



RESUME PROJECT CHALLENGE 12-CODE BASICS

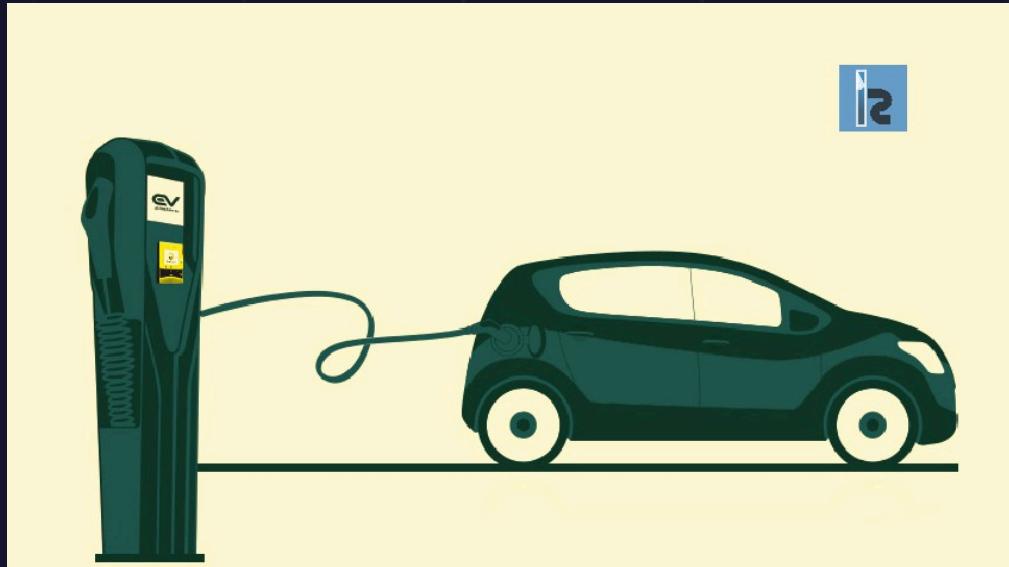


ELECTRIC VEHICLES MARKET IN INDIA





PROJECT OVERVIEW



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. Bruce gave this task to the data analytics team of AtliQ motors and Peter Pandey is the data analyst working in this team.



DATA



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- .Date
- .Fiscal_Year
- .Quarter

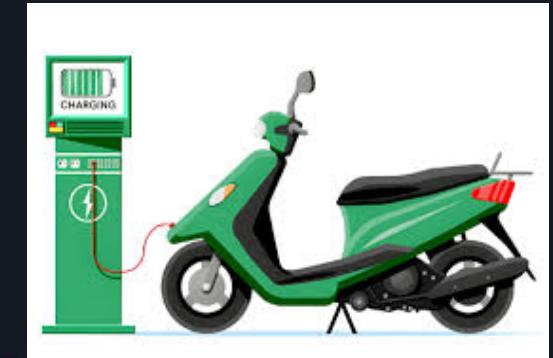
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- .Vehicle_Category
- .Maker
- .Electric_Vehicles Sold

State_Table

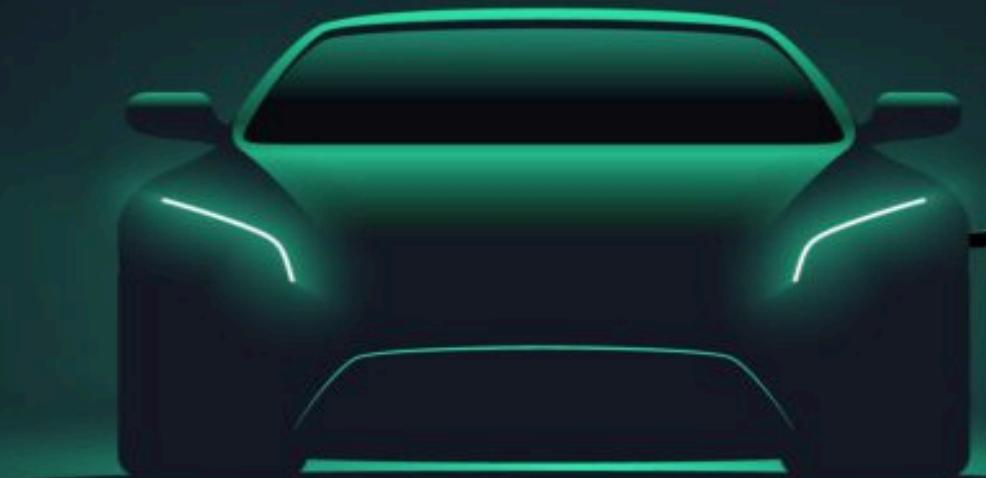
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- .Electric_Vehicles Sold
- .Total_Vehicles Sold

ELECTRIC VEHICLE SALES ANALYSIS



Makers

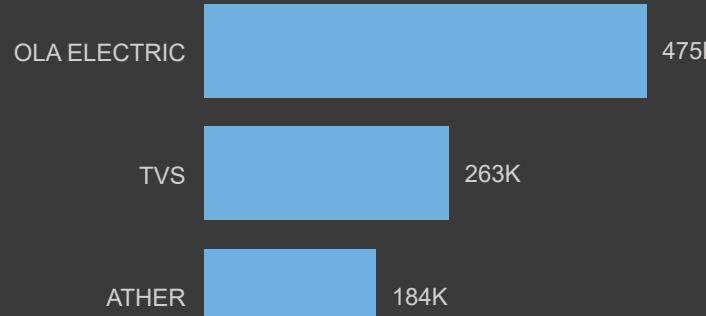
State



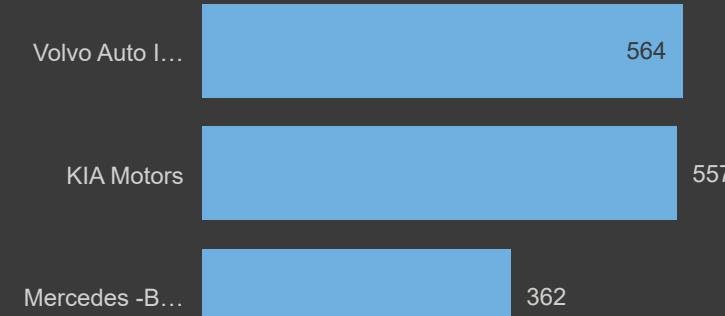
[Home](#)[Sales By State](#)

EV SALES BY MAKER

Top 3 Makers By EV Sales Volume



Bottom 3 Makers By EV Sales Volume



vehicle_ca...

All

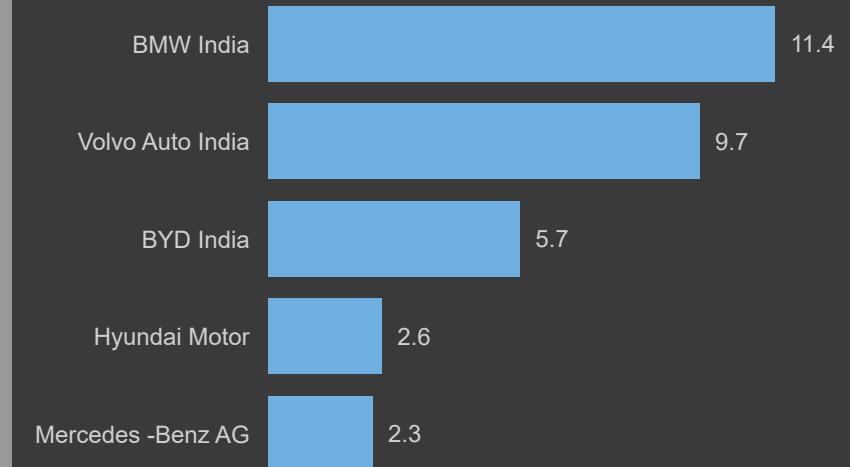
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All

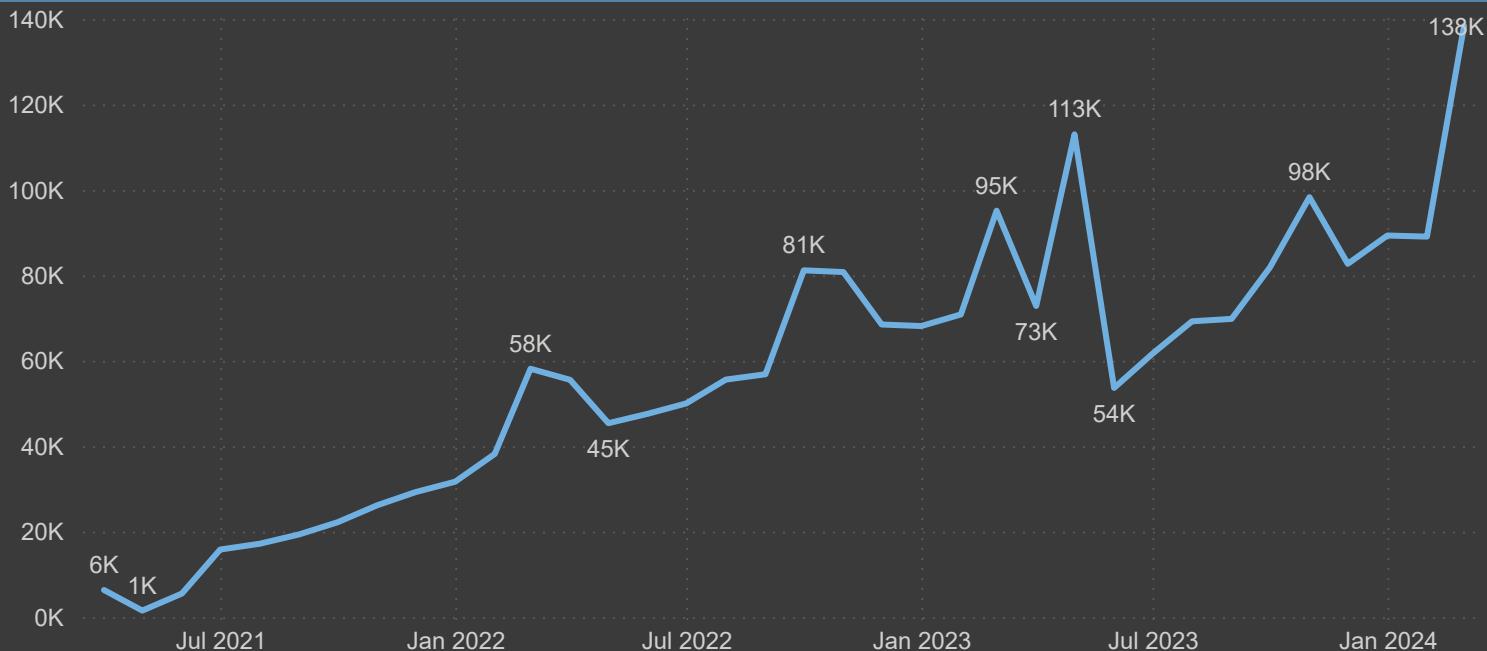
maker

All

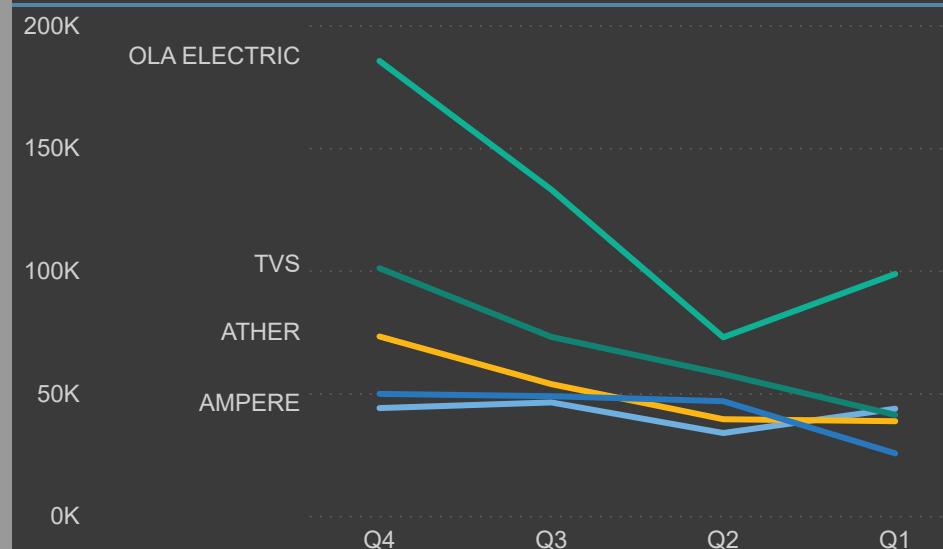
CAGR for Top 5 Makers By EV Sales Volume

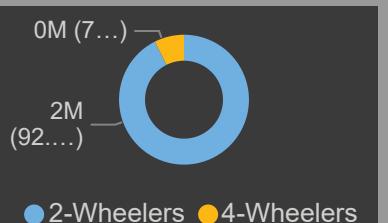
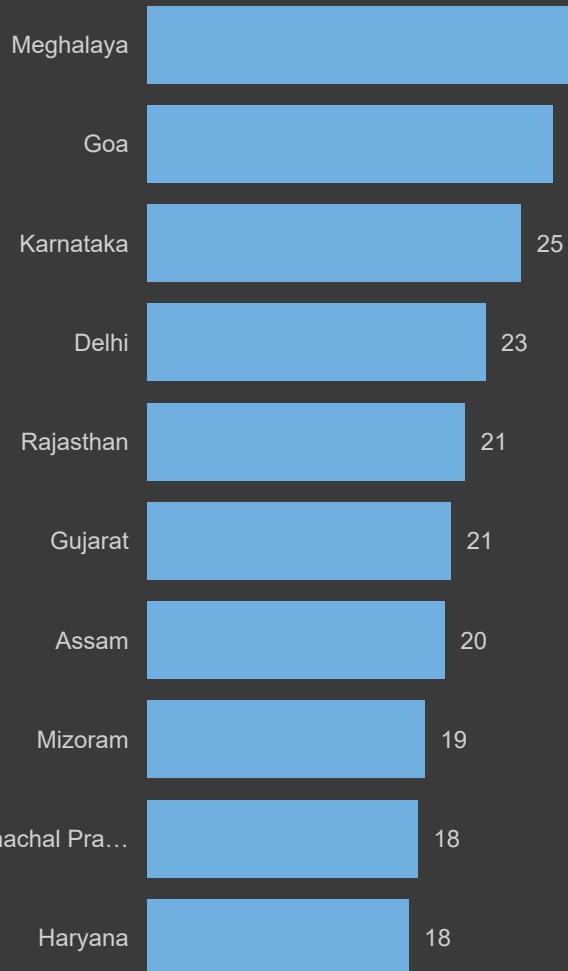
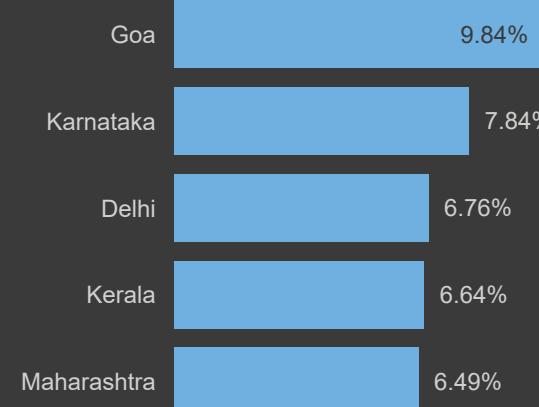
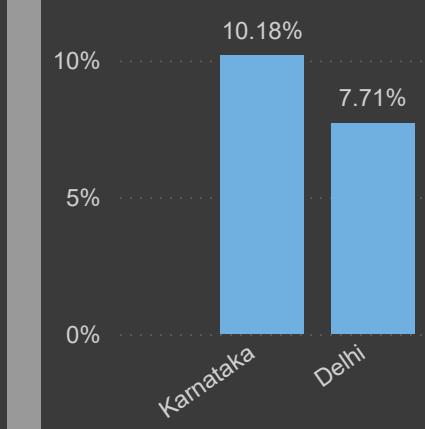
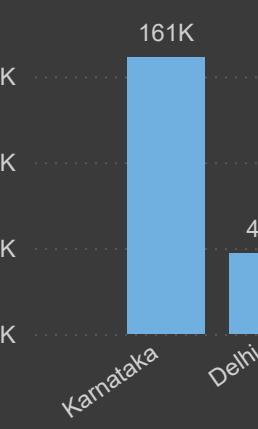
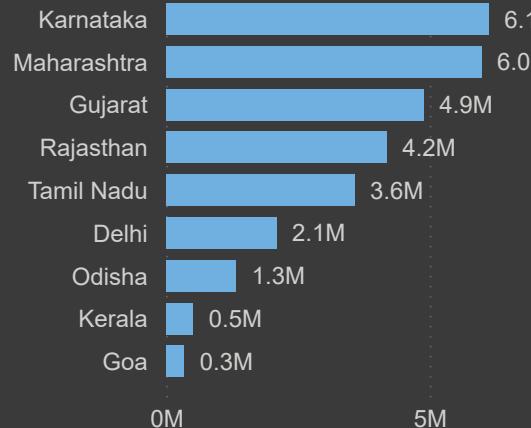
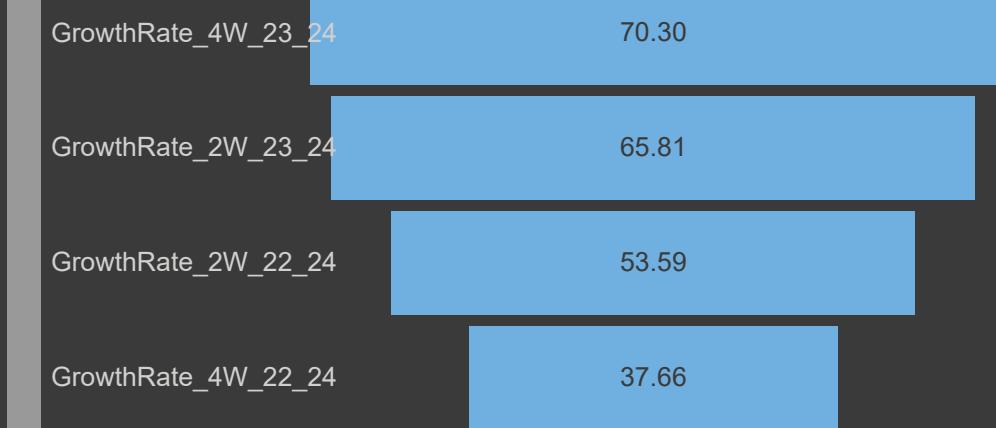


Total_Electric_Vehicles_Sold By Date



Total_Electric_Vehicles_Sold By Quarter



Home**Sales By Makers****Total EV Sold****2M****Penetration Rate****3.61%****Revenue_2w****163bn****Revenue_4W****23bn****Top 10 States By CAGR By State****Top 5 States Penetration_Rates****Comparision By Penetration_Rate****Comparision By Sales Volume****Projected Sales 2030 by state****Revenue Growth Rate**



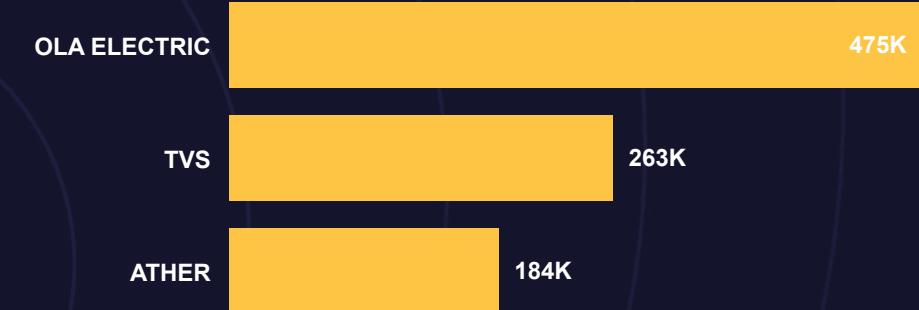
Question 1. List the top 3 and bottom 3 makers for the fiscal years 2023 and 2024 in terms of the number of 2-wheelers sold.



Top 3 maker in FY 2023



Top 3 makers in FY 2024



2-Wheelers

4-Wheelers

Bottom 3 makers in FY 2023



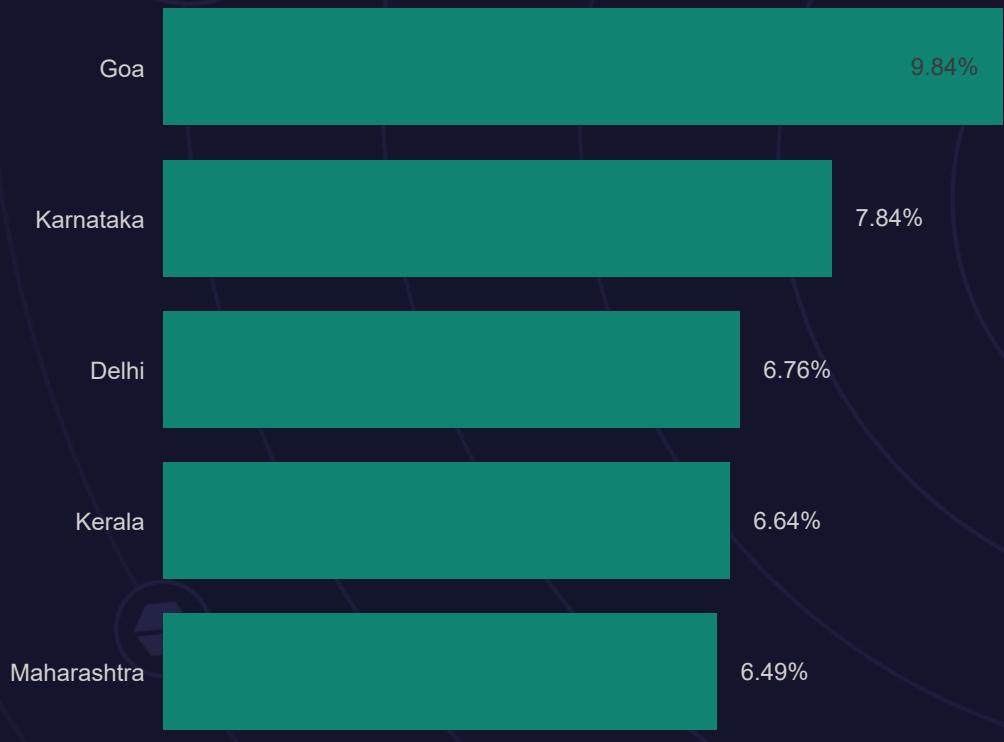
Bottom 3 makers in FY 2024



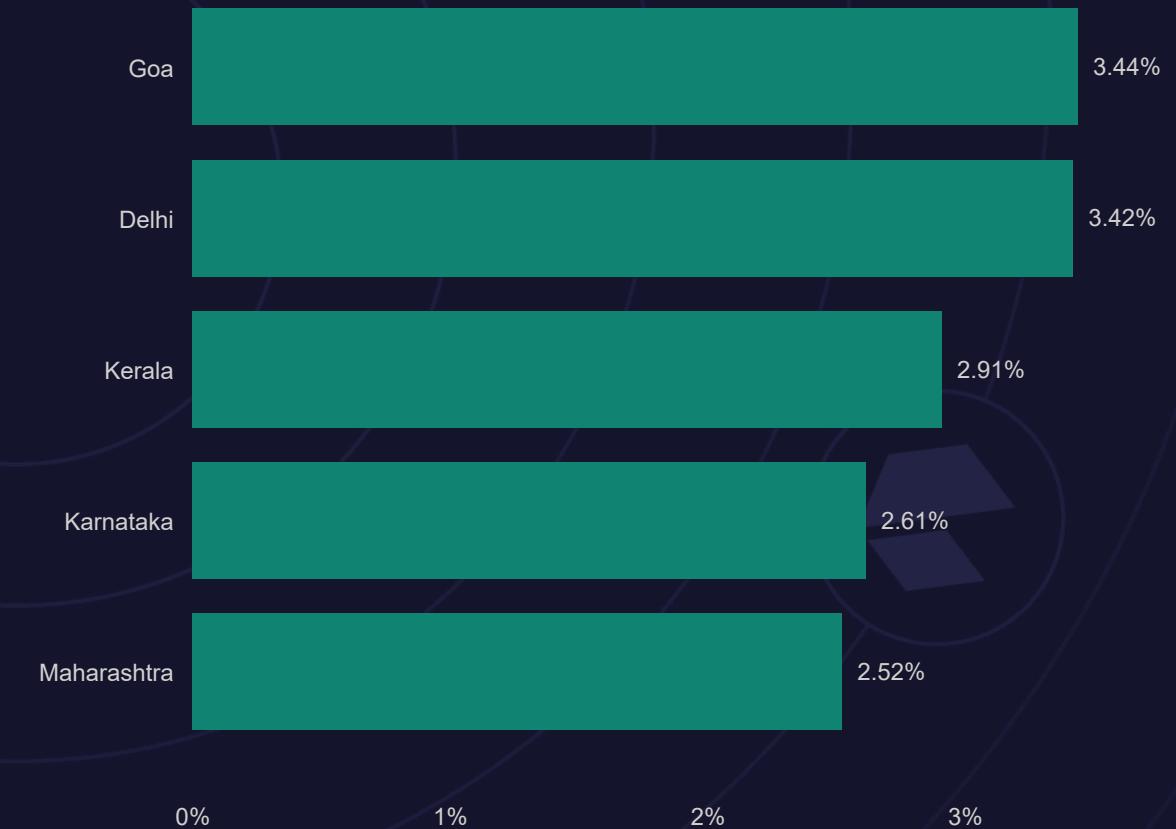
Question 2. Identify the top 5 states with the highest penetration rate in 2-wheeler and 4-wheeler EV sales in FY 2024.



Top 5 States by Penetration_Rate in 2-Wheeler



Top 5 States by Penetration_Rate in 4-Wheeler





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



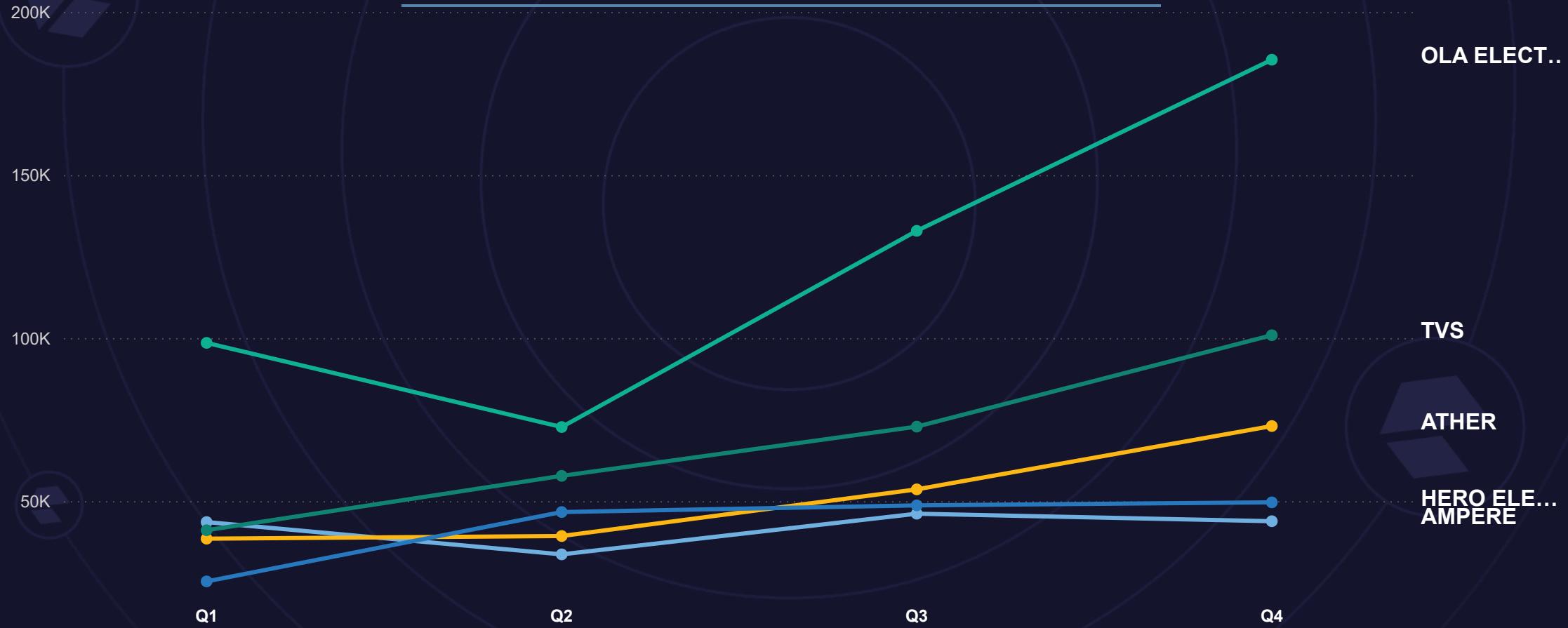
state	Total_EV_Sales_FY2022	Total_EV_Sales_FY2024	Sales Change
Andaman & Nicobar		2	2
Andaman & Nicobar Island	22	33	11
Andhra Pradesh	13928	33183	19255
Arunachal Pradesh	0	31	31
Assam	730	3497	2767
Bihar	4829	15069	10240
Chandigarh	411	2877	2466
Chhattisgarh	4534	28540	24006
Delhi	16535	46724	30189
DNH and DD	35	198	163
Goa	1778	10799	9021
Gujarat	18026	84359	66333
Haryana	5926	11793	5867
Himachal Pradesh	443	1048	605
Total	271150	1019593	748443



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



Quaterly Sales Trend for Top 5 Makers in 4-Wheelers

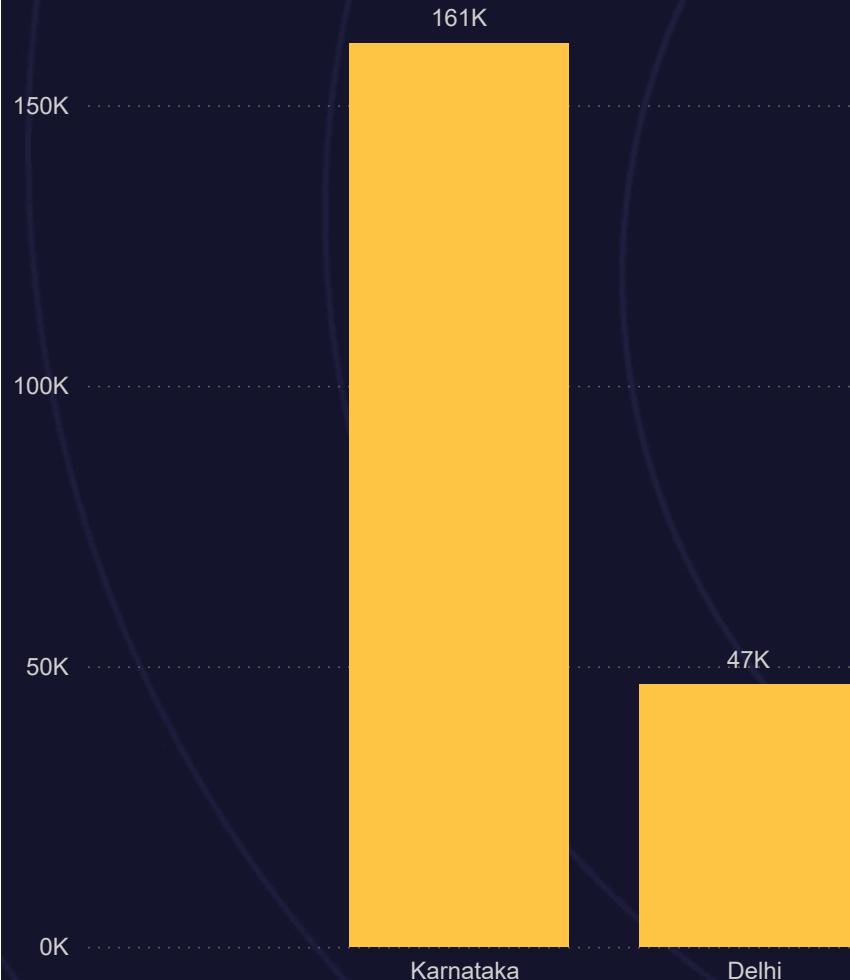




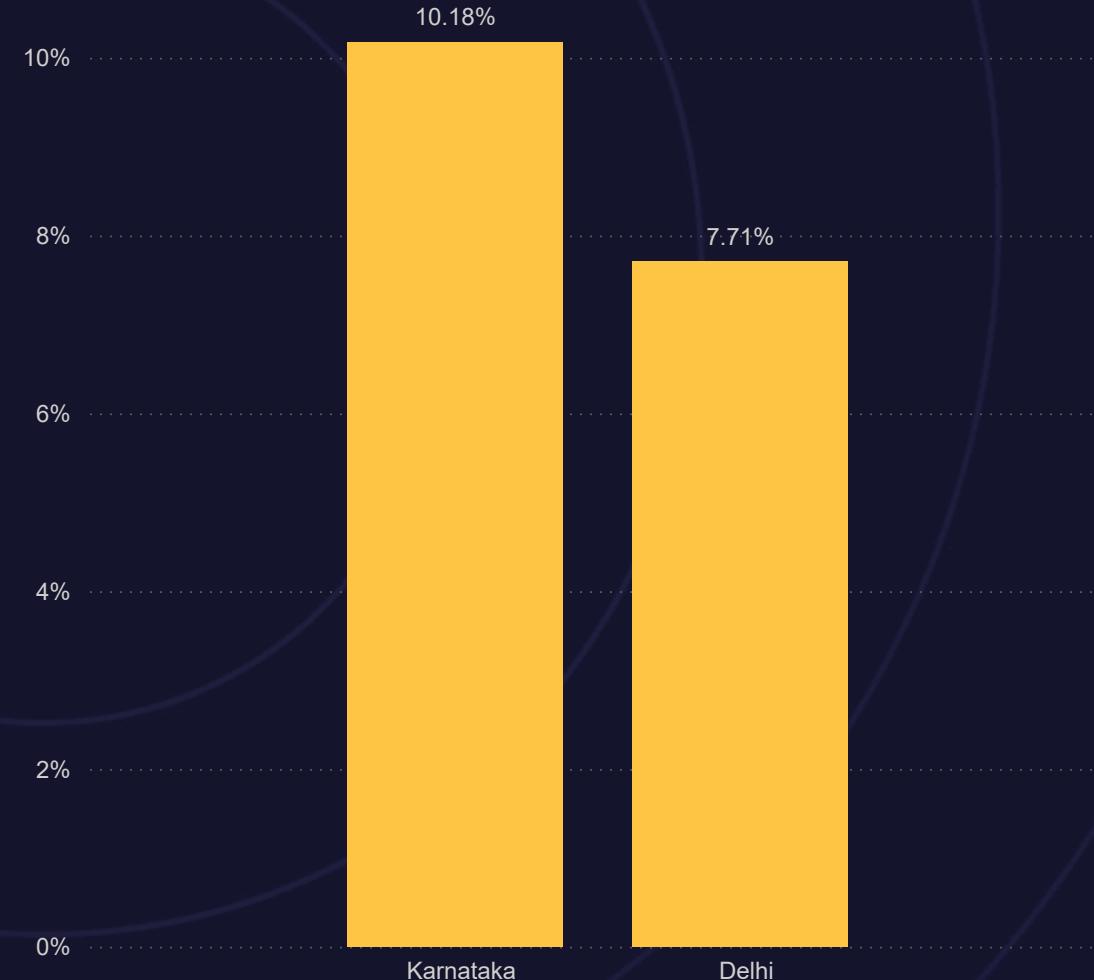
Question 5. How do the EV sales and penetration rates in Delhi compare to Karnataka for 2024?



Comparision By Sales Volume



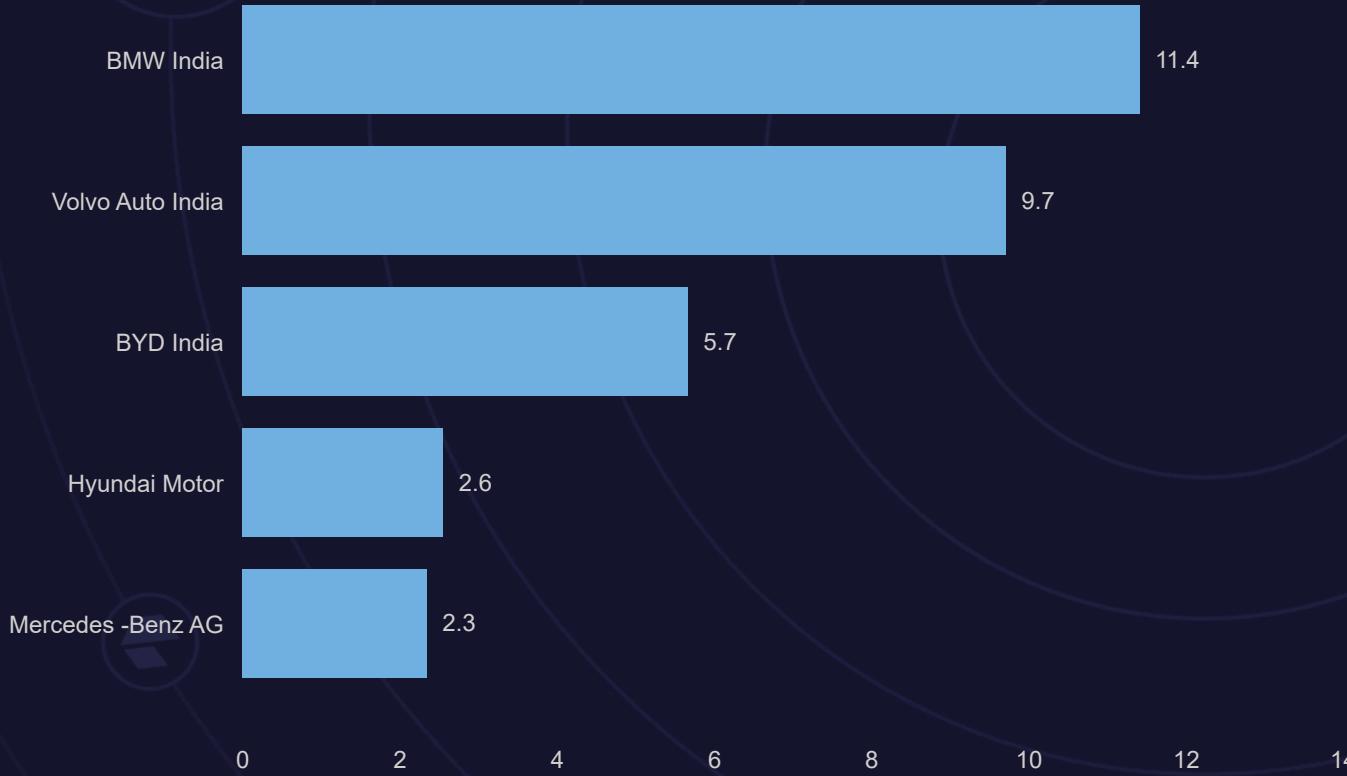
Comparision By Penetration_Rate



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



Top 5 Makers By CAGR from 2022 to 2024



Compounded Annual Growth Rate (CAGR) measures the mean annual growth rate over a specified period longer than one year.

Compound annual growth rate (CAGR) formula

$$\text{CAGR} = \left(\frac{\text{Final value}}{\text{Starting value}} \right)^{\frac{1}{N}} - 1$$

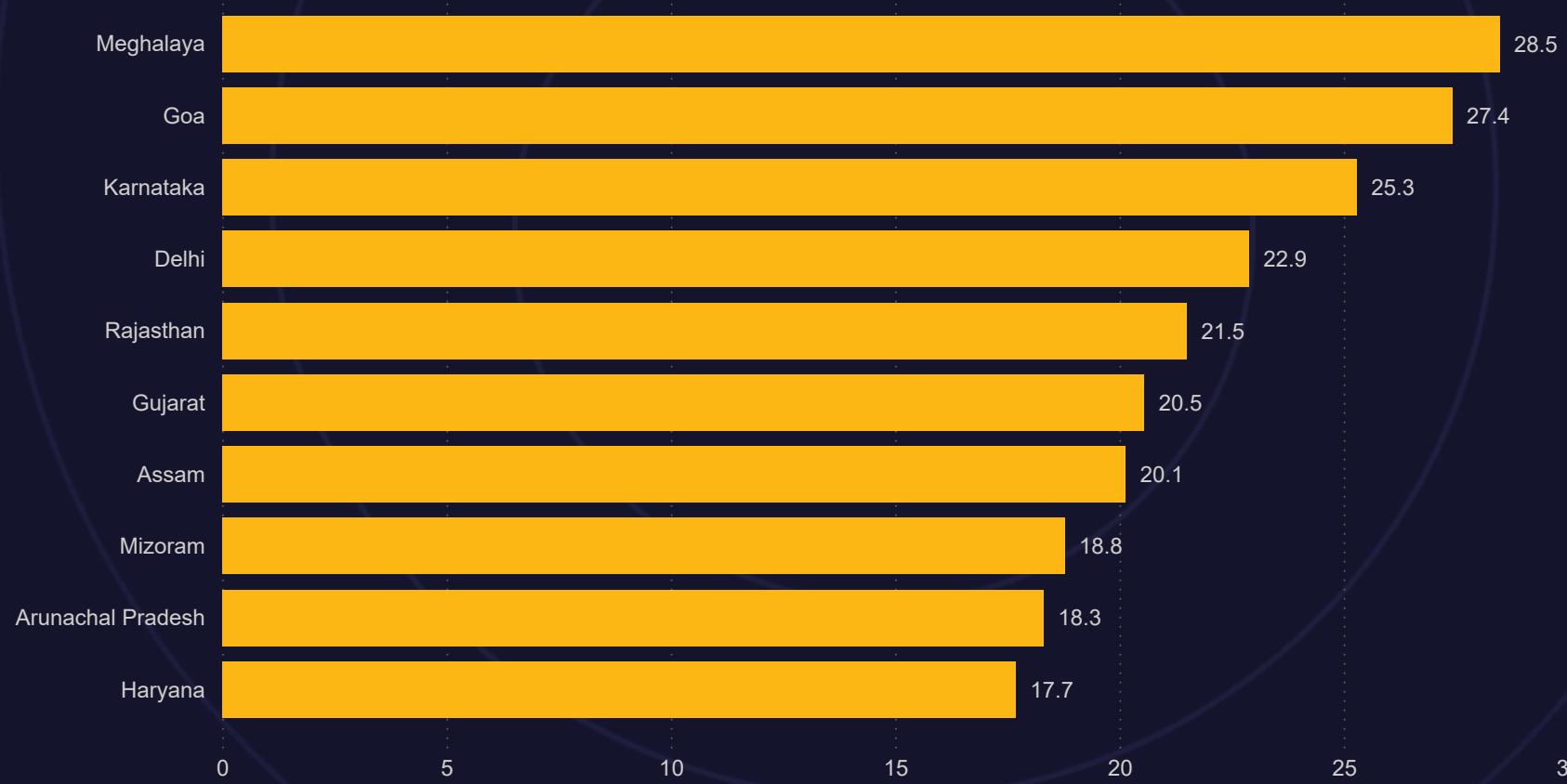
INSIDER



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

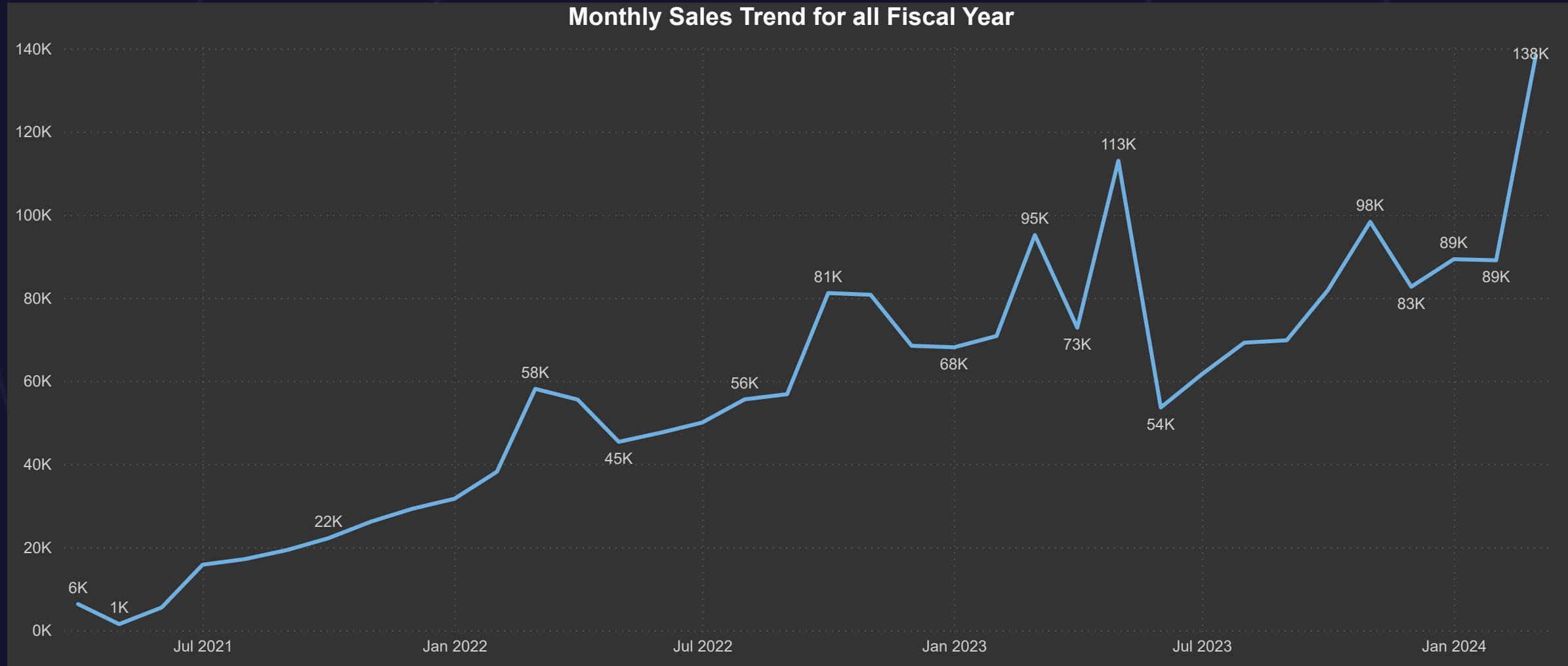


Top 10 States by CAGR in Overall Sales

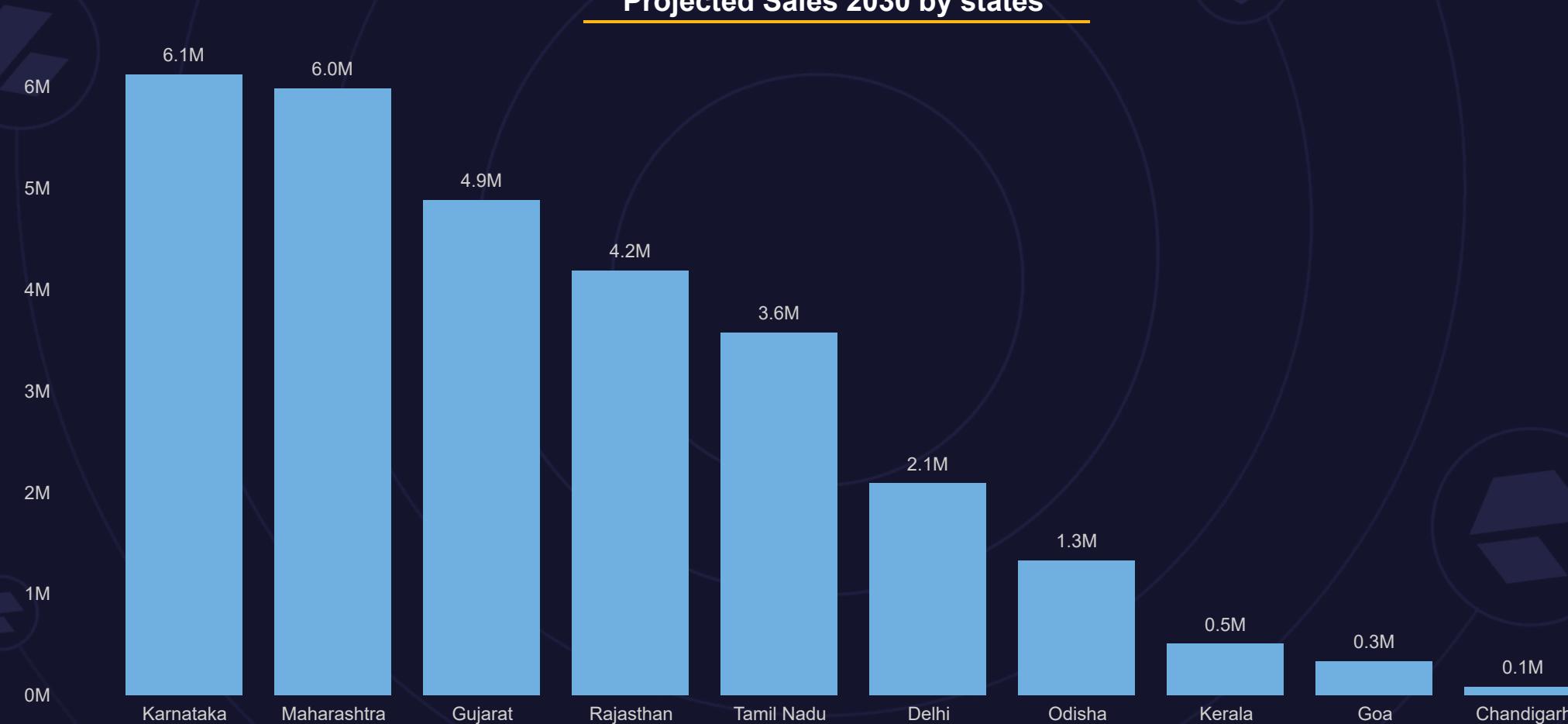




Question 8. What are the peak and low season months for EV sales based on the data from 2022 to 2024?



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

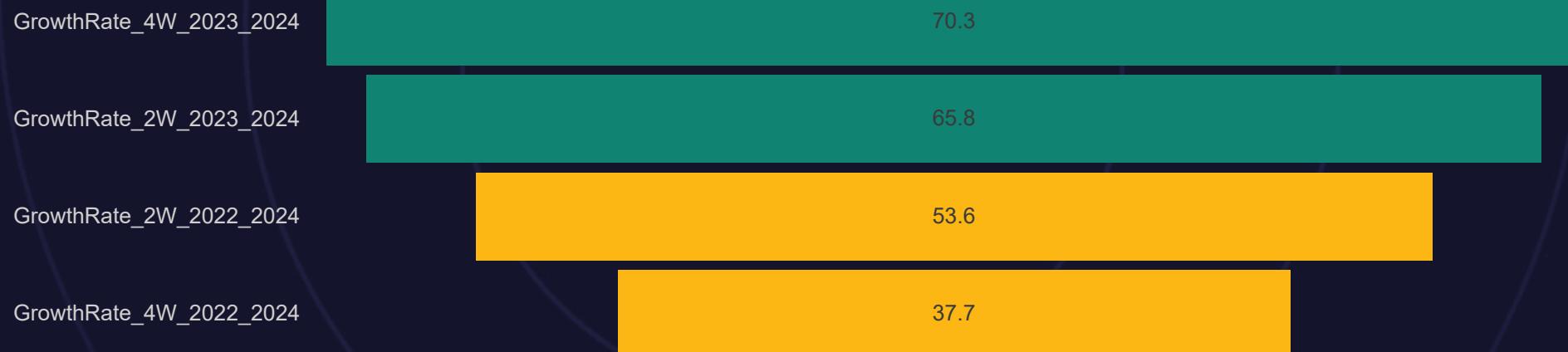




Question 10. Estimate the revenue growth rate of 4-wheeler and 2-wheelers EVs in India for 2022 vs 2024 and 2023 vs 2024, assuming an average unit price.



Revenue Growth Rate





Question 1. What are the primary reasons for customers choosing 4-wheeler EVs in 2023 and 2024 (cost savings, environmental concerns, government incentives)?



Cost Savings: EVs have lower fuel and maintenance costs, saving owners \$800 to \$1,000 annually. Deloitte predicts many EVs will reach cost parity with ICE vehicles by 2023-2024 due to decreasing battery prices and lower operating costs.

Environmental Concerns: EVs can reduce CO2 emissions by about 50%, according to the IEA. McKinsey found 45% of consumers consider environmental impact a key factor in EV purchases.

Government Incentives: Financial incentives ,like the U.S. federal tax credit up to \$7,500, and global policies such as the EU's Fit for 55 plan, encourage EV adoption by reducing costs and promoting sustainability.



Question 2. How do government incentives and subsidies impact the adoption rates of 2-wheelers and 4-wheelers? Which states in India provided most subsidies ?

Reduction in Upfront Costs:

- **2-Wheelers:** Incentives and subsidies lower the initial purchase price of electric 2-wheelers, making them more affordable for a broader segment of consumers. This is crucial in price-sensitive markets like India, where a significant portion of the population relies on 2-wheelers for daily commuting. Lower upfront costs encourage more people to consider switching from traditional petrol-powered vehicles to electric options.
- **4-Wheelers:** For electric 4-wheelers, subsidies reduce the overall cost gap between EVs and traditional internal combustion engine (ICE) vehicles. Since 4-wheelers are typically more expensive than 2-wheelers, government incentives play a crucial role in making them financially viable for more consumers.

Encouragement of Mass Adoption:

- Government incentives are designed to accelerate the mass adoption of EVs by reducing the financial burden on consumers and manufacturers. These incentives can include direct subsidies, reduced registration fees, tax exemptions, and rebates. The quicker adoption of EVs contributes to economies of scale in production, driving down costs further and encouraging even greater adoption.

Infrastructure Development:

- By offering subsidies and incentives, governments also indirectly promote the development of EV infrastructure, such as charging stations, which is critical for enhancing the convenience and practicality of using EVs. Improved infrastructure further accelerates adoption rates by addressing concerns about range anxiety and charging accessibility.

Government incentives and subsidies can help make electric vehicles (EVs) more affordable and attractive to buyers, which can lead to higher adoption rates. Some states in India that offer subsidies for EVs include:

- Gujarat
 - Offers a maximum subsidy of ₹20,000 for electric two-wheelers and no registration charges
- Maharashtra
 - Offers up to ₹25,000 for electric two-wheelers, up to ₹30,000 for electric three-wheelers, and up to ₹2.5 lakh for electric four-wheelers
- Meghalaya
 - Offers a subsidy of ₹10,000 per kWh of battery capacity for electric two-wheelers, capped at ₹20,000, plus a 100% road tax exemption
- Telangana
 - Offers exemption on registration and road tax for electric bikes



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



Charging Infrastructure and EV Penetration in Top 5 States

Delhi:

- Charging Infrastructure:** Delhi has a well-established network of charging stations, including fast chargers and public charging points in residential areas, metro stations, and shopping complexes.
- EV Sales and Penetration:** Delhi leads in EV adoption, particularly for 2-wheelers and 4-wheelers, due to the high density of charging stations that provide ease of access for urban commuters.

Maharashtra:

- Charging Infrastructure:** Maharashtra has focused on expanding both public and private charging networks across major cities like Mumbai and Pune and along key highways.
- EV Sales and Penetration:** With robust support for infrastructure, Maharashtra has seen significant growth in EV sales, especially among commercial fleets and urban commuters.

Gujarat:

- Charging Infrastructure:** Gujarat has a growing number of charging stations, with efforts to increase their presence in both urban and rural areas.
- EV Sales and Penetration:** The state's proactive approach to charging infrastructure, combined with subsidies, has led to high penetration rates for both 2-wheelers and 4-wheelers.

Tamil Nadu:

- Charging Infrastructure:** Tamil Nadu has been developing charging stations along highways and in urban centers, promoting longer commutes and travel.
- EV Sales and Penetration:** The state's comprehensive EV policy and focus on charging infrastructure have



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



Virat Kohli (Cricketer)

. Reasons:

. Popularity and Reach: Virat Kohli is one of the most popular and influential sports figures in India, with a massive fan following across demographics. His association with AtliQ Motors could significantly boost brand visibility and appeal.

. Alignment with Youth and Fitness: Kohli is seen as a role model for fitness, discipline, and a healthy lifestyle, which aligns well with the environmental and health-conscious appeal of EV/Hybrid vehicles.

. Credibility and Trust: As a respected public figure, his endorsement would add credibility to AtliQ Motors, especially if the brand emphasizes performance and reliability.



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



Gujarat

- Subsidies and Incentives:** Gujarat offers substantial subsidies for setting up EV manufacturing units, including capital subsidies, interest subsidies, and tax incentives. The state also provides incentives for developing charging infrastructure, which is crucial for the growth of the EV ecosystem.
- Ease of Doing Business:** Gujarat consistently ranks high in the Ease of Doing Business index in India due to its investor-friendly policies, streamlined processes, and quick approvals.
- Infrastructure:** The state has well-developed industrial infrastructure, including ports, highways, and industrial parks. Gujarat's strategic location provides easy access to major markets in India and overseas.
- Stable Governance:** The state has a reputation for stable and proactive governance, with a strong focus on industrial development and investment promotion.
- Skilled Labor:** Gujarat has a strong industrial base with a skilled and semi-skilled workforce, particularly in engineering, manufacturing, and automotive sectors.



Your top 3 recommendations for AtliQ Motors.



1. Leverage Government Incentives and Policies:- Utilize Subsidies and Tax Benefits: Maximize Indian government subsidies and tax incentives under the FAME scheme to lower consumer costs and enhance AtliQ's market competitiveness. Highlight these benefits in

marketing campaigns.- Align with National Policies: Ensure AtliQ's vehicles comply with India's EV policies on emissions and fuel efficiency to position the brand as compliant and forward-thinking.

2. Focus on Affordability and Localized Features:- Offer Competitive Pricing: Introduce budget-friendly models alongside premium offerings to attract a broader customer base in India's price-sensitive market.- Local Customization: Tailor vehicle features for Indian conditions, such as robust suspension, efficient air conditioning, and advanced infotainment systems.

3. Expand Charging Infrastructure and After-Sales Service:- Partnerships for Charging Stations: Collaborate with local entities to expand charging infrastructure, reducing range anxiety and enhancing EV practicality.- Strengthen After-Sales Service Network : Build a strong after-sales service network with trained technicians and service centers across key regions to improve customer satisfaction and loyalty



Thank You

Presented by :Y.S S Sai Hanuman