



# Estimate the Market Size for Electric Vehicles in Delhi



## Defining Electric Vehicles (EVs) Market

The EV market in Delhi comprises electric cars, two-wheelers, buses, and commercial vehicles that use electric power for propulsion instead of traditional internal combustion engines (ICE). It includes the entire ecosystem of EVs, such as vehicle sales, charging infrastructure, maintenance services, and associated technologies like batteries.



## Type of Electric Vehicles (EVs)

- **Passenger EVs** – Electric cars, including both economy and premium segments, targeting urban commuters and environmentally conscious consumers.
- **Electric Two-Wheelers** – Scooters and motorcycles, which are popular due to their affordability and convenience in navigating through city traffic.
- **Electric Buses** – Public transportation vehicles aimed at reducing emissions and offering sustainable urban mobility.

- **Commercial EVs** – Electric vans, trucks, and rickshaws used for logistics, deliveries, and other business purposes.



### Clarifying Questions

**Me:** So, before jumping to the solution I have a few clarifying questions so that we both are on the same page. Can I go ahead with them?

**Interviewer:** Yes, sure.

**Me:** According to my understanding, we need to estimate the market size for electric vehicles (EVs) in Delhi. Which type of EV are we focusing on?

**Interviewer:** We will focus on the overall EV market in Delhi, including passenger cars, two-wheelers, buses, and commercial vehicles.

**Me:** Are we estimating the market size in terms of unit sales or revenue?

**Interviewer:** The market size will be estimated in terms of both unit sales and total revenue.

**Me:** Will we consider only new vehicle sales or include after-market services like charging and maintenance?

**Interviewer:** We will include new vehicle sales, as well as after-market services like charging infrastructure and maintenance.



### Problem Statement

I am estimating the market size for Electric Vehicles (EVs) in Delhi, considering unit sales and total revenue across different vehicle categories.



### Approach & Rationale

I have opted for a **Demand-side approach**, where I estimate the potential market size based on Delhi's population, vehicle penetration rates, household income, and the growing adoption of electric vehicles. This approach focuses

on consumer demand, analyzing the number of potential buyers and their willingness and ability to purchase EVs, given their financial capacity and preferences.



## Assumptions

- **Population:** Delhi's population is approximately **20 million**.
- **Vehicle Ownership:** Around **25% of households** own a vehicle (including two-wheelers and cars).
- **Household Income:** Considering that only households with an annual income above a certain threshold (e.g., ₹10 lakh) can afford an EV.
- **EV Adoption Rate:** Expected to grow due to government incentives, with an estimated **5% penetration rate** across vehicle categories in the next year.
- **Average Price of EVs:**
  - **Electric Cars:** ₹12,00,000
  - **Electric Two-Wheelers:** ₹1,00,000
  - **Electric Buses:** ₹80,00,000
  - **Commercial EVs:** ₹15,00,000
- **Charging Infrastructure:** Revenue generated from charging stations and related services.
- **Maintenance & Aftermarket Services:** Revenue generated from EV-specific maintenance and spare parts.



## Key Equations

1. **Total Market Size (Revenue)** = Revenue from Vehicle Sales + Revenue from Charging Infrastructure + Revenue from Maintenance & Aftermarket Services
2. **Revenue from Vehicle Sales** = (No. of Electric Cars \* Average Price) + (No. of Electric Two-Wheelers \* Average Price) + (No. of Electric Buses \* Average Price) + (No. of Commercial EVs \* Average Price)

3. **Revenue from Charging Infrastructure** = No. of EVs \* Average Charging Frequency \* Average Charging Cost
4. **Revenue from Maintenance & Aftermarket Services** = No. of EVs \* Average Maintenance Cost per Vehicle



## Calculations

### • Population Analysis

| Factor                                  | Value              | Explanation  |
|---|--------------------|--|
| Total Population of Delhi               | 20 million         | Based on current demographic data                              |
| Households (Average 4 people/household) | 5 million          | Approximation based on population                              |
| Households Owning Vehicles              | 1.25 million (25%) | Includes both two-wheelers and cars                            |
| Households with Income > ₹10 lakh       | 500,000            | Only considering households that can afford EVs                |
| Estimated EV Adoption Rate              | 5%                 | Forecasted adoption rate based on market trends and incentives |
| Potential EV Households                 | 25,000             | 5% of the target market (500,000 households)                   |

### 1. Revenue from Vehicle Sales

| Category                         | No. of Units | Average Price (₹) | Total Revenue (₹) |
|----------------------------------|--------------|-------------------|-------------------|
| Electric Cars                    | 12,500       | 12,00,000         | 1,50,00,00,000    |
| Electric Two-Wheelers            | 10,000       | 1,00,000          | 1,00,00,00,000    |
| Electric Buses                   | 500          | 80,00,000         | 4,00,00,00,000    |
| Commercial EVs                   | 2000         | 15,00,000         | 3,00,00,00,000    |
| Total Revenue from Vehicle Sales |              |                   | ₹9,50,00,00,000   |

### 2. Revenue from Charging Infrastructure and Maintenance & Aftermarket Services

| Additional Revenue Sources            | No. of Units        | Frequency/Cost           | Total Revenue (₹)   |
|---------------------------------------|---------------------|--------------------------|---------------------|
| Charging Infrastructure               | 12,500 (50% of EVs) | ₹1,000/month * 12 months | ₹1,50,00,000        |
| Maintenance & Aftermarket Services    | 25,000 (Total EVs)  | ₹5,000/year              | ₹1,25,00,000        |
| Total Revenue from Additional Sources |                     |                          | <b>₹2,75,00,000</b> |

**Total Estimated Market Size for Electric Vehicles in Delhi = ₹9,50,00,00,000 + ₹2,75,00,000 = ₹9,52,75,00,000 = ₹952.75 crore (₹9.5275 billion)**



### Sanity Check

- Delhi's strong government policies and infrastructure development are supporting rapid EV adoption.
- The estimated market size aligns with the growing interest and sales trends in the EV sector.



### Summary

To estimate the market size for Electric Vehicles (EVs) in Delhi, I used a top-down approach, starting from the city's population and vehicle ownership rates to determine potential EV sales. By segmenting the market and considering additional revenue from charging infrastructure and maintenance, I arrived at an estimated market size of **₹9.5275 billion**.