



ELECTRIC VEHICLE SALES ANALYSIS IN INDIA (FY 2022 - FY 2024)

A SQL-BASED MARKET STUDY FOR ATLIQ MOTORS

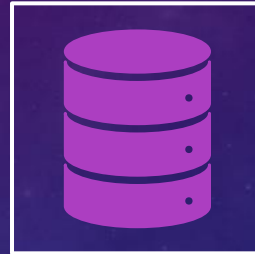
ABOUT ATLIQ MOTOTS

- AtliQ Motors is a leading automotive company from the USA, specializing in electric and hybrid vehicles.
- Over the past five years, it has captured a 25% market share in North America's EV and hybrid vehicle segment. The company is known for its innovative technology and commitment to sustainability, consistently setting industry benchmarks in performance and design.
- As part of its global strategy, AtliQ Motors is entering the Indian market, focusing on capturing the growing demand for electric vehicles.

PROJECT OVERVIEW



Objective: To analyze electric vehicle sales in India and provide insights for AtliQ Motors' expansion plans.



Dataset: Sales data from FY 2022 to FY 2024, divided into three tables (Date, Sales by Makers, Sales by State).



Methodology: SQL queries to answer key business questions.

TOOLS AND TECHNOLOGIES USED



MySQL Workbench: Used for data analysis and querying, running SQL queries to extract insights from the dataset.



Microsoft Word: Utilized for documenting the project report and storing the SQL code, ensuring organized project documentation.



Microsoft PowerPoint: Used to build the presentation, creating a visually engaging format to showcase the project's results and recommendations.

ANALYSIS QUESTIONS

THE ANALYSIS IS DIVIDED INTO TEN QUESTIONS





1. Top and Bottom EV makers

2. Top sales by EV penetration

3. States with declining sales

4. Quarterly trends for top 4-wheeler makers

5. State comparison: Delhi vs Karnataka



6. CAGR for Top-4 wheeler makers

7. CAGR for Top states

8. Seasonal trends

9. Projected sales for 2030

10. Revenue Growth estimate

The background is a solid dark blue. It features several faint, light blue circular elements. In the top right, there is a large circular scale with degree markings from 0 to 210 and a dashed line with an arrow pointing clockwise. In the bottom right, there are concentric circles with arrows indicating a clockwise direction. In the bottom left, there are also concentric circles with arrows. In the top left, there is a small circular element with an arrow.

KEY FINDINGS



TOP AND BOTTOM EV MAKERS

FOR FY 2023 AND FY 2024

KEY INSIGHTS

- In FY 2023, the top 2-wheeler makers were Ola Electric, Okinawa, and Hero Electric
- In FY 2024, Ola Electric, TVS, and Ather led, with Ola Electric doubling its sales
- The bottom performers shifted from Jitendra, Being, and Pure EV in FY 2023 to Battre Electric, Revolt, and Kinetic Green in FY 2024.

Top 3 Makers

	fiscal_year	maker	vehicle_category	Total_Quantity_Sold
▶	2023	OLA ELECTRIC	2-Wheelers	152583
	2023	OKINAWA	2-Wheelers	96945
	2023	HERO ELECTRIC	2-Wheelers	88993

	fiscal_year	maker	vehicle_category	Total_Quantity_Sold
▶	2024	OLA ELECTRIC	2-Wheelers	322489
	2024	TVS	2-Wheelers	180743
	2024	ATHER	2-Wheelers	107552

Bottom 3 Makers

	fiscal_year	maker	vehicle_category	Total_Quantity_Sold
▶	2023	JITENDRA	2-Wheelers	8563
	2023	BEING	2-Wheelers	11018
	2023	PURE EV	2-Wheelers	11556

	fiscal_year	maker	vehicle_category	Total_Quantity_Sold
▶	2024	BATTRE ELECTRIC	2-Wheelers	4841
	2024	REVOLT	2-Wheelers	7254
	2024	KINETIC GREEN	2-Wheelers	9585

The background is a dark gray to black gradient. It features several abstract, light gray circular elements. On the left side, there are concentric circles with radial lines, resembling a gauge or a clock face, with numbers like 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. There are also smaller circles with arrows indicating clockwise or counter-clockwise movement. The overall aesthetic is technical and modern.

TOP STATES BY EV PENETRATION

FOR FY 2024

KEY INSIGHTS

- In FY 2024, the top states by EV penetration for 2-wheelers were Goa, Kerala, Karnataka, Maharashtra, and Delhi, with Goa leading at 17.99%
- For 2-Wheelers the states are Kerela, Chandigarh, Delhi Karnataka and Goa, Kerala topping the list with 5.76%.
- Penetration rates for 4-wheelers were notably lower compared to 2-wheelers.

Penetration Rate =
(Electric Vehicles Sold /
Total Vehicles Sold) * 100

4-Wheelers

fiscal_year	state	vehicle_category	penetration_rate
2024	Kerala	4-Wheelers	5.76
2024	Chandigarh	4-Wheelers	4.50
2024	Delhi	4-Wheelers	4.29
2024	Karnataka	4-Wheelers	4.26
2024	Goa	4-Wheelers	4.25

2-Wheelers

fiscal_year	state	vehicle_category	penetration_rate
2024	Goa	2-Wheelers	17.99
2024	Kerala	2-Wheelers	13.52
2024	Karnataka	2-Wheelers	11.57
2024	Maharashtra	2-Wheelers	10.07
2024	Delhi	2-Wheelers	9.40

The background features several concentric circles and curved arrows in a light gray color against a dark gray background. Some of the circles have numerical labels along their outer edges, such as 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. The arrows indicate a clockwise or counter-clockwise direction of movement.

STATES WITH DECLINING SALES

FROM FY 2022 TO 2024

KEY INSIGHTS

- In FY 2022 to 2024, only Andaman and Nicobar Islands and Ladakh experienced a decline in EV sales, with decreases of 1.11% and 0.42% respectively.
- All other states saw growth in EV sales during this period.

	state	vehicle_category	Change_in_penetration
▸	Andaman & Nicobar Island	4-Wheelers	-1.11
	Ladakh	2-Wheelers	-0.42



QUARTERLY TRENDS FOR TOP 4-WHEELER MAKERS

FROM FY 2022 TO FY 2024

KEY INSIGHTS

- From FY 2022 to 2024, the top 5 EV makers in the 4-wheeler category showed varied quarterly sales trends.
- BYD India peaked in Q4, while Hyundai Motors maintained steady sales.
- Mahindra & Mahindra had its highest sales in Q1, MG Motors displayed consistent sales, and Tata Motors followed a steady increase throughout the year.
- Overall, aggregate sales were highest in Q4 and lowest in Q1.

	vehicle_category	quarter	quantity_sold	percent_share
▶	4-Wheelers	Q1	30427	19.8943
	4-Wheelers	Q2	33210	21.7140
	4-Wheelers	Q3	37509	24.5248
	4-Wheelers	Q4	47230	30.8808

The background features a dark, textured surface with several concentric circles and radial lines. Some circles have arrows indicating a clockwise direction. The lines and circles are light gray, creating a subtle, technical or architectural feel.

STATE COMPARISON: DELHI VS KARNATAKA

FOR FY 2024

KEY INSIGHTS

- In FY 2024, Karnataka outperformed Delhi in EV sales and penetration rates, except in December when Delhi had a higher penetration rate.
- Karnataka's penetration rate fluctuated between 7.02% and 16.09%, while Delhi's ranged from 5.04% to 14.18%.
- Overall, Karnataka achieved a higher total EV penetration rate (10.18%) and sales (160,989 units) compared to Delhi's 7.71% penetration rate and 46,724 units sold.

date	fiscal_year	state	ev_sales	penetration_rate
2023-04-01	2024	Delhi	3289	7.57
2023-04-01	2024	Karnataka	10473	9.20
2023-05-01	2024	Delhi	5764	11.79
2023-05-01	2024	Karnataka	18291	15.28
2023-06-01	2024	Delhi	2722	6.19
2023-06-01	2024	Karnataka	8872	7.02
2023-07-01	2024	Delhi	2899	6.23
2023-07-01	2024	Karnataka	10853	9.18
2023-08-01	2024	Delhi	2556	5.22
2023-08-01	2024	Karnataka	10916	8.41

state	Total_ev_sales	penetration_rate
Delhi	46724	7.71
Karnataka	160989	10.18

The background is a dark gray or black, featuring several abstract, light gray circular and semi-circular patterns. These patterns include concentric circles, arcs, and dashed lines, some of which have small arrows indicating a direction of movement or flow. The patterns are scattered across the left and top portions of the image, creating a sense of motion and complexity.

CAGR FOR TOP 4- WHEELER MAKERS

FROM FY 2022 TO FY 2024

KEY INSIGHTS

- **CAGR** = $[(\text{Ending Value} / \text{Beginning Value})^{** 1/n}] - 1$
- **BYD India** experienced the highest CAGR at 566%, followed by **Hyundai Motors** with 255%.
- **Tata Motors** had the lowest CAGR at 94% but maintained dominance in total sales for both fiscal years 2022 and 2024.

	maker	Total_sales_2022	Total_sales_2024	percent_CAGR
▶	Tata Motors	12708	48181	94.71
	MG Motor	1647	8829	131.53
	Mahindra & Mahindra	4042	23346	140.33
	BYD India	33	1466	566.52
	Hyundai Motor	110	1390	255.48

The background features a dark gray field with several concentric circles and radial lines in a lighter gray. Some of these lines are dotted, and some have arrowheads pointing in different directions, creating a sense of motion or a technical diagram. The overall aesthetic is modern and minimalist.

CAGR FOR TOP 10 STATES

FROM FY 2022 TO FY 2024

KEY INSIGHTS

- **Meghalaya** had the highest CAGR in total vehicles sold, followed by **Goa** and **Karnataka**.
- **Andaman and Nicobar Islands** is the only region with a decline in EV sales but still achieved high overall growth in total vehicle sales.

state	Total_sales_2022	Total_sales_2024	percent_CAGR
▶ Meghalaya	22193	36628	28.47
Goa	48372	78524	27.41
Karnataka	1007894	1581988	25.28
Delhi	401540	606348	22.88
Rajasthan	880985	1300476	21.5
Gujarat	1094872	1590987	20.55
Assam	379450	547626	20.13
Mizoram	19439	27422	18.77
Arunachal Pradesh	19929	27892	18.3
Andaman & Nicobar Island	5148	7203	18.29

The background is a dark gray with several abstract circular elements. On the left, there is a large circular scale with tick marks and numbers ranging from 140 to 260. Overlaid on this and other parts of the background are various concentric circles, some solid and some dashed, with arrows indicating a clockwise direction of movement. The overall aesthetic is technical and modern.

SEASONAL TRENDS

PEAK AND LOW SEASON MONTHS

KEY INSIGHTS

- The **peak months** for EV sales were observed from **October to March**, with **March** recording the highest sales at **291,487 units**.
- The **low months** spanned from **April to September**, with **June** experiencing the lowest sales volume at **106,709 units**.

month_name	total_sales	season
January	189099	peak month
February	198049	peak month
March	291587	peak month
April	134657	low month
May	159869	low month
June	106709	low month
July	127426	low month
August	141961	low month
September	145972	low month
October	185185	peak month
November	205196	peak month
December	180401	peak month



PROJECTED SALES FOR 2030

FOR TOP 10 STATES WITH PENETRATION RATES

KEY INSIGHTS

- Maharashtra is projected to lead with 1.4 million EV sales by FY 2030, followed by Karnataka (1.0 million) and Gujarat (6.7 lakh).
- Maharashtra's leadership could be attributed to factors such as government incentives and a focus on environmental sustainability.
- These projections highlight significant growth potential in these regions for EV adoption in the coming years.

state	Projected_sales_2030
▶ Maharashtra	1402541.96
Karnataka	1061625.86
Gujarat	673167.95
Kerala	663209.07
Tamil Nadu	433561.46
Rajasthan	392830.22
Odisha	280726.42
Delhi	237638.26
Goa	105689.81
Chandigarh	31286.8

The background features several concentric circles and curved arrows in a light gray color, creating a sense of motion and growth. The circles are of varying sizes and are scattered across the left and top portions of the image. Some arrows are solid, while others are dashed, and they all point in different directions, suggesting a complex, multi-directional growth or process.

REVENUE GROWTH ESTIMATE

FOR FY 2023 VS 2024

AND

FY 2022 VS 2024

KEY INSIGHTS

- The **revenue growth estimate** for EVs in India reveals that for **2-wheelers**, revenue grew by **269.28%** from 2022 to 2024, and by **28.13%** from 2023 to 2024.
- For **4-wheelers**, the revenue growth rate was **367.79%** from 2022 to 2024, and **83%** from 2023 to 2024.
- The revenue growth rate is higher for 4-wheelers compared to 2-wheelers showing a strong market opportunity for both segments

	vehicle_category	revene_growth_rate_2022vs2024	revene_growth_rate_2023vs2024
▶	2-Wheelers	269.28	28.13
	4-Wheelers	367.79	83.08

The background is a solid dark blue. It features several faint, light blue technical drawings. In the top right, there is a large circular gauge with concentric circles and radial lines, resembling a pressure or temperature scale. In the bottom left, there are smaller circular elements, some with arrows indicating rotation. The text is centered in the middle of the image.

TOP 5 RECOMMENDATIONS FOR ATLIQ MOTORS

PART 1

1. Focus on 2-Wheelers First

- **Why:** The 2-wheeler market has higher penetration rates than 4-wheelers, especially in states like Goa, Kerala, and Karnataka.
- **Action:** Launch affordable and reliable 2-wheelers to capture a significant share of this high-demand market.

2. Target High-Penetration States

- **Why:** Key states such as Maharashtra, Karnataka, Kerala, and Delhi show strong EV adoption rates.
- **Action:** Prioritize investments and marketing efforts in these regions to establish an early foothold.

PART 2

3. Capitalize on 4-Wheeler Growth

- **Why:** 4-wheelers exhibit higher revenue growth, even though their penetration rate is lower.
- **Action:** Focus on premium and mid-range EV models to tap into the growing 4-wheeler demand.

4. Align Marketing with Peak Sales Months

- **Why:** Sales are highest between October and March, with March being the peak month.
- **Action:** Concentrate promotions and marketing strategies during these months to boost sales performance.

5. Invest in Charging Infrastructure

- **Why:** A robust charging network will increase consumer confidence, especially in the 4-wheeler segment.
- **Action:** Partner with local providers and invest in expanding the charging infrastructure in key high-growth states.

The background is a dark blue gradient with a subtle pattern of white dots. Overlaid on this are several faint, light blue geometric elements: concentric circles, arcs, and a large circular scale with tick marks and numbers ranging from 140 to 260. Some of these elements have small arrows indicating a clockwise direction.

THANK YOU

P.S – YOU CAN VIEW MY PROJECT CODE AT –

[SQL-CODE](#)