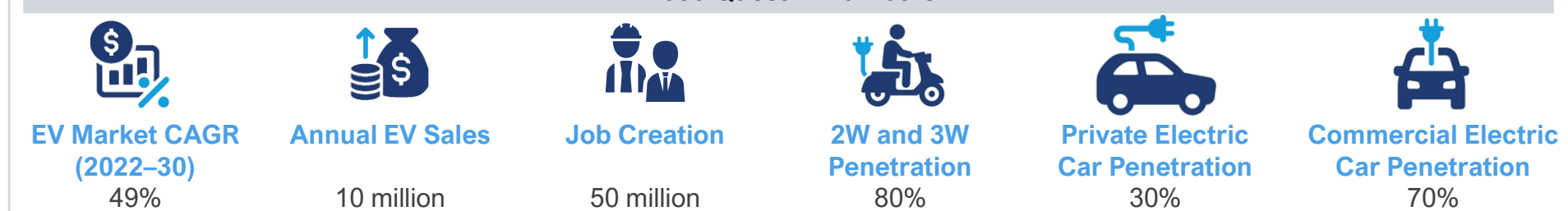
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Charging Electric Vehicle Industry with Policy Reforms

Supportive Government Policies and Increasing Consumer Awareness Drive EV Movement

Scheme Name	Particulars				Aftermath
FAME India Scheme – Phase II	Encourages faster EV adoption by offering upfront incentive on purchase	To support 1 mn E2Ws, 0.5 mn E3Ws, 55k electric cars, and 7k buses via subsidies	Outlay of INR 100bn - 86% for creating demand - 10% for charging stations		- 1.6mn EVs sold - 11,902 Operational Public Charging Stations
PLI¹ for the Automotive Sector	Boosts domestic production and attracts investment in AAT ² products	Part 1: Champion OEM, which would make EVs or hydrogen-powered vehicles	Part 2: Component Champion, which will make high-value components		, Attracted investment of \$ 9b against target of \$ 5.1b from 2019 to 2023
PLI for ACC³ Battery Storage	Launched in 2021 to expand India's ACC manufacturing capabilities	Incentivizes setup of giga scale ACC manufacturing facilities of 50 GWh	Budgetary outlay of INR 181 bn over a period of five years		Ola, ACC Energy & Reliance to build 30GWh of production capacity
Others	Reduction in GST on EVs from 12% to 5%	Reduction in GST on charging stations from 18% to 5%	Customs duty exemption on import of raw material for EVs	EVs are exempted from permit requirements	Waiver on road tax on EVs

2030 Quest in Numbers



India's rigorous efforts in promoting EVs, manufacturing proficiency, expanding market, and focus on charging infrastructure and renewable energy make it as the next center of EV production.

Note: (1) **PLI** - Production-linked incentive; (2) **AAT** - Advanced automotive technology; (3) **ACC** - Advanced chemistry cells are new-generation advance energy storage technologies that can store electric energy as electrochemical or chemical energy and convert it back to electric energy when required; (4) **GWh** – Giga Watt hour

Source: Government guidelines, Aranca Research



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