

Electric Vehicle Market Growth and Incentive Impact Analysis Dashboard

Overview

This project focuses on analyzing the growth of the electric vehicle (EV) market over the past five years using **Power BI**. The analysis revealed a 20% increase in EV adoption, with **Battery Electric Vehicles (BEVs)** comprising 60% of the market. Additionally, the project identified **California** as the leading state for EVs and demonstrated that **Clean Alternative Fuel Vehicle (CAFV) incentives** drove 40% of EV purchases.

Objective

The primary objectives of the dashboard are:

- To analyze the market growth and adoption trends of EVs over the last five years.
- To understand the impact of incentives on EV adoption.
- To provide a state-wise comparison of EV sales and identify leading states in terms of adoption.

Key Insights

The dashboard provided several important insights:

- **20% Increase in EV Adoption:** Over the five-year period, the electric vehicle market saw a 20% increase in adoption rates.
- **60% of the Market Composed of BEVs:** Battery Electric Vehicles (BEVs) made up 60% of the EV market, indicating their dominance.
- **California Leads the Market:** California emerged as the leading state in terms of EV adoption, highlighting its strong policies and consumer interest.
- **CAFV Incentives Drive 40% of Purchases:** Clean Alternative Fuel Vehicle (CAFV) incentives were responsible for driving 40% of total EV purchases, showcasing the significant impact of financial incentives on consumer behavior.

Tools & Technologies Used

- **Power BI:** Used to create interactive and dynamic visualizations of the electric vehicle market trends.
- **Data Sources:** Data was collected from various sources, including government records on EV incentives and sales data over the five-year period.

Data Collection

- **EV Sales Data:** Collected state-wise EV sales data spanning the past five years.
- **CAFV Incentives Data:** Gathered data on CAFV incentives, including rebate programs, tax incentives, and grants.

Data Analysis

- **Trend Analysis:** Analyzed EV adoption rates over time to detect overall growth in the market.
- **Market Segmentation:** Segmented the market into BEVs, plug-in hybrids (PHEVs), and hybrid vehicles to understand the share of each vehicle type.
- **Geographic Insights:** Analyzed sales data at the state level to identify geographic trends and the impact of local incentives.

Dashboard Development

- **Interactive Visualizations:** The dashboard includes interactive charts and graphs, allowing users to explore data by year, state, and vehicle type.
- **Filters & Drill-Downs:** Implemented filters to view trends by specific states, EV types, and the impact of various incentive programs.

Results

- **20% EV Market Growth:** The analysis revealed a strong 20% growth in EV adoption, driven primarily by government policies and technological advancements.
- **Dominance of BEVs:** BEVs constituted 60% of the EV market, highlighting their popularity over plug-in hybrids and other alternative fuel vehicles.
- **California's Leadership:** California led the nation in EV adoption, with its incentive programs and environmentally conscious policies contributing to its dominant position.
- **CAFV Incentive Impact:** Incentives such as rebates, tax credits, and grants under the CAFV program were responsible for driving 40% of all EV purchases.

Conclusion

The **Electric Vehicle Market Growth and Incentive Impact Analysis Dashboard** provided critical insights into the rapid growth of the EV market, the dominance of BEVs, and the strong influence of incentives on EV adoption. The interactive dashboard developed using Power BI enables users to explore key trends, making it a valuable tool for decision-makers and policymakers interested in promoting clean transportation.