EV Report FEB 2025

GYANIKI

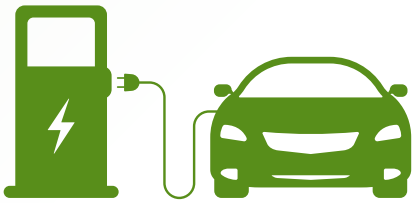
YOUR ACCESS TO FUTURE MOBILITY

SMART EV FLEET MANAGEMENT SOLUTIONS

INDIA EV SALES JAN 2024

TOP MONEY MOVEMENT IN MOBILITY WORLD

NEWS, JOINT VENTURES & PARTNERSHIPS



UPCOMING EV SHOW

EV LAUNCH

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'gyaniki' undertakes specialized and customized research in the areas of Future Mobility.
'gyaniki' provides an online repository for understanding the mobility ecosystem.
'gyaniki' database covers manufacturers, suppliers, technologies and ecosystem players in mobility including Electric, Autonomous, ADAS, Connected and Shared vehicles.
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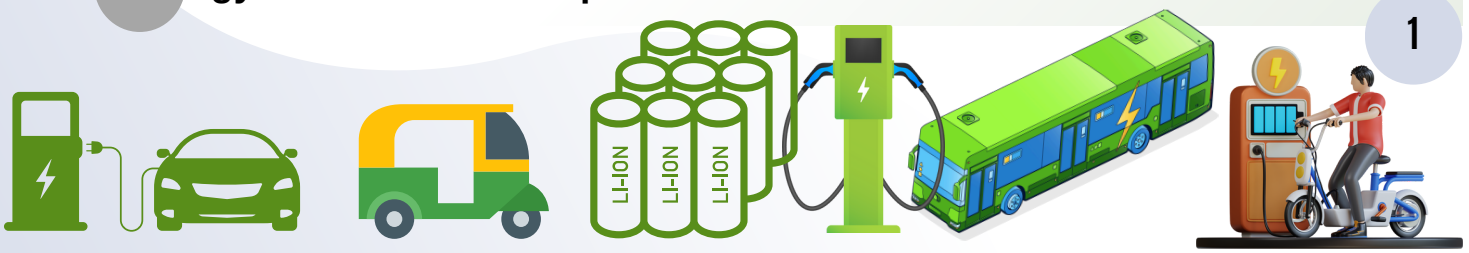


Smart EV Fleet Management Solutions

In the rapidly evolving landscape of fleet management, electric vehicles (EVs) are proving to be a game changer. They offer innovative solutions that address common challenges faced by commercial vehicle fleet managers, such as inefficient routing, unplanned stops, and breakdowns due to poor maintenance. By leveraging technology and connectivity, EVs provide unprecedented visibility into the fleet management process, significantly enhancing efficiency, safety, and sustainability. Here are four smart fleet management solutions that underscore the advantages of adopting EVs.

Dynamic Monitoring with Predictive Maintenance: One of the most significant benefits of EVs is their ability to utilize telematics and IoT sensors for real-time monitoring of vehicle health. Fleet owners can track crucial metrics such as battery charging levels and tire pressure, allowing for proactive maintenance planning. This predictive maintenance capability minimizes disruptions and breakdowns, ultimately boosting operational efficiency. Studies have shown that inadequate maintenance can escalate operational costs by up to 30%, directly impacting profitability for businesses reliant on logistics and transportation.

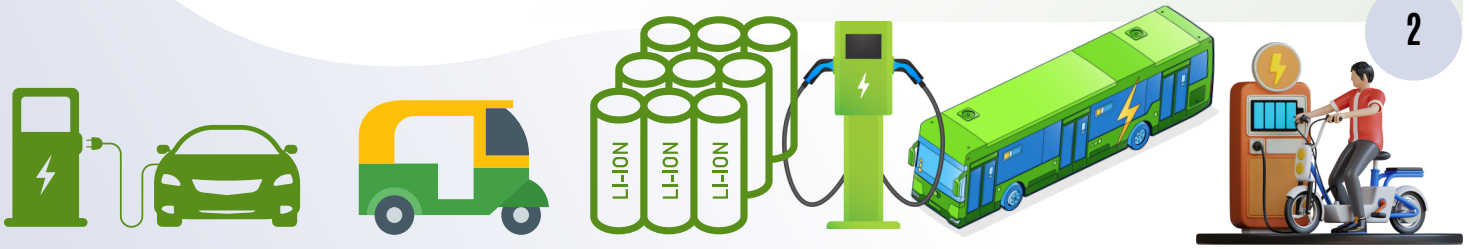
AI-Optimized Route Planning: Imagine a navigation system enhanced by artificial intelligence (AI) that not only analyzes traffic but also considers weather conditions, charging station availability, and typical driving patterns. AI-powered route planning optimizes daily routes for fleet vehicles, leading to significant time savings and improved battery efficiency. This innovative approach not only enhances profitability but also reduces operational costs, making it a vital tool for fleet managers aiming to maximize efficiency.

Advanced Driver Assistance Systems (ADAS):

ADAS technologies serve as an additional layer of safety for drivers, alerting them to potential hazards and assisting in emergencies. Features such as collision warnings, lane-keeping assistance, and blind-spot monitoring significantly reduce risks associated with challenging road conditions. Moreover, advanced systems like Night Vision Assistance (NVA) enhance safety during low visibility situations. For fleet operators, these technologies translate into improved safety for personnel and cargo, reduced vehicle downtime, and minimized financial losses associated with accidents.

Smart Charging Solutions for Cost Efficiency: Effective management of charging schedules is crucial in optimizing the operational costs of an EV fleet. Dynamic charging solutions allow fleets to charge vehicles during off-peak hours, potentially saving up to 30% on energy costs while utilizing cleaner energy sources. Some systems prioritize charging for vehicles requiring immediate readiness, ensuring that fleets operate efficiently without incurring unnecessary expenses. By balancing energy needs with cost management, these solutions not only enhance overall efficiency but also support environmental sustainability goals.

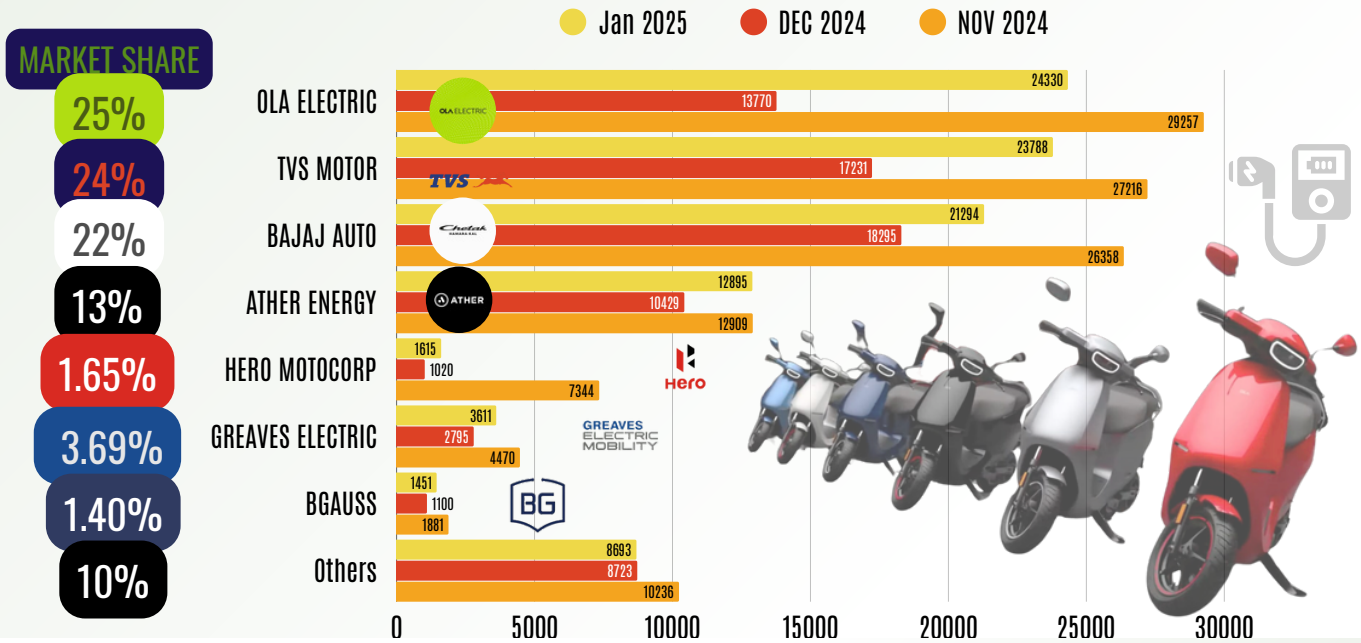
Future Mobility: Leading the Charge As companies increasingly recognize the transformative potential of EVs in fleet management, Future Mobility stands out as a leader in this space. Their innovative products integrate cutting-edge technology with user-friendly interfaces to provide comprehensive solutions tailored to the unique needs of electric fleets. With a focus on sustainability and efficiency, Future Mobility is committed to revolutionizing how businesses manage their fleets in an environmentally responsible manner. The global shift towards electric vehicles is not just a trend; it represents a fundamental change in how transportation operates. By adopting smart fleet management solutions powered by EV technology, companies can significantly enhance their operational efficiency while contributing to a greener future.



India EV 2W Sales JAN 2025

TOP EV-2W Sales by OEM

2W EV SALES JAN 2025 INDIA - 97,677 UNITS



Ola Electric, which had lost its No. 1 rank to Bajaj Auto in December 2024, has bounced back in January. With 24,330 EVs sold, it pipped TVS to the title by 542 units. TVS, which was ahead in each of the first four weeks of the month, sold fewer units compared to Ola in the January 29-31 period. Of the 97,677 e2Ws sold in January, Ola, TVS, Bajaj Auto and Ather Energy command an 84% share.

India's Electric 2W Market: JAN 2025

Ola Electric Regains No. 1 e2W Title in January 2025, Outselling TVS and Bajaj Auto

Ola Electric has reclaimed its position as India's top-selling electric two-wheeler (e2W) brand in January 2025, outperforming TVS Motor Co. and Bajaj Auto. After briefly losing its No. 1 rank to Bajaj Auto in December 2024, **Ola Electric** made a strong comeback by selling **24,330 units**, surpassing TVS by 542 units. **TVS**, which was leading throughout the first four weeks of January, ultimately finished with **23,788 units.**

Market Overview: Strong Growth in e2W Sales

The Indian e2W market witnessed a significant increase in retail sales, with **97,677 units** sold in January 2025, reflecting a 19% year-on-year (YoY) growth compared to **January 2024's 82,149 units**. The April 2024-January 2025 cumulative sales reached 941,552 units, up 30% YoY from 725,418 units in the same period the previous year. With total e2W sales standing at 945,112 units between April 2024 and January 2025, the industry is on the brink of surpassing the FY2024 record of 948,501 units.

Ola Electric: Market Leader Once Again

Ola Electric's strategic push in the last three days of January proved decisive in reclaiming the top spot. The company, which had ranked No. 4 in the first week and No. 2 in the fourth, surged ahead by selling an additional 3,598 units between January 29-31, while TVS sold only 1,884 additional units in the same period.

Ola Electric's Performance

- January 2025 Sales: **24,330 units** (-25% YoY)
- Market Share (January 2025): 25%
- FY2025 Market Share: 33%

TVS Motor Co: Strong Contender at No. 2

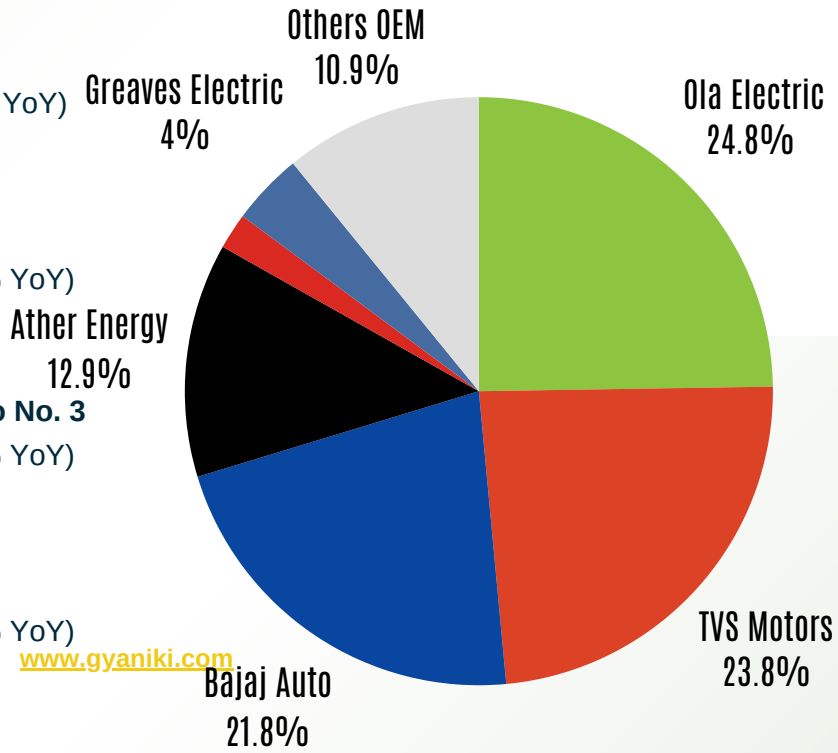
- January 2025 Sales: **23,788 units** (+55% YoY)
- Market Share (January 2025): 24%
- FY2025 Market Share: 20%

Bajaj Auto: Impressive Growth but Falls to No. 3

- January 2025 Sales: **21,294 units** (+96% YoY)
- Market Share (January 2025): 22%
- FY2025 Market Share: 18.5%

Ather Energy: Holding Firm at No. 4

- January 2025 Sales: **12,895 units** (+37% YoY)
- Market Share (January 2025): 13%
- FY2025 Market Share: 11%

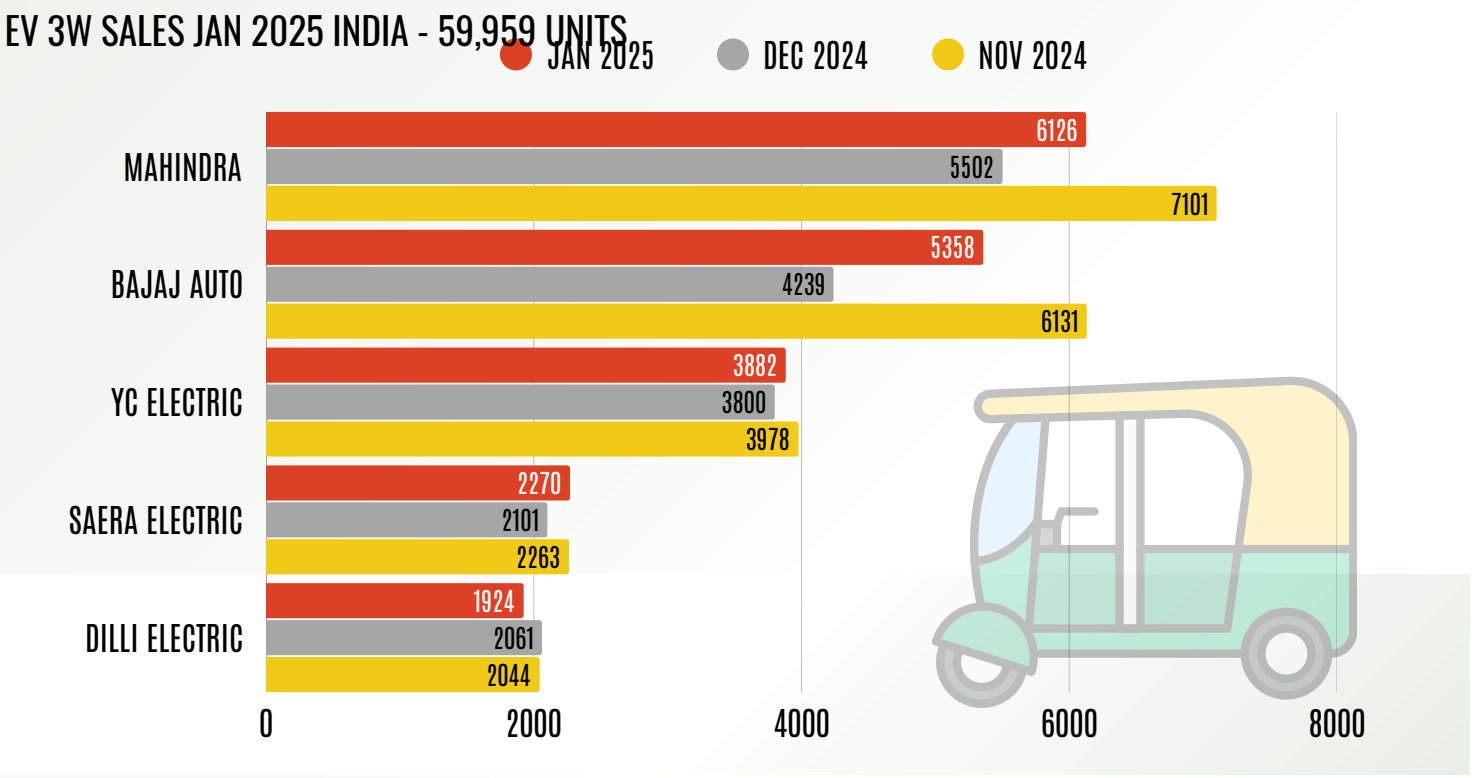


Looking Ahead: Competitive Landscape & Future Outlook

With the top four brands commanding an 84% market share, the battle for dominance in India's e2W segment remains fierce. Ola Electric's aggressive product strategy, including the launch of **Gen 3 scooters** and **upcoming S1 Z and Gig models**, will be pivotal in sustaining its lead. Meanwhile, TVS and Bajaj Auto continue to expand their product lines and dealership networks, setting the stage for intense competition in the months ahead.

India EV 3W Sales JAN 2025

TOP 5 EV 3W Sales Trend by OEM



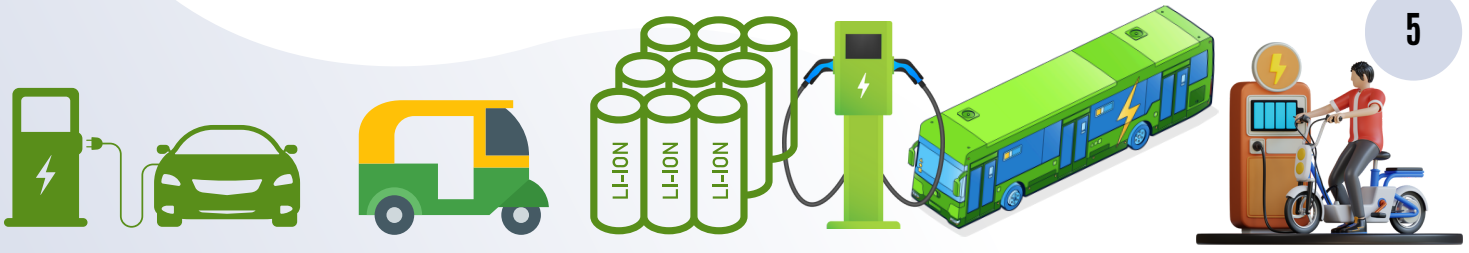
The Indian electric three-wheeler (E3W) market maintained its upward trajectory in January 2025, reflecting strong demand in both the passenger and goods segments. With sustainability and cost-effectiveness driving adoption, key players in the industry recorded impressive sales, reinforcing the E3W segment's critical role in India's EV revolution.

Electric Three-Wheeler Goods Segment: Bajaj Auto Leads the Pack

The electric three-wheeler goods category saw a total of **2,490 units sold in January 2025**, driven by increasing demand for last-mile delivery solutions and logistics efficiency. Bajaj Auto Ltd. emerged as the leader, with its strong product lineup catering to commercial fleet operators.

Key Highlights

- **Bajaj Auto Ltd. (480 units, 19.3% share)**: Bajaj led the market with its robust electric cargo solutions, catering to e-commerce and small-scale logistics operators.
- **Mahindra Last Mile Mobility Ltd. (455 units, 18.3% share)**: A close second, Mahindra continued its stronghold in the goods segment with reliable and efficient models.
- **Omega Seiki Pvt. Ltd. (368 units, 14.8% share)**: The company's focus on performance and affordability helped it secure a solid third place.
- **Euler Motors Pvt. Ltd. (273 units, 11.0% share)**: Steady sales indicate increasing fleet adoption of Euler's electric cargo vehicles.
- **Piaggio Vehicles Pvt. Ltd. (157 units, 6.3% share)**: Piaggio's presence in the cargo segment is growing, though it remains a niche player.



India's Electric 3W Market: A Comprehensive Overview (CY 2024)

Electric Three-Wheeler Passenger Segment: Mahindra Dominates, Bajaj Close Behind

The passenger E3W category continues to drive the bulk of sales, with a total of 13,359 units sold in January 2025. This segment is a key enabler of affordable urban mobility and a preferred choice for ride-sharing services. Mahindra Last Mile Mobility Ltd. led the segment, narrowly beating Bajaj Auto Ltd.

Key Highlights

- **Mahindra Last Mile Mobility Ltd. (4,986 units, 37.3% share)**: The undisputed leader in the passenger E3W market, Mahindra continued its dominance with strong fleet sales and expanded charging infrastructure.
- **Bajaj Auto Ltd. (4,873 units, 36.5% share)**: A very close second, Bajaj's growing presence in the passenger segment signals its increasing influence in India's shared mobility ecosystem.
- **Piaggio Vehicles Pvt. Ltd. (1,427 units, 10.7% share)**: Piaggio remains a preferred brand in semi-urban areas, catering to small business owners and transport operators.
- **TI Clean Mobility Pvt. Ltd. (558 units, 4.2% share)**: The company's innovative approach to electric rickshaws is gradually carving out a niche.
- **Omega Seiki Pvt. Ltd. (237 units, 1.8% share)**: Despite lower volumes, Omega Seiki is gaining traction among budget-conscious buyers.

ELECTRIC 3W PASSENGER SEGMENT

Company	Market Share	Sales (Jan 2025)
Mahindra	**37.30%**	4,986
Bajaj Auto	**36.50%**	4,873
Piaggio Vehicles	**10.70%**	1,427
TI Clean Mobility	**4.20%**	558
Omega Seiki	**1.80%**	237
Others	**5.80%**	778

ELECTRIC 3W GOODS SEGMENT

Company	Market Share	Sales (Jan 2025)
Bajaj Auto	**19.30%**	480
Mahindra.	**18.30%**	455
Omega Seiki	**14.80%**	368
Euler Motors	**11.00%**	273
Piaggio Vehicles	**6.30%**	157
Others	**30.40%**	757

Market Outlook: Strong Growth with Opportunities & Challenges

The Indian electric three-wheeler market is set for continued growth, with increasing fleet adoption, better financing options, and government incentives boosting sales. However, charging infrastructure, battery reliability, and cost optimization remain challenges that OEMs must address to sustain this momentum.

As EV policies evolve and manufacturers enhance product offerings, the E3W market is well-positioned to play a pivotal role in India's clean mobility transformation in 2025 and beyond.

India EV Sales FEB 2025

EV 4W Passenger Sales Trend by OEM

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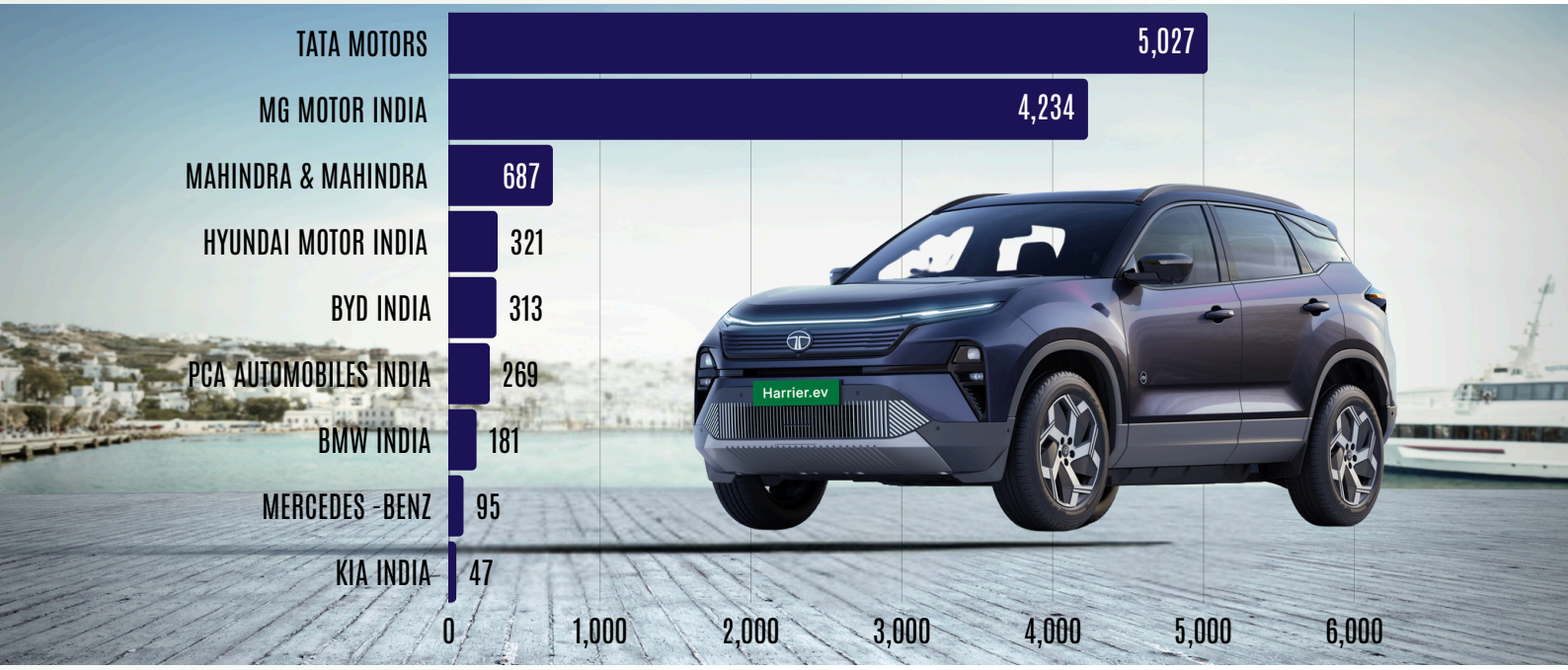
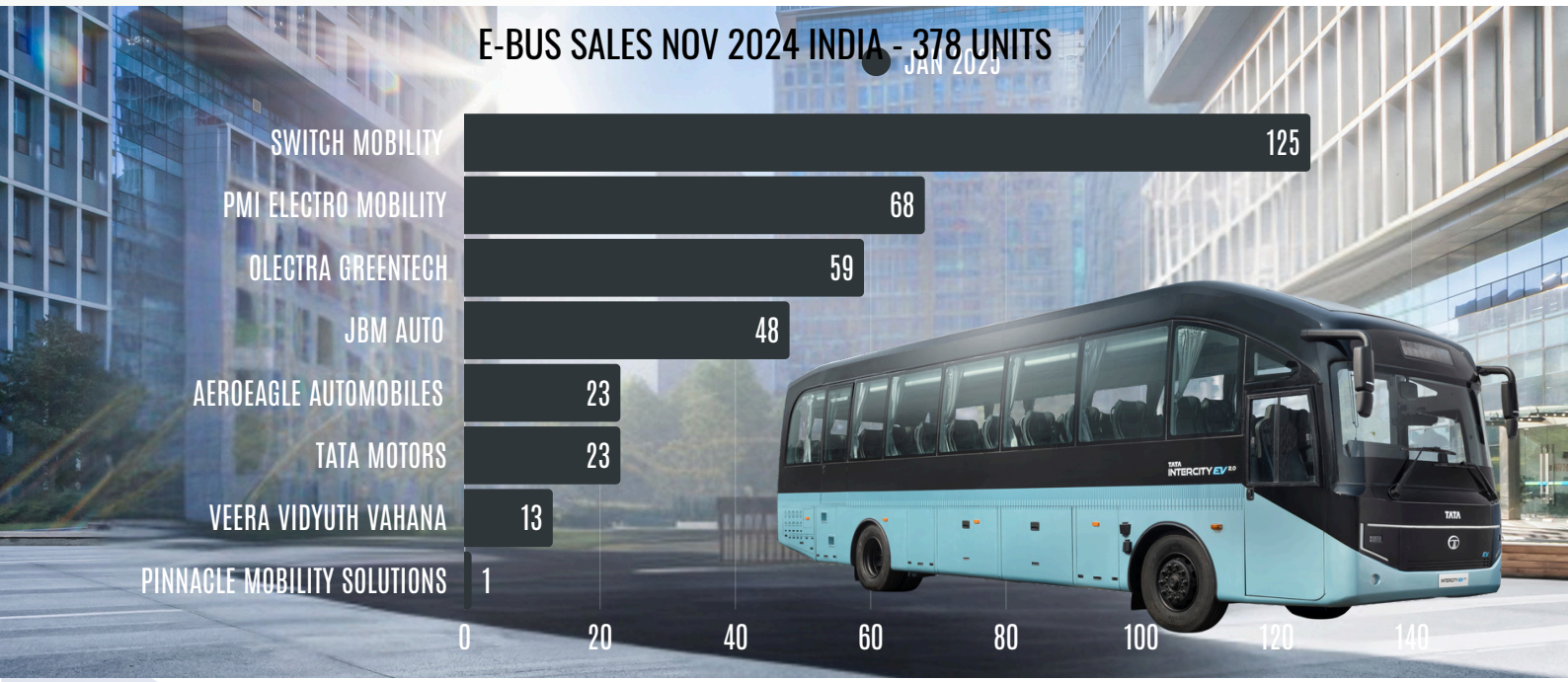
SALES JAN 2025 INDIA - 10,121 UNITS



Electric car and SUV sales up 32% at 11,248 units in January, Tata EV share 45%, JSW MG Motor 37% January 2025. While market leader Tata Motors, which retailed 5,027 EVs, is feeling the heat of the rising competition, JSW MG Motor with 4,234 EVs has seen its market share jump three-fold in a year.

Data Source: Vahan Dashboard

E-BUS SALES NOV 2024 INDIA - 378 UNITS



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In Jan 2025 378 units were sold, primarily electric buses deployed in metro cities under government-backed initiatives.

India's Electric Four-Wheeler Market Report - January 2025

India's electric four-wheeler (E4W) market maintained strong momentum in January 2025, with growing consumer interest and expanding model options. The segment recorded **10,175 Light Motor Vehicle (LMV) sales, 1,073 Light Passenger Vehicle (LPV) sales, and 552 Light Goods Vehicle (LGV) sales**.

Driven by **Tata, MG Motor India, and Mahindra**, the E4W sector continues to witness increasing adoption, supported by government incentives, improved charging infrastructure, and a rising preference for sustainable mobility.

- **Tata Passenger Electric Mobility Leads the Market:** Sales: **5,027 units|** Market Share: **~49%**

Tata Passenger Electric Mobility Ltd. maintained its dominant position, leading the segment with over 5,000 units sold in January 2025. With a strong lineup including the Nexon EV and Tiago EV, Tata continues to attract both personal and fleet buyers. Its commitment to affordability, local manufacturing, and strong charging infrastructure support remains a key growth driver.

- **MG Motor India Strengthens its Position:** Sales: **4,234 units |** Market Share: **~41%**

MG Motor India continued its strong performance, securing the second position with 4,234 units sold. The MG ZS EV and Comet EV played a crucial role in this success, with a focus on tech-savvy features, extended battery range, and competitive pricing. MG's expansion in charging networks and financing options further boosted consumer confidence.

- **Mahindra & Mahindra Makes Steady Gains:** Sales: **687 units |**Market Share: **~6.7%**

Mahindra & Mahindra is gaining traction in the EV market, driven by the success of its XUV400 EV. With a push towards SUV electrification, Mahindra is aiming to strengthen its position in the coming months, backed by increasing production capacity and new model introductions.

Hyundai Motor India Ltd. : Sales: **321 units** | Market Share: **~3.1%**

BYD India Pvt Ltd. : Sales: **313 units |** Market Share: **~3.0%**

Premium EV Segment Sees Gradual Expansion

Luxury automakers saw modest sales figures, highlighting the premium EV segment's steady but slow adoption.

- **PCA Automobiles India Pvt Ltd. (Peugeot, Citroën): 269 units**
- **BMW India Pvt Ltd.: 181 units**
- **Mercedes-Benz AG: 95 units**
- **Kia India Pvt Ltd.: 47 units**
- **Volvo Auto India Pvt Ltd.: 27 units**
- **Audi AG: 18 units**
- **Tata Motors Passenger Vehicles Ltd.: 16 units**
- **Porsche AG Germany: 6 units**
- **Rolls-Royce Motor (Importer: Kun Motor): 4 units**
- **Jaguar Land Rover India Ltd. & Switch Mobility : 1 unit**

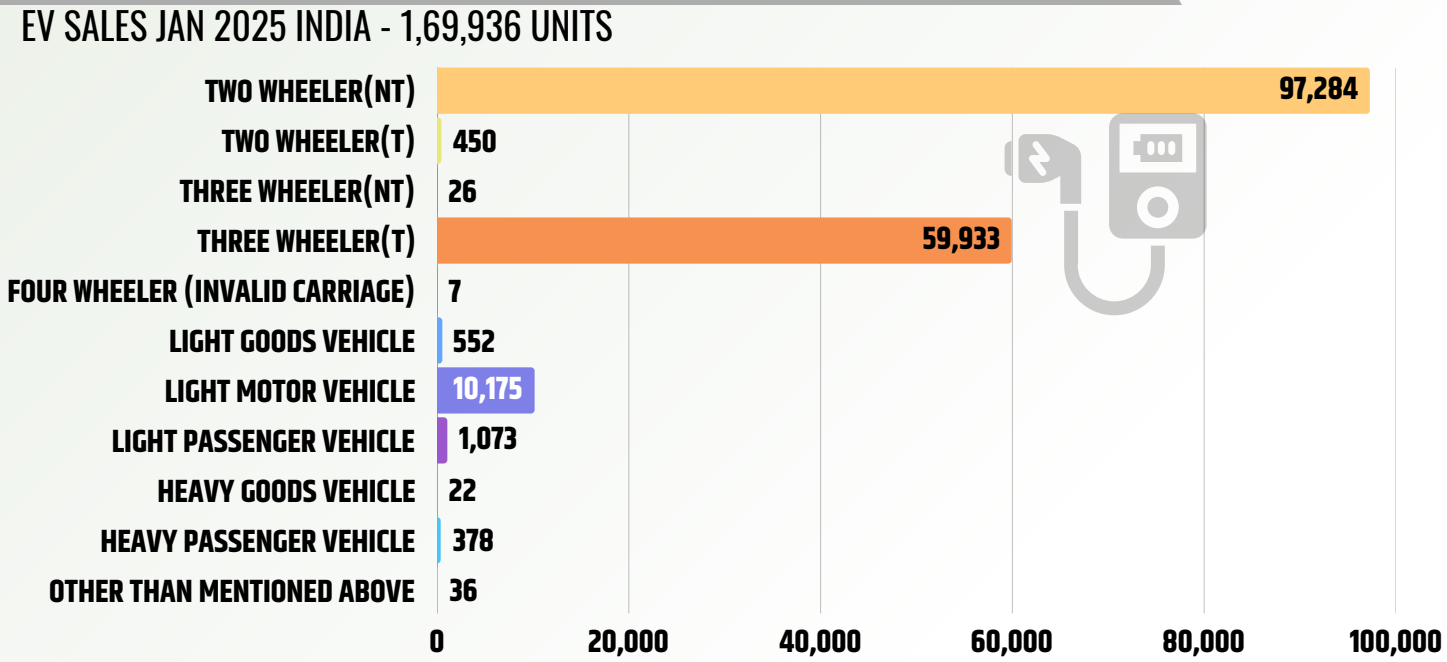
Despite lower volume, premium EVs continue to appeal to high-end consumers, with brands like BMW, Mercedes, and Volvo investing in new launches and charging ecosystem expansion.

Future Outlook: Growth with Challenges

The Indian electric four-wheeler market is set for continued expansion in 2025, with automakers focusing on affordability, battery technology, and infrastructure development. However, challenges such as chargin infrastructure gaps, higher initial costs, and supply chain constraints remain key hurdles.

With OEMs investing in new models, battery innovations, and localized manufacturing, the sector is gearing up for a promising year ahead in India's EV revolution.

India EV Sales JAN 2025 -Category-Wise



Two-Wheelers Lead the Charge

The electric two-wheeler (E2W) segment remained the top contributor to India's EV sales, with **97,284 units sold** in the non-transport category (NT) and an additional **450 units** in the transport (T) category. These numbers highlight the sustained demand from both individual consumers and last-mile delivery fleets.

Three-Wheelers: A Critical Growth Driver

The three-wheeler transport (T) category emerged as the second-largest segment, recording **59,959 units** in January 2025. Meanwhile, non-transport (NT) three-wheelers contributed **26 units**, mainly in specialized applications.

Light Motor Vehicles (LMVs) Gain Momentum

The light motor vehicle (LMV) category posted **10,175 unit** sales, highlighting increased adoption of electric four-wheelers for personal and commercial use.

Light Passenger Vehicles (LPVs): **1,073 units** were sold, reflecting increasing penetration of EVs in the fleet and public transport sector.

Light Goods Vehicles (LGVs): **552 units** found buyers, reinforcing the role of electric vans in urban logistics.

Heavy & Medium Commercial Vehicles: Gradual Adoption

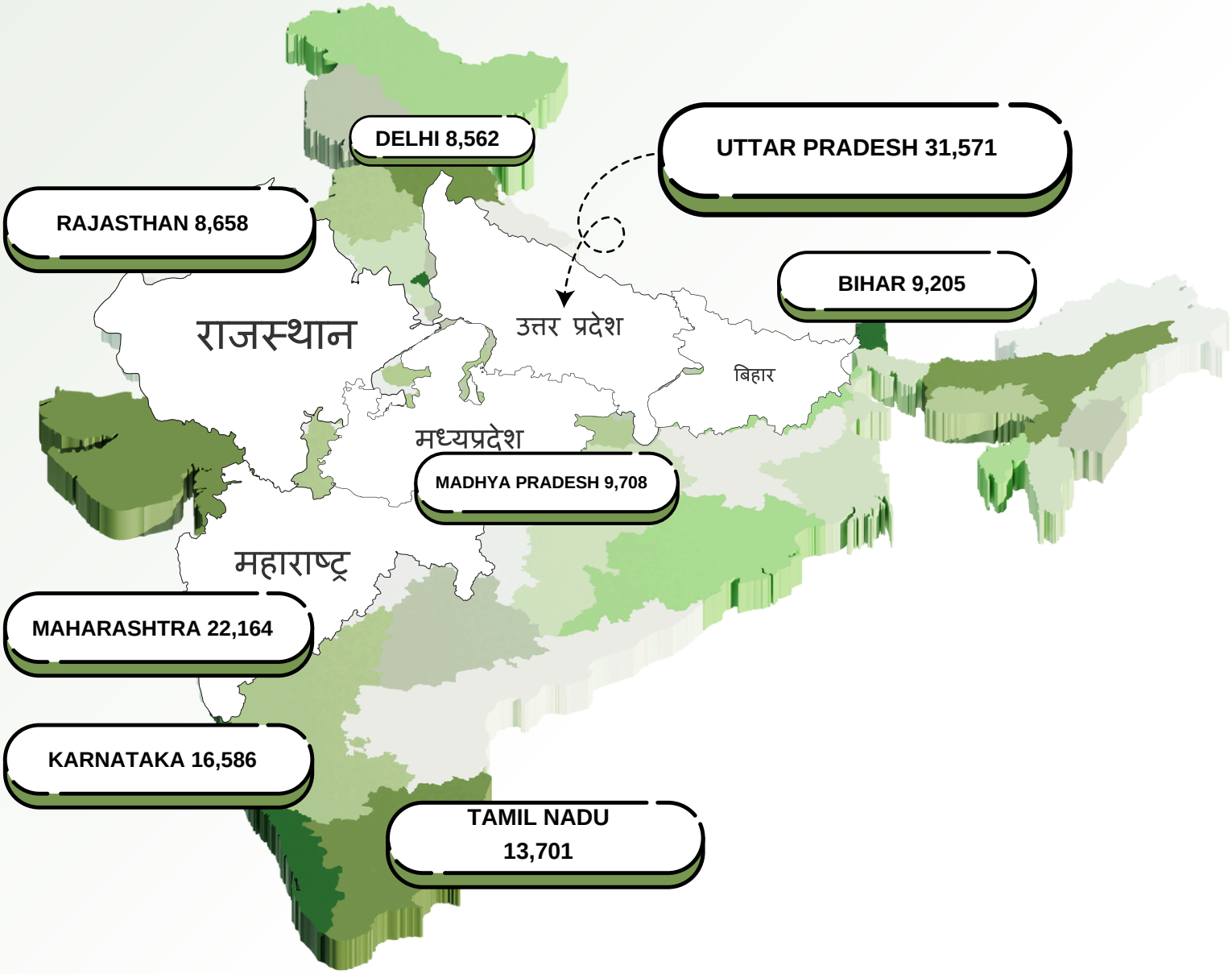
- **Heavy Passenger Vehicles (HPVs)**: **378 units** were sold, primarily electric buses deployed in metro cities under government-backed initiatives.
- **Heavy Goods Vehicles (HGVs)**: **22 units** were registered, as fleet operators began testing electrified logistics solutions.
- **Medium Passenger Vehicles (MPVs)**: No recorded sales in this category, reflecting slower adoption in mid-sized public transport.

The Road Ahead: Growth Opportunities & Challenges

The strong performance in January 2025 underscores India's accelerating EV transition. Government incentives, increasing charging infrastructure, and improved affordability will continue driving adoption. However, challenges like charging network expansion, battery supply chains, and cost competitiveness remain critical focus areas for sustained momentum.

With OEMs ramping up production and introducing innovative EV models, 2025 is set to be another landmark year for India's electric mobility revolution.

State Wise EV Sales in JAN 2025

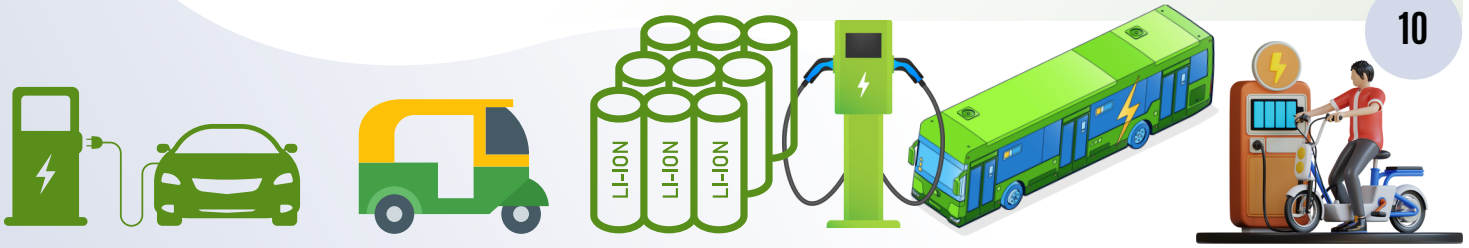


The Indian electric vehicle (EV) market continued its strong momentum in January 2025, with Uttar Pradesh leading the sales chart, followed by Maharashtra and Karnataka. As consumer adoption rises and government incentives bolster the market, EV penetration is growing across both metropolitan and semi-urban regions.

Top Performing States in January 2025

1. Uttar Pradesh: 31,571 Units (Highest Sales in India)

Uttar Pradesh emerged as the largest EV market in India, accounting for a significant share of the country's total EV sales. The growing adoption of electric two-wheelers and e-rickshaws played a crucial role in driving numbers.



State Wise EV Sales in JAN 2025

2. Maharashtra: 22,164 Units

Maharashtra retained its position as a major EV hub, thanks to strong consumer demand, fleet adoption, and government subsidies. The state's increasing charging infrastructure and urban consumer base have fueled this growth.

3. Karnataka: 16,586 Units

Home to several EV manufacturers, including Ola Electric and Ather Energy, Karnataka continues to be a major contributor to India's EV revolution. The state's tech-savvy population and EV-friendly policies are key drivers.

4. Tamil Nadu: 13,701 Units

Tamil Nadu's steady rise in EV sales is backed by its thriving automobile industry and investment in EV manufacturing plants. The state remains a preferred location for EV production and exports.

5. Madhya Pradesh: 9,708 Units

A rising demand for electric two-wheelers and shared mobility solutions has propelled Madhya Pradesh into the top five, reflecting a shift in consumer preferences toward sustainable transport.In 2024, the Indian EV market experienced an average of **5,325 EVs sold daily.**

electric two-wheelers (E2Ws) dominated the market with a 59% share, while electric three-wheelers (E3Ws) accounted for 35%. The electric passenger vehicle (e-PV) segment contributed 5%, and electric commercial vehicles (e-CVs) made up 0.51% of total sales.

Mid-Tier Markets Showing Strong Growth

6. Bihar: 9,205 Units

7. Rajasthan: 8,658 Units

8. Delhi: 8,562 Units

9. Kerala: 7,719 Units

10. West Bengal: 5,614 Units

Emerging EV Markets

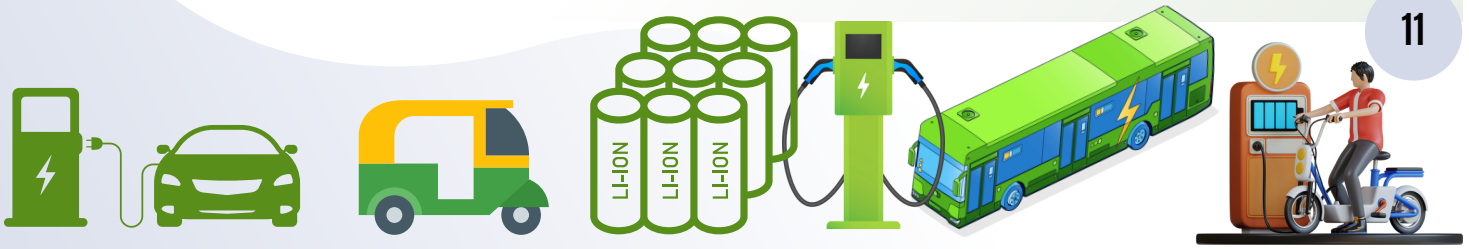
States like **Assam (5,124 units), Gujarat (5,093 units), and Odisha (4,890 units)** are demonstrating consistent growth in EV sales, indicating expanding acceptance of electric mobility.

Additionally, smaller states and union territories such as **Goa (937 units), Jammu & Kashmir (879 units), and Tripura (822 units)** are also witnessing an increase in EV adoption, albeit at a slower pace.

Challenges and Opportunities

While the market shows impressive growth, challenges such as charging infrastructure expansion, battery costs, and rural penetration remain key areas for development. However, with OEMs ramping up production and states rolling out aggressive EV policies, India's transition to electric mobility looks more promising than ever.

2025 is set to be another defining year for India's EV sector, with demand accelerating across states and new players entering the market.



Union Budget 2025-26 Overview for Battery Industry

A STRATEGIC MASTERSTROKE IN THE UNION BUDGET 2025-26: ₹20,000 CRORE

Indian government has announced a monumental ₹20,000 crore nuclear mission as part of its Union Budget for 2025-26. This strategic initiative is not merely focused on energy generation but aims to establish India as a powerhouse in EV manufacturing by ensuring energy stability and cost-effectiveness.

The Power Equation

While global discussions often pit renewable energy against traditional power sources, India is adopting a unique strategy. The nuclear mission is positioned to provide a reliable energy source that can support extensive manufacturing operations. This approach is expected to create a sustainable environment for EV production, setting the stage for India to emerge as a leader in the global automotive sector.

Strategic Duty Exemptions

The budget also includes significant duty exemptions aimed at critical components necessary for EV manufacturing:

- **Critical battery minerals**
- **63 key manufacturing components**
- **Essential production equipment**

These exemptions are projected to yield a **15-20% manufacturing cost advantage**, potentially shifting global EV production dynamics in favor of Indian manufacturers.

Global Players Taking Notice

As India strengthens its position in the EV market, major international manufacturers are already reassessing their strategies:

- **Global manufacturers** are exploring opportunities to establish operations in India.
- **International investors** are realigning their portfolios to capitalize on India's burgeoning EV ecosystem.
- **Supply chain leaders** are planning realignments to take advantage of India's competitive edge.

The Strategic Advantage

This initiative marks a significant policy shift for India, transitioning from being merely a market for electric vehicles to becoming a key player in their manufacture. By addressing energy stability and cost challenges simultaneously, India is poised to challenge established global manufacturing hierarchies.

Major Developments in the Budget

The government has also made pivotal changes that will benefit EV battery players:

1. **Customs Duty Removal:** The removal of customs duties on waste lithium-ion batteries and critical minerals signifies a transformative shift for India's EV ecosystem.
2. **Government Boost:** An allocation of **₹1,500 crore** will support specialized recycling clusters, allowing recyclers to import and process materials at significantly lower costs.
3. **PM E-DRIVE Scheme**: An additional **₹4,000 crore** has been allocated to the **PM E-DRIVE scheme**, extending incentives for electric two-wheelers (E2Ws) and supporting charging infrastructure.

Value Chain Impact

These strategic decisions open unprecedented opportunities across the value chain:

- Enhanced material recovery capabilities will reduce dependency on expensive imports.
- A robust domestic supply network will ensure steady access to recovered materials.

Stocks: Lithium-ion Battery Manufacturers

The Indian electric vehicle (EV) market is rapidly evolving, presenting significant investment opportunities. This report highlights the current status and future prospects of key players in the **lithium-ion battery manufacturing segment**, alongside broader market trends expected in 2025.

Current Market Overview

As of January 2025, the Indian stock market is projected to experience moderate growth, with the Nifty index anticipated to reach between **25,000 and 27,500** by December 2025. This represents a potential upside of **5-16%** from the previous year's closing level of **23,644.80**. However, market sentiment remains cautious due to factors such as foreign selling, slowing corporate earnings, and high valuations. Analysts suggest that while the first half of 2025 may witness consolidation, a revival in corporate earnings and favorable government policies could drive optimism in the latter half of the year.

Lithium-ion Battery Manufacturers

The transition to EVs is heavily reliant on advancements in battery technology. Here's a closer look at key companies involved in lithium-ion battery production in India:

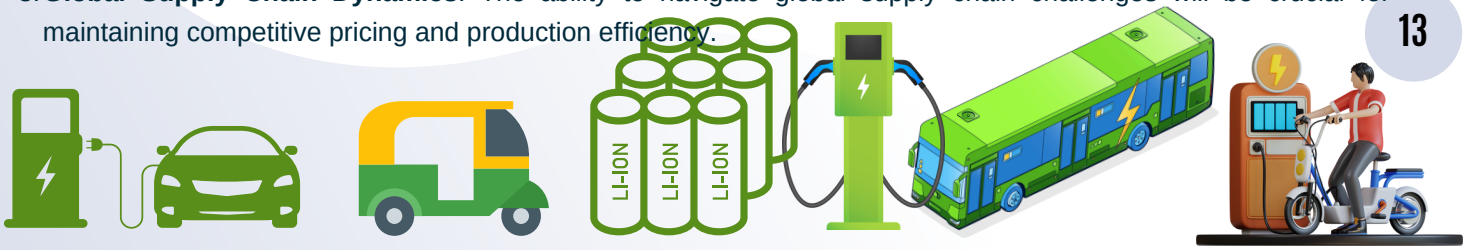
Key Players Battery Manufacturers

Company	Market Capitalization (INR Cr)	Future Outlook
BHEL and ISRO	Collaborating on battery development; commercialization timeline unclear.	Potential growth if collaboration yields successful technology.
Exide Industries	Established leader in lead-acid batteries; transitioning to lithium-ion technology.	Strong growth potential if transition is executed effectively.
Amara Raja Batteries	Investing in lithium-ion production; success depends on execution capabilities.	Future growth hinges on successful implementation of production plans.
HBL Power Systems	Focused on energy storage solutions; potential for EV battery expansion.	Growth prospects linked to increasing demand for energy storage in EVs.
JSW Energy	Diversifying into lithium-ion batteries; long-term strategy not fully revealed yet.	Future success will depend on strategic execution and market acceptance of new products.

Stock Market Status for 2025

Investors are keenly watching these companies as they play a pivotal role in India's EV ecosystem. The stock performance of these firms will be influenced by several factors:

1. **Government Policies**: A strong push from the government towards renewable energy and infrastructure development could enhance growth prospects for these companies.
2. **Market Demand**: As consumer demand for EVs rises, companies that successfully transition to lithium-ion battery production may see substantial stock price appreciation.
3. **Global Supply Chain Dynamics**: The ability to navigate global supply chain challenges will be crucial for maintaining competitive pricing and production efficiency.



Bharat Mobility Global Expo 2025

Bharat Mobility Global Expo 2025 Successfully Concludes with an Incredible Showcase of the Indian Mobility Ecosystem and with Record-Breaking Participation.
1,500+ Exhibitors was at India's Largest Auto Expo 2025.

Bharat Mobility GLOBAL EXPO 2025
Beyond Boundaries: Co-creating Future Automotive Value Chain

The **Bharat Mobility Global Expo 2025**, held from **January 17 to January 22, 2025**, across three prominent venues—**Bharat Mandapam, Yashobhoomi, and India Expo Centre & Mart**—has set a new benchmark in the automotive sector. This year's expo attracted over **1,500 exhibitors**, showcasing the latest advancements in mobility technology, with a remarkable **239 product launches** that underline India's growing role in sustainable transportation solutions.A Multi-Venue Marvel

The **Auto Expo Motor Show** was particularly notable for its focus on electric vehicles (EVs), with 90 vehicle launches, including significant models like the **Hyundai Creta EV**, priced at **₹17.99 lakh**. This model boasts a powerful **171 PS motor** and an impressive **range of 437 km**, showcasing Hyundai's commitment to affordable electric mobility. Additionally, **Maruti Suzuki's e-Vitara**, with battery options exceeding **500 km**, represents a bold new entry into the EV market.Other highlights included the unveiling of **Tata Motors**' futuristic **Avinya concept**, designed to redefine urban mobility through sustainability and cutting-edge design. The event also showcased innovations from companies like Isuzu, which presented its electric pickup truck, the **D-Max BEV**.

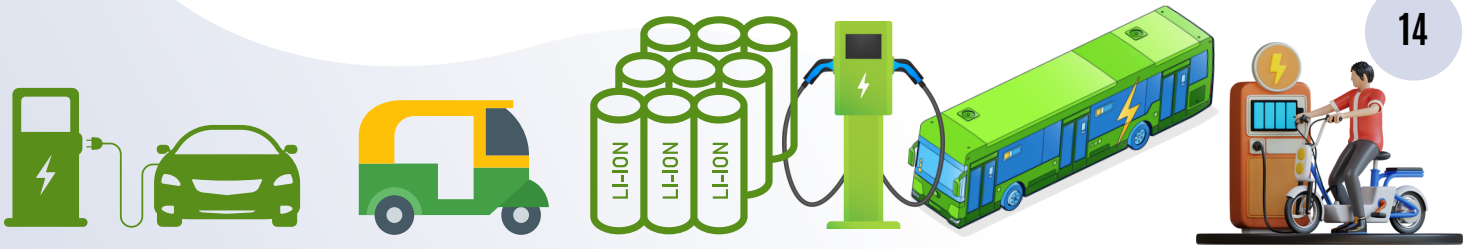
Advancements Across Multiple Sectors

The expo was not limited to passenger vehicles; it also featured significant advancements in various sectors:

- **Auto Components Show**: Featured **97 product launches**, highlighting resilience within the automotive supply chain.
- **Bharat Battery Show**: Introduced **21 new products** focused on energy storage and charging solutions.
- **Urban Air Mobility Pavilion**: Displayed advancements in **VTOLs and eVTOLs**, demonstrating progress in air mobility technologies.
- **Steel Pavilion**: Showcased innovations in lightweight and sustainable automotive steel.

These showcases reflect a broader trend towards sustainability and technological innovation across the automotive landscape.MICE Industry Growth

The Bharat Mobility Global Expo also underscored India's rising prominence in the Meetings, Incentives, Conferences, and Exhibitions (MICE) industry. With state-of-the-art venues like Bharat Mandapam and Yashobhoomi hosting concurrent events such as the India Cycle Show and Urban Mobility Show, the expo illustrated India's capability to host large-scale international events effectively.



Bharat Mobility Global Expo 2025

The Bharat Mobility Global Expo 2025 showcased an impressive lineup of Electric-Two Vehicles (EVs). Affordable, Stylish with New Technology.

Honda Activa e: And QC1

- Range: Up to 102 km on a single charge
- Top Speed: 80 km/h
- Acceleration: From 0 to 60 km/h in just 7.3 seconds
- Rated Output: 4.2 kW
- Maximum Output: 6.0 kW
- Battery Technology: Equipped with two swappable batteries (1.5 kWh each)
- Riding Modes: Standard, Sport, Eco, and Reverse

QC1

- Battery Capacity: Fixed battery of 1.5 kWh
- Rated Output: 1.2 kW
- Maximum Output: 1.8 kW
- Display: A simpler yet functional 5-inch LCD screen

Suzuki e-Access

- Battery Type: 3.07 kWh LFP (Lithium Iron Phosphate) battery.
- Charging Time (0-80%): 4 hours and 30 minutes.
- Claimed Range: 95 km (IDC).





VinFast at Bharat Mobility Global Expo 2025

VinFast Evo 200

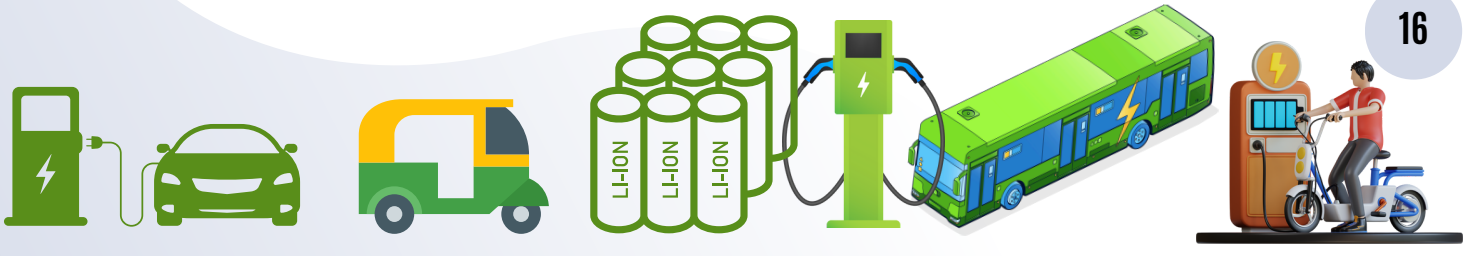
VinFast Klara-S

VinFast Feliz-S

VinFast Theon-S

VinFast Vento-S

VinFast e- Cycle



Motovolt at Bharat Mobility Global Expo 2025

Motovolt Mobility Pvt. Ltd. unveiled a range of electric vehicles (EVs) at the Bharat Mobility Global Expo 2025

Hyper One

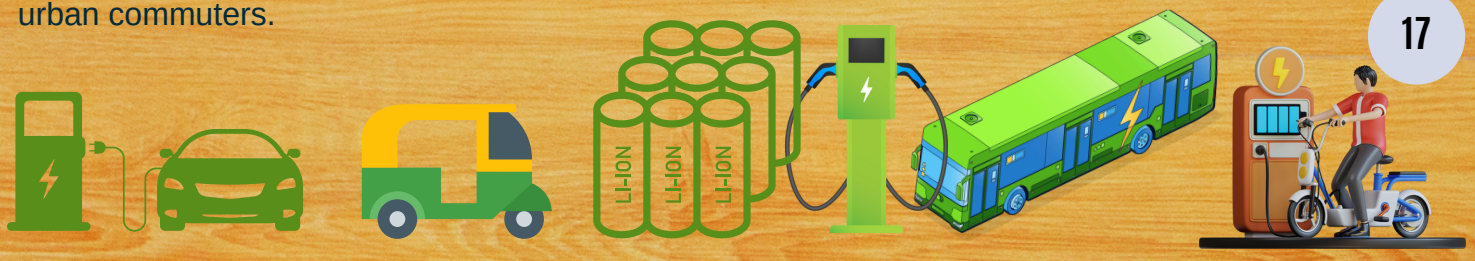
- India's first digital pedal motorbike.
- Unique foot-operated digital pedal system with a 5 kW motor.
- Accelerates from 0-40 km/h in seconds.
- Top speed: 110 km/h.
- Riding range: 105 km.
- Peak torque: 90 Nm.
- Ideal for thrill-seekers and urban commuters.

HUM NYC

- Designed for New York City's last-mile delivery needs.
- Multi-utility speed pedelec.
- Top speed: 42 km/h.
- Payload capacity: 200 kg.
- Riding range: 130 km per charge.
- Supports battery-swapping technology for enhanced efficiency.

M7 Rally e-scooter

- Rapid acceleration: 0-40 km/h in 3 seconds.
- Top speed: 80 km/h.
- Riding range: 120+ km.
- Robust design for both personal and professional use.



Bharat Mobility Global Expo 2025

The Bharat Mobility Global Expo 2025 showcased an impressive lineup of passenger electric vehicles (EVs), highlighting the latest advancements in technology, range, and design. With diverse models tailored to urban, luxury, and compact segments, the expo reinforced India's commitment to sustainable mobility.

Maruti Suzuki e Vitara

- Range: Over 500 km
- Battery Options: 49 kWh and 61 kWh
- Power: 142 - 172 bhp
- Max Torque: 192.5 Nm
- Battery Type: LFP
- Charging Time: CCS-II Fast charging capabilities (specific time not disclosed)
- Notable Features: Auto AC, fixed glass roof, ventilated front seats, 360-degree camera, Level-2 ADAS.
- This model blends efficiency with luxury, offering advanced features for a seamless driving experience.

Hyundai Creta Electric

offering redefines practicality by merging premium interiors with cutting-edge technology.

- Battery Options:
  - 42 kWh with a 390 km range.
  - 51.4 kWh with a 473 km range.
- Power Output:
  - Long-range variant: 126 kW (171 PS).
  - Standard version: 99 kW (135 PS).
- Pricing: Starting at INR 17.99 lakh
- Dual 10.25-inch screen
- Fast charging (50 kW DC): 10-80% 1 Hr
- AC fast charger (11 kW):
- 42 kWh: Full charge in ~4 hours.
- 51.4 kWh: Full charge in ~4 hours 50 minutes.

TATA MOTORS Bharat Mobility Global Expo 2025

TATA EV - ‘Journey to a Boundless Future’ with the greenest, smartest, and most advanced suite of mobility solutions

AVINYA X Concept

A bold leap into the future of luxury mobility that expands on Avinya’s commitment to sustainability, innovation, and well-being

Harrier.ev

India’s most advanced electric pickup for diverse applications

Bold, powerful, intelligent, electric all-wheel-drive SUV.
Built on the OMEGA Architecture, derived from the Land Rover D8 architecture.
Developed in collaboration with Jaguar Land Rover.
Gen 2 EV architecture for uncompromised range and advanced features.

VinFast at Bharat Mobility Global Expo 2025

VinFast VF6

Max Power: 174 bhp
Max Torque: 250 Nm
Range: 399 km

VinFast At Auto Expo 2025: 6 Electric SUVs And 1 Electric Pickup Truck Concept Showcased

VinFast VF7

- Max Power: 201 bhp
- Max Torque: 310 Nm
- Range: 450 km

VinFast at Bharat Mobility Global Expo 2025

VF Wild, An Electric Pickup Concept

VinFast VF9 Expected Price ₹ 65 Lakh

- Battery Capacity: 123 kWh
- Range: Up to 531 km
- Acceleration: 0–100 kmph in 6.3 seconds
- Powertrain: Dual motors producing 408 PS and 620 Nm
- Safety: 11 airbags and Advanced Driver Assistance Systems (ADAS)
- Infotainment: 15.6-inch touchscreen and 14-speaker sound system

VinFast at Bharat Mobility Global Expo 2025

VinFast VF e34

- Battery: 41.9 kWh battery pack
- Power: 150 PS
- Torque: 242 Nm
- Range: Claimed range of 277 km (NEDC)
- Drivetrain: Front-wheel-drive (FWD)
- Charging: DC fast charging from 10-70% in under 30 minutes
- Safety: 6 airbags, 360-degree camera, Tyre Pressure Monitoring System (TPMS), Advanced Driver Assistance Systems

Bharat Mobility Global Expo 2025

Vayve Eva, India's First Solar-assisted EV Launched At Auto Expo 2025 At Rs 3.25 Lakh

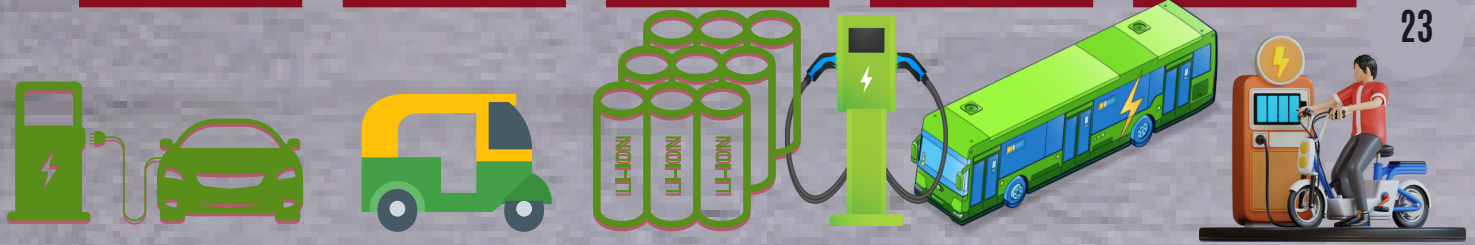
The Vayve Eva is solar-chargeable, which gives it up to 10 km of added range every day.

Variant	With the battery rental plan*	Without the battery rental plan
Nova	Rs 3.25 lakh	Rs 3.99 lakh
Stella	Rs 3.99 lakh	Rs 4.99 lakh
Vega	Rs 4.49 lakh	Rs 5.99 lakh

Variant	Nova	Stella	Vega
Battery pack	9 kWh	14 kWh	18 kWh
Power	16 PS	16 PS	20 PS
Drivetrain	RWD	RWD	RWD
Claimed range	125 km	175 km	250 km







Bharat Mobility Global Expo 2025

Bharat Mobility Global Expo 2025 Successfully Concludes with an Incredible range of commercial EVs designed to meet the growing demand for sustainable transportation solutions.

Montra Electric launches Eviator small CV and Cargo 3W

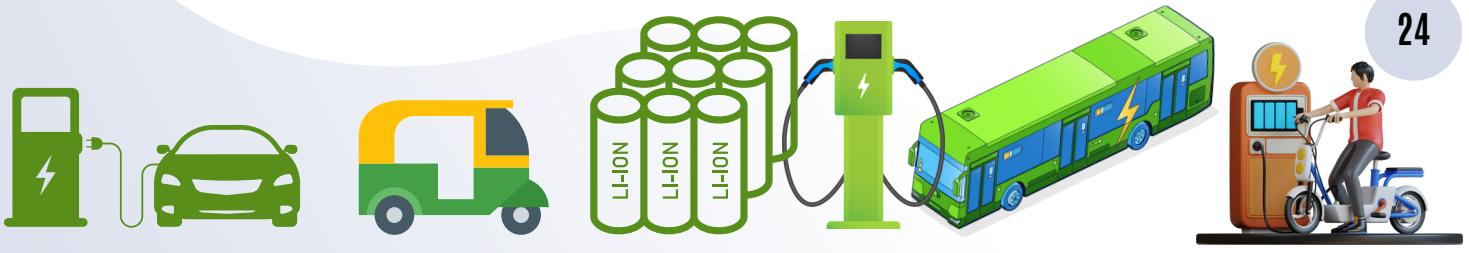
Montra Eviator small commercial vehicle (e-SCV)

- Certified Range: 245 km
- Real-World Range: 170 km
- Gross Vehicle Weight: 3.5 tonnes
- Maximum Power Output: 80 kW
- Maximum Torque: 300 Nm
- Warranty: Up to 7 years / 250,000 km
- Price: Starts at ₹15.99 lakh (ex-showroom Delhi)

Montra Super Cargo three-wheeler

This reliable vehicle is designed for local deliveries, enhancing last-mile connectivity

- Range: Over 200 kilometres (real-world range: 150 km).
- Price: Starts at Rs 437,000 (ex-showroom Delhi).
- Target Audience: Fleet operators and individual entrepreneurs.
- Gross Vehicle Weight (GVW): 1.2 tonnes.
- Charging: 15-minute full charge option.
- Body Types: Available in three cargo body types.
- Applications: Facilitates a variety of applications



Bharat Mobility Global Expo 2025

Eicher Pro X

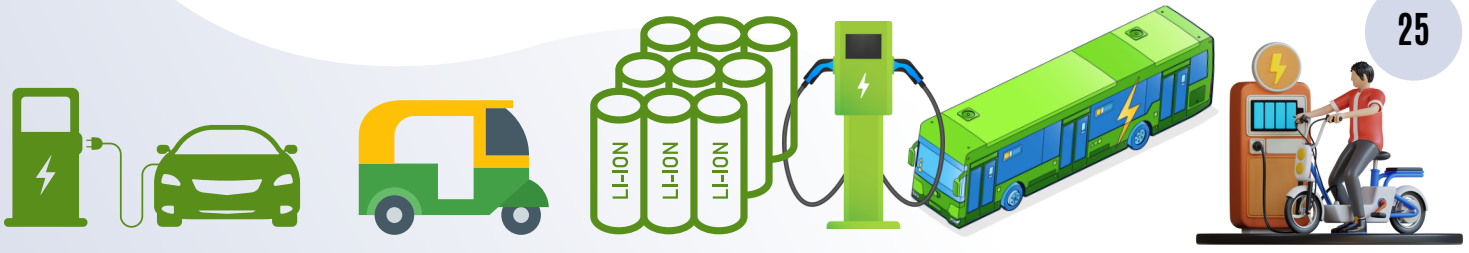
Built for efficiency in logistics, the Eicher Pro X promises lower operational costs.

- Battery Capacity: 32/40 kWh
- Type of Motor: PMSM Motors
- Charging Time: 7.5 Hours
- Power: 80 kW
- GVW: 3500 kg
- Features: Air-conditioned cabins, Lie-flat seats, Ergonomic designs, Safety systems such as Driver State Monitoring

SWITCH IeV8

IeV8 is designed for mid-mile logistics, offering sustainability and efficiency to meet the needs of modern businesses.

- Category: 7.2-tonne
- GVW: 7200 Kg
- Payload Capacity: 4 Ton*
- Driving Modes: Neutral, Driving, Reverse, Sports Mode (New)
- Range: 250 Km* on a single charge
- Body Type: Sturdy Container Body
- Container Space: 800-830 cubic feet
- Battery Type: LFP (Lithium Iron Phosphate)
- Charging: Fast Charging
- Key Features: Electro-Hydraulic Power Steering (EHPS) , Air-Conditioned Cabin, Tiltable Steering, Sliding and Reclining Seats



Bharat Mobility Global Expo 2025

Tata Motors Unveils ‘Future of Mobility’ with new benchmarks in Innovation, Connectivity and Sustainability

Ace Pro EV

All-new platform for profitable & sustainable last-mile operations

- Range: 155+ km
- Max Speed: 50 km/h
- Motor: PMSM (Permanent Magnet Synchronous Motor)
- Peak Torque: 104 Nm
- HV Battery: LFP (Lithium Iron Phosphate) 14.4 kWh
- Payload Capacity: 750 kg

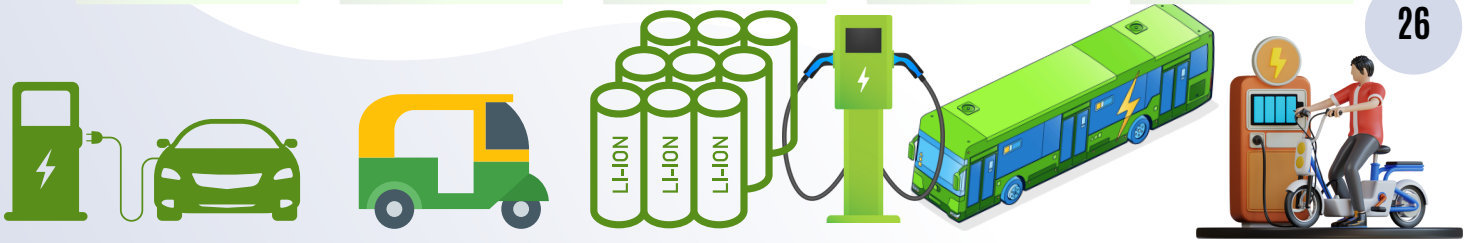
Tata Intra EV Pickup

India’s most advanced electric pickup for diverse applications

- Gross Vehicle Weight (GVW): 3320 KG
- Battery: Lithium-ion battery pack, 28.2 kWh
- Motor: Permanent Magnet Synchronous Motor (PMSM)
- Max Torque: 230 Nm
- Max Speed: 80 KMPH
- Range: 150+ Km
- Fast Charging: 50 minutes (10% to 80%)
- Payload Capacity: 1750 KG







Bharat Mobility Global Expo 2025

Tata Prima E.55S

Battery electric prime mover to decarbonise logistics operations across sectors

- Applications: Steel, Coal, Cement, Bulker, Container
- Gross Vehicle Weight (GVW): 55,000 kg
- Charger Specification: CCS2 charger with single & dual gun fast charging options
- Motor: Max Torque: 2,455 Nm, Max Power: 470 kW
- Battery Pack: 300 kWh to 450 kWh
- Range: 200 to 350 km





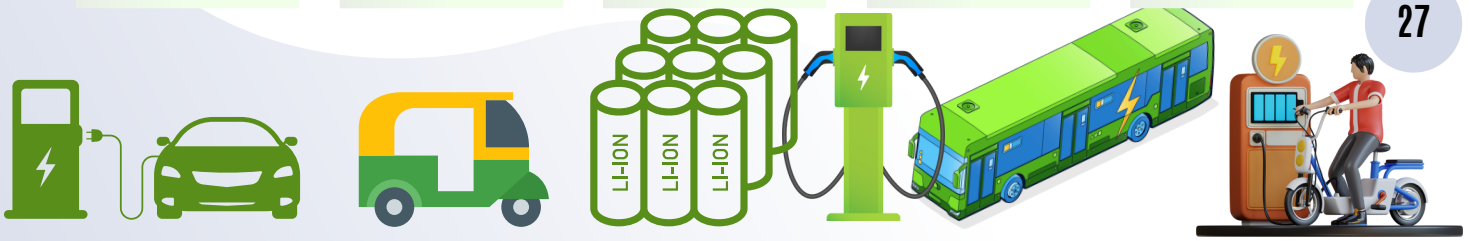
Tata Ultra E.12

Emission-free, smart, seamless urban freight solution

- Application: E-commerce
- GVW (Gross Vehicle Weight): 11,900 kg
- Charger Specification: CCS2 Fast Charger
- Motor: Max Torque: 950 Nm, Peak Power: 250 kW
- Battery Pack: 960 kWh–300 kWh with 640V Architecture
- Range: 120 km to 350 km
- Payload: 6,400 kg with Container







Bharat Mobility Global Expo 2025

Tata Ultra EV 9

The future of sustainable urban people mobility

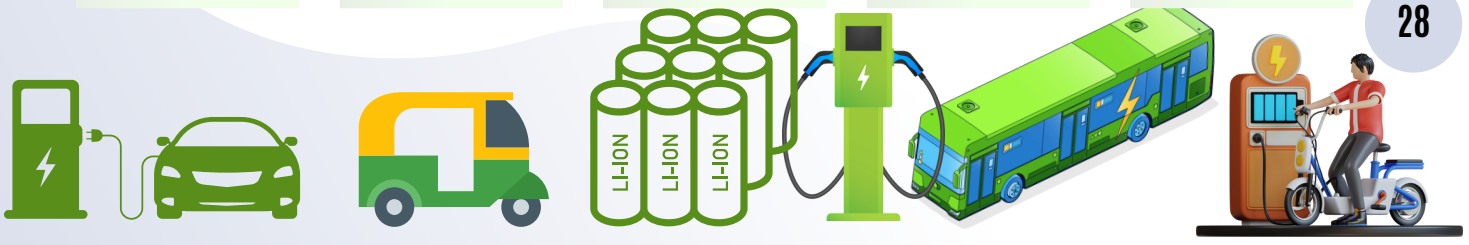
- Application: Intra-city passenger transport
- GVW (Gross Vehicle Weight): 11,500 kg
- Seating Capacity: 23 + Driver
- Fast Charger Specification: 2 hours for full charge
- Motor: Integrated motor generator with IPM Machine
- Max Torque: 2000 Nm
- Max Power: 213 kW
- Battery Pack: 200 kWh Lithium-ion
- Range: 180+ km
- Top Speed: 75 km/h



Tata Intercity EV 2.0

Redefines long distance travel with a new-gen modular architecture

- Application: Intra-city passenger transport
- Seating Capacity: 45 + Driver
- Fast Charger Specification: 2 hours full charge
- Motor: Integrated motor generator with IPM Machine
- Max Torque: 864 Nm with 3-gearbox
- Max Power: 250 kW
- Battery Pack: 450 kWh Lithium-ion
- Range: 400+ km
- Top Speed: 100 kmph

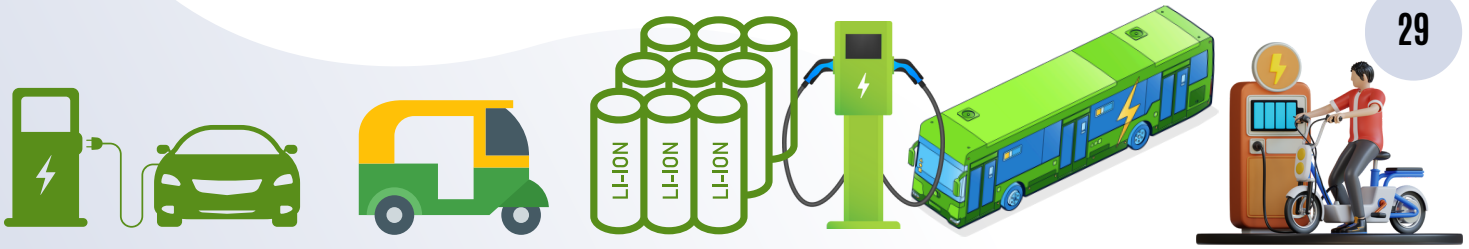



Bharat Mobility Global Expo 2025

Omega Seiki M1KA 1.0 electric truck

The future of sustainable urban people mobility

- Price: ₹6.99 lakh
- Range: 180 km
- Max Speed: 90 km/h
- Driving Motor Type: Permanent Magnet Synchronous
- Power: 130 kW
- Torque: 415 Nm
- Battery Type: LiFePO4
- Battery Voltage: 537.6 V
- Battery Capacity: 96.77 kWh
- Charging Standard: CCS2
- Charging Type: DC Fast Charging



EKA Mobility : Bharat Mobility Global Expo

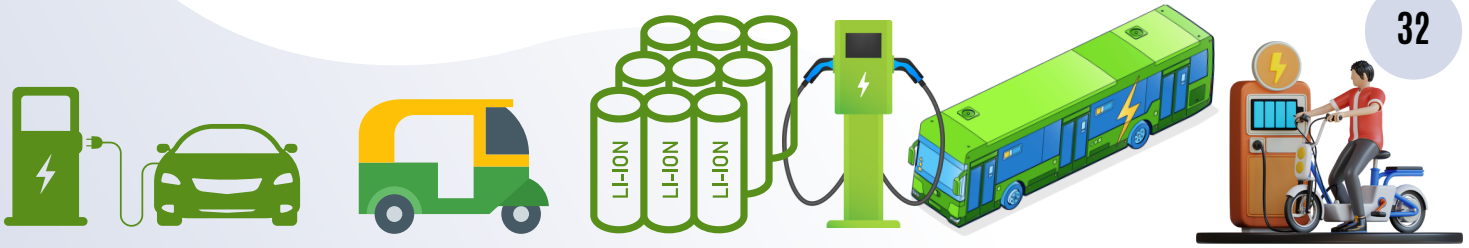
Eka Mobility showcased India's largest ever range of electric commercial vehicles, which includes over 11 distinct platforms spanning electric buses, trucks, and small commercial vehicles (SCVs). Launching the brand new EKA- Connect for the Indian market. Their bus portfolio included EKA COACH, EKA 12M, EKA 9M, EKA LF (Low Floor), and EKA 9M. Electric Trucks include EKA 55T and EKA 7T, while EKA 3.5T, 2.5T, 1.5T, EKA 3W CARGO, EKA 6S, and EKA 3S were unveiled under their SCV Range.

JBM Electric : Bharat Mobility Global Expo

JBM Electric Vehicles launched 4 all-new electric buses at Auto Expo 2025, ranging from luxury coach, and medical mobile unit to electric tarmac coach, among others. Highlights of the launch were Galaxy; electric luxury coach, Xpress; an intercity bus, e-MediLife; Low Floor Electric Medical Mobile Unit, and e-SkyLife; 9-meter electric tarmac coach.

Bharat Mobility Global Expo 2025

Olectra Green Tech Limited unveiled a 12-meter Blade Battery Platform, a 9-meter City Bus, 12-meter Coach Bus, and Blade Battery Chassis. These products are underpinned by cutting-edge technology and inclusive design.



Unique EV's Showcased At Auto Expo 2025

EKA 6S

L5M category electric passenger carrier

- Seating Capacity: D+6 (Driver + 6 passengers).
- Driving Range: Approximately 140 km per charge.
- Tyres: 120/80 R12 tubeless tyres to minimize downtime.
- Warranty:
- Vehicle: 3 years or 1.25 lakh km (whichever is earlier).
- Battery: 6 years or 1.65 lakh km (whichever is earlier).
- Charging: DC fast charging, full charge in 2 hours.
- Performance:
- Gradeability: 21% (handles steep inclines like flyovers).
- Torque: 65 Nm for effortless performance.

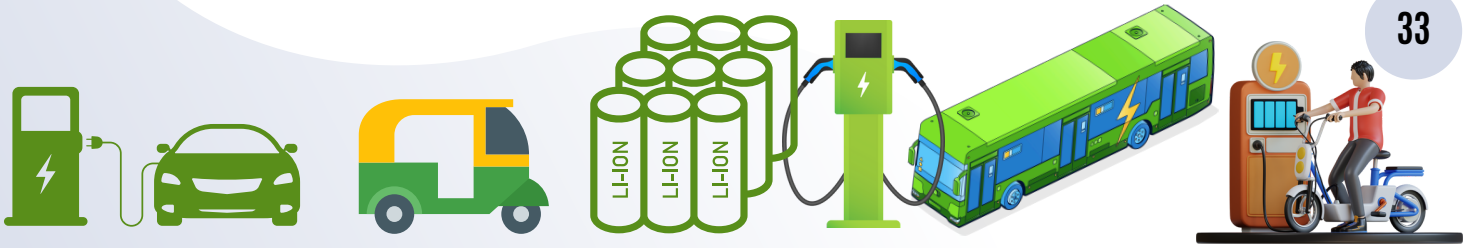
Greaves Xargo

Designed for small businesses with a built-in delivery box.
Rear section can be modified into a mobile café.

- Battery: 5 kWh Lithium Iron Phosphate (LFP) battery pack.
- Range: Over 100 km per charge.
- Payload Capacity: 300 kg.

Hyundai And TVS Three-Wheeler

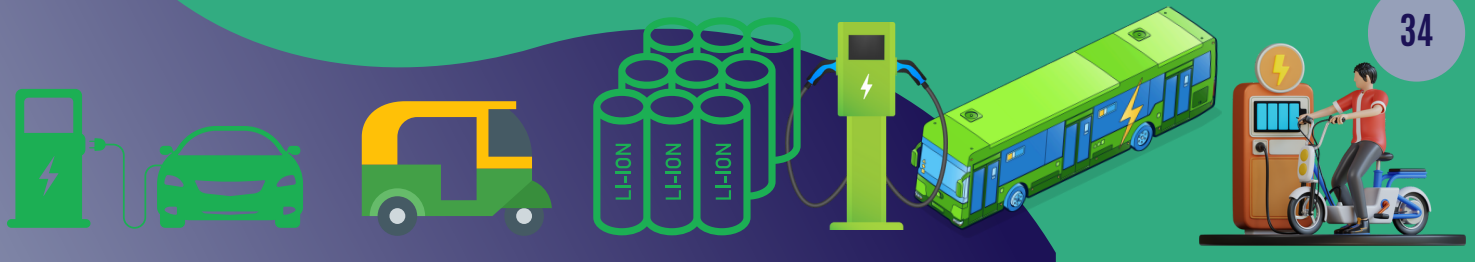
Electric three-wheeler for last-mile mobility
Locally manufactured in India, supporting the "**Make-in-India**" initiative



Bharat Mobility Global Expo 2025

Sarla Aviation unveils 'Shunya,' India's first eVTOL air taxi – Prototype unveiled for India's first electric vertical take-off and landing (eVTOL) air taxi.

Design and Capacity	Can carry 6 passengers, payload of 680 kg.
Speed and Efficiency	Can reach speeds of 250 km/h.
Environmental Impact	Electric vehicle aimed at reducing pollution and promoting sustainable transport.
Launch Plans	Expected launch in Bengaluru by 2028.
Expansion Plans	Plans to expand to Mumbai, Delhi, Pune, and other major cities.
Strategic Partnership	Collaboration with Sona SPEED for motor and landing gear components.
Future Services	Plans to offer air ambulance services.



Top Money Movement

Vardhaan Lithium

Vardhaan Lithium Pvt. Ltd. partners with Maharashtra to establish a lithium refinery and battery manufacturing unit in **Butibori, Nagpur, Maharashtra** an investment of INR **42,532 crores**, aiming to boost India's EV ecosystem. The facility will cover **500 acres** and is expected to have a refining capacity of **60,000 tonnes per annum (KTPA) of lithium**, producing battery-grade lithium carbonate (LiCO3) and lithium hydroxide (LiOH).

Lyteflo

Lyteflo, a Toronto-based startup specializing in electric vehicle (EV) merchandising solutions, has successfully secured **$3 million in seed funding**. The funding round was led by **Diagram Ventures**, with participation from notable Canadian venture capital firms Whitecap Venture Partners and Amplify Capital. This financial boost positions Lyteflo to enhance its offerings and assist auto dealerships in navigating the rapidly evolving landscape of electric vehicles.

Blue Energy Motors

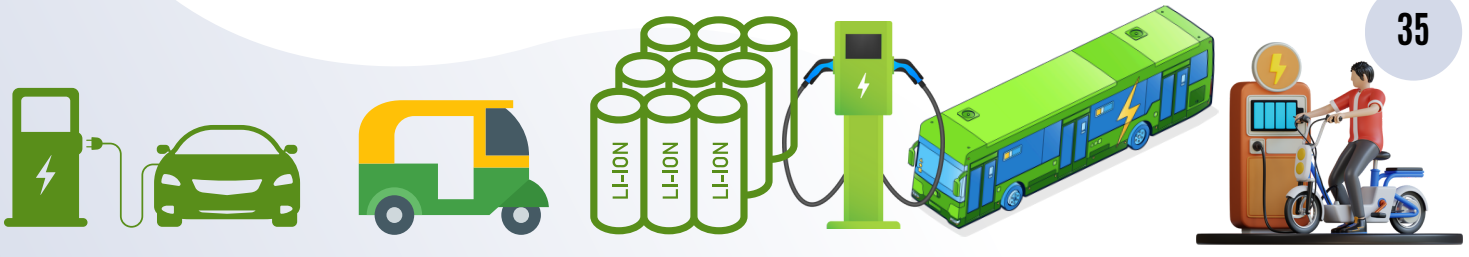
Blue Energy Motors, a prominent player in the liquefied natural gas (LNG) truck sector, has announced its ambitious plan to invest **₹3,500 crore** in establishing a state-of-the-art electric vehicle (EV) truck manufacturing facility in **Chakan, Maharashtra**. This announcement was made on January 22, 2025, during the **World Economic Forum in Davos**, where the company signed a Memorandum of Understanding (MoU) with the Government of Maharashtra.

Go EV

Go EV Mobility has successfully secured **INR 25 crores** in a pre-money valuation funding round led by Novogram Investments. This funding is poised to accelerate the company's mission of revolutionizing the electric mobility landscape in India. The announcement was made recently, highlighting the company's commitment to developing innovative solutions in the rapidly evolving automotive sector.

JSW Group

World Economic Forum (WEF) in Davos, Switzerland, JSW Group has committed to invest an astounding **₹3 lakh crore** across various sectors in Maharashtra. This ambitious initiative aims to bolster the state's industrial capabilities while aligning with India's clean energy goals. The Memorandum of Understanding (MoU) was signed by **Sajjan Jindal, Chairman of JSW Group, and Devendra Fadnavis, Chief Minister of Maharashtra**, marking a significant milestone in the state's economic development.



Top Money Movement

International Battery Company

International Battery Company (IBC) has announced plans to establish a **₹390 crore lithium-ion gigafactory in Karnataka**. This facility, located in the KIADB ITIR industrial area of **Devanahalli,** is poised to begin operations within nine months and is expected to create approximately 300 direct jobs.

Exide Industries

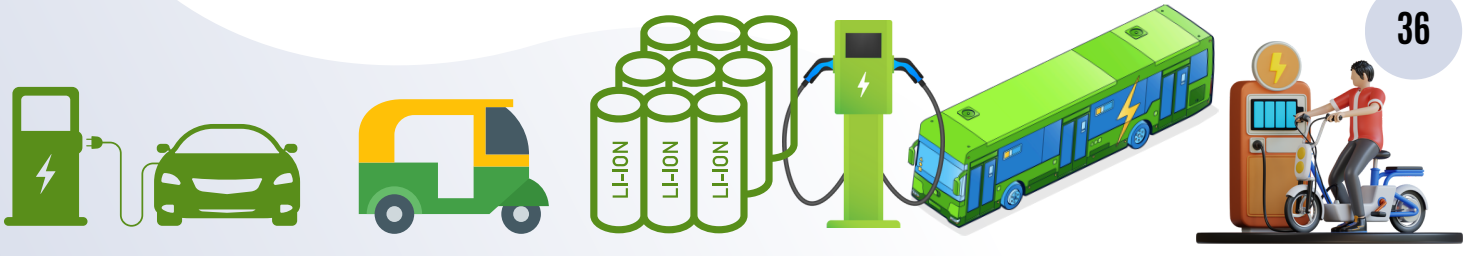
Exide Industries Ltd., a leading Indian storage battery manufacturer, has announced an investment of **INR 1.5 billion (approximately USD 18 million)** into its wholly-owned subsidiary, **Exide Energy Solutions Ltd. (EESL)**. This latest infusion is part of a broader strategy to enhance battery cell production capabilities at its upcoming lithium-ion manufacturing facility located in **Bengaluru**.

BGauss

BGauss, a Pune-based electric two-wheeler manufacturer, has successfully raised **₹161 crore (approximately $18.6 million)** in a funding round led by Bharat Value Fund (BVF). This funding round comprises both primary and secondary capital, marking a pivotal moment for the company as it seeks to expand its operations across India and into global markets.

Euler Motors

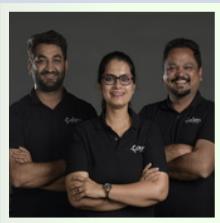
Euler Motors, a pioneering electric vehicle manufacturer based in Delhi, has successfully raised **$20 million in debt funding** from Zurich-headquartered responsAbility Investments AG. Founded in 2018, Euler Motors specializes in producing electric three-wheeler (3W) and four-wheeler (4W) commercial vehicles designed for urban goods transportation. This significant financial backing marks a pivotal moment for the company as it seeks to enhance its production capabilities and broaden its market presence across Tier 1 and Tier 2 cities in India.

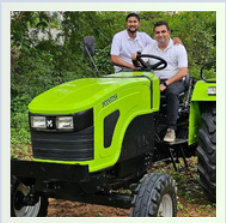


Top Money Movement

Oben Electric

Oben Electric, a prominent electric two-wheeler manufacturer based in Bengaluru, announced the successful closure of its **Series A funding round**, raising **₹500 million (approximately $5.82 million)**. This funding marks a significant milestone for the company as it seeks to expand its reach and enhance its product lineup in the rapidly growing Indian electric vehicle market.



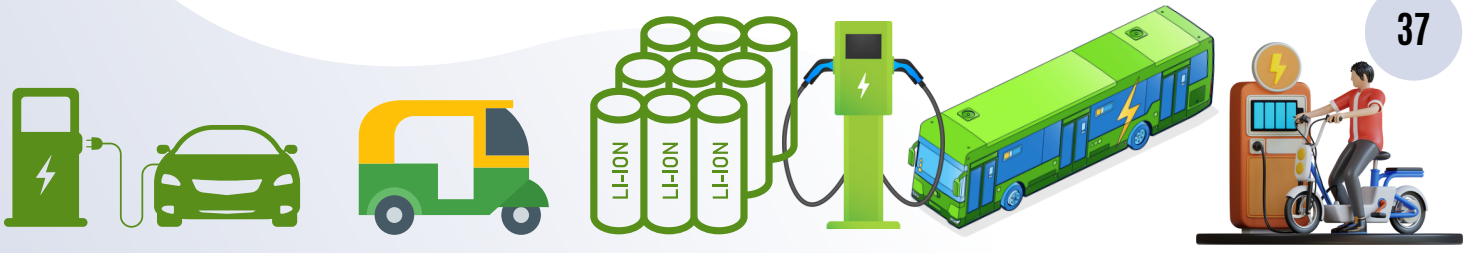


Moonrider.ai

Moonrider.ai, an **electric tractor** technology company based in **Bengaluru**, has successfully raised **$2.2 million (approximately ₹19 crore)** in a seed funding round. The funding was co-led by **AdvantEdge Founders and Micelio Technology Fund**, alongside a group of angel investors who recognize the potential of electric vehicles in agriculture.

EMO Energy

EMO Energy, a Bengaluru-based energy-tech startup, has successfully raised **$6.2 million** in its Series A funding round, led by **Subhkam Ventures**. This investment comes at a crucial time as the demand for sustainable energy solutions continues to grow, particularly in urban environments. The funding will enable EMO Energy to scale its innovative energy solutions for two- and three-wheelers, aiming to deploy over 100,000 vehicles within the next two years and establish 1 GWh of energy storage capacity.



Top Money Movement

Volkswagen Group

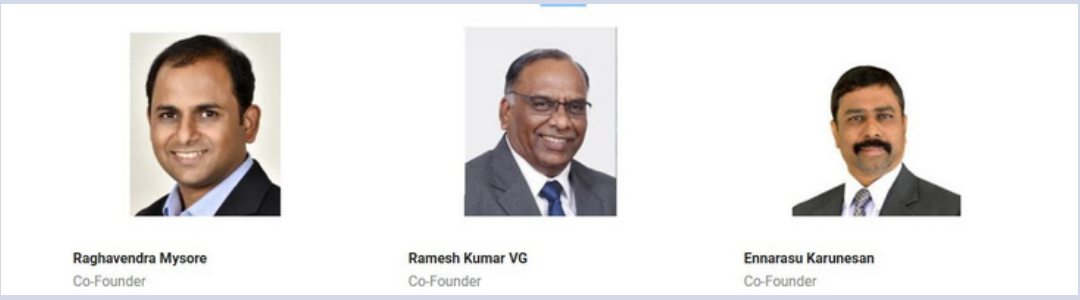
Volkswagen Group has made a significant move in the electric vehicle (EV) sector by acquiring a **9.9% stake** in Canadian lithium developer Patriot Battery Metals for approximately **C$69 million (around $48.1 million)**. This strategic investment marks Volkswagen's first foray into the mining industry, emphasizing its commitment to securing essential raw materials for its EV production.

Nouveau Monde Graphite Inc. (NMG)

(NMG) has secured a significant equity investment of **US$50 million** from the **Canada Growth Fund Inc. (CGF) and the Government of Québec**, marking a pivotal moment for the company as it advances its Phase 2 operations in the ore-to-battery-material graphite sector. This investment is aimed at propelling NMG towards its goal of establishing one of North America's largest fully integrated natural graphite production facilities, crucial for the burgeoning electric vehicle (EV) market.

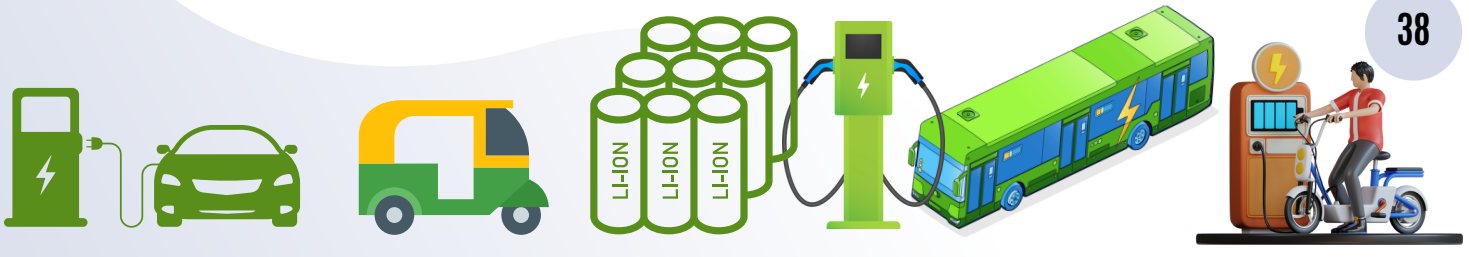
Mufin Green

India Mufin Green, A leading financier in the electric vehicle (EV) ecosystem in India, has successfully secured an **USD 18 million loan** from the **United States International Development Finance Corporation (DFC)**. This significant funding will enable the company to expand its financing services within the burgeoning electric mobility sector, which encompasses a diverse range of products including two-wheelers, three-wheelers, four-wheelers, fast chargers, and swappable batteries.



MOOEV Technologies

MOOEV Technologies has successfully raised **Rs 4 crore in seed funding**. This investment round was led by BizDateUp, with additional contributions from **Inflection Point Ventures and Spectrum Impact**, the family office of Aarti Industries. The funding will primarily support the deployment of an initial fleet of 15 electric heavy-duty trucks, marking a pivotal step towards sustainable logistics solutions in the country.

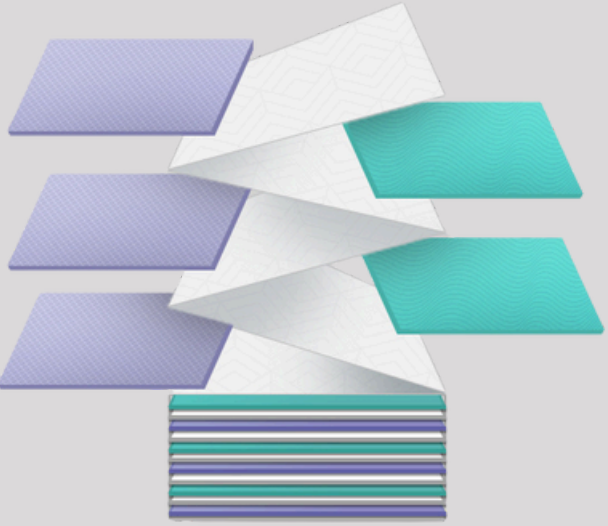


LG Energy Solution Advanced Z Stacking

LG Energy Solution Unveils Revolutionary Battery Manufacturing Technique to Enhance Safety. Advanced Z-Stacking Method Promises Safer Lithium-Ion Batteries for Electric Vehicles

LG Energy Solution has announced the introduction of its innovative battery manufacturing technique known as **Advanced Z-Stacking**. This proprietary method combines the existing Lamination & Stacking technology with a novel "Z-Stacking" approach, significantly improving battery safety and reliability by optimizing the internal structure of lithium-ion battery cells.

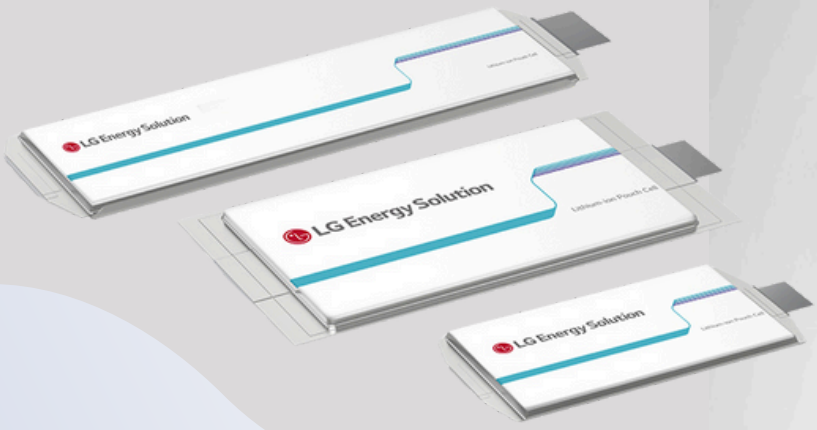
A Fusion of Technologies

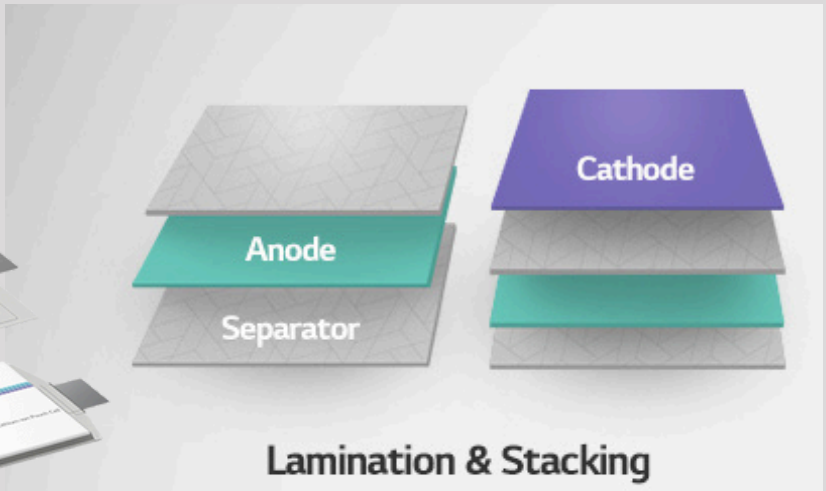


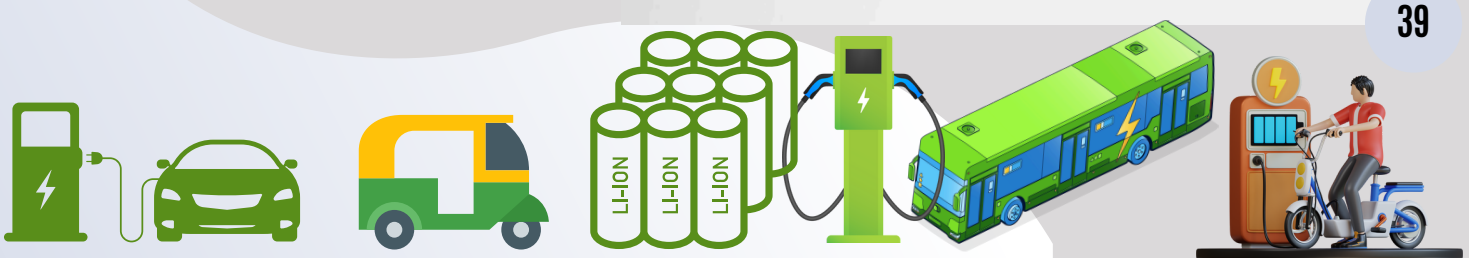
The Advanced Z-Stacking method merges two critical technologies in battery production:

- **Lamination & Stacking**: This established technique involves layering battery materials, including cathodes, anodes, and separators, before stacking them to form a cell. The process ensures that materials are aligned correctly, minimizing misalignment issues.
- **Z-Stacking Technique**: In this innovative approach, the separator is arranged in a "Z" pattern between the cathode and anode layers. This configuration enhances stability within the cell structure, reducing potential risks such as internal short circuits.

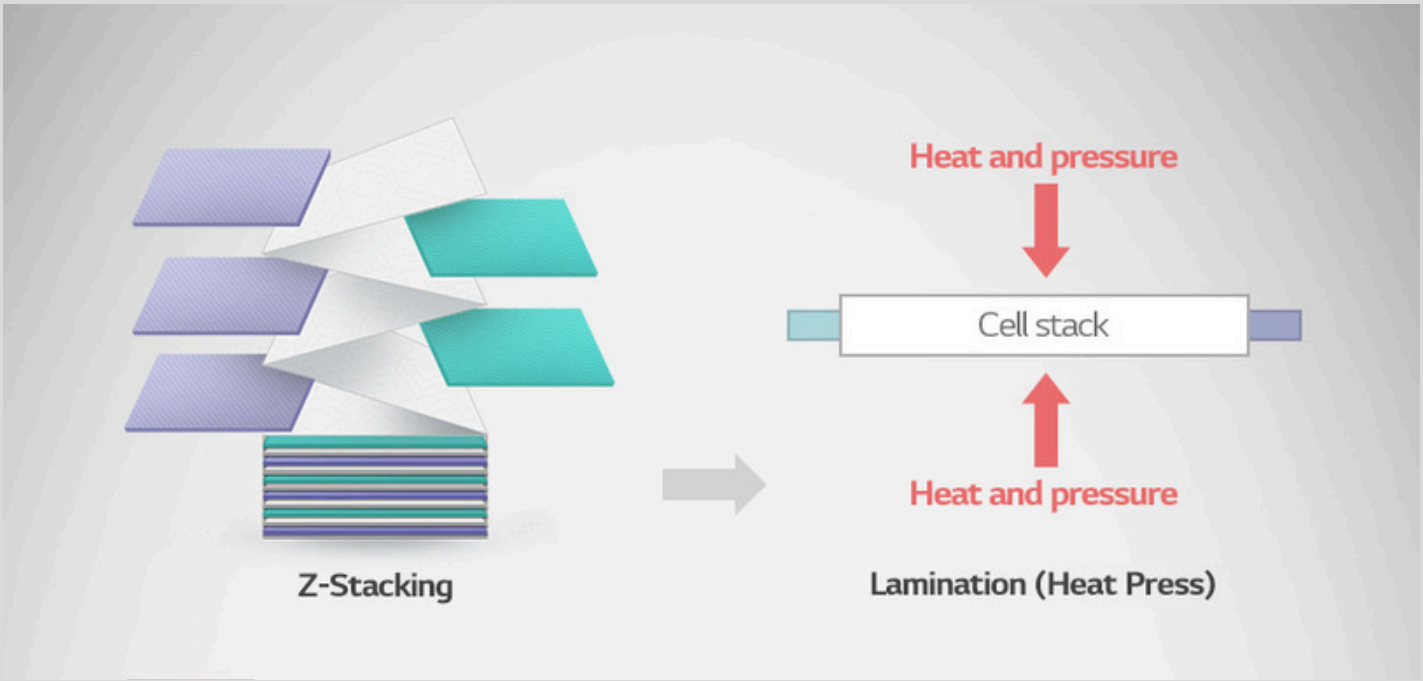
By precisely controlling the stacking process through Advanced Z-Stacking, LG Energy Solution aims to mitigate safety concerns that have plagued battery technology in recent years. The company's commitment to research and development has led to this significant advancement, reinforcing its position as a leader in the battery manufacturing industry.







LG Energy Solution Advanced Z Stacking



Enhanced Safety Features

The implementation of Advanced Z-Stacking is expected to yield several safety benefits:

- **Minimized Internal Short Circuits**: By optimizing the arrangement of components within the cell, the risk of internal short circuits is significantly reduced.
- **Improved Thermal Stability**: The new structure enhances thermal management within the battery, which is crucial for maintaining performance and safety during operation.
- **Increased Reliability**: The combination of these technologies results in batteries that are not only safer but also more reliable for consumers and manufacturers alike.

A Proprietary Innovation

LG Energy Solution's Advanced Z-Stacking is not just an incremental improvement; it represents a key proprietary innovation that sets the company apart from competitors in the rapidly evolving battery market. As electric vehicles become increasingly mainstream, ensuring safety and reliability in battery technology is paramount.

As LG Energy Solution rolls out its Advanced Z-Stacking technology, it not only strengthens its competitive edge but also addresses critical safety concerns associated with lithium-ion batteries. This innovation marks a significant step forward in creating safer and more reliable energy solutions for electric vehicles.

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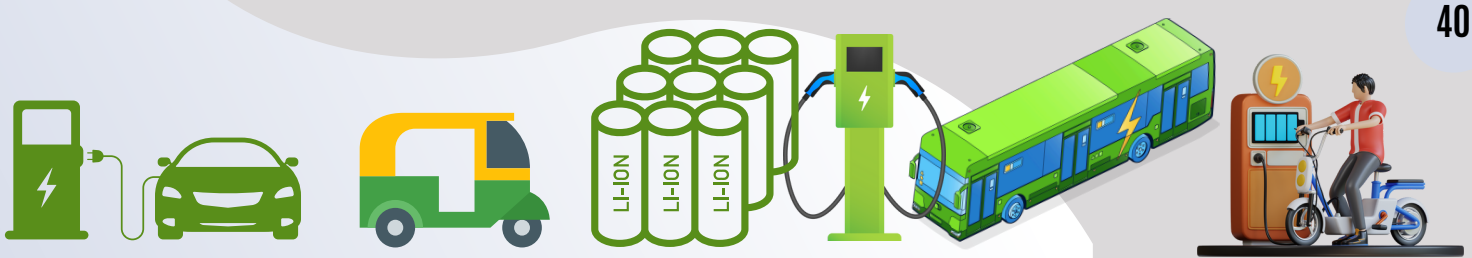


EV NEWS

Contemporary Amperex Technology Co., Ltd. (CATL)

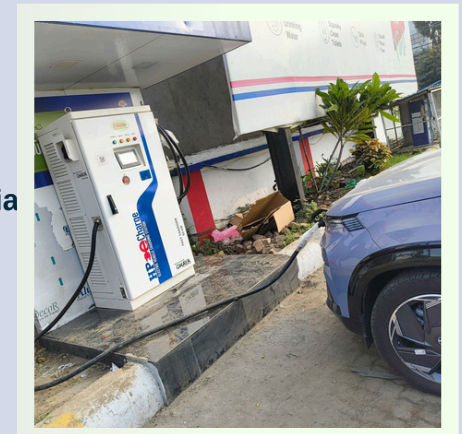
CATL has unveiled its new Choco-SEB (Swapping Electric Blocks) battery packs, designed to enhance the convenience of battery swapping for passenger vehicles. This innovative solution was introduced at a recent event in Xiamen, Fujian Province, where CATL outlined its ambitious plans to revolutionize the EV landscape in China and beyond.

Su-Kam Power Systems

Su-Kam Power Systems Limited, a leading player in the power solutions sector, has officially launched a **500 MWh lithium-ion battery pack** manufacturing facility in **Baddi, Himachal Pradesh**. This facility, which spans 20,000 square feet, is poised to enhance the company's capabilities in energy storage and electric mobility. Established in 1988, Su-Kam has built a reputation for providing innovative power solutions, including inverters, batteries, and solar panels, with exports reaching over 90 countries.

Government of India

Government of India is prioritizing the establishment of a comprehensive network of **charging and battery swapping infrastructure**. This initiative comes as part of the broader strategy to position India as a global hub for electric mobility. During a recent meeting led by **Commerce and Industry Minister Piyush Goyal**, key industry stakeholders gathered to discuss pressing concerns regarding the EV infrastructure landscape.



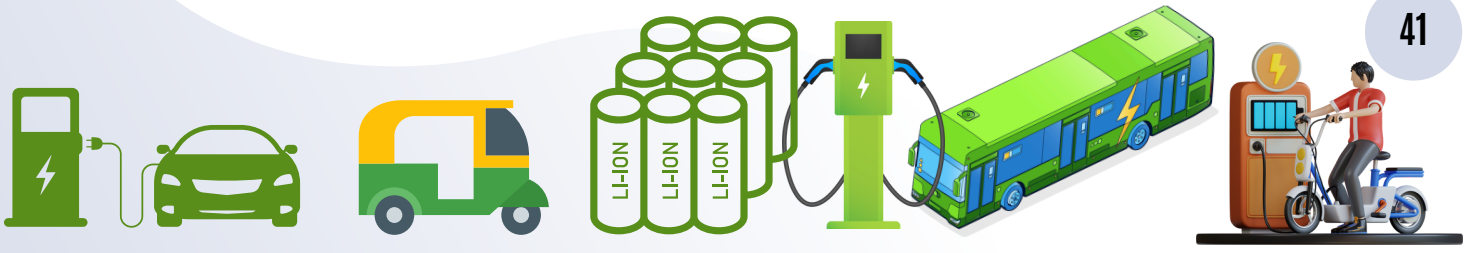
The government plans to **install 10,763 public charging stations** across the country under the FAME-II scheme (Faster Adoption and Manufacturing of Electric Vehicles).

The meeting included representatives from major automotive players such as **Tata Motors, TVS Motor Company, and Mercedes-Benz India**

To attract international players, India has rolled out an electric vehicle policy offering various incentives for companies investing over **$500 million** in manufacturing facilities. This has drawn interest from global giants like **Tesla, BMW, and Audi**, all eyeing the burgeoning Indian market projected to reach 10 million annual sales by 2030.

The Economic Survey for 2022-23 highlights that this growth could generate approximately 50 million direct and indirect job opportunities, underscoring the sector's potential.

One of the most discussed topics during the meeting was the concept of battery swapping. Industry stakeholders believe that this sector could grow to a valuation of $20 billion by 2030.



EV NEWS

Indus Towers

Indus Towers Limited, a leading telecom tower infrastructure provider in India, has received board approval to enter the electric vehicle (EV) charging infrastructure sector. This strategic decision marks a pivotal shift from its core telecom business as the company aims to capitalize on the burgeoning demand for EVs in India.

The company has already initiated pilot EV charging stations in Gurugram and Bengaluru, two major urban centers that are critical for the success of this venture.

PURE EV

PURE EV, a prominent Indian manufacturer of electric two-wheelers, launched its groundbreaking X Platform 3.0, which integrates advanced artificial intelligence (AI) technology to redefine the electric vehicle (EV) landscape. This innovative platform aims to enhance performance, connectivity, and user experience in the rapidly evolving electric mobility sector.

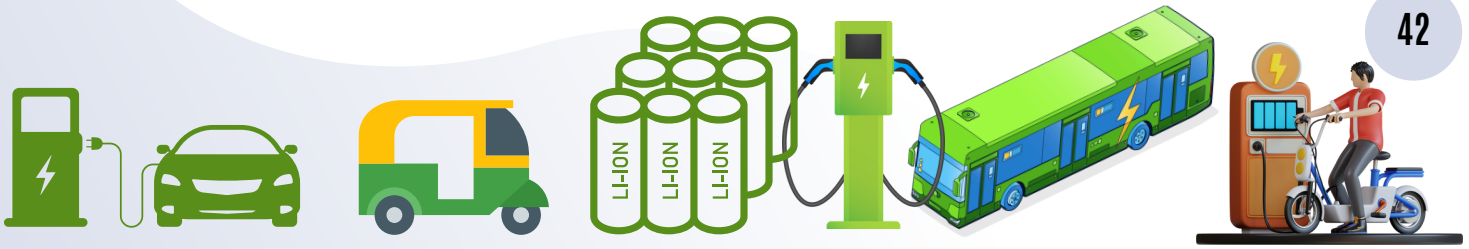
Key Features of the X Platform 3.0

The X Platform 3.0 introduces several cutting-edge features designed to elevate the riding experience:

Thrill Mode: This new ride mode boosts vehicle torque by an impressive 25%, allowing for quicker acceleration and a more exhilarating ride.

Predictive AI Vehicle Control Unit: This feature adapts to individual rider behavior, optimizing performance based on real-time data and enhancing reliability by predicting potential issues before they arise.

Real-Time Connectivity: The platform supports over-the-air updates and includes a new TFT dashboard compatible with both Android and iOS devices, providing riders with turn-by-turn navigation, battery health monitoring, and range estimation.



Tivolt Electric Vehicles

Tivolt Electric Vehicles, a subsidiary of TI Clean Mobility (TICMPL) and part of the Murugappa Group, has successfully obtained the CMVR Type Approval Certificate for their upcoming electric Small Commercial Vehicle (SCV), the TIVOLT E-350L FSD V1. The certificate was officially presented by Dr. Reji Mathai, Director of the Automotive Research Association of India (ARAI), to Nishit Chandra Goel, Senior Associate VP & Head of R&D-SCV/LCV at Tivolt.This achievement is pivotal as it not only validates the vehicle's compliance with India's stringent automotive regulations but also underscores Tivolt's commitment to innovation in the EV space. The TIVOLT E-350L FSD V1 is designed to cater to the growing demand for environmentally friendly transportation solutions within the small commercial vehicle segment.

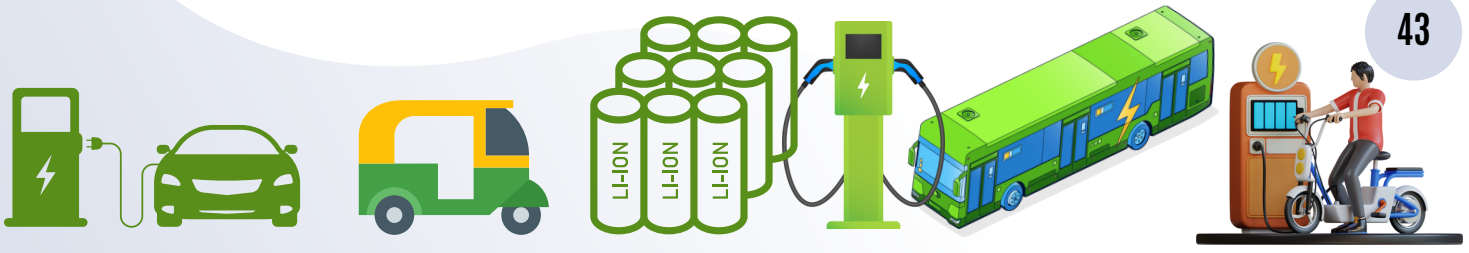
devise

Hyundai Motor India

Hyundai Motor India Ltd. (HMIL) has unveiled an ambitious initiative aimed at bolstering the electric vehicle (EV) infrastructure in the country. The company plans to install 600 fast public EV chargers over the next seven years, focusing on strategic locations along major highways and in urban centers. This move is part of HMIL's broader strategy to support the growing demand for electric vehicles in India and to facilitate a smoother transition towards sustainable transportation.

Expansion of Charging Network

By the end of 2024, HMIL's network will feature over 50 DC fast charging stations strategically located across highways, major cities, and dealerships. These stations will be equipped with multiple charging configurations, including combinations of DC 150 kW, DC 60 kW, and DC 30 kW chargers.



Omega Seiki Mobility'S CVT Gearbox

Omega Seiki Mobility Unveils India's First Electric Vehicle with CVT Gearbox

Omega Seiki Mobility (OSM), founded by **Uday Narang**, marked a significant milestone in the Indian automotive sector by launching the Rage+, the country's first electric vehicle equipped with a **Continuously Variable Transmission (CVT) gearbox**. This pioneering innovation is set to redefine the standards for electric mobility in India and beyond.

What Makes CVT a Game-Changer?

The introduction of CVT technology in electric vehicles offers several advantages that enhance both performance and user experience:

- **India's First in EVs**: OSM's Rage+ represents a pioneering step in integrating CVT technology into electric vehicles, setting a new benchmark for the industry.
- **Smoother Acceleration**: The absence of traditional gear shifts provides drivers with a seamless driving experience, enhancing comfort and control.
- **Improved Efficiency**: The CVT system optimizes energy usage, allowing for extended driving ranges on a single charge.
- **Smart Power Delivery**: The gearbox intelligently adjusts to varying speeds and loads, ensuring consistent performance across different driving conditions.

Strategic Collaboration with Exedy Corp

The development of the Rage+ was made possible through a strategic partnership with Exedy Corp, a global leader in drivetrain solutions. This collaboration aims to leverage Exedy's expertise in high-efficiency electric drive units combined with OSM's innovative approach to electric mobility. According to Exedy's recent announcement, their investment in OSM is driven by India's rapid economic growth and the government's push towards electrification to combat air pollution and dependency on fossil fuels.

OSM's Vision for Green Mobility

Omega Seiki Mobility is committed to promoting sustainable transportation solutions across India. With over **235 dealerships** nationwide and nearly 40% of its electric vehicles deployed in Tier II and III cities, OSM is making strides toward achieving carbon neutrality

The company's vision encompasses not just passenger vehicles but also commercial applications, including electric trucks designed for e-commerce and logistics sectors.

Key Features of OSM's Electric Trucks:

- **Cost Efficiency**: Reduced total cost of ownership through lower fuel and maintenance expenses.
- **Battery Swapping Solutions**: Quick battery replacement options minimize downtime for fleet operators.
- **Advanced Charging Infrastructure**: Partnerships to enhance fast-charging capabilities address critical barriers to EV adoption.

The event represents an opportunity for industry professionals and enthusiasts alike to witness firsthand how OSM is revolutionizing mobility standards.

Joint Ventures & Partnerships

Altair - CAAR

Altair, a global leader in computational intelligence, has entered into a memorandum of understanding (MoU) with The Centre of Excellence in Advanced Automotive Research (CAAR). This partnership aims to foster innovation and collaboration within the automotive industry, focusing on advancements in e-mobility, autonomous systems, and sustainable vehicle development.

Wardwizard - C4V

Wardwizard Innovations & Mobility Limited, a prominent player in the electric vehicle (EV) sector in India, has taken a significant step towards enhancing its technological capabilities by signing a Memorandum of Understanding (MoU) with New York-based battery technology firm C4V (Charge CCCV LLC). This partnership is set to transform the landscape of EV battery technology, aligning with India's broader vision for sustainable energy solutions and green mobility.

CBAK Energy - Ather Energy

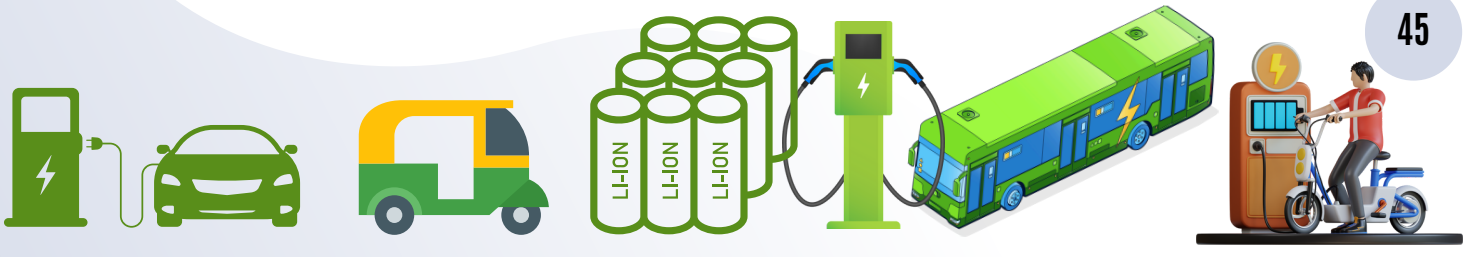
CBAK Energy Technology, Inc. (NASDAQ: CBAT) has announced a strategic partnership with Ather Energy, one of India's leading manufacturers of electric two-wheelers. This collaboration is set to enhance Ather's battery capabilities by integrating CBAK's advanced Model 32140 cylindrical lithium-ion battery cells into its vehicles, marking a significant milestone in the burgeoning Indian EV market.

Servotech Power Systems - Ensmart Power

Servotech Power Systems Ltd., India's leading manufacturer of EV chargers, has announced a strategic partnership with Ensmart Power, a UK-based specialist in critical power and energy storage systems. This collaboration is set to expand the distribution of EV chargers across the UK, North America, and beyond, capitalizing on the rapid adoption of electric vehicles in these regions.

BIAL - Sarla Aviation

Bangalore International Airport Limited (BIAL) has partnered with Sarla Aviation to introduce **electric flying taxis in Bangalore**. This innovative initiative aims to alleviate the city's notorious traffic congestion while promoting sustainable and efficient travel options. The electric flying taxis will operate from a dedicated vertiport at **Kempegowda International Airport (KIA)**, providing seamless connectivity to key locations across the city.



LG Energy Solution Powers Aptera Motors

In a groundbreaking announcement at **CES 2025 in Las Vegas**, **LG Energy Solution (LGES)** has solidified its position as a leader in the energy storage and electric vehicle (EV) market by entering into strategic agreements with **Aptera Motors** and **CTNS Co., Ltd**. This partnership aims to revolutionize the solar electric vehicle (sEV) landscape by supplying 4.4GWh of advanced battery cells over the next seven years.

Strategic Partnership Overview

The Memorandum of Understanding (MOU) establishes LGES as the exclusive supplier of its state-of-the-art **2170 cylindrical battery cells** to Aptera Motors. This collaboration is set to enhance Aptera's production capabilities and facilitate the launch of its innovative solar EVs, which have already garnered approximately 50,000 pre-orders. The total value of this supply agreement is estimated at around **630 billion won**, showcasing the financial significance of this partnership.

Chris Anthony, Co-CEO of Aptera Motors, emphasized the importance of this collaboration: ***"This partnership represents a significant milestone in bringing our solar EVs to market with the reliability and performance our customers expect"***

The integration of LGES's cutting-edge battery technology with Aptera's unique designs is expected to set new standards for efficiency and sustainability in the automotive industry.

Key Highlights of the Collaboration

- **Battery Cell Supply**: LGES will provide 4.4GWh of 2170 cylindrical batteries from 2025 to 2031.
- **Manufacturing Excellence**: CTNS will utilize LGES cells to create high-quality battery modules and packs tailored specifically for Aptera's designs.
- **Sustainable Mobility**: The partnership aims to enhance renewable energy integration and improve grid reliability through innovative energy storage solutions.

Financial Implications

The agreement marks a substantial investment in sustainable technology, reflecting the growing demand for high-performance battery solutions in the EV market. With production set to commence in 2025, this collaboration not only strengthens LGES's market presence but also positions CTNS as a key player in the U.S. manufacturing sector

The Future of Solar Electric Vehicles

Aptera's solar EVs are designed to harness renewable energy efficiently. With features such as an impressive **range of 643 km on a single charge** and the ability to travel 64 km daily using only solar panels, these vehicles represent a significant advancement in urban commuting solutions

The partnership between LG Energy Solution, Aptera Motors, and CTNS signifies a major leap toward achieving a cleaner energy future through innovative transportation solutions. By combining their strengths, these companies are poised to transform the landscape of solar-powered mobility and set benchmarks for sustainability within the automotive industry. As demand for electric vehicles continues to surge globally, this collaboration not only underscores LGES's commitment to innovation but also highlights its role as a trusted supplier in the rapidly evolving EV market.

Joint Ventures & Partnerships

Mahindra - Vector Informatik

Mahindra & Mahindra has announced a strategic collaboration with Vector Informatik GmbH. This partnership aims to develop the Mahindra Artificial Intelligence Architecture (MAIA), a cutting-edge software-defined vehicle (SDV) platform designed to enhance the performance and adaptability of electric SUVs. The collaboration has yielded impressive results within just one year, culminating in a robust middleware platform for high-performance computing and zonal electronic control units (ECUs).

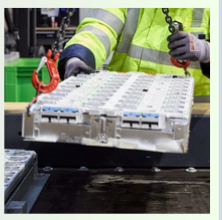
Mahindra - Qualcomm

Mahindra & Mahindra Ltd. has announced a strategic partnership with Qualcomm Technologies, Inc. to integrate advanced artificial intelligence (AI) and connectivity solutions into its electric vehicles (EVs). This collaboration was unveiled during the Consumer Electronics Show (CES) 2025, where Qualcomm showcased its latest innovations in automotive technology.

Mahindra & KRAFTON Unite

Mahindra & Mahindra has made headlines with its innovative collaboration with KRAFTON India to integrate the Mahindra BE 6 Electric Origin SUV into the popular mobile game Battlegrounds Mobile India (BGMI). Set to launch on January 16, 2025, this partnership aims to engage a tech-savvy audience while promoting Mahindra's vision of electrifying mobility through adventure and innovation.

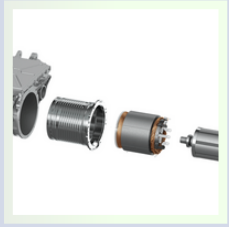
BMW Group - SK tes

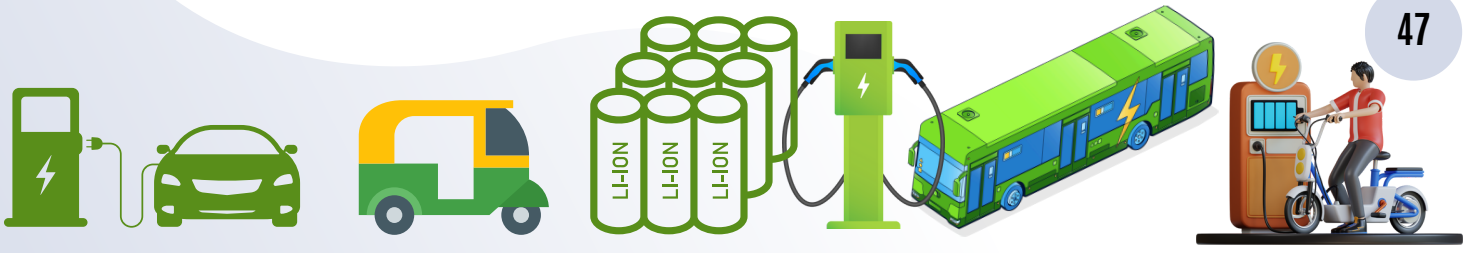


The BMW Group is making significant strides in sustainability with the launch of a closed-loop battery recycling ecosystem in partnership with SK tes, a leading provider of innovative technology lifecycle solutions. This initiative, which aims to recover valuable materials such as cobalt, nickel, and lithium from used batteries, is designed to reintegrate these resources into the production of new batteries. The program is set to officially launch in 2026 and represents a major step forward in BMW's commitment to a circular economy.

Valeo - MAHLE

Valeo and MAHLE introduce their innovative iBEE technology, a magnet-free electric axle system. This breakthrough reduces carbon emissions by over 40% while delivering high performance of up to 350 kW for electric vehicles.





Joint Ventures & Partnerships

Gensol Engineering - Refex Green Mobility

Gensol Engineering Limited has announced a strategic partnership with Refex Green Mobility Limited. This collaboration is set to facilitate the import of 2,997 electric four-wheelers (e4Ws) into the Indian market. The initiative is aimed at bolstering the adoption of electric vehicles (EVs) across key urban centers including Chennai, Bengaluru, Hyderabad, Mumbai, and Pune

Minda Corporation- Flash Electronics

Minda Corporation, the flagship company of the Spark Minda Group, is set to acquire a 49% equity stake in Flash Electronics India Pvt Ltd for INR 1372 Crores. This strategic move is poised to strengthen both companies' positions in the rapidly evolving electric vehicle (EV) ecosystem.

The acquisition of a 49% stake in Flash Electronics by Minda Corporation marks a significant milestone in the Indian automotive landscape.

BPCL - Lubi Industries

Bharat Petroleum Corporation Limited (BPCL) has announced a partnership with Lubi Industries to install 1,400 fast DC electric vehicle chargers across its extensive network of retail outlets. This ambitious project aims to address the growing demand for EV charging stations in the country, where the current infrastructure is struggling to keep pace with the increasing number of electric vehicles on the roads.

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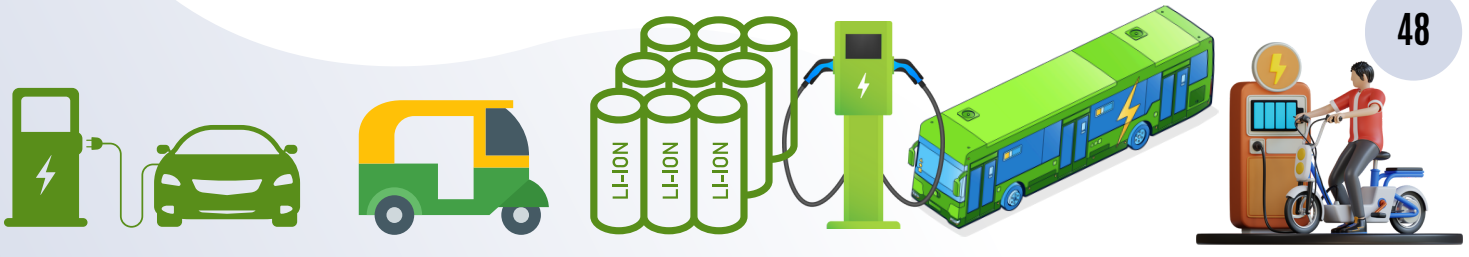

Joint Ventures & Partnerships

Vajram Electric Ltd

Vajram Electric Ltd., a prominent player in India's electric vehicle (EV) manufacturing sector, is embarking on an ambitious fundraising initiative aimed at enhancing its production capacity and modernizing its manufacturing facilities. This strategic move comes at a time when the global demand for electric vehicles is witnessing unprecedented growth

Jupiter Electric Mobility - Porter

Jupiter Electric Mobility (JEM) has partnered with Porter, a leading goods transport agency, to provide small business owners and drivers with innovative logistics solutions. This collaboration is set to facilitate the transition to electric commercial mobility through JEM's flagship platform, JEM Tez, while also empowering local entrepreneurs.

FUTURE MOBILITY PARTNERS

Ceer Partners - Rimac Technology

Ceer, Saudi Arabia's first electric vehicle (EV) brand, has announced a strategic partnership with Rimac Technology, a leader in high-performance electric drive systems. This collaboration aims to equip **Ceer's flagship models with cutting-edge technology** that promises to elevate the performance and efficiency of electric vehicles in the region.

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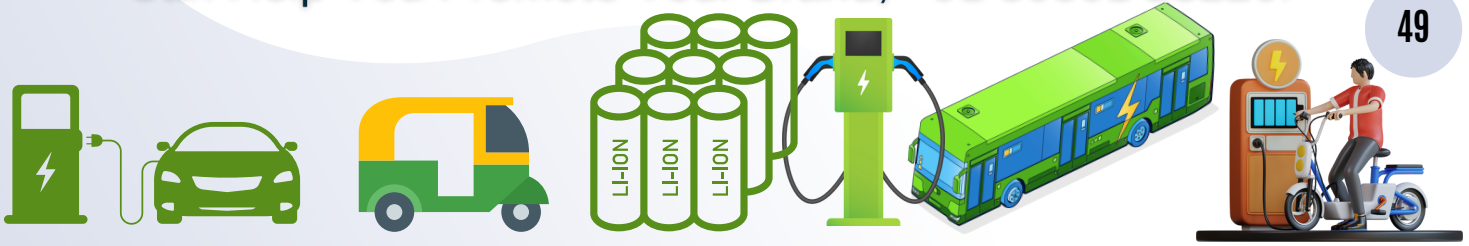


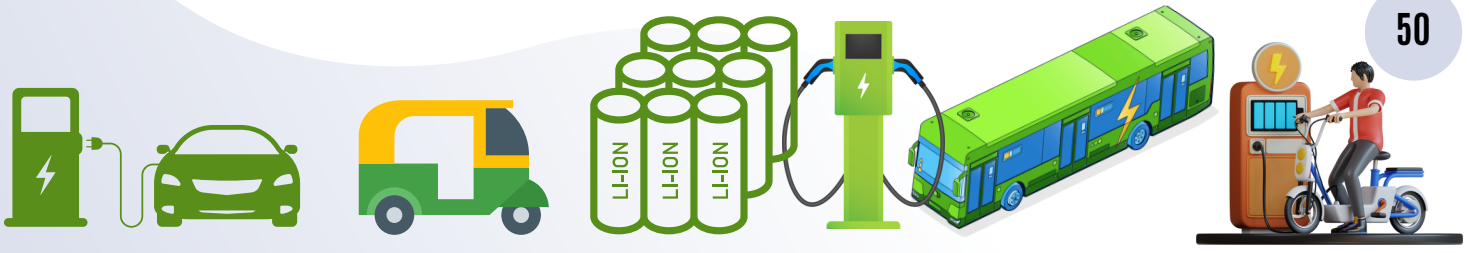
UPCOMING FUTURE MOBILITY EVENTS

THE ADAS SHOW
BANGLORE
18th February 2025

The ADAS Show 2025 will feature ‘ADAS LIVE DEMO’ at the Bangalore.

THE ADAS SHOW

EV & BATTERY EXPO 2025 - Chennai
13 **- 15 Feb, 2025 |**
Chennai Trade Center.



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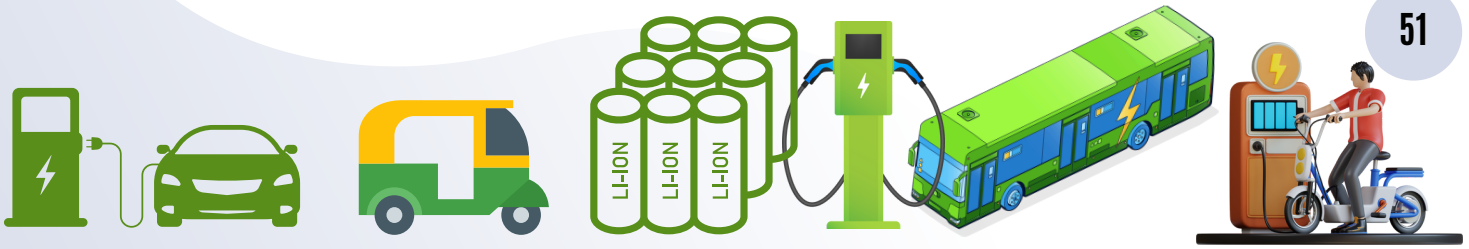


New Launch

Numeros Motors

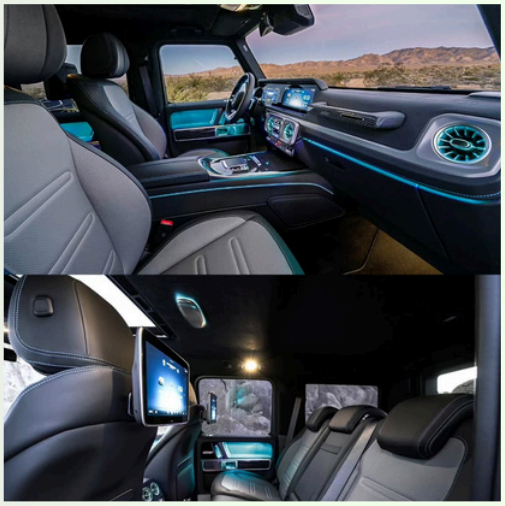
Numeros Motors has launched its multipurpose and reliable e-scooter, the Diplos Max, at an introductory ex-showroom price of **Rs. 1,09,999** in Bangalore. The company also launched India's first Bike-Scooter Crossover, proving that the company is serious about catering to customers with different requirements across the **B2B market**.

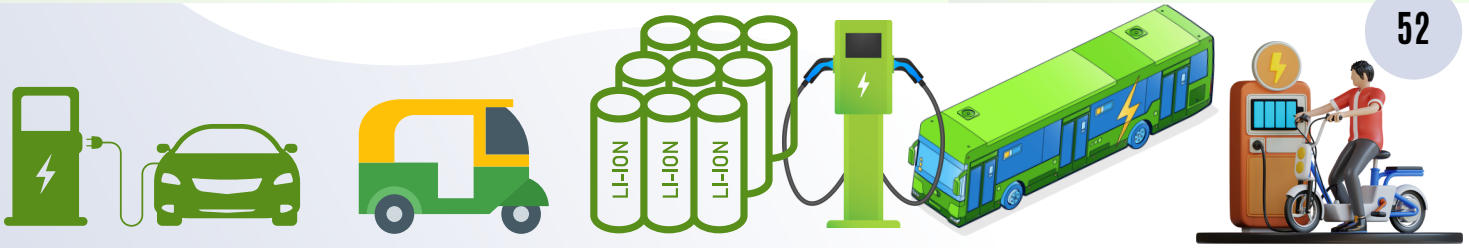
Mercedes-Benz Electric G-Class

The Mercedes-Benz Electric G-Class a.k.a the G-Class with EQ Power has been launched in India at Rs. 3 crore (all-India ex-showroom). It is available in one fully loaded EQG 580 variant and the automaker has got bookings for the car that will take till Q3 of CY2025 to fulfil.

- **The G 580 costs Rs 64 lakh less than the AMG G 63**
- **G-Turn, G-Steering, off-road crawl are features exclusive to the G 580**
- **Mercedes claims a range of 473km**

- **Battery & Range: 116 kWh battery with a range of 473 km per charge.**
- **Fast Charging: Up to 200 kW, charges to 80% in 32 minutes.**
- **Motor & Power: Quad-electric motor setup producing 587 PS and 1,164 Nm torque.**
- **Acceleration: 0 to 100 km/h in 4.7 seconds.**
- **Versatility: Suitable for urban commuting and adventurous excursions.**

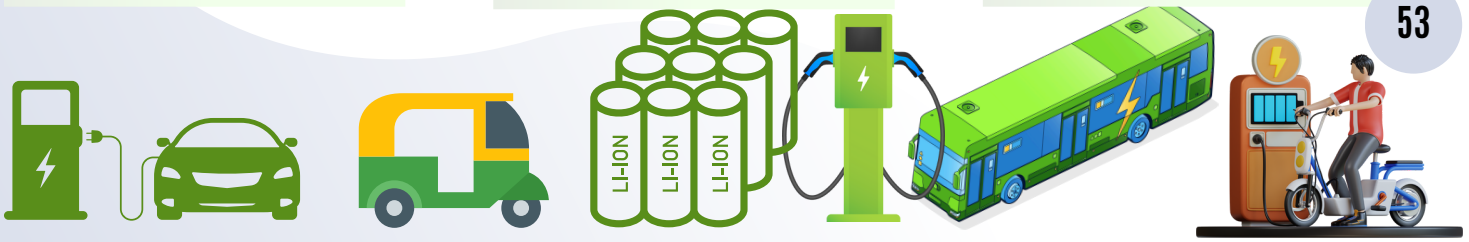




New Launch

Honda 0 Saloon and Honda 0 SUV Prototypes

- Honda presented the world premiere of two prototype Honda 0 Series models, Honda 0 Saloon and Honda 0 SUV.
- Honda introduced its original vehicle operating system (OS), the ASIMO OS, which will be installed to Honda 0 Series models.
- Honda will rapidly expand global application of its Level 3 automated driving (eyes-off function) through the Honda 0 Series, striving to become the world's first automaker to enable eyes-off driving in all driving situations to open up new possibilities for mobility.
- Honda and Renesas Electronics Corporation announced that they have signed an agreement to develop a high-performance system-on-chip (SoC) for the next-generation Honda 0 Series models Honda will launch in the late 2020s.
- Honda will accelerate its initiatives in the area of energy service, including offering new energy service through the Home Energy Management System.



New Launch

Ola Electric Revealed S1 X , S1 X+, S1 pro and S1 Pro Plus

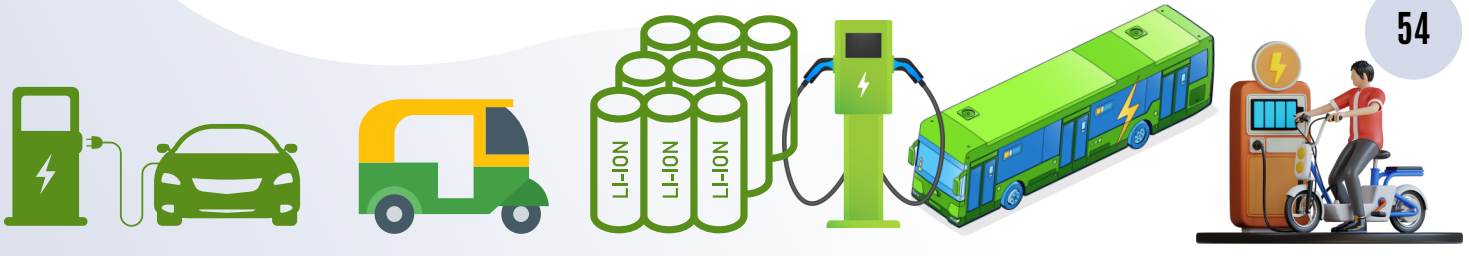
The Gen-3 Ola S1 range now consists of 4 models – S1 X, S1 X+, S1 Pro, S1 Pro+ All the scooters get more efficient battery packs & more powerful electric motor.

S1 X — Rs 79,999
- Battery packs — 2kWh, 3kWh & 4kWh
- Range — 242km (IDC 4kWh)
- 7kW (9.5hp) electric motor
- Top Speed — 123kmph
- 0-40kmph — 3-sec

S1 X+ — Rs 1.07 lakh
- Battery packs — 2kWh, 3kWh & 4kWh
- Range — 242km (IDC 4kWh)
- 11kW (14.9hp) electric motor
- Top Speed — 125kmph
- 0-40kmph — 2.7-sec

S1 Pro — Rs 1.14 lakh
- Battery Packs — 3kWh & 4kWh
- Range — 242km (IDC 4kWh)
- 11kW (14.9hp) electric motor
- Top Speed — 125kmph
- 0-40kmph — 2.7-sec

S1 Pro+ — Rs 1.54 lakh
- Battery Packs — 4kWh & 5.3kWh (new made-by-ola 4860 cells)
- Range — 320km (IDC 5.3kWh)
- 13kW (17.6hp) electric motor
- Top Speed — 141kmph
- 0-40kmph — 2.1 seconds



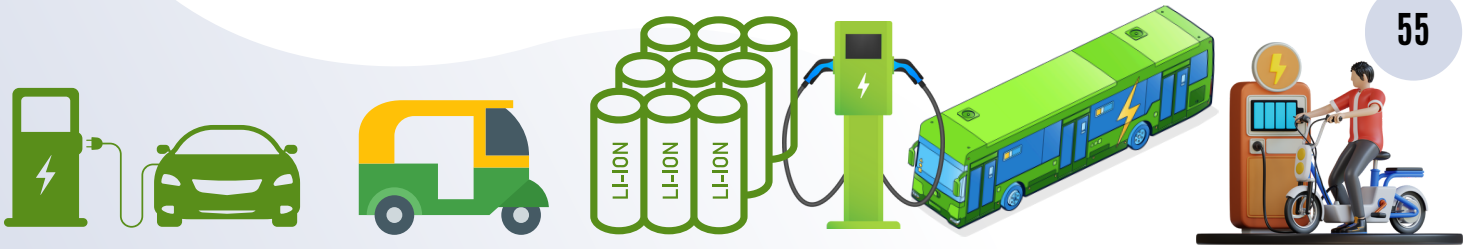
New Launch

Hyundai Motor India Ltd. - CRETA

The Hyundai Motor Company (현대자동차) Creta goes Electric. **Mr. Tarun Garg**, **Whole-Time Director and COO of Hyundai Motor India Limited**, stated that the Hyundai CRETA Electric represents a significant milestone as their first localized electric SUV, combining design, technology, and safety to inspire EV confidence in India.

Key Features and Specifications

✅ Battery Options:
Long Range (LR) — **51.4kWh (471km range)**
Standard — **42kWh (390km range)**
✅ **Performance**:
0 - 100 km/h in 7.9 seconds
Fast Charging: 10% to 80% in just 58 minutes (DC)
Wall Charger: 0 - 100% in 4 hours (11kW)
✅ Innovative Features:
Pixelated graphics on bumpers
Active Air Flaps in the front bumper
Vehicle-to-load enabled
✅ Variants & Colors:
Available in 4 variants — Executive, Smart, Premium, and Excellence
Choose from 13 vibrant colors!



Report - Guide to EV Charging Infrastructure and Grid Integration

Rising oil prices and rising energy demand have led to the high cost and capital consumption, as the transportation ecosystem's reliance on non-renewable energy sources has played an adverse role in recent years. The Government of India has developed a number of policies to encourage and facilitate the development of EV charging infrastructure in India.

The Indian government does not plan to mandate standardized charging ports for electric scooters, allowing manufacturers to use their own standards. This flexibility has resulted in a diverse charging infrastructure, posing challenges for EV owners in ensuring compatibility with public charging stations. Resulting in a varied landscape for EV charging infrastructure.

EV infrastructure encompasses **Level 1, Level 2, and DC fast chargers**, meeting diverse user needs, from home charging to rapid refuelling at public stations. AC charging is ideal for overnight charging at homes or workplaces with Level 1 & Level 2 standard chargers.

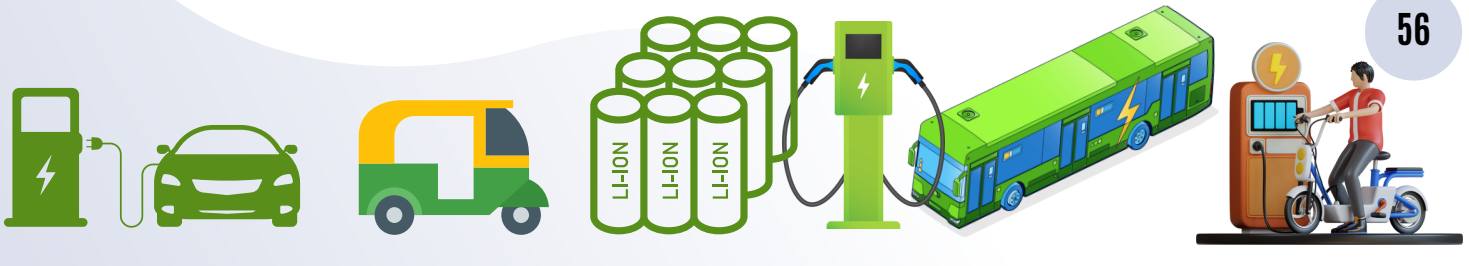
On November 7, 2023, the Ministry of Heavy Industries (MHI) introduced a new phased manufacturing program (PMP) for electric vehicle (EV) charger components under the **FAME India Scheme Phase-II** to boost domestic production. Outlined a comprehensive list of charger components and their timelines for the transition to domestically manufactured parts.

DC charging, including Level 3 fast chargers, is suitable for rapid charging in commercial areas, highways, and high-traffic locations. **Battery swapping** innovations offer quick alternatives, reducing downtime and addressing range anxiety. EVs can now be charged wirelessly via inductive or resonant systems, thanks to emerging technologies.

Smart grid integration optimizes charging times based on grid demand and renewable energy availability for efficient load management. Charging stations require reliable power, proper infrastructure, spacing, signage, safety features, and compliance with regulations and environmental guidelines. Balancing charging stations in urban and rural areas ensures widespread accessibility. Collaborations among governments, private corporations, and utility suppliers expedite infrastructure expansion by leveraging their assets. **Adhering to international charging standards** like CCS and CHAdeMO ensures interoperability among EVs and various charging stations through open communication protocols.

Obtaining **Environmental certifications** for charging stations and integrating solar and wind energy into infrastructure enhances sustainability and reduces EVs' carbon footprint.

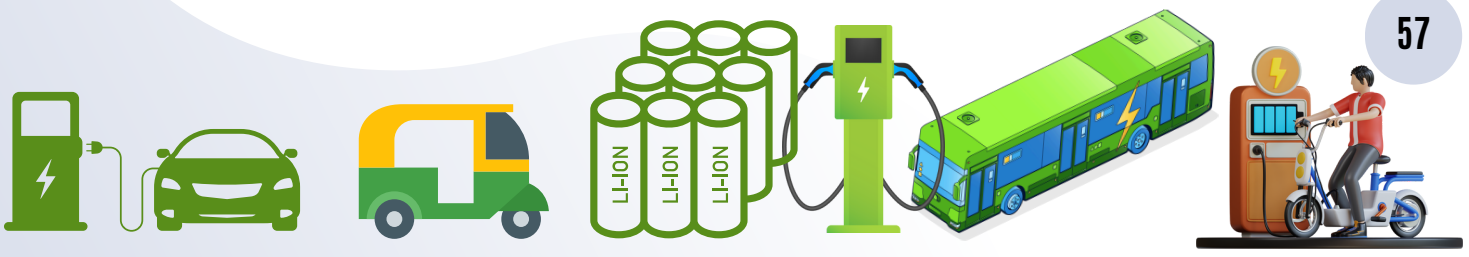
In this article you will get the Idea of EV infrastructure promises a cleaner, more accessible world. Embrace the journey, where every charge fuels not just vehicles, but a greener tomorrow. The road ahead is electrifying, and the future is now.



Report - Guide to EV Charging Infrastructure and Grid Integration

Annexures

1. EV Charging Infrastructure Strategy in India
a) Working Principle
b) Types of Charging
c) Charging levels
d) Speed of Charger
e) Fast Charging
f) Types of Connector
g) Battery Swapping
2. Grid Integration
a) Distribution from HV bus to charging station unit
b) Arranging supply
c) Planning & Requirements for Charging Station
d) Utilization of different segments
e) Benefits and Guidelines
3. Implementation of Charging Station
a) Planning and Allocation
b) Mode of Implementation
c) Indian Regulation and Standards
d) Costing and setting up EV public charging station (PCS)
e) Roles and Responsibilities
4. Communication Protocol
5. Smart-connected EV Charging
6. Government Initiatives and Schemes under Fame II



Report - Guide to Basics of Semiconductor

The transition of from traditional internal combustion engines (ICE) to electric vehicles (EVs) marks a significant shift in the automotive industry, presenting both challenges and opportunities for individuals and businesses alike.

As the **Indian Automobile ecosystem adapts to this transformative trend from the conventional mechanical to electrification path,** it becomes **imperative for newcomers from mechanical backgrounds to familiarize themselves with the basics of semiconductors and its manufacturing process, a vital component in electrification roadmap.**

With **OEM's and Tier-1 suppliers gearing up to build their teams and capacities** in response to the growing demand for next generation mobility, **understanding the fundamental principles of semiconductors becomes crucial for effectively contributing to this dynamic industry.**

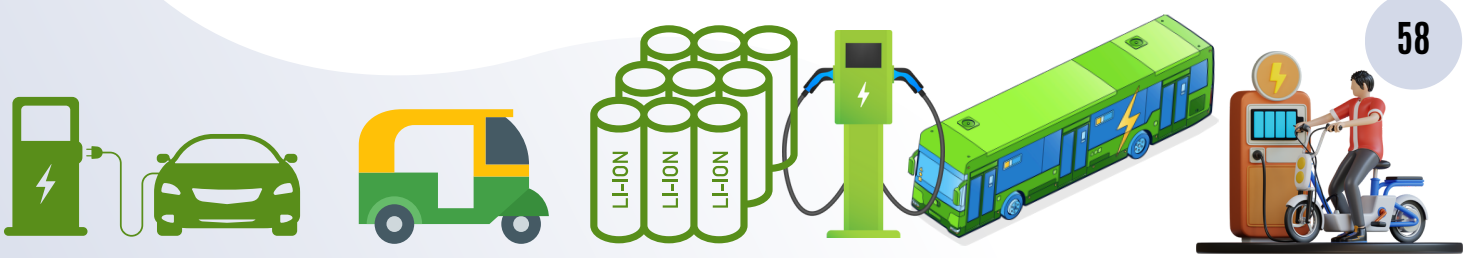
This **compiled report serves as an essential guide** commences with an introduction to **key PCB components, semiconductors**, explaining their role as materials that lie between conductors and insulators. It gets into the atomic structure of semiconductors and the concept of doping, which enhances their electrical properties. An exploration of semiconductor devices, such as **microcontrollers, microprocessors, transistors, IC's, diodes, showcases their significance in electronic circuits and their impact on the efficient functioning of automobiles.**

Next, the report briefs the **semiconductor manufacturing process**, Moore's Law and steps involved in producing integrated circuits in **fabrication facilities (fabs)**. It discusses the **distinction between fabs, foundries and IMD**, emphasizing their relevance in the current Indian semiconductor ecosystem, where suppliers are positioning themselves to cater to the surging demand for semiconductor chips in the EV market.

Semiconductors play an indispensable role in the efficient functioning of electric drivetrains, battery management systems and charging infrastructure.

As Indian Tier-1 suppliers slowly build their teams and capacity to meet the demands of the fast-growing Indian EV sector, there are **challenges and stiff competition** that are ahead and Government of India is supporting through with necessary research infrastructure and launching incentive schemes through "India Semiconductor Mission".

Overall, this **report guides new entrants transitioning from mechanical to electrification stream and focusing on the semiconductor domain** to navigate their transition successfully and empowering them to contribute effectively to the **growing Electrification in Indian Automobile ecosystem.**



Report - Guide to Basics of Semiconductor

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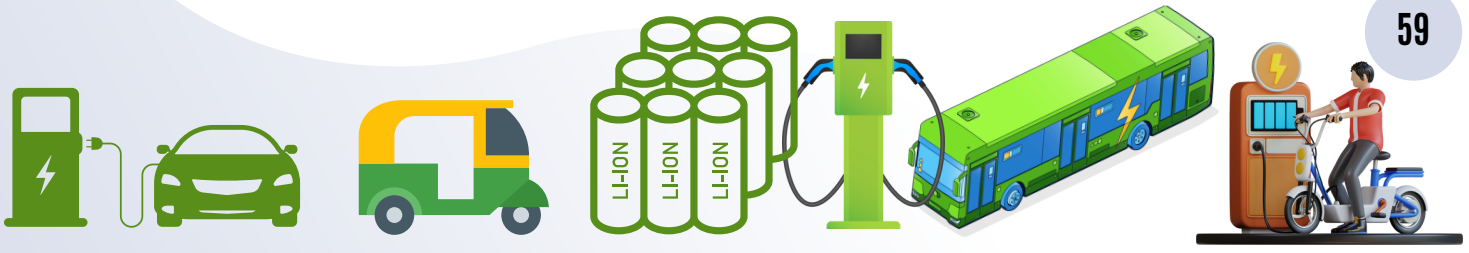

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'gyaniki' has evolved as a technology based digital portal platform created for researchers, product developers, industry professionals and academia members with a vision of incremental expansion in bridging the future mobility ecosystem through our services.

'gyaniki' undertakes specialized and customized research in Future Mobility

Our techno-commercial research covers on the core areas of:

- Benchmarking
- Key Components and Process
- Technologies
- Manufacturers and Suppliers
- Latest & upcoming industry trends (LiDAR, Neural Networks, Sensor fusion)
- Product Development Processes and Documentation (DFMEA, PFMEA, RCA)
- Tools of the trade. In design, simulation & validation (e.g.: GT suite, Simulink)
- Standards, Testing & Regulatory information.

EV Report FEB 2025

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