📊 Electric Vehicle Market Analysis Dashboard

A Power BI project analyzing EV adoption trends in India (2022–2024), forecasting growth to 2030, and providing strategic recommendations for AtliQ Motors.

# 1. Problem Statement

The Electric Vehicle (EV) industry in India is undergoing rapid transformation. This project aims to analyze EV adoption across makers and states, evaluate penetration rates, and project growth through 2030. The insights generated will help AtliQ Motors decide where to enter, which states to target, and how to compete effectively in both 2W and 4W markets.

# 2. Data Sources

- \*\*electric\_vehicle\_sales\_by\_maker.xlsx\*\*: EV sales by manufacturer (2W and 4W).  
- \*\*electric\_vehicle\_sales\_by\_state.xlsx\*\*: EV sales, penetration %, and CAGR by state.  
- \*\*dim\_date.xlsx\*\*: Calendar table to enable time-based calculations.  
- \*\*Guiding PDFs\*\*: Problem statement, key questions, and step-by-step roadmap.

# 3. Key KPIs

The following KPIs were created to evaluate performance:  
• \*\*Total EV Units\*\* – Number of EVs sold.  
• \*\*EV Penetration %\*\* – Share of EVs relative to total vehicles.  
• \*\*Revenue\*\* – Estimated EV sales revenue.  
• \*\*YoY Growth %\*\* – Year-over-year change in sales.  
• \*\*CAGR (2022–2024)\*\* – Compound Annual Growth Rate.  
• \*\*Projected Units 2030\*\* – EV units expected based on CAGR.

# 4. Dashboard Pages

## Page 1: Executive Summary

• Market-level KPIs (Units, Penetration %, Revenue).  
• Line chart showing Actual vs Previous Year.  
• 2W vs 4W share (Donut chart).  
• Top 5 Makers and Top 5 States.

## Page 2: Makers

• Maker-level KPIs (Units, CAGR, Share %, Rank).  
• Top and Bottom performing makers.  
• Quarterly sales trend.  
• Matrix of EV sales (FY22–24).

## Page 3: States

• State-level KPIs (Units, Vehicles, Penetration %, CAGR).  
• Map of EV Penetration by State.  
• Penetration Δ (FY22 → FY24).  
• Delhi vs Karnataka comparison.  
• Top 10 States by CAGR.

## Page 4: Forecast & Seasonality

• Seasonality analysis (monthly peaks and lows).  
• Actual vs Projected sales to 2030 (line chart).  
• Top 10 States by 2024 penetration and 2030 projection.  
• Revenue Growth FY22→24 and FY23→24 for 2W & 4W.

# 5. Key Insights

• EV adoption is dominated by \*\*2-Wheelers (~90%+ share)\*\*.  
• \*\*Goa, Kerala, Karnataka\*\* lead in penetration, while other states lag.  
• \*\*Tata Motors, Mahindra\*\* lead in 4W sales; \*\*Ola Electric, TVS\*\* dominate 2W.  
• CAGR (2022–2024) shows strong growth; India is projected to hit \*\*~54M EV units by 2030\*\*.  
• Seasonality: spikes in \*\*festival months\*\* (Oct–Dec), dips in early Q1.  
• Revenue growth is \*\*faster in 4W\*\* segment, but \*\*2W drives volumes\*\*.

# 6. Strategic Recommendations

1. \*\*Market Entry:\*\* Focus on 2W in top-penetration states (Goa, Kerala, Karnataka) for immediate adoption.  
2. \*\*Infrastructure Partnerships:\*\* Collaborate with governments and private players to expand charging infra in Tier-1 & Tier-2 cities.  
3. \*\*4W Adoption Boost:\*\* Launch financing and incentive schemes to make 4W EVs more attractive.  
4. \*\*Marketing Strategy:\*\* Align campaigns with \*\*festival/high-demand months\*\* for maximum impact.  
5. \*\*Manufacturing Location:\*\* Shortlist states offering a balance of subsidies, infra readiness, and ease-of-business (e.g., Karnataka, Tamil Nadu, Gujarat).

# 7. Resume / Portfolio Value

This project demonstrates ability to:  
• Perform \*\*end-to-end data modeling\*\* (fact/dim tables, measures, relationships).  
• Create \*\*dynamic Power BI dashboards\*\* with KPIs, drilldowns, and time intelligence.  
• Provide \*\*strategic business insights\*\* and actionable recommendations.  
• Combine \*\*storytelling with analytics\*\*, making it job-ready for Data Analyst/BI roles.