EV Report DEC 2024

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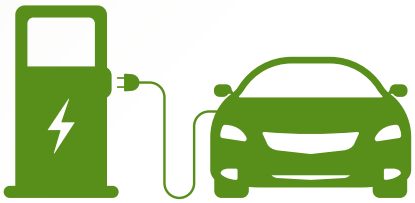
MERCEDES-BENZ REVOLUTIONIZES FUTURE MOBILITY WITH MMA PLATFORM

INDIA EV SALES NOV 2024

TOP MONEY MOVEMENT IN MOBILITY WORLD

NEWS, JOINT VENTURES & PARTNERSHIPS



UPCOMING EV SHOW

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GYANIKI REPORTS

'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.
'gyaniki' also provides training programs across mobility domains.

Mercedes-Benz Revolutionizes Future Mobility with MMA Platform

Mercedes-Benz has unveiled its groundbreaking EV modular architecture, the **MMA platform**, signaling a transformative chapter in the brand's electrification journey. Following mixed reviews of its EQ models, the MMA represents a strategic pivot, blending innovation and efficiency to redefine electric vehicle (EV) standards. This bold step positions Mercedes-Benz as a forerunner in sustainable and performance-driven mobility solutions.

Redefining Electric Drive with EDU 2.0

At the heart of the MMA platform is the **Electric Drive Unit (EDU 2.0)**, meticulously developed in-house to enhance power, efficiency, and environmental responsibility. This unit, strategically placed on the rear axle, delivers an impressive 200 kW of power. What truly sets it apart is its construction — the unit forgoes rare earth permanent magnets, a decision that underscores Mercedes-Benz's commitment to sustainable sourcing and reduced environmental impact.

Although Mercedes has yet to disclose the specific type of magnet used, the company's animated visualizations suggest a design that extends across the rotor's length. This innovative engineering promises not only superior performance but also aligns with the automotive industry's growing shift toward environmentally conscious material selection.

Efficient and Dynamic Dual Motor Setup

Complementing the rear EDU is an **80 kW PSM motor** on the front axle, designed for versatility and efficiency. This motor incorporates a **disconnection feature**, allowing seamless transitions between two-wheel (2W) and four-wheel (4W) drive modes. This intelligent system provides dynamic on-demand performance, enhancing energy savings during regular driving and ensuring rapid power delivery when needed.

The front motor also plays a critical role in regenerative braking. By engaging promptly, it maximizes energy recovery during deceleration, a feature pivotal for achieving the platform's remarkable energy efficiency metrics.

800V Silicon Carbide Inverter: Efficiency Redefined

Driving both the rear and front motors is an **800V Silicon Carbide (SiC) inverter**, a technological marvel that significantly enhances powertrain efficiency. SiC technology is renowned for its ability to handle high voltages and reduce energy loss, making it an essential component in cutting-edge EV designs. Mercedes-Benz's adoption of this advanced inverter underlines its dedication to pushing the boundaries of efficiency and performance.

Versatile Battery Technology

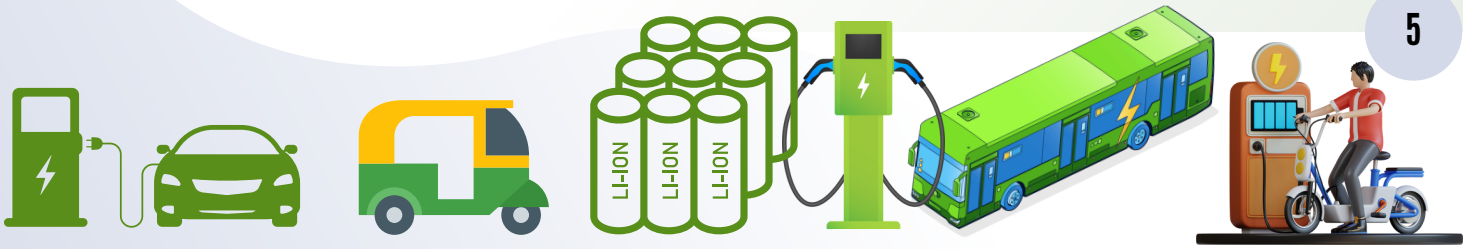
The MMA platform offers a choice of two advanced battery configurations:

1. **Premium Versions**: Equipped with **NMC (Nickel-Manganese-Cobalt)** cathode cells and silicon oxide anodes, these batteries provide higher energy density and increased usable capacity. Ideal for long-range driving, these configurations cater to discerning customers seeking top-tier performance.
2. **Lower Variants**: Featuring **LFP (Lithium Iron Phosphate)** cathode cells, this option prioritizes cost-effectiveness and durability without sacrificing reliability.

By offering a diverse battery lineup, Mercedes-Benz ensures the MMA platform appeals to a broad spectrum of customers, from performance enthusiasts to budget-conscious buyers.

Hybrid-Ready for a Transitional Market

Acknowledging the current transition phase of the automotive market, the MMA platform has been designed with hybrid adaptability. It supports a **4-cylinder internal combustion engine (ICE) powertrain with a 48V hybrid system, incorporating a 20 kW Integrated Starter Generator (ISG)** and an **8-speed dual-clutch transmission (DCT)**. This hybrid capability ensures the platform remains relevant in markets where full electrification is yet to take hold.



Toyota's Portable Hydrogen Cartridge

In a stunning showcase at the **Japan Mobility Expo 2024**, Toyota unveiled its latest innovation: **a portable hydrogen cartridge designed to revolutionize the accessibility and safety of hydrogen as an everyday energy source**. This cutting-edge technology aims to facilitate the adoption of hydrogen fuel cells in various applications, from personal transportation to home energy solutions. The new hydrogen cartridge builds on concepts previously introduced by Toyota. While the company showcased an initial prototype last year, this year's model presents a more refined and industrial design that reflects advancements in engineering and user experience. Although specific dimensions for the 2024 version have not yet been disclosed, expectations are high for improvements in capacity and durability compared to last year's capsule.

Key Features of the Portable Hydrogen Cartridge

- **Lightweight and Compact Design**: The new cartridge is designed for portability, making it easy to carry and swap out as needed. This feature is particularly appealing for users who require a convenient energy solution on the go.
- **Dimensions**: 400 mm (16 in) long and 180 mm (7 in) in diameter.
- **Weight**: Approximately 5 kg (11 lbs) when full.
- **Swappable Design**: The cartridge's design allows for quick replacement and recharging, enhancing user convenience and promoting wider adoption of hydrogen technology.
- **Energy Capacity**: While the exact specifications of this year's model remain under wraps, last year's version boasted an energy capacity of approximately **3.3 kWh**. This capacity was dependent on the efficiency of the external fuel cell used to convert hydrogen back into electricity.
- **Safety Features**: As with any energy source, safety is paramount. Toyota has emphasized that their cartridges are designed with safety in mind, ensuring that users can handle and utilize hydrogen without significant risk.

A Step Forward for Hydrogen Energy

Hydrogen energy has long been touted as a clean alternative to fossil fuels, particularly in the automotive sector. However, challenges related to storage, transport, and accessibility have hindered its widespread adoption. Toyota's portable hydrogen cartridge addresses several of these issues by providing a user-friendly solution that can be integrated into daily life.The lightweight nature of the cartridge makes it ideal for electric vehicle (EV) enthusiasts who may want to extend their vehicle's range without relying solely on traditional charging methods. Additionally, as more consumers become environmentally conscious, innovations like these could play a crucial role in promoting sustainable energy practices.

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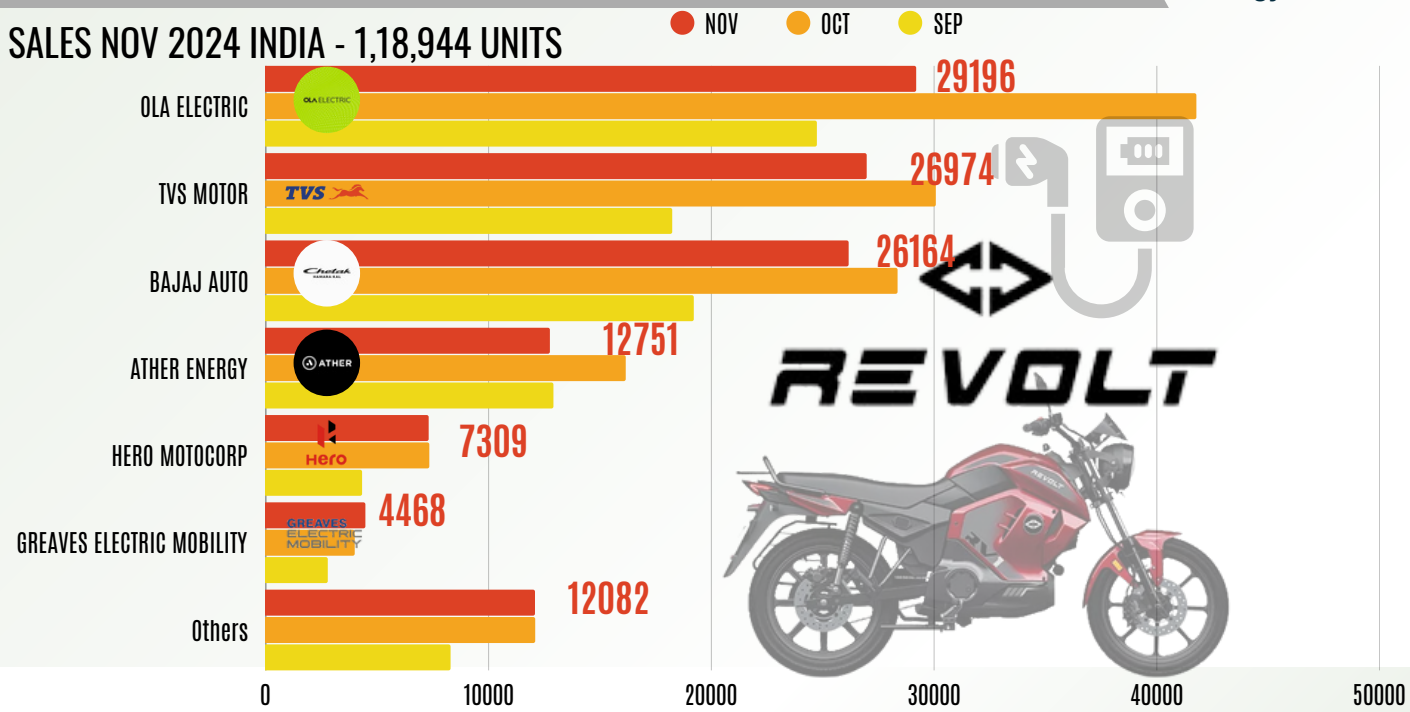
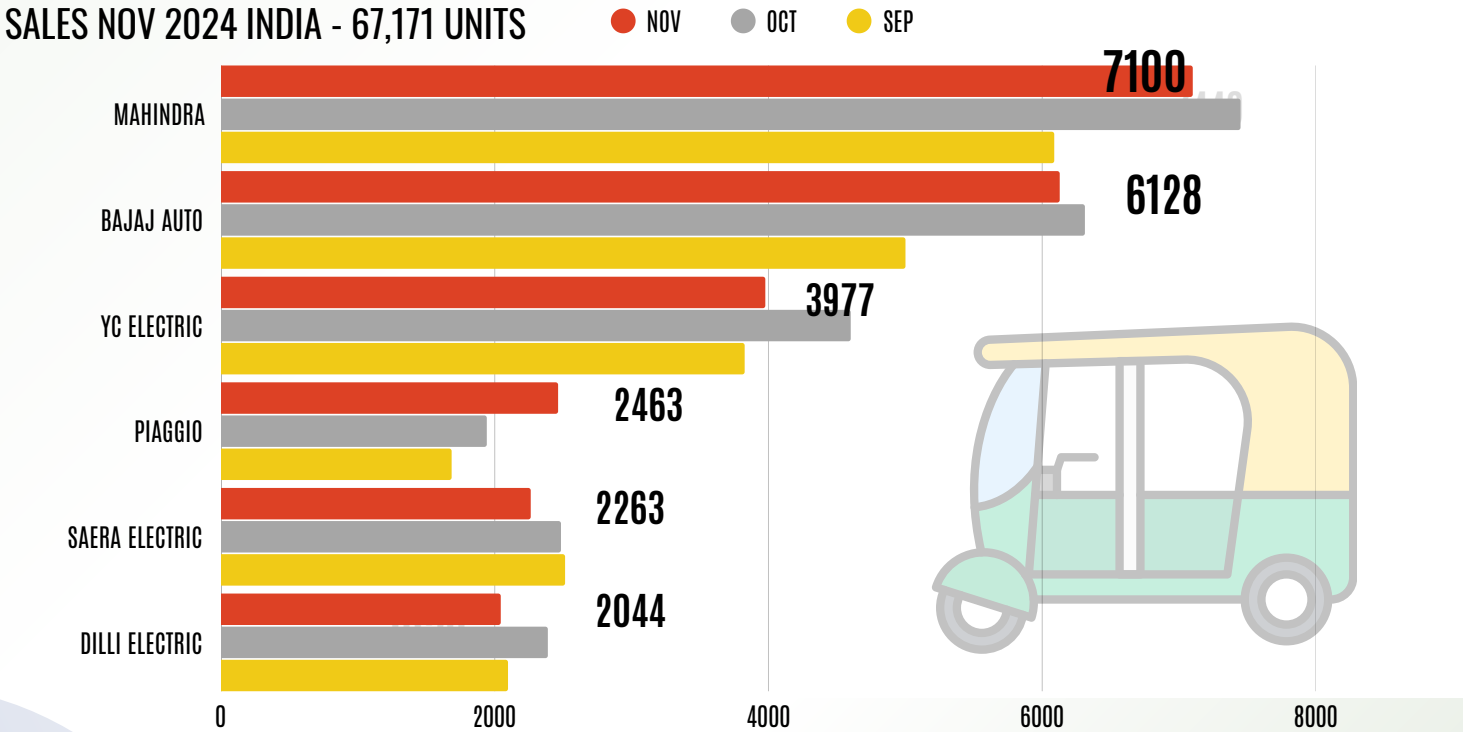
India EV Sales NOV 2024

TOP EV-2W Sales by OEM

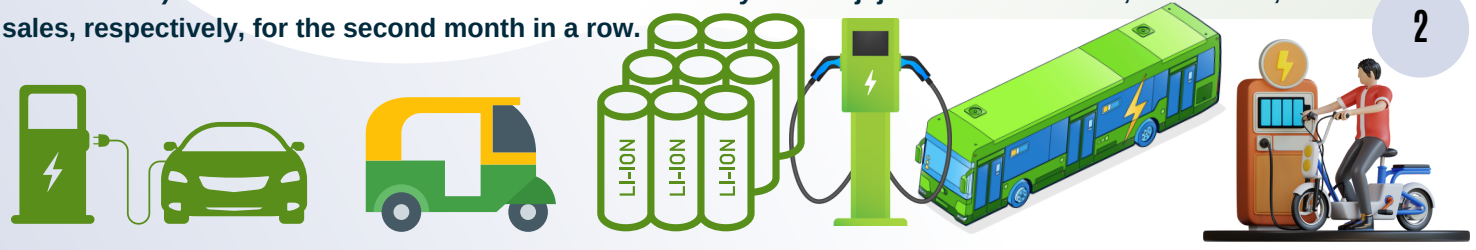


INDIAN 2w EV marking a robust 29% YoY growth. Ola Electric leads with 29,000 EVs sold but sees its market share dip to 25%. The fierce competition continues between TVS iQube and Bajaj Chetak, separated by just 800 units!. Revolt Motors surges with a 200% spike in consumer demand for its electric motorcycles.

EV 3W Sales Trend by OEM



The electric three-wheeler (e3W) segment continues to drive India's EV revolution, achieving remarkable milestones: 631,853 e3Ws sold in January-November, commanding a 56% market share of total 3W sales (1.12 million units). Market leaders Mahindra Last Mile Mobility and Bajaj Auto shine with 7,000+ and 6,000+ unit sales, respectively, for the second month in a row.

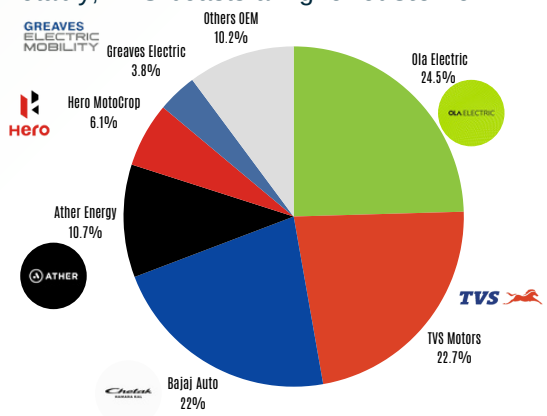


India's Electric 2W Market: A Comprehensive Overview (November 2024)

The electric two-wheeler market in India has witnessed significant growth and transformation over the past year, with leading manufacturers vying for dominance. As of November 2024, the landscape is marked by intense competition and evolving consumer preferences. This article delves into the performance of key players, emerging trends, and the overall outlook for the electric vehicle (EV) sector in India.

Market Leaders: Performance at a Glance

1. **Ola Electric: Leading the Pack:** Ola Electric has solidified its position as a market leader with sales of **29,196 units,** . The company's focus on affordability and technological advancements has been pivotal in maintaining its leadership. However, its gyaniki **Customer Care Rating of 5.5** indicates a pressing need for improvement in customer service, an area where competitors are currently excelling.
2. **TVS Motor: A Close Contende**r: With sales of **26,974 units**, TVS Motor remains a formidable competitor. The iQube series has resonated well with urban and semi-urban consumers. Notably, TVS boasts a higher **customer care rating of 7**, reflecting its commitment to customer satisfaction.
3. **Bajaj Auto: Strength in Legacy:** Bajaj Auto's Chetak EV continues to gain traction with **26,164 units sold**. The brand's legacy combined with modern EV solutions has earned it a **customer care rating of 7.5**, showcasing its robust after-sales support.



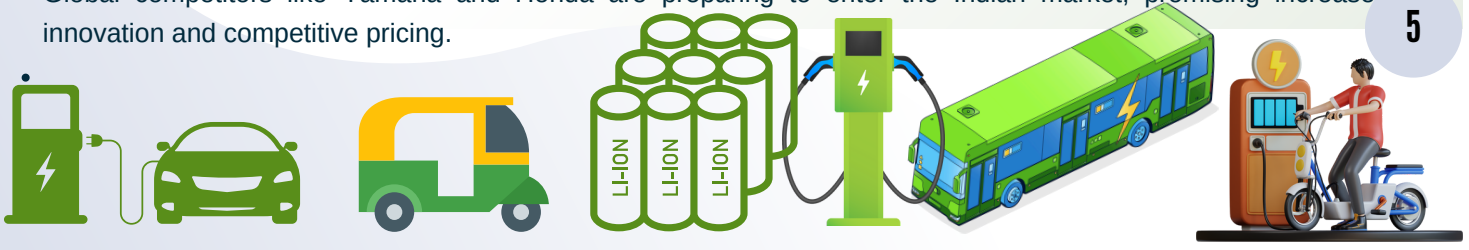
4. **Ather Energy: The Technology Leader:** Known for its high-tech features and premium positioning, Ather Energy **sold 12,751 units**. Its impressive **customer care rating of 8.5** highlights its focus on consumer satisfaction and advanced technology.
5. **Hero MotoCorp: Steady Progress:** Hero MotoCorp has made strides in the EV segment with its Vida series, **selling 7,309 units** . A collaboration with Zero Motorcycles aims to enhance its offerings in the premium segment while maintaining a **customer care rating of 7.**5.
6. **Greaves Electric Mobility: Value Proposition:** Catering to cost-conscious consumers primarily in Tier 2 and rural markets, Greaves Electric Mobility sold **4,468 units**. Despite a lower **customer care rating of 6.5**, the company shows potential for growth through localized manufacturing.
6. **Others: Diverse Contributors**: Smaller brands like Bounce Infinity and Okinawa have collectively **sold 12,082** units, capturing a **10.16%** market share through innovative swappable battery technology that appeals to fleet operators.

Emerging Trends and Developments

1. **Revolt Motors**: **Unprecedented Growth**: Revolt Motors has experienced a staggering **200% surge** in demand, driven by AI-powered electric motorcycles that emphasize range and affordability.
2. **Hero MotoCorp-Zero Motorcycles Collaboration:** This partnership signifies a strategic shift towards high-performance electric bikes aimed at competing with established brands like Ather Energy and international players such as Yamaha.
3. **Swappable Battery Technology:** Gaining traction among fleet operators, brands like Bounce Infinity and Okinawa are leveraging swappable battery systems to mitigate range anxiety and minimize downtime.

Key Observations:

- The top three players—**Ola Electric, TVS Motor, and Bajaj Auto—collectively command over 69% of the market share.**
- Higher customer satisfaction ratings correlate with better retention rates; **Ather Energy leads with an impressive score of 8.5.**
- Global competitors like Yamaha and Honda are preparing to enter the Indian market, promising increased innovation and competitive pricing.

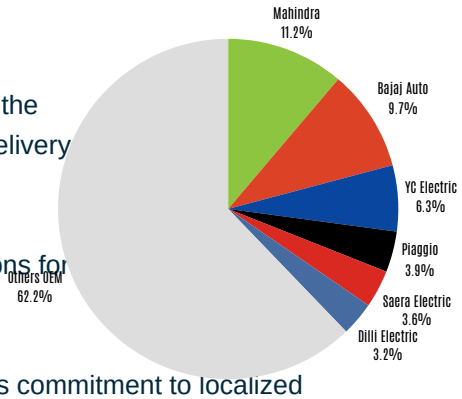


India’s Electric 3W Market: A Comprehensive Overview (November 2024)

The electric three-wheeler (e3W) segment has made significant strides in India, achieving remarkable sales figures in November 2024. With a commanding 56% market share of total three-wheeler sales, which amounted to 1.12 million units from January to November, e3Ws are at the forefront of India's electric vehicle revolution. This article provides an in-depth analysis of the market dynamics, top performers, regional insights, and future trends that are shaping this burgeoning sector.

Top Performers: Sales and Market Share Analysis

1. **Mahindra Last Mile Mobility: Leading the Charge**
   - **Sales Units: 7,100 - Market Share: 11.20%**: Mahindra continues to dominate the e3W segment with its focus on durable, high-performance vehicles catering to both urban and rural markets. The brand's robust distribution network and consumer trust underpin its consistent performance.
2. **Bajaj Auto: Reliable and Resilient**
   - **Sales Units: 6,128 - Market Share: 9.66%:** Leveraging its iconic three-wheeler legacy, Bajaj Auto is solidifying its position as a key player in the e-mobility transition. The increasing demand for both passenger and cargo segments keeps Bajaj as a preferred choice among consumers.
3. **YC Electric: Rising Star**
   - **Sales Units: 3,977 - Market Share: 6.27%:** YC Electric is rapidly ascending the ranks with its cost-effective solutions aimed at fleet operators and last-mile delivery
4. **Piaggio: Niche Player**
   - **Sales Units: 2,463 - Market Share: 3.88%:** Known for its innovative offerings, Piaggio is carving out a niche with premium and customized solutions for cargo applications.
5. **Saera Electric: Consistent Growth**
   - **Sales Units: 2,263 - Market Share: 3.57%**: Saera's steady growth reflects its commitment to localized manufacturing and partnerships with fleet operators.
6. **Dilli Electric: Making Inroads**
   - **Sales Units: 2,044 - Market Share: 3.22%:** Dilli Electric is establishing its presence in Tier 2 and Tier 3 cities where affordability is crucial.
7. **Others: Dominating the Segment**
   - **Sales Units: 39,440 - Market Share: 62.19%:** A significant portion of the market is occupied by smaller regional players who are vital for expanding e3W adoption across diverse geographies.

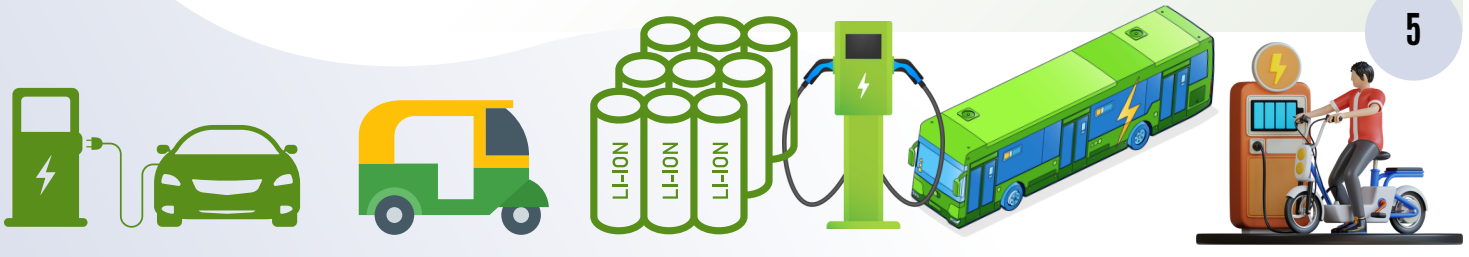


Regional Highlights

1. **Uttar Pradesh: The Leader - Units Sold: 24,217**
2. **Bihar: Emerging Market - Units Sold: 7,423**
3. **Assam: Northeast’s Rising Star - Units Sold: 5,469**

Market Trends and Insights

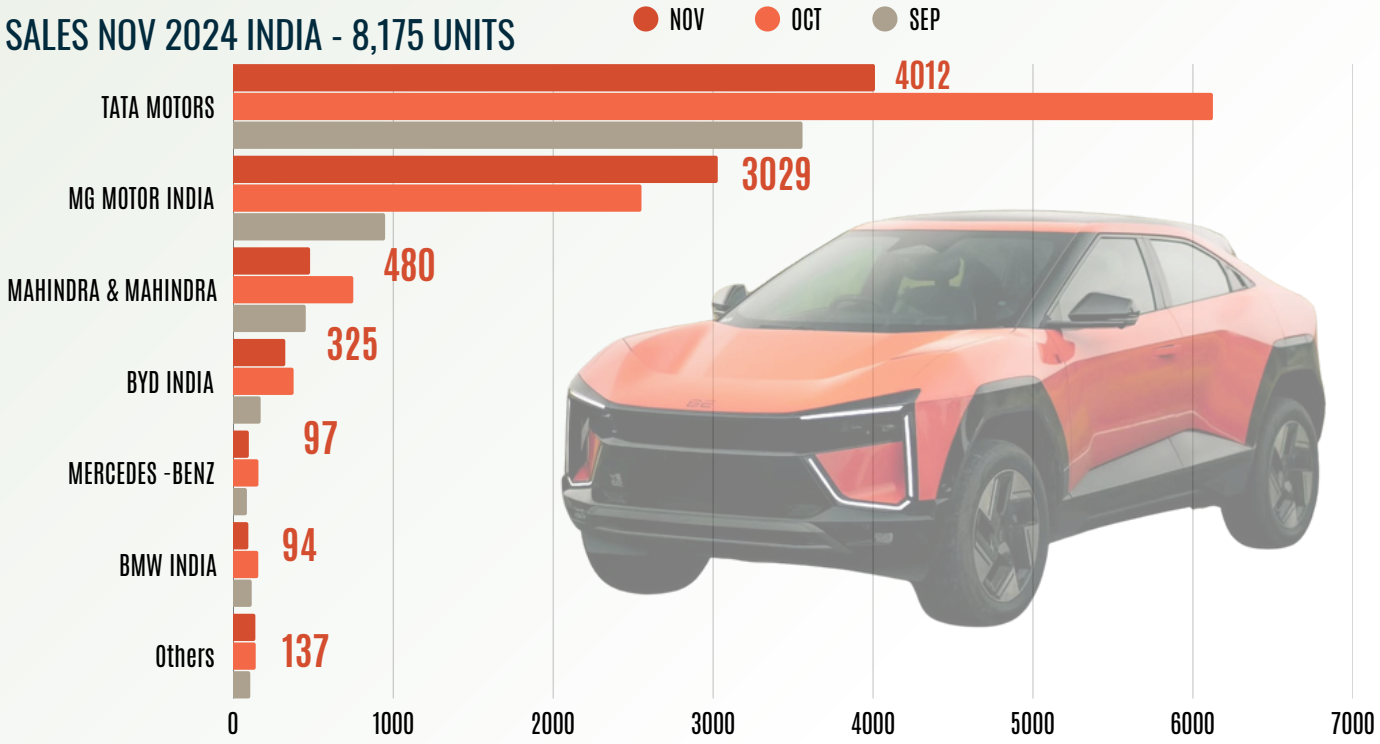
1. Sustained Growth in e3W Adoption
2. The sale of **631,853 e3Ws between January and November 2024** signifies India's rapid transition to electric mobility.



India EV Sales DEC 2024

EV 4W Passenger Sales Trend by OEM

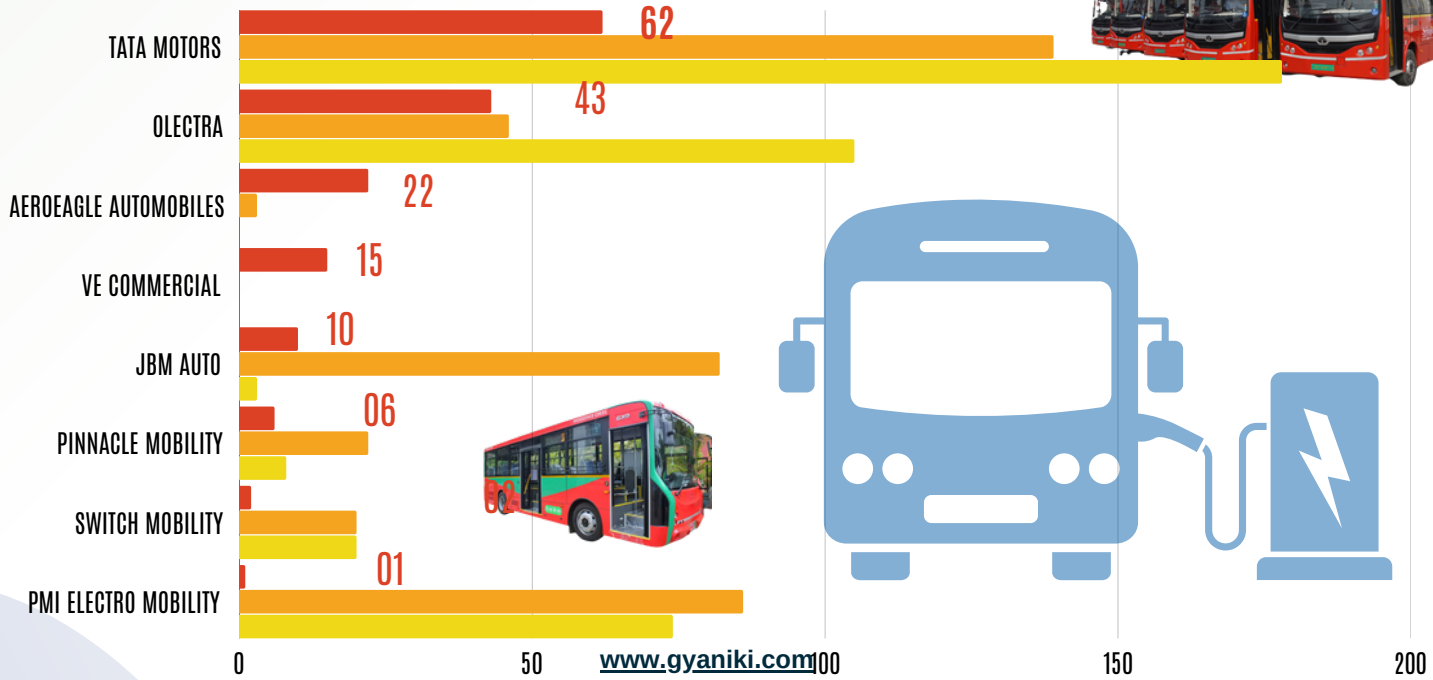
SALES NOV 2024 INDIA - 8,175 UNITS



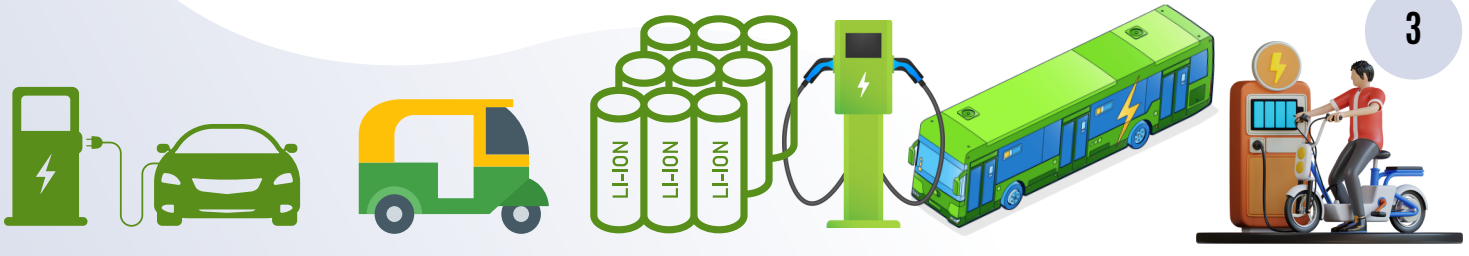
Electric car and SUV sales surged by 14% in November, reaching 8,175 units, making it the third-best month of 2024! 🚗⚡Tata Motors: Market share dipped to 50%, reflecting increased competition.
JSW MG Motor India: Witnessed a sharp rise to 36% market share, fueled by the success of the Windsor EV and their innovative Battery-as-a-Service (BaaS) sales model.

Data Source: Vahan Dashboard

E-BUS SALES NOV 2024 INDIA - 161 UNITS



In the EV bus segment, TATA Motors is the leading EV Bus OEM. Total 161 units EV Bus sold in NOV 2024.

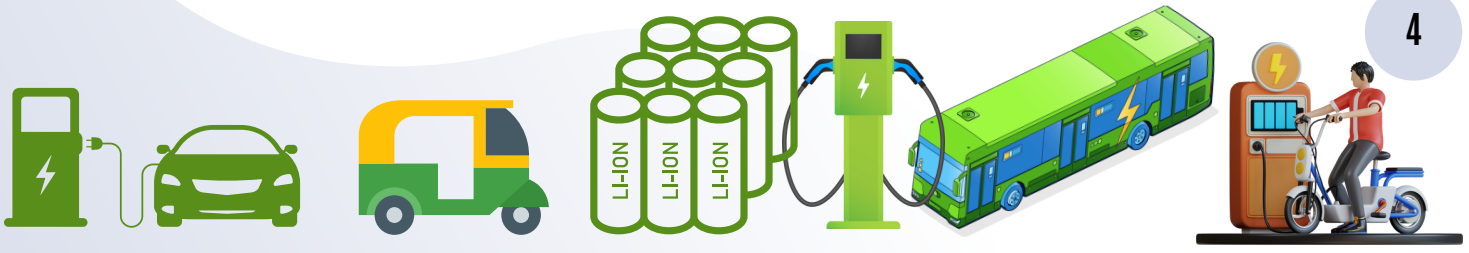


India EV Sales DEC 2024

Top 10 Electric Vehicle Sales Trend by OEM

NOV 2024 - 2W WHEELER ELECTRIC VEHICLE SALES DATA				
SR. NO	OEM	Oct-24	Nov-24	% increase in NOV 2024
1	OLA ELECTRIC TECHNOLOGIES PVT LTD	41775	29196	-30%
2	TVS MOTOR COMPANY LTD	30077	26974	-10%
3	BAJAJ AUTO LTD	28360	26164	-8%
4	ATHER ENERGY PVT LTD	16156	12751	-21%
5	HERO MOTOCORP LTD	7338	7309	0%
6	**GREAVES ELECTRIC MOBILITY PVT LTD**	**3989**	**4468**	**12%**
7	**REVOLT INTELLICORP PVT LTD**	**952**	**1994**	**109%**
8	BGAUSS AUTO PRIVATE LIMITED	2022	1878	-7%
9	KINETIC GREEN ENERGY & POWER SOLUT	1444	1095	-24%
NOV 2024 - 3W ELECTRIC VEHICLE SALES DATA				
SR. NO	**OEM**	**Oct-24**	**Nov-24**	**% increase in NOV 2024**
1	MAHINDRA LAST MILE MOBILITY LTD	7449	7100	-5%
2	BAJAJ AUTO LTD	6312	6128	-3%
3	YC ELECTRIC VEHICLE	4601	3977	-14%
4	**PIAGGIO VEHICLES PVT LTD**	**1942**	**2463**	**27%**
5	SAERA ELECTRIC AUTO PVT LTD	2484	2263	-9%
6	DILLI ELECTRIC AUTO PVT LTD	2388	2044	-14%
7	**ENERGY ELECTRIC VEHICLES**	**1187**	**1232**	**4%**
8	MINI METRO EV L.L.P	1384	1227	-11%
9	UNIQUE INTERNATIONAL	1181	1166	-1%
10	**SAHNIANAND E VEHICLES PVT LTD**	**1036**	**1040**	**0%**
NOV 2024 - 4W ELECTRIC VEHICLE SALES DATA				
SR. NO	OEM	Oct-24	Nov-24	% increase in NOV 2024
1	TATA PASSENGER ELECTRIC MOBILITY LTD	6111	3998	-35%
2	**MG MOTOR INDIA PVT LTD**	**2552**	**3029**	**19%**
3	MAHINDRA & MAHINDRA LIMITED	750	480	-36%
4	BYD INDIA PRIVATE LIMITED	377	325	-14%
5	BMW INDIA PVT LTD	156	94	-40%
6	MERCEDES -BENZ AG	90	70	-22%
7	**KIA INDIA PRIVATE LIMITED**	**45**	**67**	**49%**
8	**VOLVO AUTO INDIA PVT LTD**	**19**	**32**	**68%**
9	MERCEDES-BENZ INDIA PVT LTD	67	27	-60%
10	HYUNDAI MOTOR INDIA LTD	35	20	-43%

Source: Vahan Dashboard



Electric Tractor Innovation: Lessons from VW Rwanda for India

Volkswagen (VW) has taken a bold step in sustainable agriculture with its innovative electric tractor initiative in Rwanda. At a time when the automotive industry is intensifying its focus on electrification, VW's move to address region-specific challenges in agriculture showcases its adaptability and commitment to environmental sustainability. While VW has faced hurdles in the passenger EV market, this project exemplifies a forward-thinking approach, one that could inspire transformative change in other agricultural economies, including India.

Key Features of VW's Electric Tractor

1. **Motor Power:** Equipped with a robust 50 kW electric motor, the tractor delivers sufficient torque for typical agricultural tasks such as plowing, sowing, and transporting goods.
2. **Battery Capacity: T**he tractor comes with a 15 kWh swappable battery pack. This design ensures uninterrupted operations by allowing farmers to replace depleted batteries with fully charged ones at designated swap stations.
3. **Range:** Under load, the tractor offers a range of approximately 40 km per charge, catering to the needs of small and medium-sized farms—common in regions like Rwanda and India.
4. **Swappable Battery Design: T**he swappable battery system eliminates downtime and circumvents the need for expensive charging infrastructure, making the solution practical for rural settings.
5. **Simplified Mechanics:** By simplifying mechanical components, VW reduces maintenance costs, ensuring the tractor remains durable and reliable in rugged environments.
6. **Affordability and Practicality:** The tractor is tailored to meet the specific needs of Rwandan farmers, focusing on cost-effectiveness and practicality rather than luxury features.

Transformative Potential

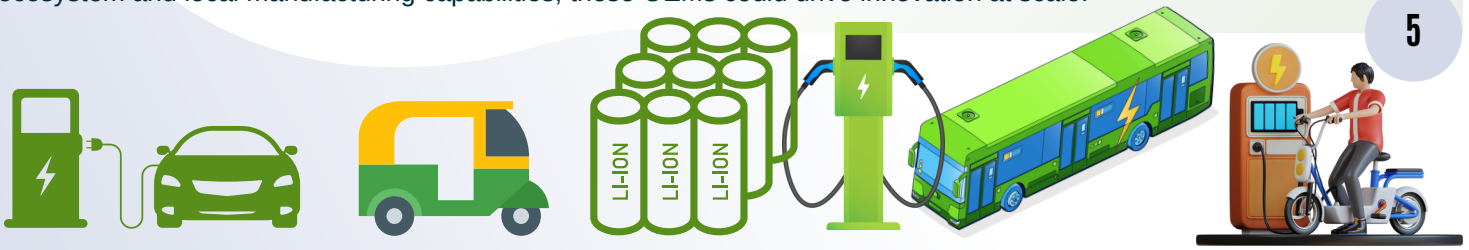
This initiative underlines the critical role electric tractors can play in transitioning agriculture toward sustainability. In developing regions, where farming forms the backbone of the economy, such innovations offer a compelling alternative to diesel-powered equipment, reducing operational costs and carbon emissions.

Opportunities for India

India, with its vast agricultural base and growing energy needs, stands to benefit immensely from adopting electric tractor technology. Lessons from VW Rwanda can be adapted to the Indian context through a blend of policy support, technological advancements, and local innovation.

1. **Policy Support and Subsidies:** Government incentives are vital to accelerate the adoption of electric tractors. Policymakers should consider reducing the Goods and Services Tax (GST) on electric agricultural machinery and offering subsidies to farmers purchasing these tractors. Additionally, tax breaks and financial incentives for manufacturers would encourage the development of electric tractors tailored to the Indian market.
2. **Battery Swapping Infrastructure:** One of VW's standout innovations is its battery-swapping model, which eliminates downtime and infrastructure constraints. A similar approach in India could transform rural farming. Establishing swap stations in farming regions would ensure continuous operations for farmers, while reducing reliance on traditional charging stations.
3. **Collaboration with Indian OEMs**

India's leading agricultural equipment manufacturers, such as Mahindra, TAFE, and Escorts, are well-positioned to spearhead the electric tractor movement. These companies possess a deep understanding of regional agricultural needs and could develop affordable, purpose-built solutions for Indian farmers. By leveraging India's thriving EV ecosystem and local manufacturing capabilities, these OEMs could drive innovation at scale.



Electric Tractor Innovation: Lessons from VW Rwanda for India

Economic and Environmental Benefits

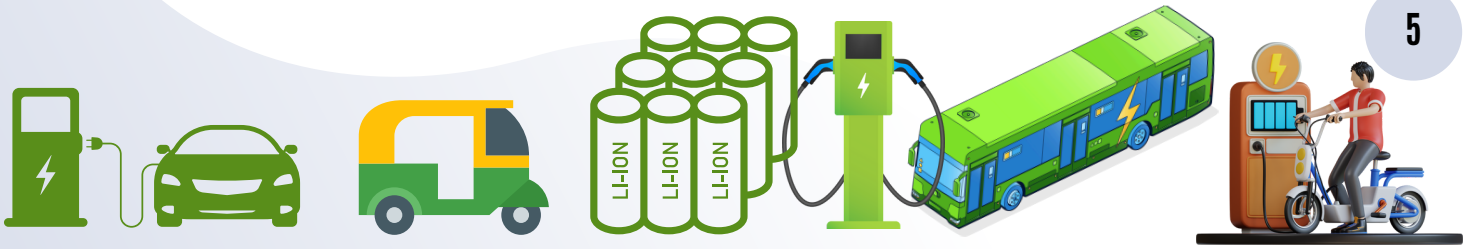
The transition to electric tractors offers multiple advantages:

- **Reduced Diesel Dependency:** India's agriculture heavily relies on diesel, a significant contributor to pollution and fluctuating operational costs. Electric tractors can help cut down this dependency, providing a cleaner and more stable alternative.
- **Lower Operational Costs:** Electric tractors require less maintenance and offer cheaper running costs compared to diesel-powered equipment, making them economically viable for farmers.
- **Emission Reduction: W**ith agriculture accounting for a substantial share of emissions, transitioning to electric-powered equipment aligns with India's goals to combat climate change and achieve sustainable development.
- **Increased Productivity:** Battery-swapping technology and reduced downtime enhance productivity, allowing farmers to focus on critical tasks without disruption.

A Green Revolution Powered by Electricity

India's agricultural sector is on the cusp of a technological revolution. By embracing electric tractors, the nation can usher in a new era of eco-friendly and cost-effective farming. To achieve this, a holistic approach involving policymakers, manufacturers, and farmers is essential. India's unique challenges—diverse climates, varied soil types, and small landholdings require solutions tailored to local needs. Drawing inspiration from VW's innovation in Rwanda, India's agricultural machinery industry must focus on creating tractors that prioritize efficiency, durability, and affordability. The spirit of experimentation demonstrated by Volkswagen serves as a powerful reminder of how technology, when adapted to local conditions, can address pressing challenges. As the world pivots toward sustainable practices, it is time for India to lead the way in electrifying agriculture, one field at a time.

The road ahead is clear: a collaborative effort to harness the potential of electric tractors can drive India toward a future of sustainable farming and economic resilience. By learning from global pioneers like VW, India can cultivate an agricultural landscape powered by innovation and sustainability.



Future Mobility Stocks

The Indian electric vehicle (EV) sector is experiencing a transformative phase, driven by technological advancements, government initiatives, and increasing consumer demand.

Current Market Overview

As of late 2024, the Indian EV market is projected to grow significantly, with estimates indicating a rise from approximately **$2 billion in 2023 to $7.09 billion by 2025**. The market aims for **10 million annual sales by 2030**, reflecting a robust growth trajectory fueled by a shift towards sustainable transportation solutions. In this context, major players in the EV manufacturing sector include **Tata Motors, Mahindra & Mahindra, and Ashok Leyland**, each contributing uniquely to the industry's landscape.

Key Players and Their Market Performance

Company	Market Capitalization (INR Cr)	Future Outlook
Tata Motors	355,278.94	Continued growth expected due to successful models like Nexon EV and future launches.
Mahindra & Mahindra	379,299.19	Positive outlook driven by strong SUV segment and expanding EV portfolio.
Ashok Leyland	43,481.75	Positioned well in the electric bus segment with potential for expansion.
Maruti Suzuki	414,659.06	EV strategy still developing; future performance hinges on broader EV adoption.
Hero MotoCorp	115,189.64	Recent entry into EVs; long-term success depends on market response

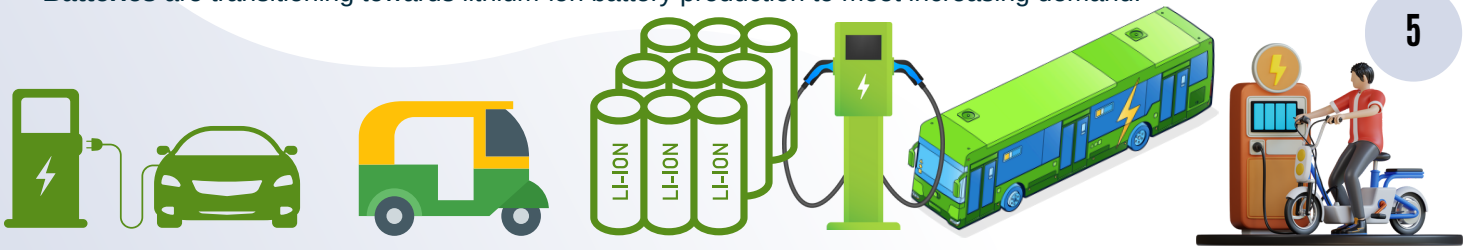
Future Prospects -

The future of the Indian EV market is promising but requires careful consideration of various factors:

1. **Government Policies**: The Indian government has implemented several initiatives to promote electric mobility, including subsidies and incentives for both manufacturers and consumers.
2. **Infrastructure Development**: The establishment of charging stations is critical for supporting the growing number of EVs on the road. Companies like **Tata Power and NTPC** are actively working on expanding charging infrastructure across the country.
3. **Technological Advancements**: Continuous R&D in battery technology and vehicle components will enhance performance and reduce costs, making EVs more accessible to consumers.

Battery Manufacturers

- Battery production is vital for the growth of the EV sector. Companies like **Exide Industries and Amara Raja Batteries** are transitioning towards lithium-ion battery production to meet increasing demand.



Top Money Movement

AltMobility

Alt Mobility, a commercial electric vehicle leasing and asset management company, has raised **Rs 83 crore in a Series A funding** round led by **Eurazeo**, a European venture capital and private equity fund. Existing investors, including **Shell Ventures, Twynam Earth Fund, and EV2 Ventures**, also participated in the round

Exide Industries Limited

Exide Industries Ltd (EIL) has announced an investment of **₹99.99 crore** in its wholly-owned subsidiary, **Exide Energy Solutions Ltd (EESL)**, through a rights issue. This latest funding takes EIL's total investment in EESL to **₹3,052.24 crore** while retaining its 100% ownership stake.

Rajasthan Government

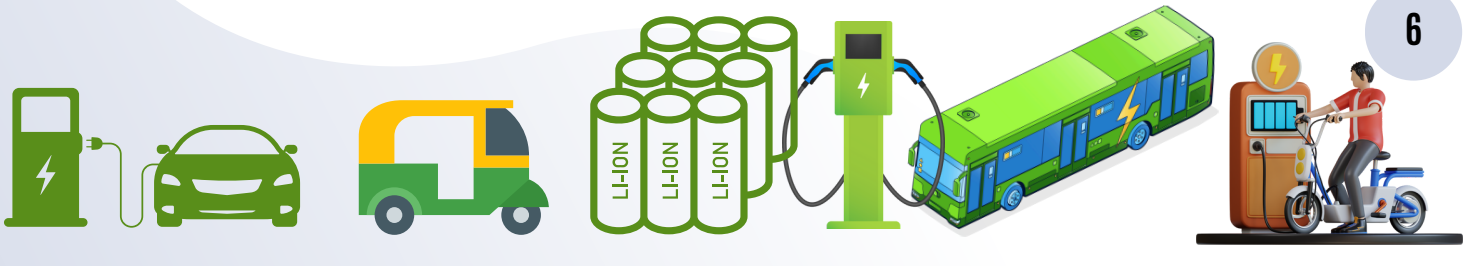
The Rajasthan government has taken a significant step towards promoting electric vehicle (EV) adoption by re-releasing a **subsidy of Rs. 200 crore, coupled with a 100% Goods and Services Tax (GST)** reimbursement on the purchase of EVs. This initiative aims to not only encourage more residents to switch to electric mobility but also to address the backlog of refunds that has left approximately 50,000 EV owners waiting for their reimbursements.

Volkswagen

Volkswagen is making significant strides in the electric vehicle (EV) sector with its recent announcement of an **$800 million** increase in its investment in Rivian, a pioneering American EV manufacturer. This move not only reinforces Volkswagen's commitment to advancing electric technology but also enhances its foothold in the competitive North American market.

ePlane

Chennai-based The ePlane Company has successfully raised **$14 million** in **funding** to expedite the development of its electric **Vertical Takeoff and Landing (eVTOL) aircraft**. This funding round, co-led by **Antares Ventures and Speciale Invest**, aims to propel the company towards its goal of commercializing unmanned aerial vehicles by 2025. Under the leadership of Professor Satya Chakravarthy, ePlane is positioning itself at the forefront of the burgeoning eVTOL market, which is expected to revolutionize urban air mobility.



Top Money Movement

Vecmocon Technologies

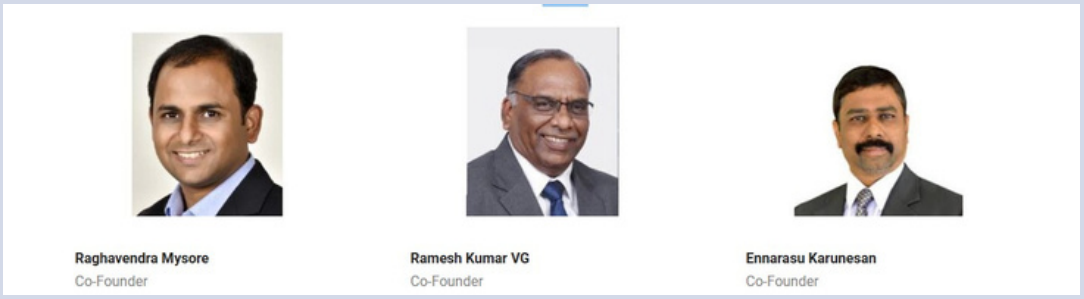
Vecmocon Technologies has successfully secured **$10 million in its Series A funding** round, with the investment led by **Ecosystem Integrity Fund (EIF), Blume Ventures, and British International Investment (BII)**. This significant financial boost is aimed at enhancing the company's research and development capabilities, expanding its presence in the light commercial vehicle (LCV) and bus segments, and broadening its geographical reach.

Mushin Innovative Labs

Mushin Innovative Labs, a **SaaS startup** based in India, has successfully raised **USD 250,000** in a seed funding round led by **Inflection Point Ventures**. This funding is set to enhance the company's operational capabilities and support its mission to revolutionize the automotive manufacturing industry through advanced digital solutions.

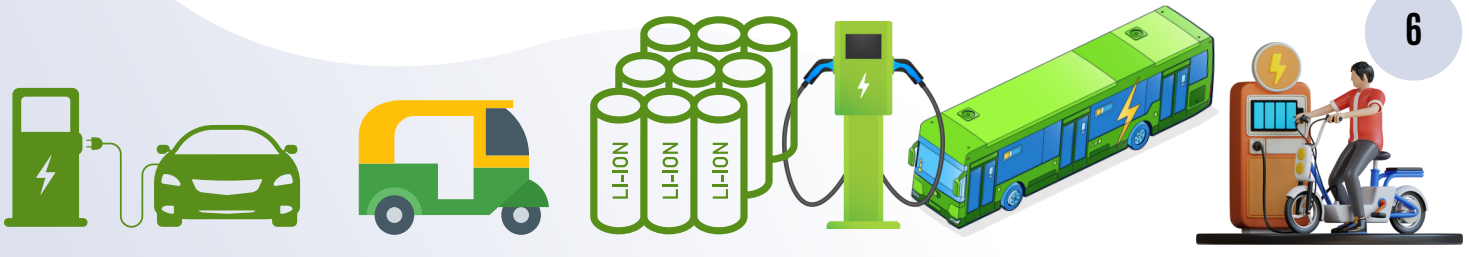
Hala Mobility

Hala Mobility, an innovative **EV-as-a-Service platform**, has successfully raised **₹51 crore (approximately $6 million)** in its pre-Series A funding round. The investment was spearheaded by founders **Srikanth Velamakanni Reddy and Snehith Reddy** Meda, along with notable investors such as **Phani Ramineni,** founder of Previa Health, and the Rohan Bajaj syndicate via **Invstt**. Additional support came from Sarthy Angels, Bestvantage Investments, and a network of high-net-worth individuals (HNIs) and family offices.



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.

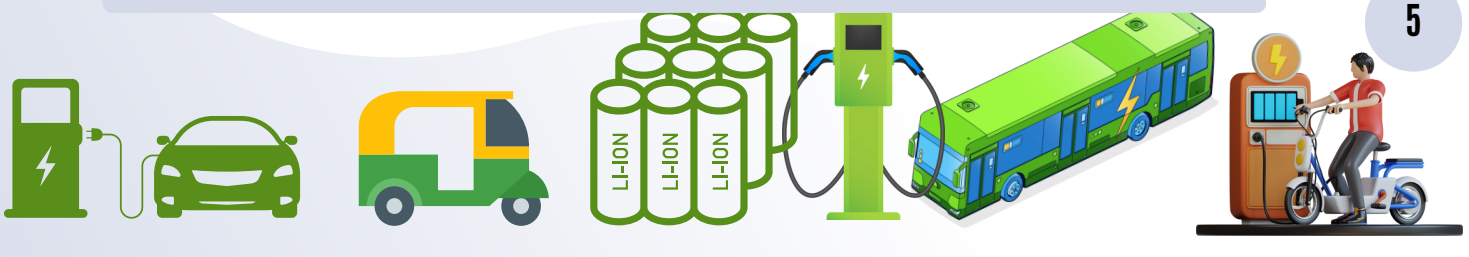


Murugappa Groups

A Quick Overview of **Murugappa groups** foray into the new age with Electronics, Energy and Mobility. Here's a look at what is happening under T**ube Investments of India Limited (TII) or (TI)**

1. TICMPL has raised **INR 3000 Cr** for its electric vehicle ambitions. The latest round has been led by **South Asia Growth Invest III LLC and South Asia EBT Trust III, managed by GEF Capital Partners and M&G Investments**
2. Under TI Clean Mobility Private Limited, the Montra branded **Electric 3-wheeler has a 20% market share** in Southern India and is looking to take a wider deployment in 2025.
3. The **TiVolt branded e-SCV** is now in its final stage of customer trials and will soon provide a strong spread of 4-wheeler (commercial) offerings. This is expected to find stiff competition with other recent market entrants. With strategic ownership of technology integration firm Jayem Automotives, the agility of the group is enhanced.
4. The **55-ton Rhino Truck platform from IPLTech Electric Private Limited** (acquired by TICMPL) remains the only such offering. With 46L km covered, there's not even anyone else that is close. With cost engineering and localization of critical parts in full swing, IPLTech will try to keep the first-mover advantage.
5. TICMPL is all set to launch **Electric Farm Tractor** based on the platform acquired with the acquisition of **Cellestial E-Mobility Private Limited.**
6. Under **CG Power and Industrial Solutions Group**, **CG Semi-Private Limited** is setup this year. They have signed an agreement with **Renesas Electronics** Corporation and Thailand-based Stars Microelectronics to establish a Joint Venture (JV) to build and operate an outsourced **Semiconductor Assembly and Test (OSAT) facility** in India
7. On the Electronics front, at **MoShine Electronics Private Limited (76% ownership)**, high-quality camera modules for the Indian cell phone and consumer electronics industry are being made.
8. With a **JV (50%) with X2 Fuels and Energy Private Limited**, a circular economy with Waste to Fuel and Energy is being developed with proprietary and disruptive technologies.
9. A strong base of **R&D** and prototyping has been set up with **3Xper Innoventure Limited** and state-of-the-art labs. Contract Development and Manufacturing Organization services can make the group much more agile.
10. With the industrial and power offerings of CG and its subsidiaries, there is no limit to the end-to-end offerings that can come from TII with Power and Mobility combined.
11. And yes, the group still continues to make its flagship bicycles - the **BSA**, **Hercules, Montra and Mach City**. The Hercules MTB was my first bicycle as I rode to school :)

You just cannot keep your EYE away from TII. Mobility, Energy, Power and Electronics and Semiconductor - they are there.



EV NEWS

Delhi Government Extends EV Policy Incentives Until March 2025

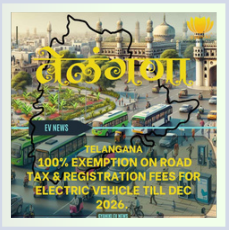
To accelerating the adoption of electric vehicles (EVs) and addressing the critical air quality issues plaguing the capital, the Delhi government has announced an **extension** of its **Electric Vehicle Policy until March 31, 2025**. This decision comes in response to a year-long stagnation in policy implementation and aims to reinstate vital subsidies and road tax exemptions for new EV purchases starting January 1, 2024.

Amara Raja Infra

Amara Raja Infra has officially launched the country's **first green hydrogen fuelling station in Leh**, a project executed for the National Thermal Power Corporation (NTPC). This initiative represents a significant stride towards sustainable energy solutions and aligns with India's commitment to reducing carbon emissions.

Telangana - 100% Road Tax Exemption for Electric

The Telangana government has announced a significant initiative aimed at promoting electric vehicle (EV) adoption in the state by offering a **100% exemption from road tax and registration fees** for a wide range of electric vehicles purchased and registered until **December 31, 2026**.

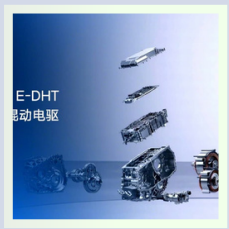


Mercedes-Benz Launches Europe's First Battery Recycling Plant

Mercedes-Benz has inaugurated Europe's first integrated battery recycling plant in **Kuppenheim, Germany**. This state-of-the-art facility not only marks the company as the first car manufacturer worldwide to close the battery recycling loop with its own in-house operation but also sets a new standard for sustainability in the electric vehicle (EV) sector.

Geely Unveils the Galaxy Starship 7

Geely Auto unveiled its latest innovation, the **Galaxy Starship 7**, a midsize SUV that introduces the next generation of its **NordThor 2.0 plug-in hybrid electric vehicle (PHEV) technology**. This launch marks a significant milestone in the automotive industry, particularly for hybrid vehicles, as it combines advanced engineering with a Commitment to sustainability.



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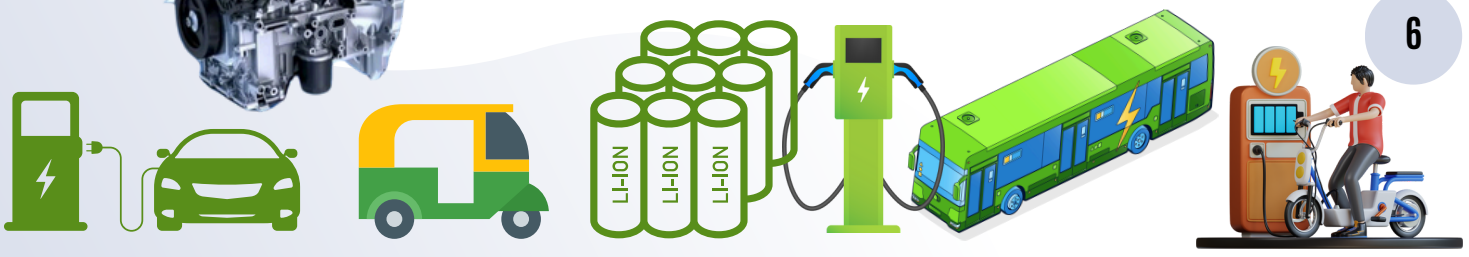


EV NEWS

EKA Mobility

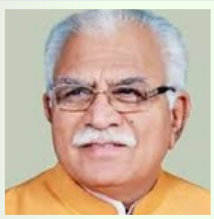
EKA Mobility, a division of Pinnacle Mobility Solutions Pvt. Ltd., has announced a significant milestone in its mission to revolutionize public transportation in India. The company has secured an **order from the Nagpur Municipal Corporation (NMC)** for the supply of **250 electric buses**

Mahindra

Mahindra Last Mile Mobility (MLMML) has announced that it has surpassed the milestone of 200,000 commercial electric vehicles sold. This remarkable feat comes on the heels of the company recording sales of over 100,000 units in just the last 17 months,

Convergence Energy Services Limited's (CESL) 'EV as a Service'

Major Dhyan Chand National Stadium, **Union Minister of Power and Housing & Urban Affairs, Manohar Lal,** officially launched Convergence Energy Services Limited's (CESL) '**EV as a Service**' program. This ambitious initiative aims to deploy **5,000 electric vehicles (EVs)** into government fleets over the next two years, significantly contributing to India's transition towards cleaner public transport.



JSW MG Motor India

JSW MG Motor India has announced the acceleration of seven promising startups as part of the fifth season of its MG Developer Program (MGDP). This initiative, themed "**AI in Electric Mobility**," aims to explore how artificial intelligence can transform both business operations and everyday life. The program received over 100 applications from startups across India, showcasing a robust interest in integrating AI with electric mobility solutions.

UP to Set Up Robust EV Charging Stations Throughout State with subsidy of Rs 2,000 crore

Uttar Pradesh government has announced plans to establish a robust network of electric vehicle (EV) charging stations across the state. This initiative is part of a broader strategy to encourage the adoption of electric vehicles and reduce carbon emissions. The project will be spearheaded by **Uttar Pradesh Renewable and EV Infrastructure Limited (UPREV)**, which has secured a substantial subsidy of **Rs 2,000 crore under the Pradhan Mantri E-Drive Yojana.**

SREC x Devise Electronics: An Electrifying Collaboration For a Better Tomorrow!

Sri Ramakrishna Engineering College (SREC) in Coimbatore signed a significant Memorandum of Understanding (MoU) with Devise Electronics Pvt. Ltd., based in Pune. This partnership aims to revolutionize the landscape of electric vehicles (EVs), embedded systems, and the Internet of Things (IoT). The collaboration is poised to enhance innovation, research, and skill development, addressing the growing demand for expertise in these critical sectors.

A Vision for the Future

The MoU signifies a commitment to fostering knowledge sharing and joint research initiatives between **SREC and Devise Electronics**. As the automotive industry pivots towards electrification, this collaboration is timely, aligning with global trends that prioritize sustainable transportation solutions. Both institutions recognize the urgent need to equip students and faculty with cutting-edge skills and knowledge to navigate this evolving landscape.

Key Components of the Collaboration

1. **Joint Research and Development**: The partnership will focus on collaborative R&D projects aimed at developing new technologies in electric mobility.
2. **Skill Enhancement Programs**: SREC and Devise Electronics will implement training programs designed to prepare students for careers in the rapidly expanding EV sector.
3. **Knowledge Sharing Initiatives**: Faculty members from both institutions will engage in workshops and seminars to foster an exchange of ideas and best practices.

This strategic alliance is expected to create a robust pipeline of talent skilled in electric vehicle technology, thereby addressing the skills gap in the industry. As highlighted by industry experts, the demand for professionals proficient in EV systems is surging as more companies invest in electric mobility solutions.

The Growing Demand for Skilled Professionals

The electric vehicle sector is experiencing unprecedented growth, leading to an increase in job opportunities across various domains. According to recent studies, engineering students specializing in areas such as battery systems, powertrain engineering, and charging infrastructure are particularly well-positioned for success. The collaboration between SREC and Devise Electronics will provide students with hands-on experience through internships and practical training programs.

Promising Career Paths in Electric Vehicles

- **Battery Systems Engineer**: Focuses on developing efficient battery management systems.
- **Electric Powertrain Engineer**: Works on optimizing propulsion systems for enhanced performance.
- **Charging Infrastructure Specialist**: Designs EV charging networks to support growing demand.
- **Autonomous Vehicle Engineer**: Develops advanced technologies for self-driving vehicles.
- **Sustainability Analyst**: Evaluates environmental impacts of EVs throughout their lifecycle.

These roles are crucial as the industry shifts towards more sustainable practices, emphasizing the importance of education and training in these fields.

The Role of Devise Electronics

Devise Electronics has been at the forefront of engineering solutions for electric vehicles since its inception in 2013. With expertise spanning various domains such as embedded electronics, IoT connectivity, and vehicle integration, Devise is well-equipped to contribute significantly to this collaboration. Their commitment to innovation aligns perfectly with SREC's educational mission.

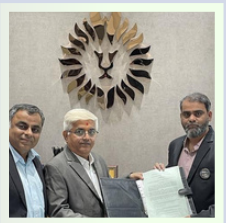
Training Programs Offered

Devise Electronics offers over 160 training programs tailored for engineers at various levels. These programs focus on practical skills that prepare participants for immediate employment in the EV sector. By partnering with SREC, Devise aims to enhance its training offerings further, ensuring that students receive relevant and up-to-date education.

Joint Ventures & Partnerships

Wardwizard -Ampvolts Collaborate

Wardwizard Innovations & Mobility Ltd. has officially partnered with Ampvolts, a leading provider of EV charging stations and infrastructure. This collaboration formalized through a Memorandum of Understanding (MoU) signed on November 25, 2024, aims to develop a robust EV charging infrastructure not only in India but also on an international scale.



Odysse Electric - Zypp Electric

Odysse Electric has announced a substantial **order of 40,000 electric two-wheelers** from Zypp Electric, an innovative player in the EV-as-a-service market. This strategic partnership is poised to enhance the production capacity and dealership network of Odysse Electric while supporting Zypp's ambitious plans to decarbonize last-mile logistics across the country.

PG Electroplast - Spiro Mobility Partnership

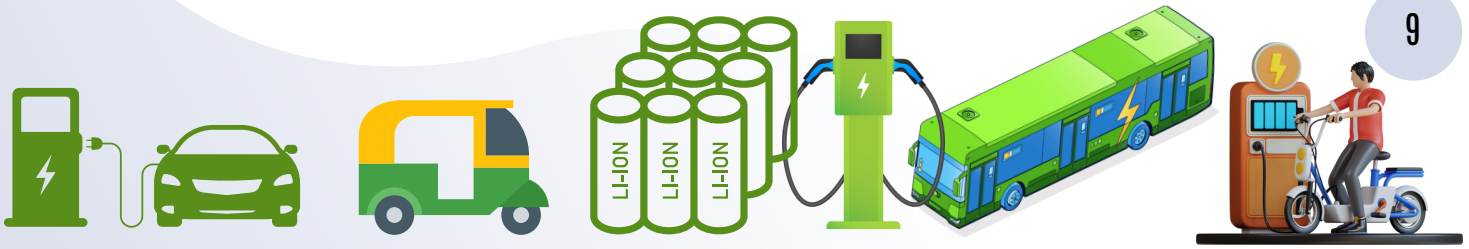
PG Electroplast Ltd (PGEL) has announced a strategic partnership with Spiro Mobility, Africa's largest EV manufacturer. This collaboration formalized through PGEL's wholly owned subsidiary PG Technoplast Ltd, positions the company as an exclusive manufacturing partner for Spiro in India. The announcement was made on November 18, 2024, and represents a pivotal step for PGEL as it aims to capitalize on the burgeoning demand for electric vehicles and related technologies.

IIT Kanpur - Zynetic

The Indian Institute of Technology Kanpur (IITK) has recently signed a Memorandum of Understanding (MoU) with Zynetic Electric Vehicles Charging Pvt. Ltd., a significant step aimed at enhancing electric vehicle (EV) charging technology in India. This collaboration is poised to address key challenges in the EV sector, particularly in developing advanced AC and DC fast chargers essential for the burgeoning electric vehicle market.

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.



Joint Ventures & Partnerships

Costech Infrastructure Solutions - ESYGO

Kerala is on the brink of a significant transformation in its electric vehicle (EV) infrastructure, with plans to establish **2,000 charging stations by 2030** through a partnership between **Costech Infrastructure Solutions and ESYGO**. This ambitious initiative aims to enhance the convenience of electric mobility across the state, making it a leader in sustainable transport solutions.

Sterling Tools - GLVAC

Sterling Tools Limited, through its subsidiary SterlingTech-Mobility Limited, has announced a strategic partnership with Kunshan GLVAC Yuantong New Energy Technology Co., Ltd. (GLVAC YT). This collaboration focuses on the local manufacturing of High Voltage Direct Current (HVDC) contactors and relays essential for electric and hybrid vehicles. The initiative is expected to enhance the domestic supply chain, reduce import dependency, and align with India's Make in India initiative.

Motul India - Zypp Electric

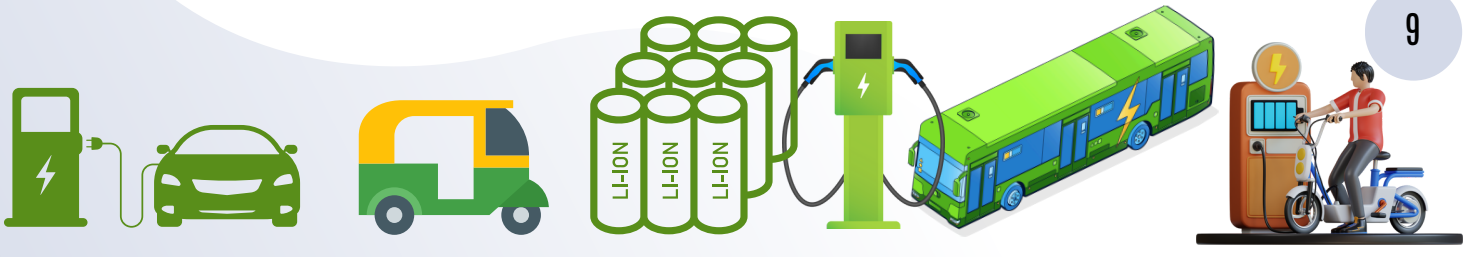
Automotive lubricant maker Motul India has partnered with D2C EV brand Zypp Electric to launch a nationwide **training program for mechanics focusing on electric two-wheeler (e-2W) repair and maintenance**. The initiative, which began with a two-day pilot training session in **Gurugram**, aims to certify over 10,000 mechanics across India as EV repair specialists.

ChargeMOD - HPCL

ChargeMOD joins hands with Hindustan Petroleum Corporation Limited HPCL to expand India's EV charging network. Using OCPI technology, EV drivers can seamlessly access **HPCL stations**. Over **100 fast chargers** will soon be deployed nationwide, cutting down charging times significantly.

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

Allegro MicroSystems

Allegro MicroSystems, a leading provider of magnetic sensing and power IC solutions, has inaugurated a new **research and development (R&D) center in Hyderabad**, India. This facility is poised to play a crucial role in advancing technologies related to electric vehicles (EVs), automotive systems, and robotics. The move is part of Allegro's broader strategy to enhance its global innovation capabilities while tapping into India's burgeoning semiconductor ecosystem.

SoundHound AI - KIA INDIA

SoundHound AI, a global leader in voice **artificial intelligence**, has announced the integration of its cutting-edge **voice technology** into Kia vehicles. This initiative aims to enhance the driving experience for Indian consumers by introducing a Hindi voice assistant as part of the Kia Connect platform. The feature is currently available in the newly launched **2025 Kia Carnival and 2025 Kia EV9 models.**

Wardwizard - Beulah International

Wardwizard Innovations & Mobility Limited has dispatched its customised electric three-wheeler, the **e-Trike, to the Philippines**. This initiative is part of a broader **$1.29 billion partnership** with Beulah International, aimed at modernising public transport in the Southeast Asian nation. The e-Trike is designed specifically for urban commuting and is expected to play a pivotal role in the country's efforts to transition towards greener transportation solutions.

FUTURE MOBILITY PARTNERS

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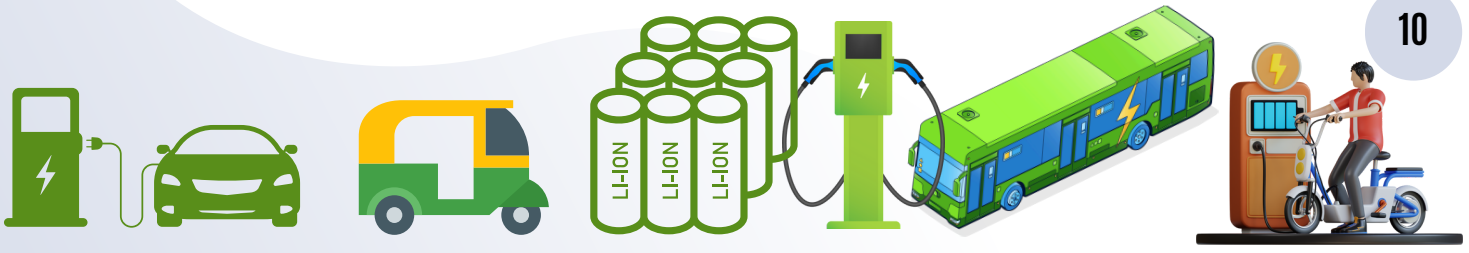

Joint Ventures & Partnerships

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

Denso - T-Hub

Japanese automotive technology leader Denso has announced a partnership with T-Hub, a prominent startup incubator based in Hyderabad, Telangana. This collaboration is set to leverage Denso's extensive expertise in automotive technology while fostering innovation among Indian startups focused on **artificial intelligence (AI), electrification, and advanced driver-assistance systems (ADAS).**

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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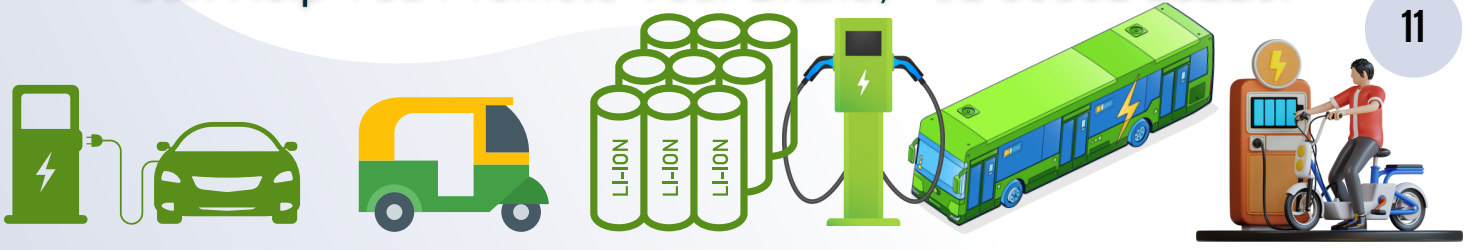


UPCOMING FUTURE MOBILITY EVENTS

CII Delhi EV Summit

2nd Edition of the CII Delhi EV Summit
9 December 2024, New Delhi.

The National Capital Territory (NCT) of Delhi has emerged as leader for EVs in India with large consumer base and stakeholders across the board. The Delhi EV policy laid the foundation for EV penetration in all segments and achieving the overarching objective to improve Delhi's air quality and create an entire supply-chain ecosystem in rapid manner. With the forthcoming Delhi EV Policy 2.0, the ecosystem is set to further evolve, driving substantial growth in the EV sector and supporting India's overarching goals of sustainability and clean mobility.

Bharat Mobility Global Expo 2025

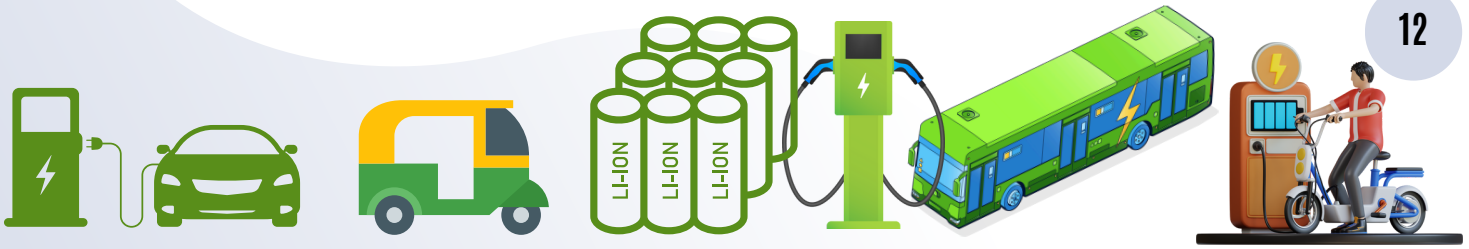
17 – 22 January 2025 |BHARAT MANDAPAM, NEW DELHI

Bharat Mobility Global Expo 2025 is the leading global mobility show in India and is a confluence of the world's leading automotive and mobility players. Now, in its second year, this global expo unites the entire mobility value chain under one umbrella. More than just an event, it sets the stage for the future of Mobility. The theme for Bharat Mobility Global Expo 2025 is "Beyond Boundaries: Co-creating Future Automotive Value Chain." This vision aims to foster collaboration and innovation across the automotive and mobility sector, emphasizing sustainable and cutting-edge technological advancements.

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

सत्यमेव जयते

SUPPORTED BY
MINISTRY OF COMMERCE AND INDUSTRY
Government of India



UPCOMING FUTURE MOBILITY EVENTS

India International EV Show

AN INTERNATIONAL LEADING TRADE EXHIBITION & CONFERENCE ON ELECTRIC VEHICLES INDUSTRY

06 - 08 December, 2024 |

Auto Cluster Exhibition Center, Pimpri Chinchwad, Pune, India.

India International EV Show (IIEV Show) is India's largest gathering of the Electric Vehicles Industry, it is coupled with the vast opportunities and potential challenges of EV development in India. It is a common platform that unites engineers, mechanics, scientists, and decision-makers to solve problems across the electric vehicle and advanced battery industries. This show capitalizes on the latest EV trends and exchanges groundbreaking ideas with experts and industry visionaries on trending topics including battery technologies and realizing the EV Industry's potential as a key contributor to the country's goal of achieving climate resilience, energy security, and sustainable growth.

Who Should Attend

EV Manufacturers
EV Motor Manufacturers
EV Design & Architect Providers
Charging Infrastructure Companies
Power Storage Companies
Battery Pack Makers
Cell Manufacturers
Tyres Manufacturers
Electronics Companies
Sensors Companies
Lidar Companies
Specialty Chemical Companies
Smart Manufacturing Support Providers
Machine Learning and AI Implementers

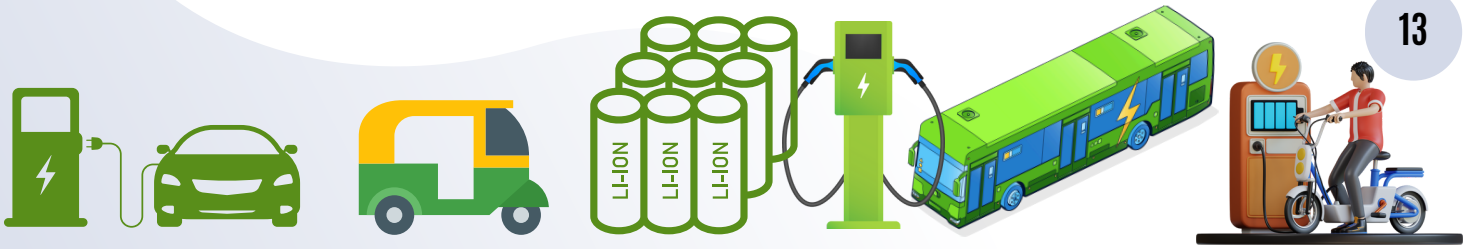
ETAuto EV Conclave 2024

IPLUG INTO FUTURE MOBILITY

December 11-12 at the Hyatt Regency, New Delhi

Machine Learning and AI Implementers
hared Mobility Providers
Logistics Firms
E-Commerce Firms
Smart City Implementers
Connected Cars providers
R&D Heads

ET Auto EV Conclave
PLUG INTO FUTURE MOBILITY
POWERED BY cognizant



UPCOMING FUTURE MOBILITY EVENTS

6TH EDITION™
GREEN VEHICLE EXPO

EXHIBITION ON
ELECTRIC VEHICLES, HYBRID VEHICLES, COMPONENTS, BATTERIES, CHARGING STATIONS, GPS SYSTEMS & ALLIED INDUSTRY.

12-13-14 December 2024
Hitex Exhibition Centre
Hyderabad, INDIA

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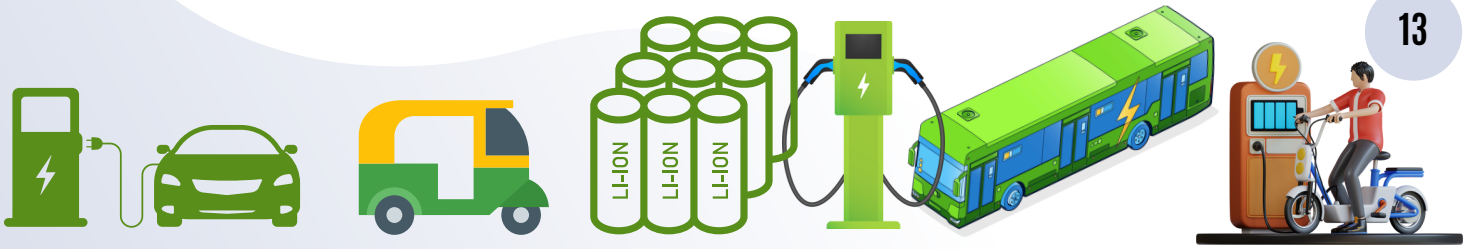


New Launch

Gravton Motors - Quanta

Gravton Motors Pvt Ltd, a **Hyderabad**-based full-stack electric vehicle company, has made a significant mark in the automotive industry with the launch of its flagship electric motorcycle, Quanta, at T-Hub, Hyderabad. Priced at **INR 1.2 lakh**, the Quanta has garnered **approval from the Automotive Research Association of India (ARAI)**, paving the way for its commercial debut.

Honda : Activa e and QC 1

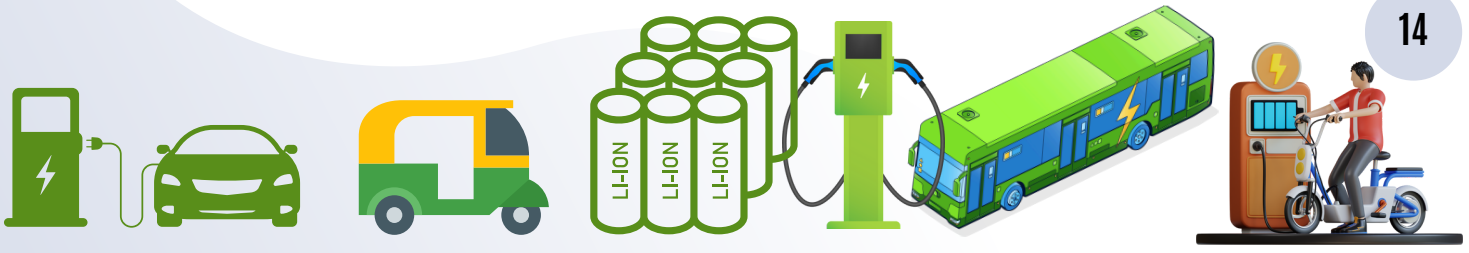
Honda Motorcycle and Scooter India (HMSI) has officially launched two new electric scooters: the Activa e and the QC 1. This marks Honda's first foray into the electric two-wheeler segment in India, a country that is rapidly embracing sustainable transportation solutions. Both models are set to hit the roads in **February 2025, with bookings commencing on January 1, 2025.**

Activa e

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
Display: A state-of-the-art 7-inch TFT display with Bluetooth connectivity and navigation features

QC 1

Alongside the Activa e, Honda has unveiled the QC 1, designed specifically for short commutes. This model features a fixed battery setup with a range of approximately 80 km per charge.
Specifications include:
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



New Launch

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Ola Electric - Gig and S1 Z - A Series

Ola Electric has made a significant leap in the electric vehicle (EV) market with the launch of its new range of scooters and a portable inverter, aiming to enhance personal mobility and energy accessibility across India. The company unveiled the **Ola Gig, Ola Gig+, Ola S1 Z, and Ola S1 Z+ scooters, priced at ₹39,999, ₹49,999, ₹59,999, and ₹64,999 respectively.**

Suzuki Access Electric Scooter

Suzuki is poised to launch its first electric scooter, the Suzuki Access Electric, in 2025. This new model aims to compete directly with the much-anticipated Honda Activa Electric, which is set to debut soon. With a projected price of around **₹1.20 lakh** and a **range of 120 kilometers.**

Expected Specifications:

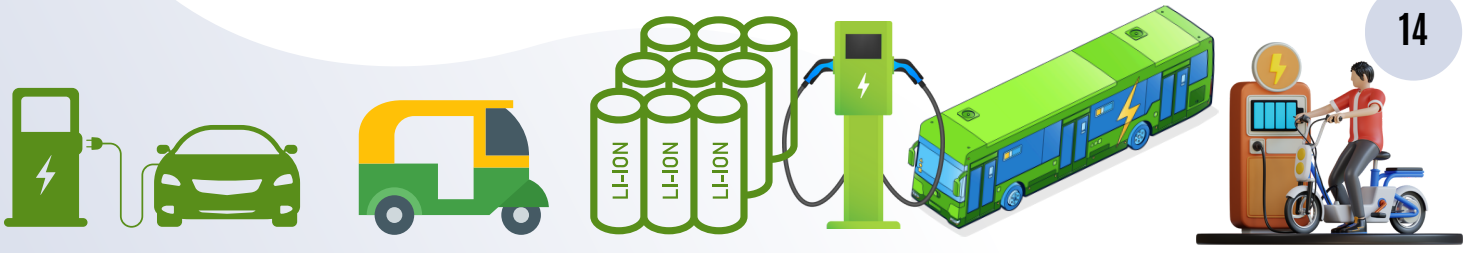
Range: Approximately 120 km on a single charge.

Price: Estimated at ₹1.20 lakh (ex-showroom).

Battery Options: Multiple battery pack choices to cater to varying customer needs.

Design: The scooter is likely to maintain a similar aesthetic to its internal combustion engine counterpart but may incorporate retro styling elements for differentiation.

Features: Anticipated features include an LED headlamp, a fully digital instrument cluster, connectivity options, and potentially a touchscreen display in higher variants.



New Launch

Mahindra - XEV 9e & BE 6e

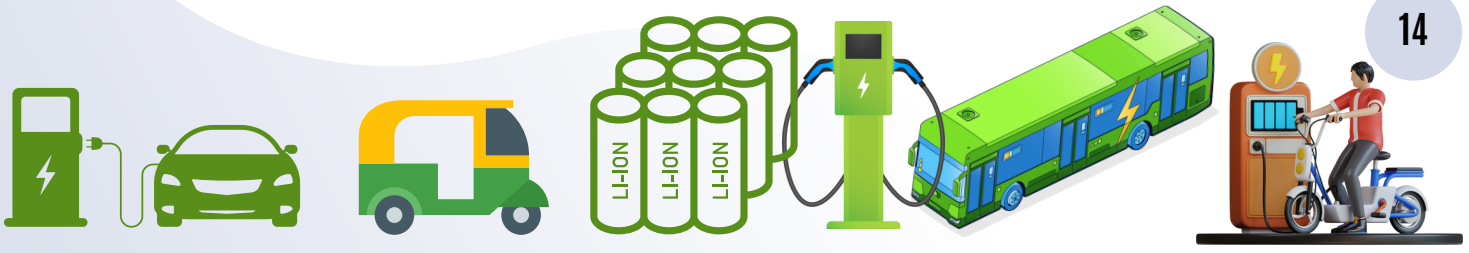
Mahindra has officially launched its two latest electric SUVs, the XEV 9e and BE 6e, marking a significant step in the Indian automotive landscape. Built on the innovative INGLO platform, these vehicles are designed to cater to the growing demand for electric mobility, showcasing Mahindra's commitment to sustainability and advanced technology.

Key Features and Specifications

XEV 9e: This muscular SUV boasts a real-world range of 500 km, making it ideal for both urban and long-distance travel. It features a premium interior with three connected screens, a panoramic sunroof, and a high-quality Dolby Atmos audio system. The starting price is set at ₹21.9 lakh (ex-showroom).

- 285hp & 380Nm Single Motor Setup (RWD)
- 0-100kmph in 6.8-seconds
- 231hp & 380Nm Single Motor Setup (RWD)
- Brake by wire (100kmph - 0kmph in 40 metres)

- 79kWh & 59kWh battery packs available
- Battery packs get a lifetime warranty (first owners only)
- 533km range
- Drive modes (Range, Everyday & Race) with semi-active suspension damping
- Length — 4789mm (94mm longer than XUV700)
- Ground clearance — 207-mm
- Boot - 455-litres + 45-litre frunk
- ADAS Level 2
- 43-inch triple-screen display, with Maia — Mahindra’s new AI assistant
- 16-speaker Harman-Kardon sound system
- Illuminated roof



New Launch

Mahindra - BE 6e

BE 6e: A more compact and sporty option, the BE 6e also offers a range of 500 km. It comes equipped with dual-screen infotainment, Level 2 Advanced Driver Assistance Systems (ADAS), and a starting price of ₹18.9 lakh (ex-showroom).

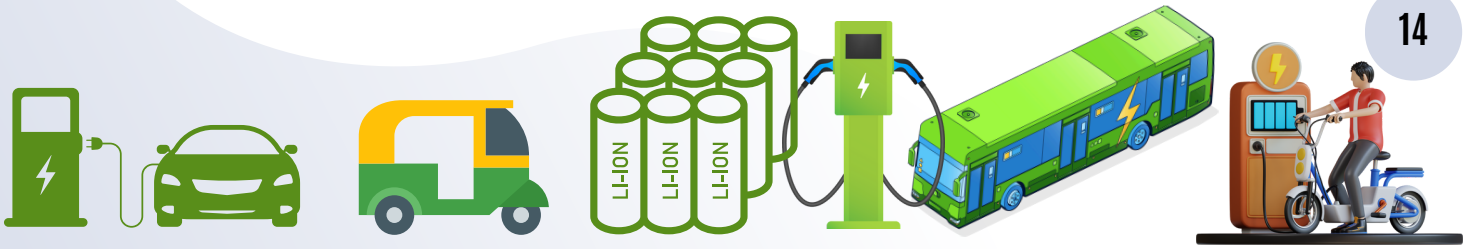
- 285hp & 380Nm Single Motor Setup (RWD) 79kW
- 228hp & 380Nm Single Motor Setup (RWD) 59kW
- 0-100kmph in 6.7-seconds

- 79kWh & 59kWh battery packs available
- Battery packs get a lifetime warranty (first owners only)
- 550km range
- Brake by wire (100kmph - 0kmph in 40 metres)
- Drive modes (Range, Everyday & Race) with semi-active suspension damping

- 207-mm ground clearance
- 455-litre boot + 45-litre frunk
- Length - 4371mm

- ADAS Level 2

- Panoramic display with Maia — Mahindra's new AI assistant
- 16-speaker Harman-Kardon sound system



New Launch

MotoHaus - VLF Tennis electric scooter

MotoHaus has officially launched the VLF Tennis electric scooter, alongside a range of Brixton motorcycles, marking the Italian brand's entry into this rapidly growing sector. Priced at **₹1.30 lakh** (ex-showroom), the VLF Tennis is designed to appeal to urban commuters seeking a blend of style, functionality, and sustainability.

Oben Electric - Rorr EZ

Oben Electric has launched the Rorr EZ, an innovative electric motorcycle designed for urban commuters. With a starting price of just **₹89,999**, the Rorr EZ aims to provide an affordable yet high-performance alternative to traditional motorcycles.

The Rorr EZ is available in three distinct battery variants: **2.6 kWh, 3.4 kWh, and 4.4 kWh**, All variants share a **top speed of 95 km/h** and can accelerate from **0 to 40 km/h in just 3.3 seconds**, thanks to its powerful **7.5 kW motor generating 52 Nm of peak torque.**

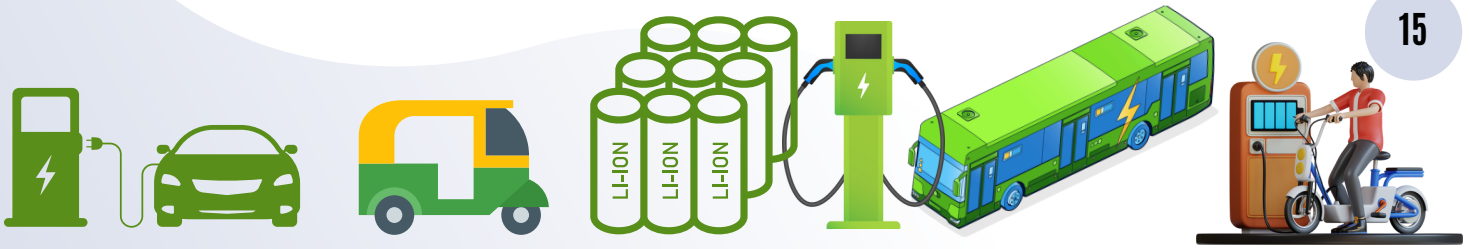
Hyundai Ioniq 9

Hyundai Ioniq 9: A New Era in Electric Mobility

The Ioniq 9 is built on Hyundai's Electric Global Modular Platform (E-GMP), which also underpins the successful Ioniq 5 and Ioniq 6 models. This platform allows for versatile configurations and advanced technology integration, making the Ioniq 9 a standout in the growing electric SUV segment.

Key Features and Specifications

- Powertrain Options: The Ioniq 9 will be available in three configurations:
  - Long Range RWD: Single motor producing 217.5 hp and 350 Nm of torque.
  - Performance AWD: Dual motors delivering a combined output of 312.6 hp and 605 Nm of torque.
- Battery and Charging: Equipped with a robust 110.3 kWh battery pack, the Ioniq 9 supports ultra-fast charging capabilities, allowing drivers to charge from 10% to 80% in just 24 minutes using a 350 kW charger.
- Interior Technology: The SUV features a modern cockpit with a 12.3-inch instrument cluster and a matching infotainment display, enhancing user experience with intuitive controls and connectivity options.
- Luxury Amenities: The interior is designed for comfort, featuring swiveling second-row seats that improve accessibility to the third row, alongside advanced noise control systems that minimize road noise for a serene driving experience.
- Safety Features: The Ioniq 9 comes equipped with advanced driver assistance systems (ADAS), ensuring high safety standards that are becoming essential in modern vehicles.



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.

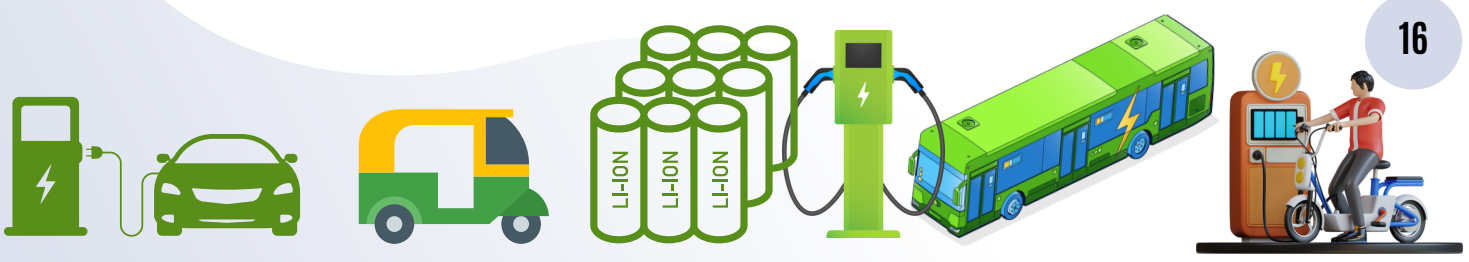
On November 7, 2023, the Ministry of Heavy Industries (MHI) introduced a new phased manufacturing program (PMP) for electric vehicle (EV) charger components under the **FAME India Scheme Phase-II** to boost domestic production. Outlined a comprehensive list of charger components and their timelines for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

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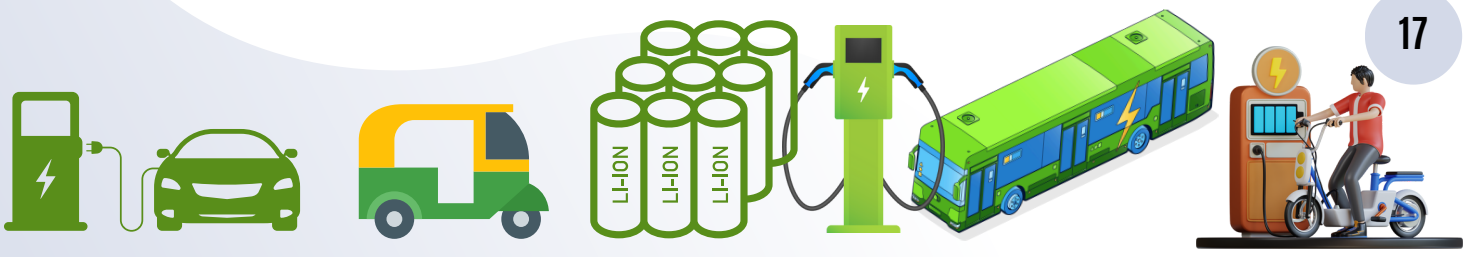


Report - Guide to Basics of Semiconductor

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.**

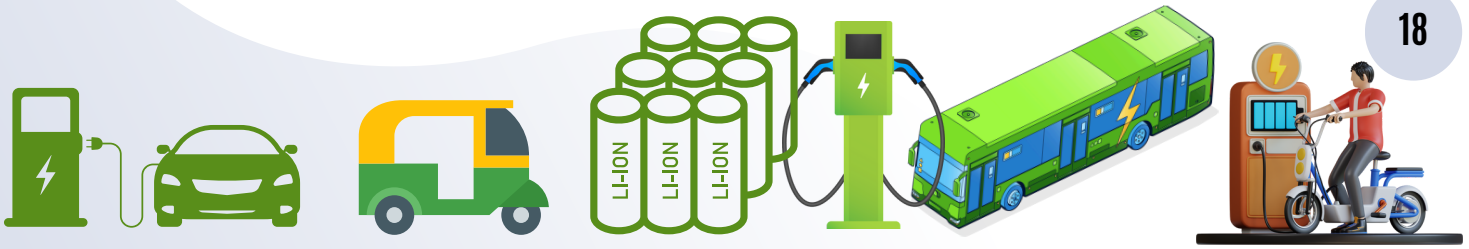
This **compiled report serves as an essential guide** commences with an introduction to **key PCB components, semiconductors**, explaining their role as materials that lie between conductors and insulators. It gets into the atomic structure of semiconductors and the concept of doping, which enhances 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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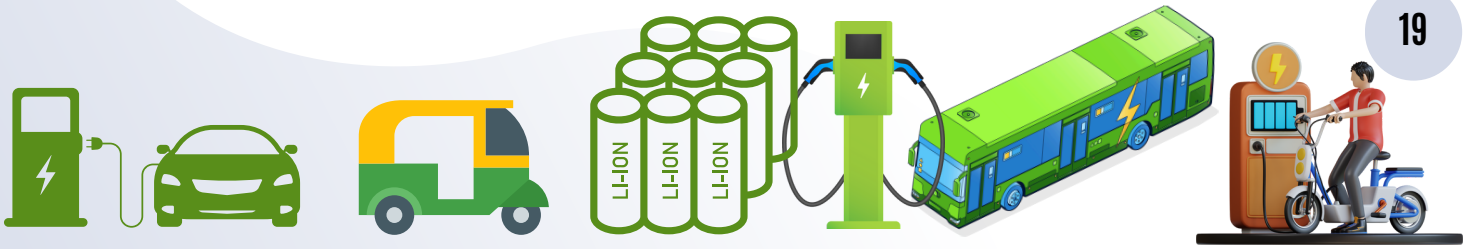

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'gyaniki' is a technology platform that provides complete coverage of the current & evolving "ACCESS" [Autonomous, Connected, Customized, Electrified, Safe, Shared] to "Future Mobility".

'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.

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- Technologies
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EV Report DEC 2024