PRESENTED BY FRANCISCO FERREIRA

CASE STUDY

ANALYZING THE GROWTH AND DISTRIBUTION OF ELECTRIC VEHICLES IN THE U.S.

NOTES & ACRONYMS

Acronym	Meaning
EV	Electric Vehicle
BEV	Battery Electric Vehicle
PHEV	Plug-in Hybrid Electric Vehicle
CAFV	Clean Alternative Fuel Vehicle

PROBLEM STATEMENT

Objective

As the demand for sustainable transportation grows, electric vehicles (EVs) have become a focal point of innovation and investment. This case study aims to analyze a dataset of EV registrations in the United States to uncover patterns in adoption, technological development, and manufacturer market share.

We focus on two main types of EVs:

- Battery Electric Vehicles (BEVs)
- Plug-in Hybrid Electric Vehicles (PHEVs)

By breaking down the composition, range, and geographic spread of these vehicles, we aim to better understand trends that define the current and future landscape of the EV market.

KPI´S REQUIREMENTS

To evaluate the market and its dynamics, the following KPIs were analyzed:

1 Total Electric Vehicles

1. Measured the total number of EVs (BEVs + PHEVs) in the dataset to assess the market size and growth trajectory.

2 Average Electric Range

1. Calculated the average electric range across all vehicles to gauge advancements in battery technology and overall EV efficiency.

3 Battery Electric Vehicles (BEVs)

1. Determined the total number of BEVs.
2. Calculated the percentage of BEVs out of the total EVs to understand the market's shift toward fully electric models.

4 Plug-in Hybrid Electric Vehicles (PHEVs)

1. Measured the total number of PHEVs.
2. Calculated the percentage of PHEVs out of all EVs to assess their relative market share.

KPI´S REQUIREMENTS

To communicate the insights effectively, the following visualizations were created:

1. Total Electric Vehicles by Model Year (2010 Onward)
    1. **Insight:** Tracked the evolution of EV adoption over time. This visualization highlights key inflection points in growth and provides a clear picture of how quickly the EV market has accelerated over the past decade.
2. Geographic Distribution: Total Vehicles by State
    1. **Insight:** Illustrated the regional spread of EV registrations. This allowed for the identification of states with the highest adoption rates, revealing patterns linked to urban development, infrastructure, or local incentives.
3. Market Leaders: Top 10 Manufacturers by Total Vehicles
    1. **Insight:** Showcased the leading manufacturers in the EV space. This highlights which brands dominate the market and how competition is shaping up among automakers.
4. CAFV Eligibility Distribution
    1. **Insight:** Visualized the share of EVs eligible for Clean Alternative Fuel Vehicle (CAFV) incentives. This helped evaluate how much incentive programs may be influencing adoption.
5. Consumer Preferences: Top 10 EV Models by Volume
    1. **Insight:** Highlighted the most popular EV models in the dataset, offering a window into consumer behavior and model-level demand.

TOOLS & TECHNIQUES USED

- MS OFFICE/ EXCEL
- Tableau Dashboards
- KPI Calculation Using Formulas and Group-by Operations
- Geographic Data Mapping For Location Insights

THANK YOU

EMAIL

fsemedo2001@hotmail.com

PHONE

+351 962 697 540

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