Indian Electric Vehicle Market Analysis



Problem Statement

AtliQ Motors is an automotive giant from the USA specializing in electric vehicles(EV). They currently hold their market share to 25% in electric and hybrid vehicles segment in North America but in India that is less than 2%. They aim to expand their presence in the Indian market.

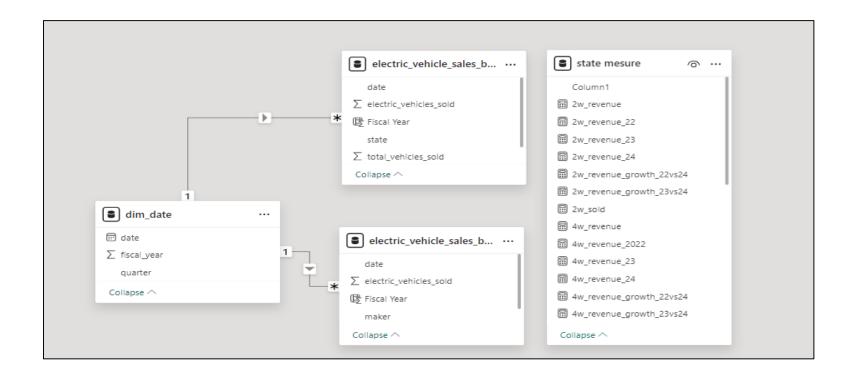
Bruce Haryali, the chief of AtliQ Motors India wanted to do a detailed market study of existing EV/Hybrid market in India before proceeding further. So he has tasked the data analytics team, led by Peter Pandey to conduct a detailed market study of the existing EV/hybrid market in India to launch their best selling EV/hybrid models.

Goal

My goal is to analyze the data and extract insight ,and answer both primary and secondary questions.



Data Model and Tool Used





Dashboard



Business Insight on India's Electrical Vehicle Market



Makers sales Analysis Dashboard



State Wise Sales Analysis Dashboard



Growth Rate and Projected Sales

Problem Statement

AtliQ Motors is an automotive giant from the USA specializing in electric vehicles(EV). In the last 5 years, their market share rose to 25% in electric and hybrid vehicles segment in North America. As a part of their expansion plans, they wanted to launch their bestselling models in India where their market share is less than 2%. Bruce Haryali, the chief of AtliQ Motors India wanted to do a detailed market study of existing EV/Hybrid market in India before proceeding further.



Dashboard Link: Electric Vehicle Analysis

Primary Questions

1. List the top 3 and bottom 3 makers for the fiscal years 2023 and 2024 in terms of the number of 2-wheelers sold.

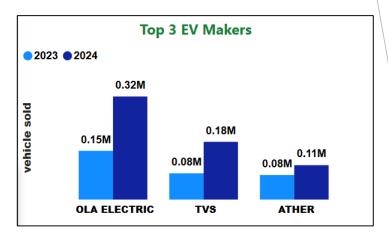
Top 3 Makers

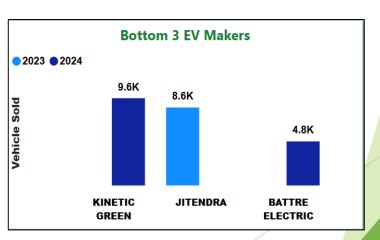
- Ola Electric
- TVS
- Ather

Bottom 3 Makers

- Kinetic Green
- Jitendra
- Battre Electric





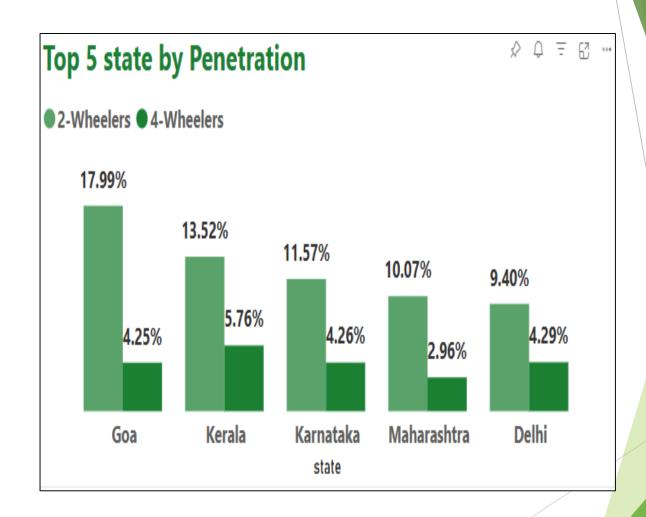


2. Identify the top 5 states with the highest penetration rate in 2-wheeler and 4-wheeler EV sales in FY 2024.

Top 5 State by Penetration Rate

- Goa
- Kerala
- Karnataka
- Maharashtra
- Delhi





3. List the states with negative penetration (decline) in EV sales from 2022 to 2024?

Negative PR States (23-24) Negative PR States (22-23)

- Rajasthan
- Haryana
- Uttarakhand
- Gujarat
- Jharkhand
- Himachal Pradesh

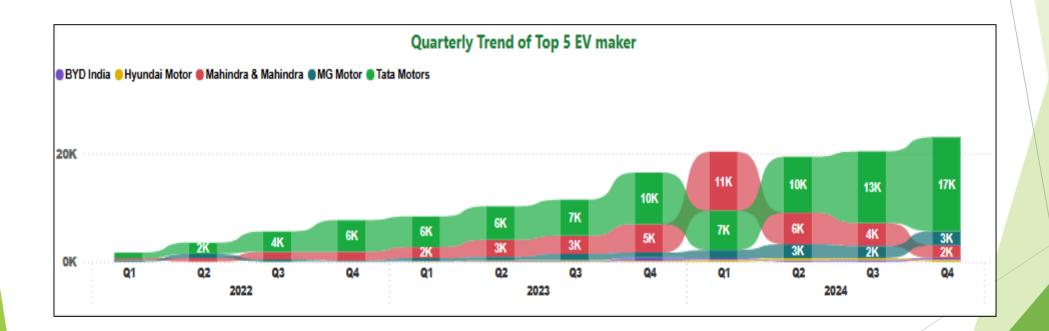
Andaman & Nicobar Island

Negetive PR state 22-2	re PR state 22-24		
state	cng_pr_22_23	cng_pr_23_24	
Rajasthan	3.399	% -0.56%	
Haryana	0.929	% -0.43%	
Uttarakhand	1.909	% -0.39%	
Gujarat	3.849	% -0.19%	
Jharkhand	1.079	% -0.15%	
Himachal Pradesh	0.559	% -0.11%	

4. What are the quarterly trends based on sales volume for the top 5 EV makers (4-wheelers) from 2022 to 2024?

Insights

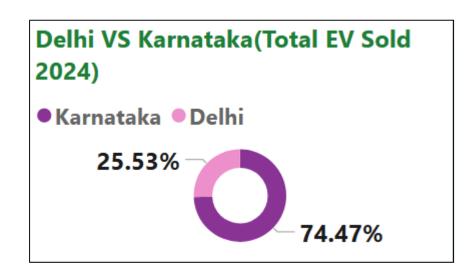
We can see a upward trend means sales are increasing every year for the top 5 maker in 4-wheelers category from 2022 to 2024.

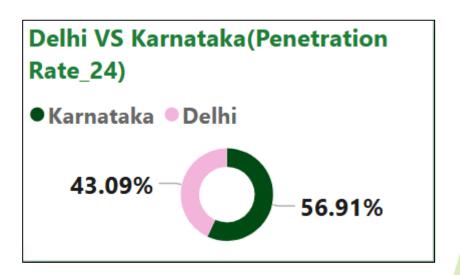


5. How do the EV sales and penetration rates in Delhi compare to Karnataka for 2024?

Insights

The EV sales and penetration rates are higher in Karnataka compared to Delhi.





6. List down the compounded annual growth rate (CAGR) in 4-wheeler units for the top 5 makers from 2022 to 2024.

Top 5 Maker

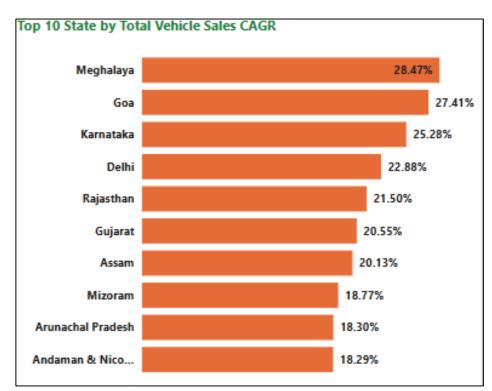
- BMW India
- Volvo Auto India
- BYD India
- Hyundai Motor
- Mercedes-Benz AG

maker	ev_sold	maker_cagr ▼
BMW India	1370	1140.97%
Volvo Auto India	568	971.21%
BYD India	2419	566.52%
Hyundai Motor	2076	255.48%
Mercedes -Benz AG	388	234.55%
Total	6821	410.12%

7. List down the top 10 states that had the highest compounded annual growth rate (CAGR) from 2022 to 2024 in total vehicles sold.

Top 10 States

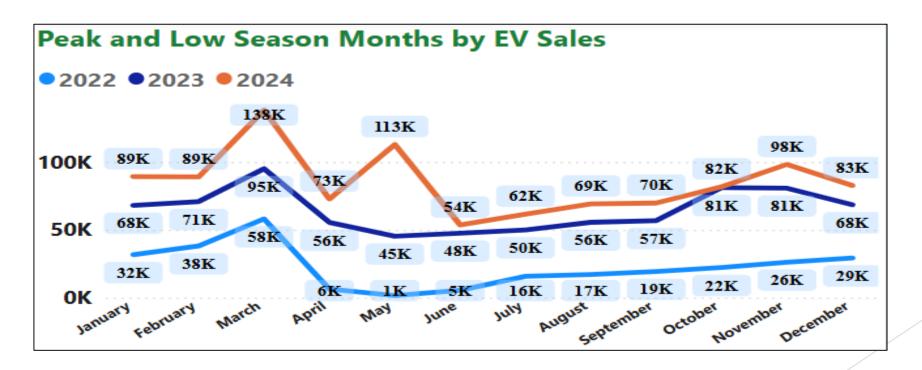
- Meghalaya
- Goa
- Karnataka
- Delhi
- Rajasthan
- Assam
- Mizoram
- Arunachal Pradesh
- Andaman & Nicobar Island



8. What are the peak and low season months for EV sales based on the data from 2022 to 2024?

Insights

The peak season month is March with the highest sales around 291k units, while the low season month is June, where the sales drop to around 103k units.



9. What is the projected number of EV sales (including 2-wheelers and 4- wheelers) for the top 10 states by penetration rate in 2030, based on the compounded annual growth rate (CAGR) from previous years?

Top 10 State by Penetration Rate 2030

And their projected sales 2030

- Meghalaya-48,89,074
- Kerala-1,17,79,401
- Chandigarh-9,86,811
- Goa-24,19,574
- Chhattisgarh-71,18,219
- Manipur-16,131
- Tripura-3,89,063
- West Bengal-41,78,395
- Madhya Pradesh-70,36,266 Maharashtra
- Maharastra-1,33,51,146

Top 10 State by 2030 Penetration Rate and Their 2030 Proj_sales					
state	pr_30 ▼	cagr_ev	projected_EV_sales_30		
Meghalaya	2969.08%	476.63%	4889074		
Kerala	2329.56%	132.83%	11779401		
Chandigarh	1198.68%	164.58%	986811		
Goa	720.30%	146.45%	2419574		
Chhattisgarh	660.64%	150.89%	7118219		
Manipur	660.52%	124.50%	16131		
Tripura	449.18%	229.50%	389063		
West Bengal	311.20%	150.62%	4178395		
Madhya Pradesh	232.62%	133.67%	7036266		
Maharashtra	223.34%	101.89%	13351146		

10. Estimate the revenue growth rate of 4-wheeler and 2-wheelers EVs in India for 2022 vs 2024 and 2023 vs 2024, assuming an average unit price.
2-Wheelers(₹ 85000) 4-Wheelers(₹1500000)

Revenue Growth Rate(2-wheelers)

2022 vs 2024-92.17% 2023 vs 2024-28.13% 92.17%

2w_revenue_growth_22vs24

28.13%

2w_revenue_growth_23vs24

Revenue Growth Rate(4-wheelers)

2022 vs 2024-116.28% 2023 vs 2024-83.08% 116.28%

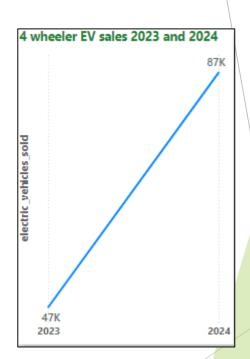
4w_revenue_growth_22vs24

83.08%

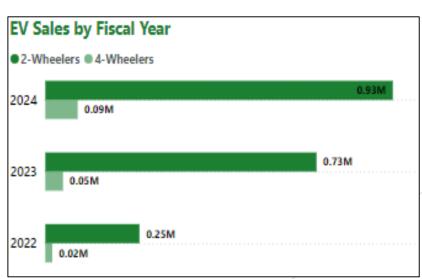
4w_revenue_growth_23vs24

Secondary Analysis

- 1. What are the primary reasons for customers choosing 4-wheeler EVs in 2023 and 2024 (cost savings, environmental concerns, government incentives)?
- Cost Savings: Significant reductions in total cost of ownership, including lower fuel and maintenance costs, made 4-wheeler EVs more financially attractive to consumers. Additionally, price drops in EV models and battery technology improvements further reduced the upfront costs.
- Environmental Concerns: Increased awareness of climate change and the desire to reduce carbon footprints motivated many consumers to choose EVs as an environmentally friendly alternative to traditional combustion engine vehicles.
- Government Incentives: Enhanced government incentives, such as tax rebates, subsidies, and exemptions from road taxes or registration fees, played a crucial role in encouraging customers to switch to 4-wheeler EVs, making them more affordable and accessible.



- 2. How do government incentives and subsidies impact the adoption rates of 2-wheelers and 4-wheelers? Which states in India provided most subsidies?
- Increased Affordability and Accessibility: Government incentives and subsidies reduce the effective purchase price of 2-wheelers and 4-wheelers, making them more affordable for a broader range of consumers. This price reduction significantly boosts adoption rates, particularly among middle-income groups who might otherwise find EVs financially out of reach.
- Support for Infrastructure Development: Many government schemes also include incentives for setting up EV charging infrastructure, which is crucial for widespread adoption. States that offer higher subsidies often see a corresponding increase in charging stations, further supporting the growth of the EV market.
- State providing high subsidise
- Delhi
- Maharastra
- Gujarat



3. How does the availability of charging stations infrastructure correlate with the EV sales and penetration rates in the top 5 states?

Higher charging stations, higher sales: Those states who have more charging station tend to have more sales than other states.

Top 5 states

- Delhi
- Goa
- Karnataka
- Kerala
- Maharastra

4. Who should be the brand ambassador if AtliQ Motors launches their EV/Hybrid vehicles in India and why?

Virat Kohli could be a great choice. His is not only a youth icon but also one of the most respected and influential personalities in the country. His commitment to fitness, discipline, and excellence aligns well with the values of a brand that is innovative and forward-thinking like AtliQ Motors.

Kohli's strong social media presence and massive fan following across different age groups, especially among the youth, would help create a powerful impact in promoting the brand. His association with eco-friendly practices and sustainable living would also resonate with the environmentally conscious consumers who are likely to be interested in electric and hybrid vehicles.

This endorsement would not only boost the brand's visibility but also enhance its credibility, making Virat Kohli an ideal choice for representing AtliQ Motors in the competitive Indian market.

5. Which state of India is ideal to start the manufacturing unit? (Based on subsidies provided, ease of doing business, stability in governance etc.)

Maharashtra

- Subsidies and Incentives: The state offers substantial capital subsidies, tax exemptions, and reduced electricity rates specifically aimed at promoting EV manufacturing.
- Ease of Doing Business: Maharashtra ranks high due to its efficient regulatory frameworks, streamlined processes, and a proactive government that supports industrial development.
- Infrastructure: The state boasts excellent infrastructure, including well-connected roads, ports, and logistics networks, essential for large-scale manufacturing and distribution.
- Governance: Maharashtra has a history of political stability and is known for its investor-friendly policies. The state government has been consistent in its efforts to attract investment, particularly in the automotive and manufacturing sectors.

Key Industrial Area: Pune, Mumbai

6.Top 3 recommendations for AtliQ Motors.

Recommendation

- Localized Market Research:
- Conduct surveys and focus groups to understand regional preferences.
- Analyze demographic trends and consumer feedback.
- Adapt product features and pricing based on local insights.

- Infrastructure Development:
- Invest in a widespread EV charging network.
- Partner with local entities for charging station installation.
- Ensure availability of maintenance services and efficient supply chains.

Brand Positioning:

- Develop a clear brand message highlighting innovation and sustainability.
- Use targeted marketing and influencer partnerships.
- Create compelling content to build a strong market presence.

Focus on 2-Wheeler EV Sales:

- Tailor products for affordability, battery life, and performance.
- Enhance distribution and support through local partnerships.
- Highlight cost savings and environmental benefits in marketing.

Thank You

The Electrics are not just a vehicle, It is a movement to make our planate a better place.

