EV Report NOV 2024

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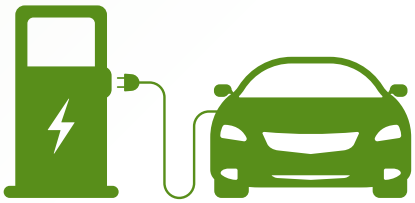
YOUR ACCESS TO FUTURE MOBILITY

TOYOTA'S PORTABLE HYDROGEN CARTRIDGE

INDIA EV SALES OCT 2024

TOP MONEY MOVEMENT IN MOBILITY WORLD

NEWS, JOINT VENTURES & PARTNERSHIPS



UPCOMING EV SHOW

GYANIKI ACCESS

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.

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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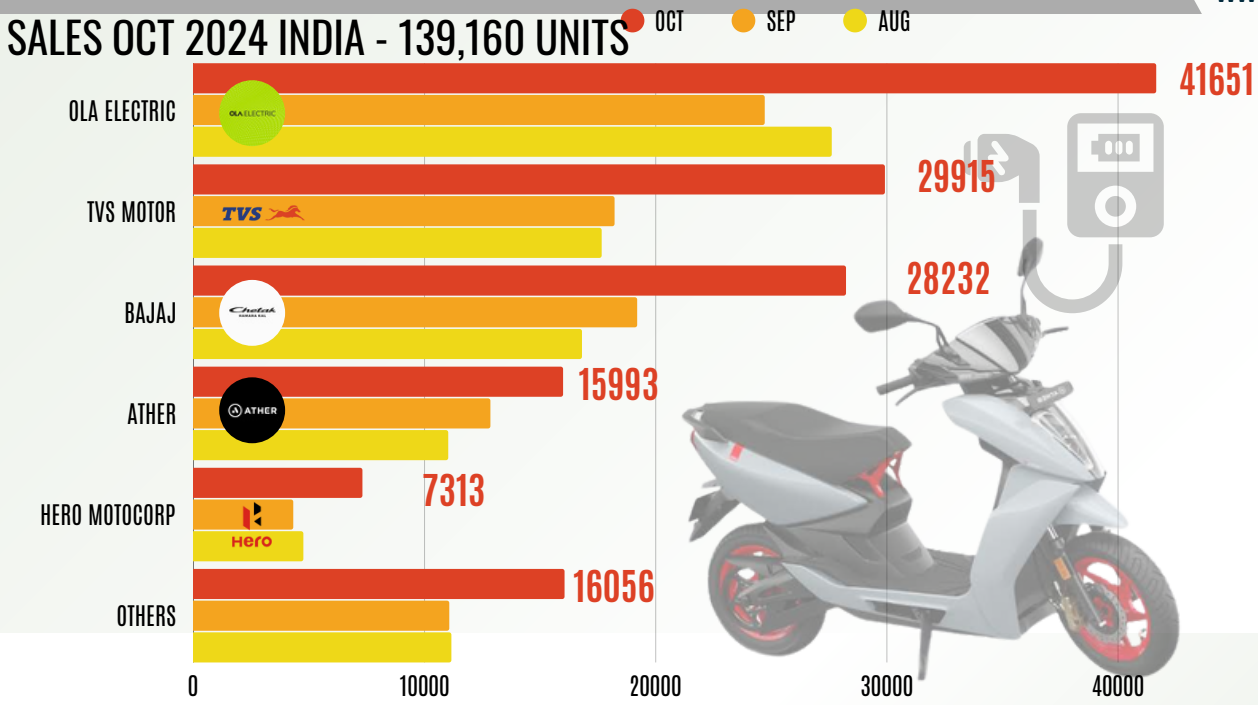
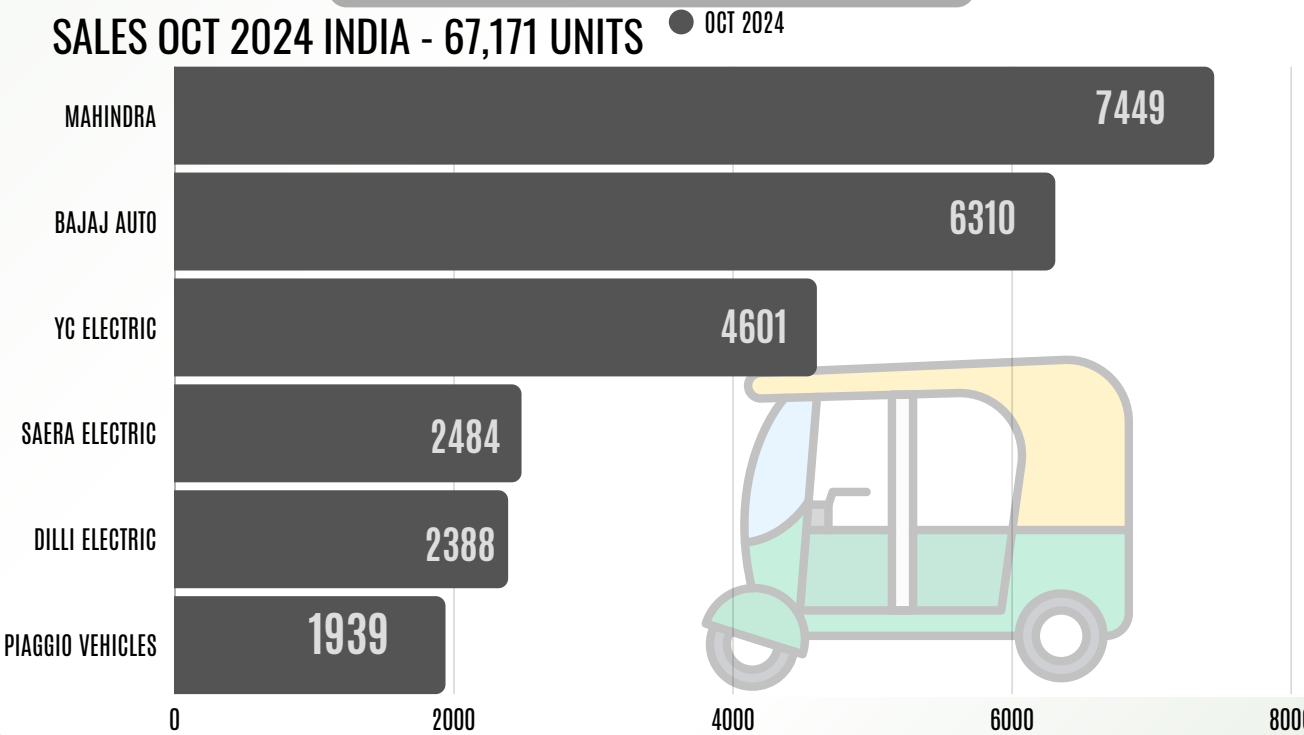
India EV Sales OCT 2024

TOP EV-2W Sales by OEM

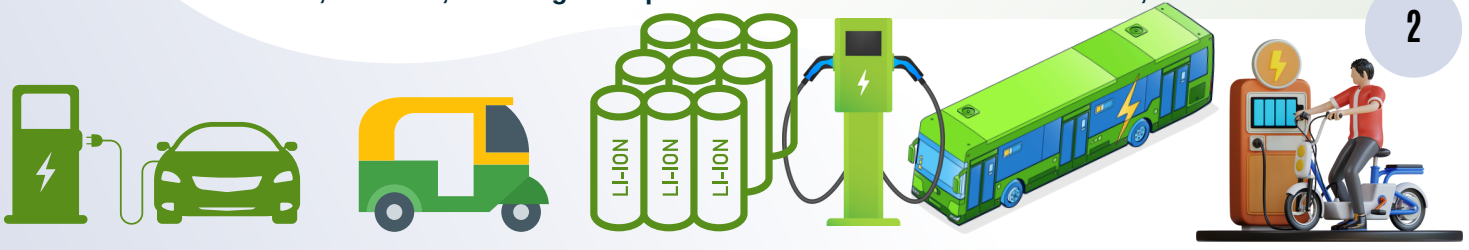


In October 2024, India's electric two-wheeler sales surged by 85%, with TVS regaining market leadership over Bajaj and Ola Electric rebounding strongly. Electric two-wheeler (e2W) sales in India soared by 85% in October 2024, reaching 139,160 units.

EV 3W Sales Trend by OEM

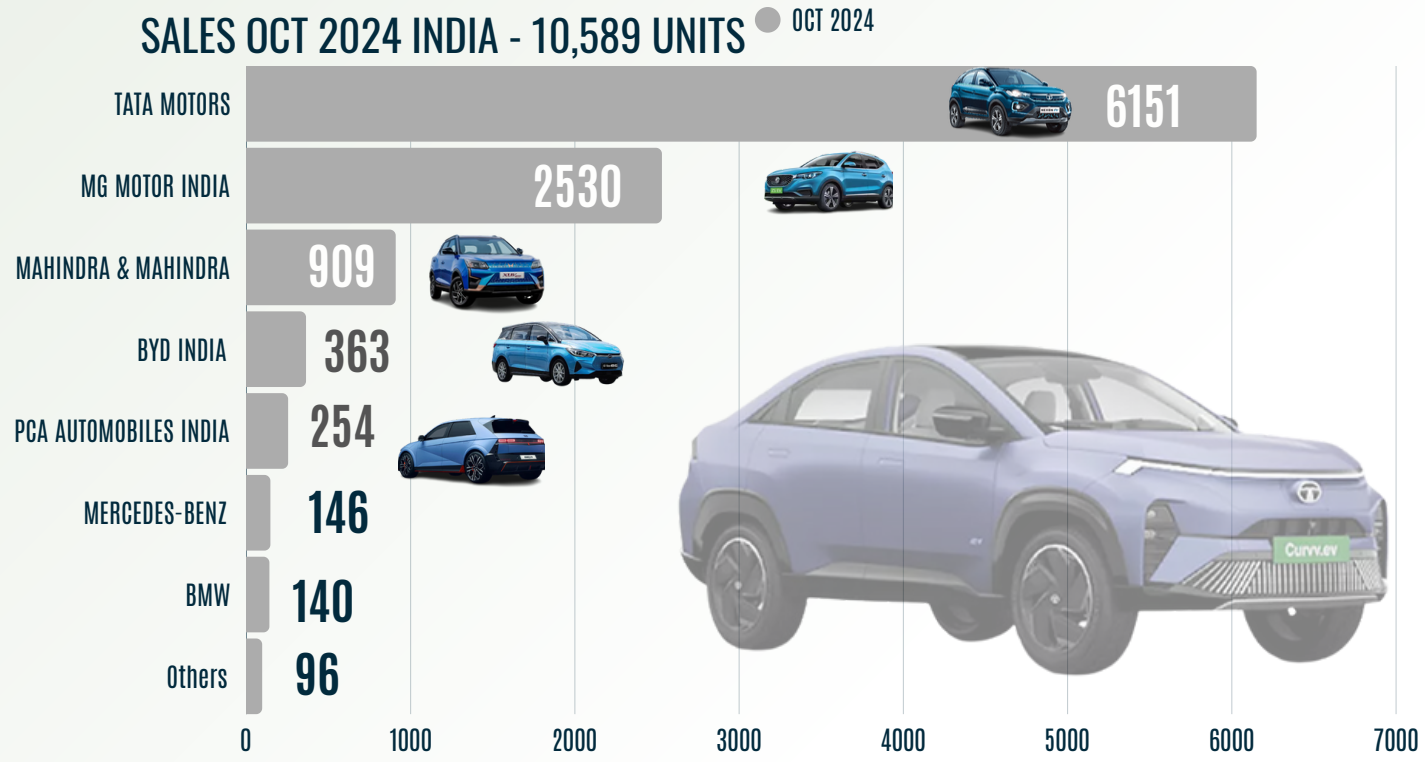


October 2024 sees electric three-wheeler sales soar to 67,171 units, with Mahindra Last Mile Mobility leading the charge against Bajaj Auto. Explore the latest trends in India's EV market. Mahindra Last Mile Mobility Ltd, which sold 7,449 units, securing an impressive 11% market share for October, 2024.



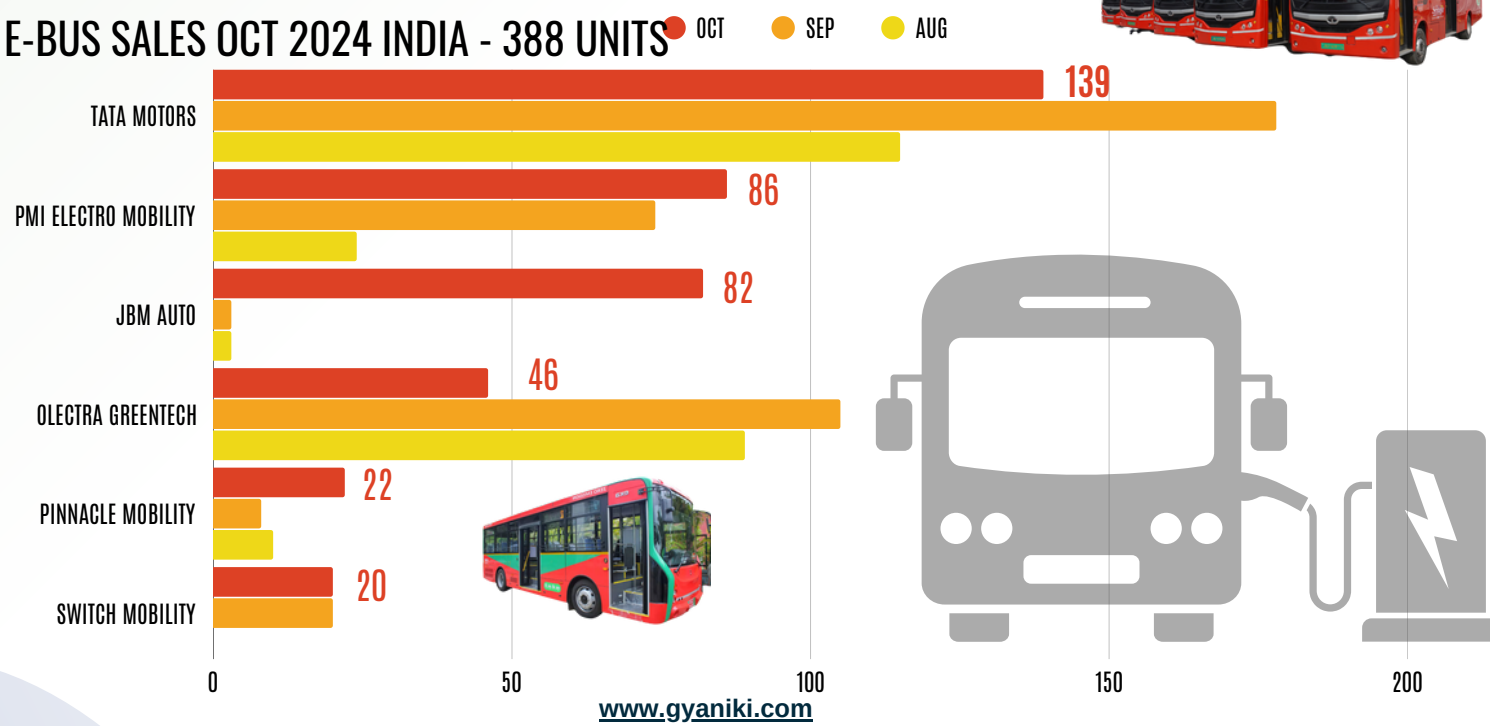
India EV Sales NOV 2024

EV 4W Passenger Sales Trend by OEM

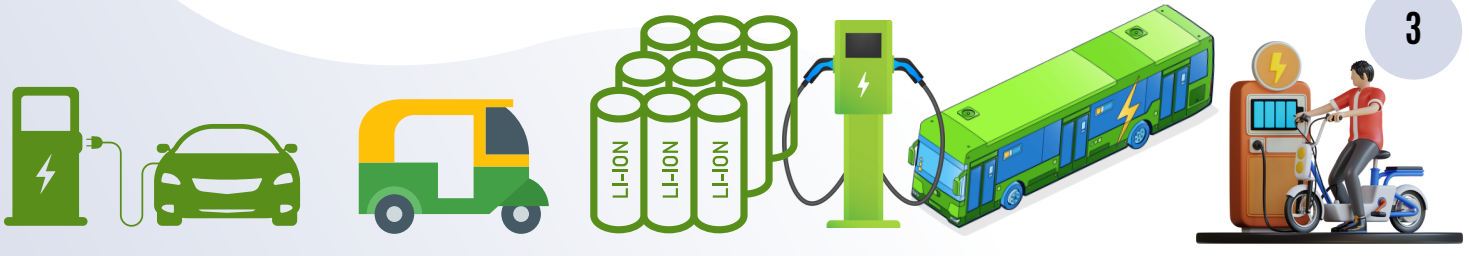


In October 2024, India's electric cars and SUVs achieved record sales of 10,589 units. Tata Motors leads the market with significant contributions from MG Motor and Mahindra.

Data Source: Vahan Dashboard



In the EV bus segment, TATA Motors is the leading EV Bus OEM. Total 388 units EV Bus sold in oct 2024.



India EV Sales NOV 2024

Top 10 Electric Vehicle Sales Trend by OEM

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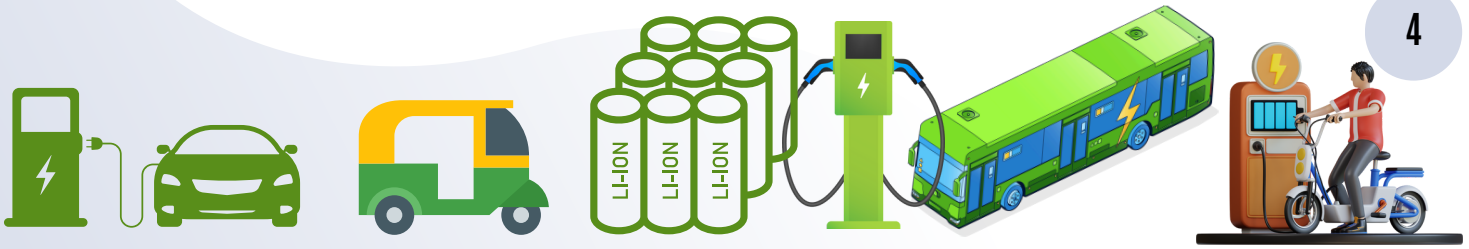
TOP 10 OCT 2024 ELECTRIC VEHICLE SALES DATA				
OCT 2024 - 2W WHEELER ELECTRIC VEHICLE SALES DATA				
SR. NO	OEM	Sep-24	Oct-24	% increase in OCT 2024
1	OLA ELECTRIC TECHNOLOGIES PVT LTD	24716	41651	69%
2	TVS MOTOR COMPANY LTD	18220	29915	64%
3	BAJAJ AUTO LTD	19198	28232	47%
4	ATHER ENERGY PVT LTD	12849	15993	24%
5	HERO MOTOCORP LTD	4321	7313	69%
6	GREAVES ELECTRIC MOBILITY PVT LTD	2777	3981	43%
7	BGAUSS AUTO PRIVATE LIMITED	1237	2021	63%
8	KINETIC GREEN ENERGY & POWER SOLU	467	1443	209%
9	BOUNCE ELECTRIC 1 PVT LTD	1205	1006	-17%
10	Others	5384	7605	41%
OCT 2024 - 3W ELECTRIC VEHICLE SALES DATA				
SR. NO	OEM	Sep-24	Oct-24	% increase in OCT 2024
1	MAHINDRA LAST MILE MOBILITY LTD	6088	7449	22%
2	BAJAJ AUTO LTD	5002	6310	26%
3	YC ELECTRIC VEHICLE	3826	4601	20%
4	SAERA ELECTRIC AUTO PVT LTD	2514	2484	-1%
5	DILLI ELECTRIC AUTO PVT LTD	2097	2388	14%
6	PIAGGIO VEHICLES PVT LTD	1683	1939	15%
7	MINI METRO EV L.L.P	1175	1384	18%
8	ENERGY ELECTRIC VEHICLES	1202	1187	-1%
9	UNIQUE INTERNATIONAL	1199	1180	-2%
10	SAHNIANAND E VEHICLES PVT LTD	886	1036	17%
OCT 2024 - 4W ELECTRIC VEHICLE SALES DATA				
SR. NO	OEM	Sep-24	Oct-24	% increase in OCT 2024
1	TATA MOTORS LTD	3791	6151	62%
2	MG MOTOR INDIA PVT LTD	1007	2530	151%
3	MAHINDRA & MAHINDRA LIMITED	474	909	92%
4	BYD INDIA PRIVATE LIMITED	172	363	111%
5	PCA AUTOMOBILES INDIA PVT LTD	387	254	-34%
6	MERCEDES-BENZ INDIA PVT LTD	84	146	74%
7	BMW INDIA PVT LTD	114	140	23%
8	KIA INDIA PRIVATE LIMITED	18	35	94%
9	HYUNDAI MOTOR INDIA LTD	26	33	27%
10	VOLVO AUTO INDIA PVT LTD	16	15	-6%

Source: Vahan Dashboard



Qualcomm's Snapdragon Ride Elite & Snapdragon Cockpit Elite chips

Qualcomm has unveiled its latest innovations: the Snapdragon Ride Elite and Snapdragon Cockpit Elite chips. These cutting-edge solutions are designed to redefine the driving experience and enhance in-car functionalities, positioning Qualcomm at the forefront of the automotive industry's evolution.

Introducing the New Chips

Snapdragon Ride Elite: Engineered specifically for advanced driver-assistance systems (ADAS) and software-defined vehicles (SDV), the Snapdragon Ride Elite chip supports up to 40 cameras and sensors. This robust processing capability is crucial for comprehensive self-driving functionalities, enabling vehicles to perceive their surroundings with unprecedented accuracy.

Snapdragon Cockpit Elite: On the other hand, the Snapdragon Cockpit Elite chip is tailored to elevate in-car experiences. It powers next-generation infotainment systems with AI-driven features such as real-time ray tracing and immersive 3D graphics. This chip promises to transform how passengers interact with their vehicle's entertainment systems.

Unmatched Computing Power

The performance enhancements offered by these new chips are nothing short of revolutionary.

Performance Boost: Both chips incorporate Qualcomm's new Oryon CPU, which delivers up to three times the CPU performance and twelve times the AI performance compared to previous generations. This substantial increase in computing power enables vehicles to manage complex tasks effortlessly.

AI Capabilities: The Hexagon NPU embedded in the Cockpit Elite chip can handle large language models (LLMs) with billions of parameters. This capability allows for personalized and adaptive in-car experiences, resulting in smarter voice assistants, more intuitive navigation systems, and enhanced safety features.

High-Performance Graphics: Visual excellence is another hallmark of these new chips.

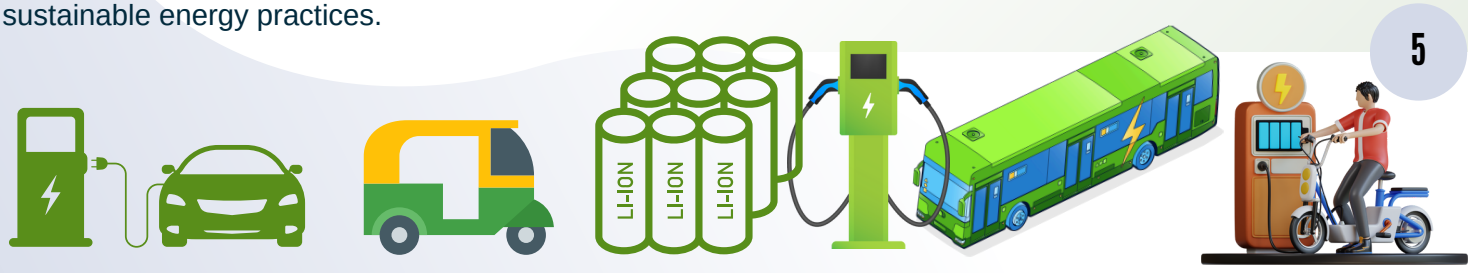
Visual Experience: The Cockpit Elite chip can support up to 16 4K displays simultaneously. This means that every passenger can enjoy crystal-clear, high-definition content throughout their journey. Imagine a car interior where each screen delivers stunning visuals—transforming mundane commutes into engaging experiences.

Production **and** Readiness

As automotive manufacturers eagerly anticipate these advancements, Qualcomm has outlined its production timeline:

Mass Production Timeline: The company plans to commence mass production of these chips in 2025. This timeline aligns perfectly with automakers' goals to integrate advanced technologies into their vehicles promptly.

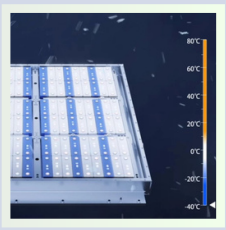
ADAS and SDV Readiness: The Snapdragon Ride Elite chip is fully equipped to meet modern ADAS and SDV demands. Its advanced processing capabilities position it as a key player in developing autonomous driving technologies, paving the way for safer and more efficient transportation solutions.e consumers become environmentally conscious, innovations like these could play a crucial role in promoting sustainable energy practices.



EV NEWS

Ultraviolette Automotive's F77 MACH 2

The F77 MACH 2's recent **global certification**, Ultraviolette Automotive is poised to make significant strides in the electric motorcycle sector. By combining innovative technology with high-performance capabilities, Ultraviolette not only meets the demands of today's eco-conscious consumers but also sets new standards for what electric motorcycles can achieve.



CATL Freevoy Super Hybrid Battery

CATL, the world's leading battery manufacturer, unveiled its revolutionary **Freevoy Super Hybrid Battery**. This innovative battery combines **sodium-ion and lithium-ion** technologies to enhance the performance and efficiency of **plug-in hybrid electric vehicles (PHEVs)** and **extended-range electric vehicles (EREVs)**. With a pure electric range exceeding 400 kilometers and ultra-fast charging capabilities

Jaguar Land Rover

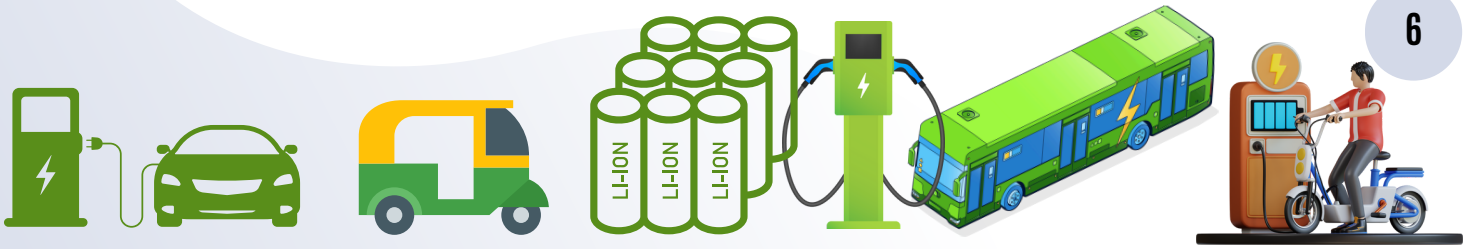
Jaguar Land Rover (JLR) has officially inaugurated its latest Open **Innovation Hub** in **Bengaluru, India**, marking a significant expansion of its global innovation network. This initiative is designed to foster collaboration with startups and harness cutting-edge technologies such as **artificial intelligence (AI), big data analytics, the Internet of Things (IoT), and Advanced Driver Assistance Systems (ADAS).**

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.

Tsuyo Manufacturing

Tsuyo Manufacturing Pvt Ltd has officially launched India's first indigenous electric vehicle (EV) powertrain tailored for commercial vehicles, marking a significant leap towards self-reliance in EV technology. This groundbreaking initiative aims to reduce the country's reliance on imported components and bolster the rapidly growing commercial EV sector. The new production line, located in Dharwad, Karnataka, represents an investment of **USD 8 million** and is expected to create approximately **150 jobs within the first 18 months** of operation.



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**

Propel Industries - 470 HEV Heavy-Duty Electric Tipper

Propel Industries has announced that its 470 HEV heavy-duty electric tipper has received **homologation certification**. This milestone not only underscores the company's commitment to innovation but also positions the 470 HEV as a pioneering solution in the mining and construction sectors.

Infineon Technologies

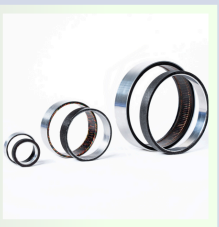
Infineon Technologies AG introduced the **HybridPACK Drive G2 Fusion**, the world's first silicon carbide (SiC)-based power module designed specifically for electric vehicles. This innovative power module promises to redefine standards in power efficiency, cost-effectiveness, and performance in the rapidly evolving automotive industry.

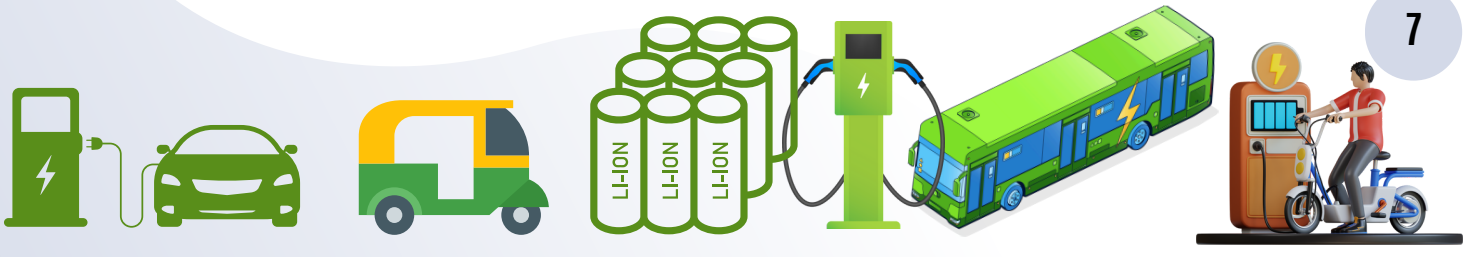
JSW MG Motor India

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.

Alva Industries

Alva Industries has launched its latest innovation, the **SlimTorq™** series, a range of slotless thin-section **motors** designed for high-precision applications across various sectors including automotive, aerospace, and marine. This new product line, unveiled on October 1, 2024, showcases the company's patented **FiberPrinting™ technology**, which allows for unprecedented torque density and adaptability in motor design.





iACELearningHub at NATRAX - New Era for Automotive Skill Development in Indore

The inauguration of the **International Automobile Centre of Excellence's iACELearningHub at NATRAX** in September 2024 marks a milestone for the Indian automotive industry. This state-of-the-art center in **Indore** is set to create an unparalleled ecosystem for nurturing automotive talent and bridging the skill gap, essential for driving the future of the mobility industry.

NATRAX: India's Premier Testing Ground for Innovation

Situated at the prestigious **National Automotive Test Tracks (NATRAX), iACELearningHub** benefits from being at India's foremost automotive testing facility. NATRAX offers world-class infrastructure to rigorously test vehicles across performance, safety, and endurance metrics, providing an ideal environment for learners to acquire hands-on skills. This setup not only amplifies the learning experience but also enhances India's standing as a hub for automotive innovation.

Empowering the Next Generation of Automotive Professionals

The iACELearningHub is designed to meet the dynamic needs of the modern mobility industry by offering transformative, real-world training programs. Set in the heart of Indore's rapidly growing automotive landscape, this facility addresses a critical need for industry-relevant training that enables students and professionals to develop the skills necessary for thriving careers in automotive and mobility sectors.

Recognizing the need for specialized training, iACELearningHub has launched new courses tailored to industry demands. With a curriculum that emphasizes practical knowledge and skill enhancement, the LearningHub is poised to make a lasting impact on automotive education in India.

Strategic Partnerships and Industry Collaboration

To maximize the impact of its programs, iACELearningHub has formalized collaborations through Memorandums of Understanding (MoUs) with **Cubenz Power, JOSAM (a brand of Snap-on), and Acropolis Institutions.** These partnerships underline the commitment to skill development and bring cutting-edge tools, industry insights, and innovation directly into the classroom. By working closely with respected names in the field, iACELearningHub ensures that its offerings are relevant and aligned with current industry needs.

Advanced Training with Leading Brands in Automotive Equipment and Content Creation

The support of renowned brands like PPG Asian Paints, Devise Electronics Pvt. Ltd., Birds India, JOSAM, White Carbon Motors, and SVITCH BIKE® further elevates iACELearningHub's offerings. Their contribution in terms of both advanced equipment and content creation empowers the center to deliver immersive learning experiences that reflect the realities of today's automotive industry.

A Pioneering Step for Indore's Automotive Landscape

The establishment of iACELearningHub is a significant advancement for Indore, positioning the city as a central player in India's evolving automotive landscape. As we embark on this transformative journey, the hub promises to open doors for students, professionals, and automotive enthusiasts alike, fostering a generation equipped with skills to shape the future of the mobility sector.

The inauguration of iACELearningHub is not just a new chapter for Indore but a step forward in India's journey toward becoming a global leader in automotive talent and innovation.

Joint Ventures & Partnerships

Suzuki - Toyota

Suzuki Motor Corporation and Toyota Motor Corporation have announced an expansion of their collaboration to include the production of a **battery electric vehicle (BEV) SUV**. This new model, developed by **Suzuki** at its **Gujarat** facility in India, is set to begin production in spring 2025, marking a pivotal step in both companies' efforts to contribute to a carbon-neutral society.

JSW Group - POSCO Forge

JSW Group and South Korea's POSCO have announced a strategic partnership aimed at exploring collaborations in **battery materials** specifically designed for electric vehicles (EVs). This partnership comes as part of a broader initiative to establish an integrated steel plant in India, which will not only bolster the steel manufacturing sector but also contribute significantly to sustainable energy solutions.

Saera Electric Auto - Porter

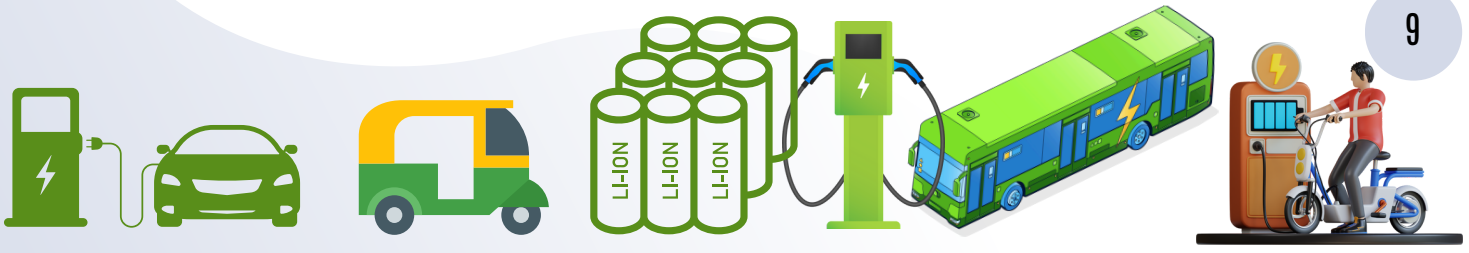
Saera Electric Auto, the manufacturer behind the popular Mayuri brand of **e-karts**, has announced a strategic partnership with Porter, an on-demand logistics platform. This collaboration aims to deliver **L3 and L5 electric carts** in major Indian cities, specifically **Delhi and Bangalore**. The pilot project is set to roll out with an ambitious target of delivering **500 vehicles per month** in each city

GT Force - CASHe Green

GT Force, a leading manufacturer of low-speed electric vehicles (E2Ws), has announced a strategic partnership with CASHe Green, a **digital financing platform**. This collaboration seeks to address the financing challenges that have historically plagued the **low-speed electric two-wheeler market**, which is witnessing an unprecedented surge in demand.

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

Terra Charge

Terra Charge has announced the addition of 64 new partners. This expansion marks a notable entry into the luxury hospitality sector, with partnerships including prestigious names such as The **Leela Palace, Hyatt Hotels & Resorts, and Siri Nature Roost Resort**. Each of these establishments will feature 2-3 EV charging points, facilitating seamless charging for guests and promoting sustainable transportation.

Rapido - IndoFast Energy

Rapido, India's leading bike, auto, and cab aggregator, has announced a partnership with IndoFast Energy—a joint venture between **Indian Oil Corporation Limited (IOCL) and SUN Mobility**. This collaboration aims to roll out **10,000 units** of Piaggio's swappable **electric auto rickshaws, the E-city Max**, across India within the next 24 months.

Valeo - MAHLE

Valeo and MAHLE have announced their collaboration to develop a groundbreaking **magnet-free electric axle system**. This new system, designated as the iBEE (inner Brushless Electrical Excitation), is specifically designed for upper segment electric vehicles, delivering peak power outputs ranging from 220 kW to 350 kW. The partnership is poised to set new benchmarks in performance, efficiency, and sustainability within the automotive industry.

FUTURE MOBILITY PARTNERS

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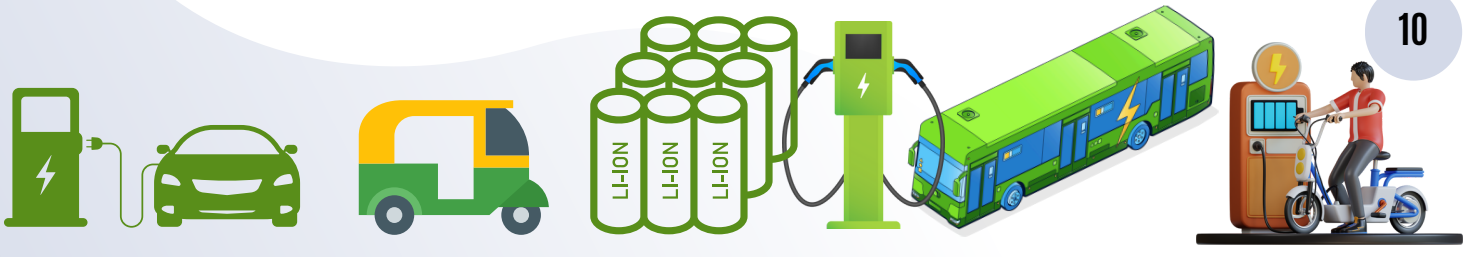

Joint Ventures & Partnerships

LeafyBus - AMU

LeafyBus, a Delhi-based bus operator, has partnered with non-banking finance company AMU to launch a **fleet of 10 electric buses** for **inter-city** operations. The buses, which will be financed by AMU, will initially run on high-traffic routes, including the popular Delhi-Dehradun corridor.

Ashok Leyland - Nidec

Ashok Leyland has announced a strategic partnership with Japan-based Nidec Motor Corporation. This collaboration aims to innovate **electric drive motor technology** tailored specifically for the unique demands of India's commercial vehicle market.

FUTURE MOBILITY PARTNERS

Yamaha - Caterham

Yamaha Motor Co has announced its partnership in the development of a new **electric sports coupe**, referred to as '**Project V**,' being led by Caterham EVo, a UK-based subsidiary of VT Holdings Co, headquartered in Nagoya, Aichi Prefecture. The collaboration aims to advance the project toward mass production and commercialization.

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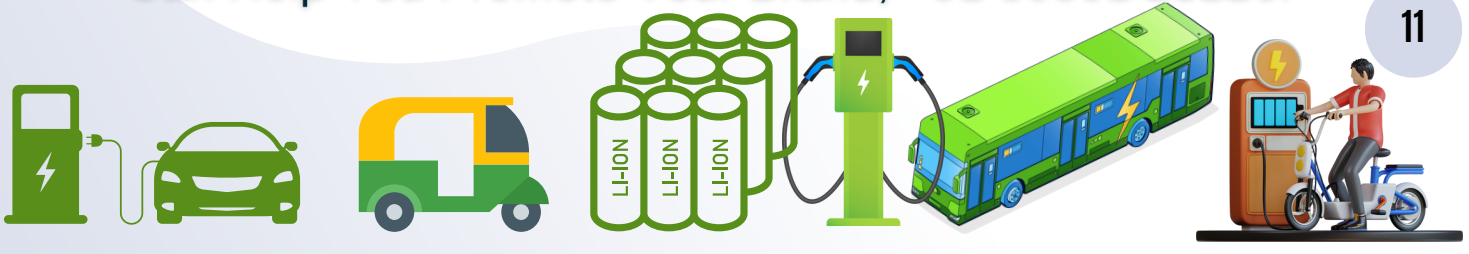


UPCOMING FUTURE MOBILITY EVENTS

EV India Expo 2024

INDIA'S BIGGEST ELECTRIC MOTOR VEHICLE SHOW - 4th Edition

19-20-21 NOVEMBER, 2024 | India Expo Centre, Greater Noida, U.P., India.

EV India Expo 2024 is an International Electric Motor Vehicle Show will provides the opportunity and platform to electric vehicle manufacturers to showcase their latest Products, technology and equipment, Smart and NextGen Transport, electric passenger car, scooter, motorcycle, cycles, buses etc to meet and network with the trade industry as well as end users with the main aim to find out new business and protection of the environment.

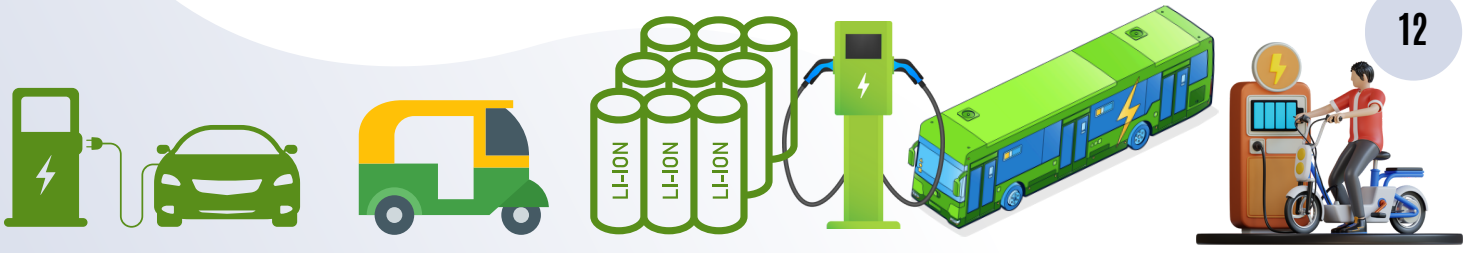
EV India Expo is the best public interactive platform for resources sharing, product purchase and brand display for the people and industry.

London EV Show 2024

IMOVE INTO THE FUTURE

26 - 28 November 2024 | ExCeL London

In our 4th edition, we're leading the way in the EV industry. Witness a dynamic showcase featuring the most advanced electric vehicles and the latest mobility solutions and trends. With a focus on cutting-edge technology and eco-friendly transportation solutions, we're paving the way for a greener and smarter future. Be part of the movement towards sustainable transportation at the London EV Show 2024.



UPCOMING FUTURE MOBILITY EVENTS

3rd Auto EV India 2024

I27 – 28 – 29 November 2024 |

Hall 1 & 2 | KTPO Convention Centre, Whitefield, Bengaluru | India

The Third Edition of Auto EV India 2024 is slated to be one of the world's premier Electric Vehicle and Automotive technology Exhibition and Conferences.

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

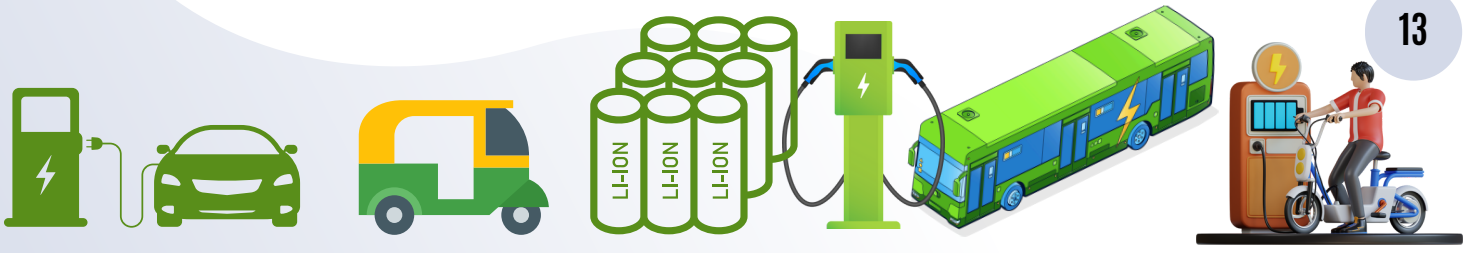
ETAuto EV Conclave 2024

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



New Launch

Foxconn

Foxconn has unveiled the **Foxtron Model D**, a cutting-edge electric multipurpose utility vehicle (LMUV) designed in collaboration with the renowned Italian design house, Pininfarina. This innovative vehicle is set to redefine family mobility with its impressive specifications and high-tech features.

BYD India -

BYD India has officially launched its latest all-electric **MPV, the eMax 7**, priced between **Rs 26.90 lakh and Rs 29.90 lakh** (ex-showroom).

Specifications and Features

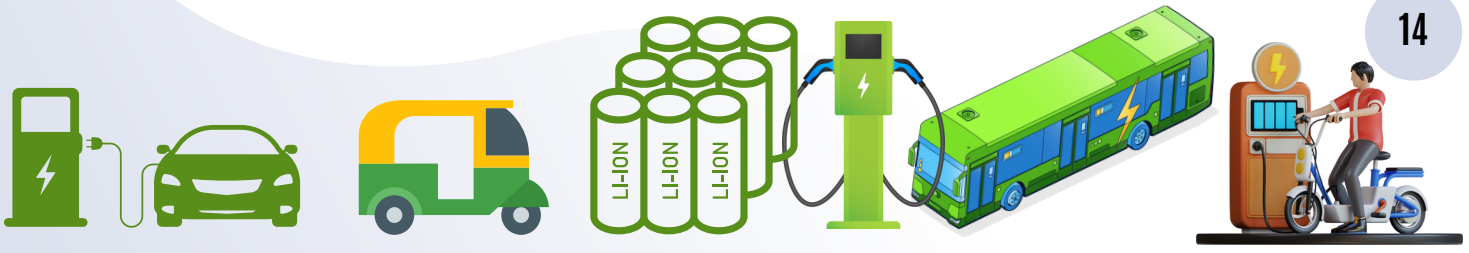
The eMax 7 boasts impressive dimensions with a **length of 4,710mm, width of 1,810mm, and height of 1,690mm**. Its exterior design features a modern aesthetic with sharper lines and a refined front end that aligns with current design trends. The vehicle is equipped with 17-inch alloy wheels, a panoramic glass roof, and LED lighting elements that enhance its visual appeal.

BYD Premium Variant

Battery Capacity: 55.4 kWh
Range: Up to 420 km (NEDC)
Power Output: 163 hp
Torque: 310 Nm
Acceleration (0-100 km/h): 10.1 seconds
Charging Capability: Supports up to 89 kW DC fast charging

Superior Variant:

Battery Capacity: 71.8 kWh
Range: Up to 530 km (NEDC)
Power Output: 204 hp
Torque: 310 Nm
Acceleration (0-100 km/h): 8.6 seconds
Charging Capability: Supports up to 115 kW DC fast charging



New Launch

Komaki Electric

Komaki Electric Vehicles has launched its latest model, the **CAT 3.0 NXT** electric fleet, aimed primarily at last-mile delivery operators. With prices starting at Rs. 1,19,999 for the Graphene battery variant and Rs. 1,49,999 for the LIPO4 battery variant, this new offering is set to transform the logistics landscape in India.

Renault

Renault has made a significant entry into the electric motorcycle market with the launch of its new model, the **Heritage Spirit Scrambler**, priced at €23,340 (approximately Rs 21.2 lakh). This premium electric motorcycle is designed by Ateliers Heritage Bikes, a French startup known for its craftsmanship and limited production runs. The Heritage Spirit Scrambler is not just a vehicle; it's a statement piece aimed at collectors and electric vehicle enthusiasts.

Raptee.HV

Chennai-based electric vehicle startup Raptee.HV has made headlines with the launch of its revolutionary e-bike, the **Raptee.HV T30**, priced at **₹2.39 lakh** (ex-showroom). This innovative motorcycle is not just another addition to the growing e-bike market; it is a significant leap forward as it becomes the first electric bike in India to feature a **CCS2 charging port**, typically reserved for electric cars.

Komaki Electric

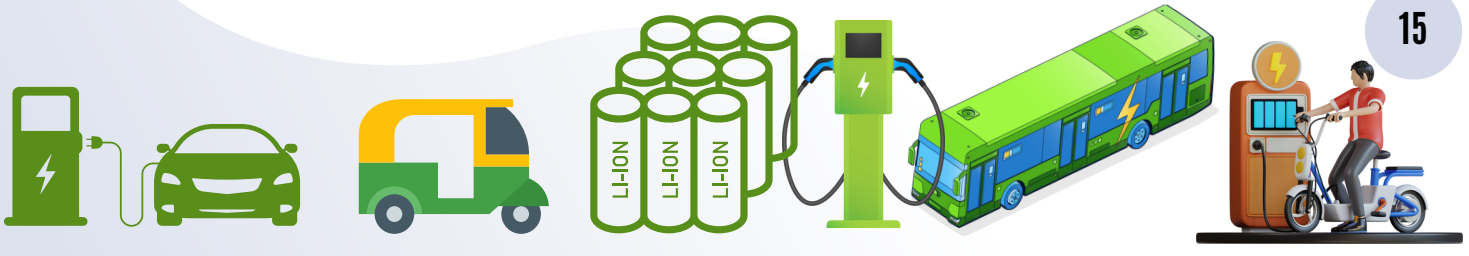
Komaki Electric Vehicle has unveiled its latest offerings in the electric scooter segment: the X-ONE Prime and X-ONE Ace.

Key Features of X-ONE Prime and Ace

- LIFEPO4 (Lithium) Battery 2 KW capacity
- Ultra Bright Full LED Lighting System / BLDC Hub Motor, Vivid Smart Dash / Front Drum Break
- Parking Assist / Cruise Control , Reverse Assist, Keyfob Keyless Entry
- Warranty: 3 Years or 30000KM on Motor, Battery & Controller | Comfortable Seat, Bootspace 18L To Hold All Your Belongings
- Colors Available – Garnet Red, Frost White, Jet Black, Super Metal Grey

Battery Technology

Both models are equipped with 2–2.2 kWh lithium batteries, which can be charged within 4-5 hours. The X-ONE Prime offers a range of over 100 km, while the Ace extends this to more than 150 km on a single charge. This range is significant for daily commuters, making these scooters a viable alternative to traditional gasoline-powered 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.

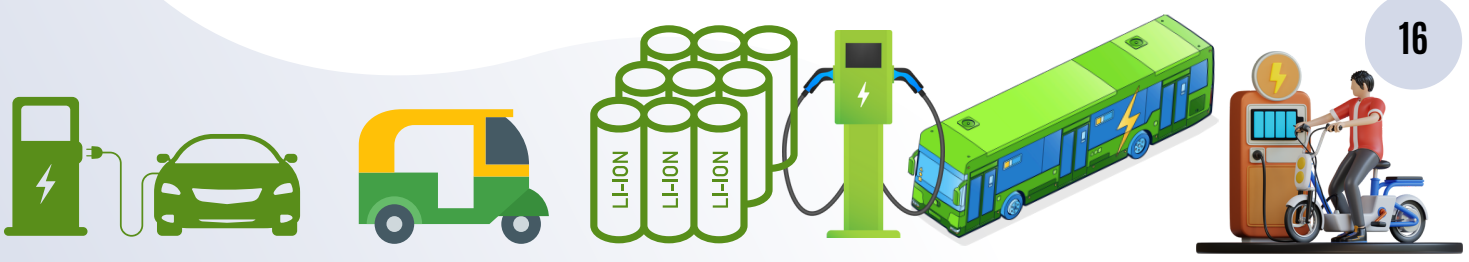
On November 7, 2023, the Ministry of Heavy Industries (MHI) introduced a new phased manufacturing program (PMP) for electric vehicle (EV) charger components under the **FAME India Scheme Phase-II** to boost domestic production. Outlined a comprehensive list of charger components and their timelines for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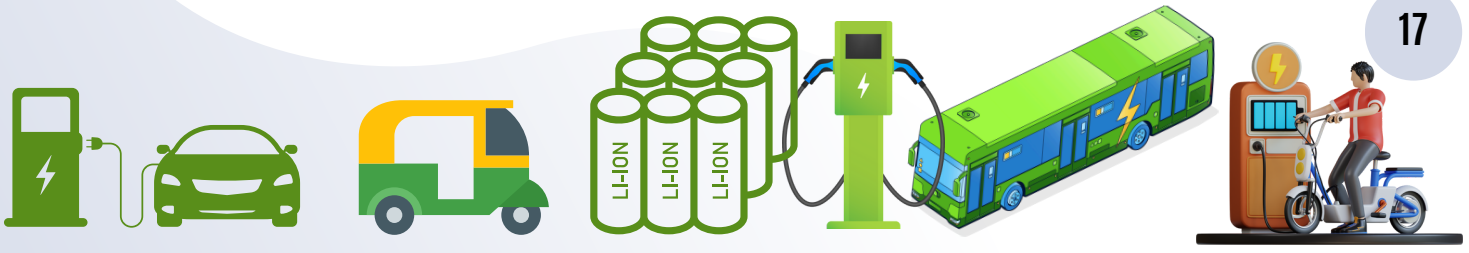


Report - Guide to Basics of Semiconductor

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.**

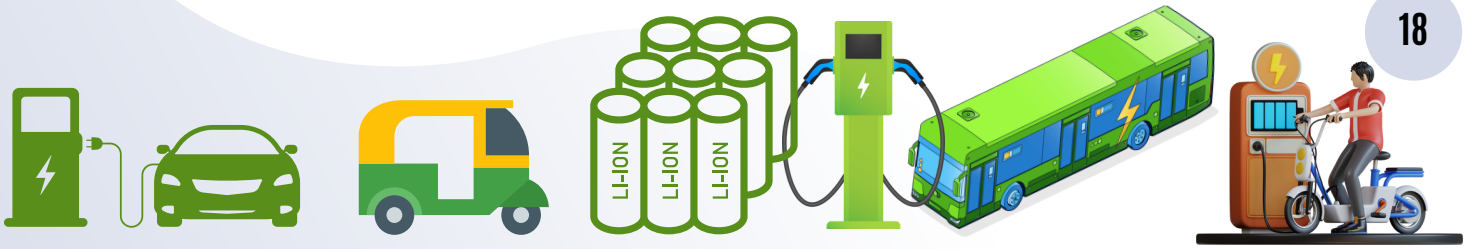
This **compiled report serves as an essential guide** commences with an introduction to **key PCB components, semiconductors**, explaining their role as materials that lie between conductors and insulators. It gets into the atomic structure of semiconductors and the concept of doping, which enhances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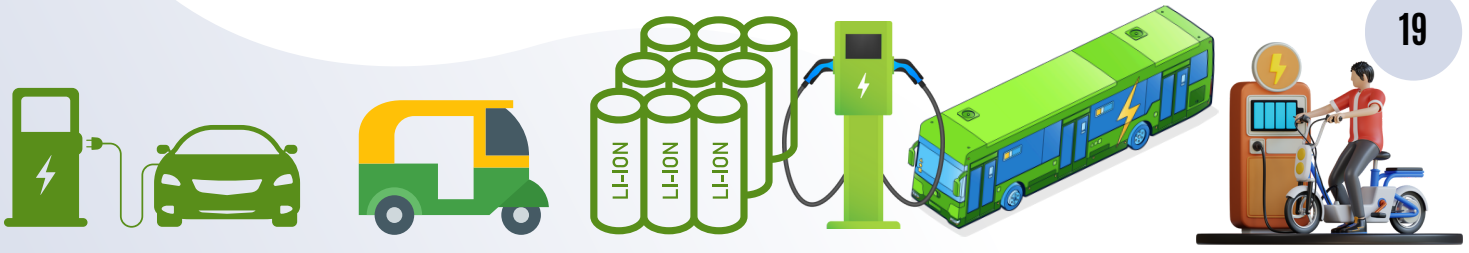

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'gyaniki' is a technology platform that provides complete coverage of the current & evolving "ACCESS" [Autonomous, Connected, Customized, Electrified, Safe, Shared] to "Future Mobility".

'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.

'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.

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