



The Growth Of Electric Motor Vehicle In Karnataka: Reference To Two Wheeler

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Abstract

Karnataka is leading India's electric vehicle revolution, with a focus on two-wheelers. In 2022, the state sold 86,918 electric two-wheelers, and the government aims for 23 lakh electric vehicles in Bengaluru by 2030. Incentives like tax waivers and subsidies are driving adoption, despite challenges like high costs and limited charging infrastructure. With India being the world's largest two-wheeler producer, the government targets making India the largest EV market by 2030, with a \$200 billion investment opportunity. Karnataka's electric two-wheeler market is booming, with promising growth prospects and a focus on eco-friendly transportation.

Introduction:

The electric vehicle (EV) market in Karnataka is witnessing remarkable growth, becoming a pivotal part of India's transition to sustainable transportation. This surge is primarily attributed to the state government's forward-thinking policies and incentives aimed at promoting electric mobility. Karnataka, especially Bengaluru, is not just embracing EVs but is setting the benchmark for other states. The government's ambitious target of deploying 2.3 million electric vehicles by 2030 reflects a commitment to reducing carbon emissions and improving urban air quality.

In 2022 alone, Karnataka saw the sale of 86,918 electric two-wheelers, a clear indication of changing consumer preferences and the increasing acceptance of EV technology. The impressive sales figures are fueled by a combination of state subsidies, lower registration fees, and the establishment of extensive charging infrastructure. These initiatives encourage more residents to make the switch to electric, positioning Karnataka as a leader in India's EV revolution.

Beyond numbers, this growth represents a fundamental shift towards creating a sustainable transportation ecosystem. By fostering the adoption of electric vehicles, the state aims to alleviate traffic congestion, decrease dependence on fossil fuels, and enhance the quality of urban life. The government's holistic approach not only focuses on incentivizing manufacturers but also involves extensive outreach to educate consumers about the benefits of EVs.

As we delve deeper into Karnataka's EV landscape, it becomes clear that the narrative is multifaceted, encompassing economic, environmental, and social dimensions. The rise of electric two-wheelers serves as a crucial step towards achieving the ultimate goal of a greener, more sustainable future for urban mobility. The collaboration between the government, industry players, and consumers is essential to maintaining momentum in this transformation.

The initiatives undertaken in Karnataka are a testament to the state's vision for a cleaner environment. Policies that support research and development in EV technology further strengthen this commitment. In addition, collaborations with startups and established automotive manufacturers are fostering innovation, ensuring that Karnataka remains at the forefront of the EV sector.

Moreover, the state's commitment to sustainability is evident in its efforts to enhance charging infrastructure, making it more accessible and user-friendly. The integration of renewable energy sources into the charging grid is another critical step toward reducing the overall carbon footprint of electric vehicles. This alignment with broader environmental goals exemplifies how Karnataka is not just focusing on economic growth but is also prioritizing ecological responsibility.

The electric vehicle market in Karnataka is on an upward trajectory, marked by impressive sales, robust policies, and a collective vision for a sustainable future. As the state continues to evolve its strategies and engage various stakeholders, the ultimate impact of these efforts will be felt not only in Karnataka but also across India as it navigates its journey towards a cleaner, more sustainable transportation ecosystem.

Methodology : The present study is descriptive in nature based on secondary data and observations. From the data collected, the researcher analyzed the data and drawn the conclusion and given some solution to accelerate the growth of Electric Motor Vehicle growth in Market.

Key factors force the Electric Motor vehicle market in karnataka.

The electric vehicle (EV) market in Karnataka is driven by several key factors. Government initiatives, including subsidies and incentives, encourage adoption. The state's focus on reducing pollution aligns with the national push for sustainable transport. Karnataka's robust IT infrastructure supports advancements in EV technology and charging solutions. Additionally, increasing consumer awareness of environmental issues and the rising cost of fossil fuels are pushing more individuals toward electric vehicles. The presence of major automotive manufacturers and startups in Bengaluru fosters innovation and competition, further stimulating market growth. Overall, Karnataka is emerging as a pivotal player in India's EV landscape.

Key Words: Electric Vehicle (EV), Charging Infrastructure, Incentives/Subsidies, Sustainability, Green Mobility, Eco-friendly, Financial Assistance.

Definitions:

1. **Electric Vehicle (EV):** A vehicle that is either partially or fully powered by electric energy instead of conventional fuels like gasoline or diesel. EVs utilize electric motors and batteries for propulsion.
2. **Battery Electric Vehicle (BEV):** A type of EV that operates solely on electric energy stored in batteries. BEVs do not have an internal combustion engine and produce zero tailpipe emissions.
3. **Plug-in Hybrid Electric Vehicle (PHEV):** A vehicle that combines an internal combustion engine with an electric propulsion system. PHEVs can run on either electricity from the battery or gasoline, and they can be recharged by plugging into an electric outlet.
4. **Hybrid Electric Vehicle (HEV):** A vehicle that uses both an internal combustion engine and an electric motor, but unlike PHEVs, HEVs cannot be plugged in to charge. Instead, they generate electricity through regenerative braking and the engine itself.
5. **Fuel Cell Electric Vehicle (FCEV):** A type of EV that converts hydrogen into electricity using a fuel cell, producing only water and heat as byproducts. FCEVs require hydrogen refueling stations.

Objectives of the Study:

1. To analyze the current state of the electric vehicle market in Karnataka, with a focus on two-wheelers.
2. To examine the government policies and incentives driving the adoption of electric vehicles in the state.
3. To evaluate the sales trends and growth prospects of electric two-wheelers in Karnataka.
4. To assess the challenges and limitations hindering the widespread adoption of electric vehicles in the state.
5. To discuss the potential environmental and social benefits of promoting electric vehicles in Karnataka.
6. To explore the role of stakeholders, including the government, manufacturers, and consumers, in shaping the electric vehicle market in Karnataka.
7. To identify opportunities for future growth and development in the electric vehicle sector in Karnataka.

Analysis of the Study :

The electric vehicle market in Karnataka, particularly for two-wheelers, is thriving, driven by supportive government policies and incentives. In 2022, approximately 86,918 electric two-wheelers were sold, highlighting a growing consumer shift towards electric mobility. The state aims for 2.3 million electric vehicles on its roads by 2030, reflecting an ambitious commitment to sustainability. Improved charging infrastructure and subsidies are key factors fueling this growth. Overall, Karnataka is positioning itself as a leader in India's EV landscape, promoting environmental benefits while enhancing urban transportation efficiency.

Karnataka's government has implemented several policies and incentives to boost electric vehicle adoption. Key initiatives include subsidies under the Karnataka Electric Vehicle and Energy Storage Policy, which offers financial support for purchasing electric two-wheelers. Additionally, reduced registration fees and exemptions

from road taxes further incentivize buyers. The establishment of extensive charging infrastructure and partnerships with private players enhance accessibility. Moreover, the government's focus on creating a favorable ecosystem for EV manufacturers fosters local production, innovation, and job creation. These comprehensive measures collectively drive the state's ambitious goal of 2.3 million electric vehicles by 2030.

Sales of electric two-wheelers in Karnataka have shown remarkable growth, with 86,918 units sold in 2022, reflecting a significant increase in consumer acceptance. This upward trend is fueled by government incentives, rising fuel prices, and growing environmental awareness. Market projections indicate continued growth, driven by expanding charging infrastructure and increased model availability from manufacturers. As urbanization accelerates and traffic congestion becomes a pressing issue, electric two-wheelers are poised to capture a larger market share. With the government's ambitious target of 2.3 million electric vehicles by 2030, the growth prospects for electric two-wheelers remain robust and optimistic.

Despite significant progress, several challenges hinder the widespread adoption of electric vehicles (EVs) in Karnataka. Key limitations include inadequate charging infrastructure, which can deter potential buyers concerned about range anxiety. High initial purchase costs, despite subsidies, remain a barrier for many consumers. Additionally, limited awareness and misconceptions about EVs affect public perception and acceptance. The supply chain for EV components, such as batteries, also faces constraints, impacting availability and affordability. Finally, the need for skilled technicians and service centers for maintenance poses further challenges. Addressing these issues is crucial for accelerating the transition to electric mobility.

Promoting electric vehicles (EVs) in Karnataka offers significant environmental and social benefits. Environmentally, EVs reduce greenhouse gas emissions and air pollutants, contributing to improved air quality and lower carbon footprints. This shift is crucial in combating climate change and protecting public health. Socially, increased EV adoption can lead to job creation in manufacturing, charging infrastructure, and maintenance sectors. Furthermore, enhanced urban mobility can alleviate traffic congestion, making cities more livable. By fostering a cleaner and more efficient transportation system, Karnataka can enhance the quality of life for its residents while setting a positive example for sustainable practices.

Stakeholders play a crucial role in shaping Karnataka's electric vehicle (EV) market. The government drives adoption through supportive policies, incentives, and infrastructure development, aiming for a sustainable transportation ecosystem. Manufacturers contribute by innovating and producing a diverse range of electric two-wheelers, meeting consumer demands and enhancing competition. Consumers influence the market through their purchasing decisions, fostering demand and shaping manufacturers' offerings. Additionally, collaborations between government and industry facilitate research and development, while public awareness campaigns educate potential buyers. Together, these stakeholders create a dynamic ecosystem that promotes EV growth, sustainability, and economic development in Karnataka.

Karnataka's electric vehicle (EV) sector presents several opportunities for future growth and development. Expanding the charging infrastructure, particularly in urban and rural areas, can enhance accessibility and alleviate range anxiety. Investment in local battery manufacturing and recycling can reduce costs and support sustainable practices. Collaborations with tech startups for smart mobility solutions can drive innovation. Furthermore, promoting public-private partnerships can accelerate research and development in EV technology. Increasing consumer awareness and education initiatives will foster greater acceptance. Overall, leveraging these opportunities can position Karnataka as a leading hub for electric mobility in India, driving economic and environmental benefits.

Conclusion:

Karnataka is at the forefront of India's electric vehicle revolution, particularly in the two-wheeler segment. The state's strategic policies, incentives, and investment in charging infrastructure have catalyzed remarkable growth, as evidenced by the sale of 86,918 electric two-wheelers in 2022. With a bold target of 2.3 million electric vehicles by 2030, Karnataka is committed to fostering sustainable urban mobility.

However, challenges such as high initial costs, inadequate charging infrastructure, and limited consumer awareness must be addressed to sustain this momentum. By enhancing stakeholder collaboration, investing in local production, and prioritizing education, Karnataka can solidify its position as a leader in the EV market.

Ultimately, the transition to electric two-wheelers not only contributes to environmental sustainability but also enhances urban living by reducing pollution and traffic congestion. As Karnataka continues to innovate and adapt, its efforts will serve as a blueprint for other states in India, driving the nation toward a greener future.

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