

ELECTRIC VEHICLES DRIVE INDIA'S ASCENT TOWARDS VIKSIT BHARAT

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Abstract

India's electric vehicle (EV) sector stands at the precipice of an explosive surge, perfectly aligning with the nation's vision of a developed and sustainable "Viksit Bharat." Boasting an impressive 11.34% surge in 2020 and a projected 90% CAGR until 2029, the EV market promises a greener future by curbing emissions and fostering clean transportation. This growth directly contributes to Viksit Bharat's goals by powering economic progress through \$100 billion in revenue by 2030, creating millions of jobs, and propelling technological advancement. While challenges like high costs and infrastructure development exist, they present lucrative investment opportunities in manufacturing, infrastructure, and financing. Overall, India's rapidly evolving EV sector offers a powerful engine for achieving a sustainable, prosperous, and technologically advanced future, seamlessly aligned with the aspirations of Viksit Bharat.

Key words: Growth of the Indian Electric vehicle, Electrical Vehicle in Viksit Bharat, sustainable growth, Challenges and Opportunities of Electrical Vehicle in Viksit Bharat

1. INTRODUCTION:

As India charges towards becoming a developed nation, it grapples with crucial challenges like environmental sustainability and energy security. In this dynamic landscape, the electric vehicle (EV) sector emerges as a game-changer, perfectly aligning with the "Viksit Bharat" vision - a developed and eco-conscious India. This article explores the intertwined journey of the EV sector and its critical contributions to achieving the ambitious goals of Viksit Bharat.

Think electric cars zooming silently through cleaner cities, powered by a robust domestic energy source? That's the transformative potential of EVs. They curb air pollution, fight climate change, and reduce dependence on imported oil, paving the way for a more secure and sustainable future. But it's not just about the environment; the EV revolution promises economic growth through job creation, infrastructure development, and innovation. Imagine a skilled workforce powering a thriving EV industry, contributing to a self-reliant and prosperous India.

2. OBJECTIVES:

- Analyse the historical and projected growth of the Indian Electrical Vehicle sector.
- Examine how Electrical Vehicle development aligns with the key pillars of Viksit Bharat with reference to sustainable development, economic progress, job creation, and technological advancement.
- To study of potential investment opportunities within the Electrical Vehicle ecosystem and associated industries.

3. METHODOLOGY:

This research paper based on secondary data. The research draws upon data from credible sources, including annual government reports, industry publications, market research studies, and academic journals. Quantitative and qualitative analyses are employed to assess growth trends, policy initiatives, socio-economic impacts, and investment potential.

4. HISTORICAL AND PROJECTED GROWTH OF THE INDIAN EV SECTOR (2021 TO 2029):

Table 1: Past and future of Projected Growth of the Indian EV Market (USD Billion)

Year	Market Size (USD Billion)	CAGR (%)
2021	1.45	NA

2022	2.34	61.38
2023	4.68	100
2024	8.36	78.63
2025	14.04	67.94
2026	22.08	57.26
2027	34.12	54.53
2028	50.16	47.01
2029	71.28	42.11

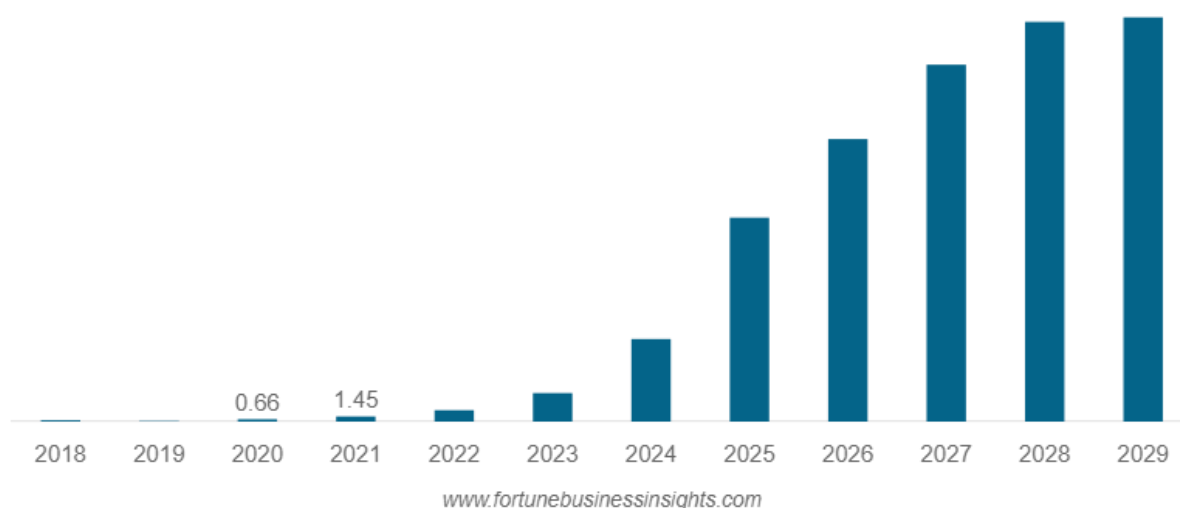
Source: Fortune business insight

(See Table no.1) is indicated historical and projected growth of the Indian EV market. It shows the market size in USD billion and the compound annual growth rate (CAGR) for each year from 2021 to 2029.

The Indian EV market is expected to grow significantly in the coming years, with a projected CAGR of 42.11% from 2023 to 2029. This growth is being driven by a number of factors, including government incentives, rising fuel prices, and increasing awareness of environmental issues.

The Indian Electrical Vehicle market is still in its early stages of development, but it has the potential to grow rapidly in the coming years. The government is committed to promoting EVs, and there is a growing demand for cleaner and more sustainable transportation options. As the technology improves and the cost of Electrical Vehicles comes down, it is likely that more and more people will switch to electric vehicles.

India Electric Vehicle Market Size, 2018-2029 (USD Billion)



5. TOWARDS ELECTRICAL VEHICLE IN VIKSIT BHARAT:

- **Sustainable Development:** Electrical Vehicles have the potential to reduce India's carbon emissions by 39% by 2030.
- **Economic Progress:** The EV industry is expected to create over 10 million jobs in India by 2030. Example: India's largest car manufacturer, Maruti Suzuki, announced plans to invest \$2 billion in EV production, creating thousands of new jobs.
- **Technological Advancement:** India's EV startups have attracted over \$1 billion in investments in 2023. Example: Ather Energy, an Indian EV startup, has developed a high-performance electric scooter and is expanding its manufacturing capacity.
- **Job Creation:** Expected to create 5 crore direct & indirect jobs by 2030.

6. CHALLENGES AND OPPORTUNITIES OF ELECTRICAL VEHICLE IN VIKSIT BHARAT:

A) Challenges of Electrical Vehicle:

- **High upfront cost of Electrical Vehicles:** Compared to traditional vehicles, EVs still carry a premium price tag, hindering widespread adoption. Addressing this involves affordability solutions like subsidies, innovative financing options, and battery cost reduction.

- **Inadequate charging infrastructure:** Limited public and private charging stations across India create range anxiety for potential buyers. Expanding public and private charging stations across key locations is crucial.
- **Limited battery production:** India heavily relies on imported batteries, exposing the sector to price fluctuations and supply chain disruptions. Developing and establishing local battery production and recycling capabilities offers significant opportunities.
- **Consumer awareness and education:** Lack of understanding about Electrical Vehicle benefits and range capabilities can create hesitancy among consumers. Promoting Electrical Vehicle benefits and addressing range anxiety through technological advancements and awareness campaigns are necessary.

B) Opportunities for Investment:

- **EV manufacturing and component production:** Setting up indigenous Electrical Vehicle manufacturing facilities and component production lines holds immense potential.
- **Charging infrastructure development:** Investing in establishing public and private charging stations across key locations is crucial.
- **Battery technology and recycling:** Developing and establishing local battery production and recycling capabilities offers substantial opportunities.
- **Renewable energy generation:** Expanding renewable energy sources like solar and wind power is vital for powering Electrical Vehicles sustainably.
- **Fintech solutions for EV financing:** Innovative financing solutions like Electrical Vehicle -specific loans and leasing options can address affordability concerns. **Specific investment example:** Greenko, a leading renewable energy company, plans to invest \$1 billion in setting up battery storage and charging infrastructure for Electrical Vehicles.

Impact factor of Electric Vehicle Sector in India:

Investment:	\$6 billion in 2021, projected to reach \$20 billion by 2030.
Charging Infrastructure:	285% growth in charging stations in FY 2022, projected to reach 400,000 by FY 2026.
Two-Wheelers:	Dominant segment, projected to hold 80% market share by 2030.
Government Support:	FAME & PLI schemes crucial for early EV adoption.
Economic Impact:	Auto sector contributes 7.1% to GDP, 49% to manufacturing GDP, and employs 3.7 crore people. Projected to reach 50 million jobs by 2030.
Global Ranking:	Currently 3rd largest auto market, with potential to become the largest for passenger vehicles.

Source: www.fortuneindia.com

7. CONCLUSION:

India's EV sector presents a remarkable opportunity for achieving the goals of Viksit Bharat through sustainable development, economic progress, job creation, and technological advancement. Overcoming challenges and maximizing investment potential in critical areas like manufacturing, infrastructure, and financing will be crucial for harnessing the power of EVs to propel India towards a viksit bharaat.

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