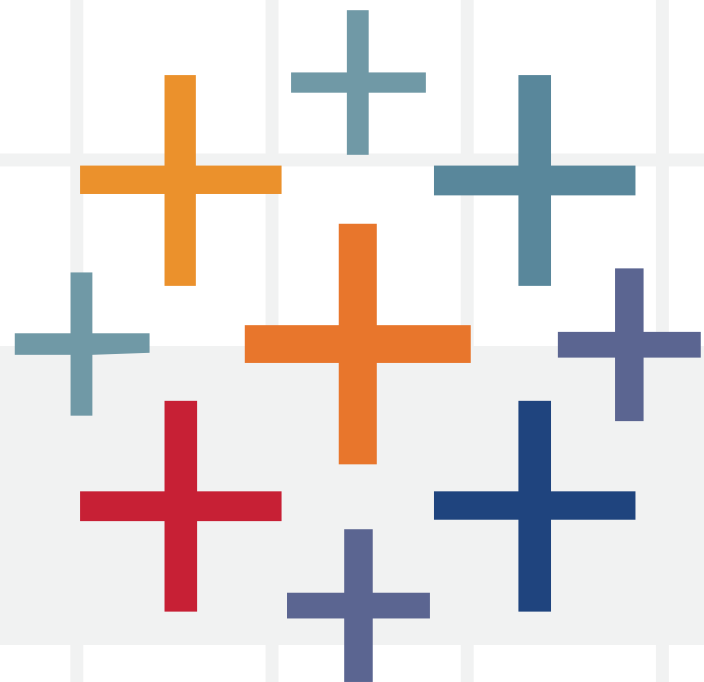# ELECTRIC VEHICLE MARKET ANALYSIS DASHBOARD USING TABLEAU

INTRODUCTION

In this project, I developed an interactive Electric Vehicle Market Analysis Dashboard using Tableau. The dashboard visualizes key aspects of the EV market, including total vehicle counts, average electric range, and the distribution of BEVs and PHEVs. Through various charts—such as line/area charts, map charts, bar charts, and pie/donut charts—the dashboard provides a comprehensive overview of market trends, regional adoption patterns, and manufacturer performance, offering valuable insights for strategic decision-making.
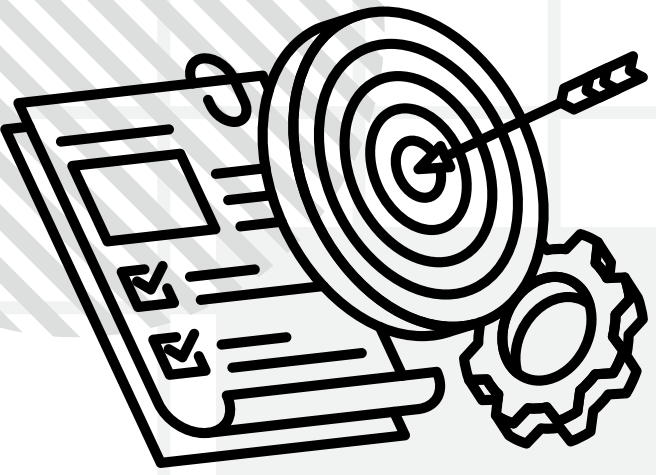
OBJECTIVES

- **Market Growth:** Analyze EV adoption trends using the line/area chart.
- **Regional Adoption:** Visualize state-wise EV distribution with the map chart.
- **Manufacturer Insights:** Identify top EV brands with the bar chart.
- **Incentive Impact:** Show CAFV eligibility proportions using the pie/donut chart.
- **Model Popularity:** Highlight top EV models with the grid view.
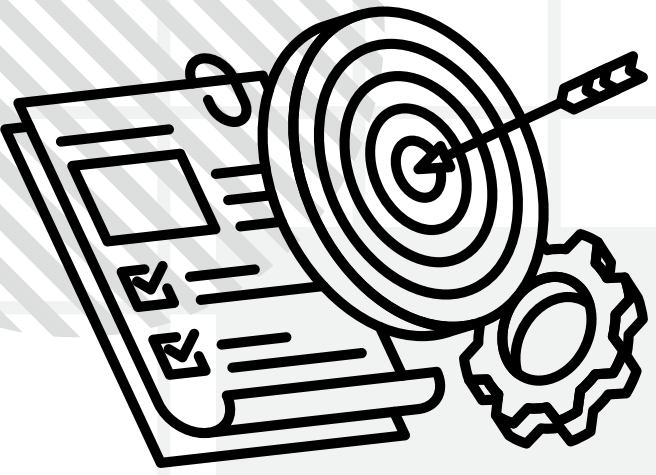
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DASHBOARD OVERVIEW

KPIs:

1. Total Vehicles: Measure the overall size of the electric vehicle market.
2. Average Electric Range: Assess the technological advancements in EVs.
3. Total BEV Vehicles & %: Understand the market share of fully electric vehicles.
4. Total PHEV Vehicles & %: Evaluate the market share of plug-in hybrid vehicles.

DASHBOARD OVERVIEW

Visualizations:

1. Line/Area Chart: Illustrates EV market growth over the years.
2. Map Chart: Shows geographical distribution of EVs by state.
3. Bar Chart: Highlights the top 10 EV manufacturers.
4. Pie/Donut Chart: Displays the proportion of EVs eligible for CAFV incentives.
5. Grid View: Lists the top 10 EV models based on popularity.

DASHBOARD OVERVIEW

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Screenshots

ELECTRIC VEHICLE DATA ANALYSIS
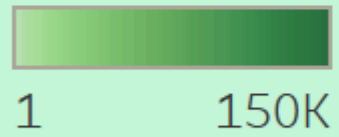
Total Vehicles

1 — 150K

Top N
6

CAFV Eligibility
(All)

EV Type
(All)

Model
(All)

State
(All)

Avg Electric Range	**Total Vehicles**	**Total BEV Vehicles**	**Total PHEV Vehicles**
67.83 Miles	1,50,413	1,16,745	33,668
		% of Total:77.6%	% of Total:22.4%

Total Vehicles by Model Year

37.1K
27.8K
18.7K
14.4K
10.7K 11.3K
8.6K
4.9K 5.7K 5.7K
4.6K
0.8K 0.8K 1.6K 3.6K
0.6K

Avg: 10.7K
Avg: 10.7K

Total Vehicles by State

1,50,082 1
92
2 11 2
11
12
2 3
33
3
1 3 5

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Top 6 Total Vehicles by Make

TESLA	68,939;60.10%
NISSAN	13,497;11.77%
CHEVROLET	12,024;10.48%
FORD	7,601;6.63%
BMW	6,439;5.61%
KIA	6,198;5.40%

Total Vehicles by CAFV Eligiblity

CAFV unknown
69,697;46.34%

CAFV Eligible
62,887;41.81%

CAFV Not Eligible
17,829;11.85%
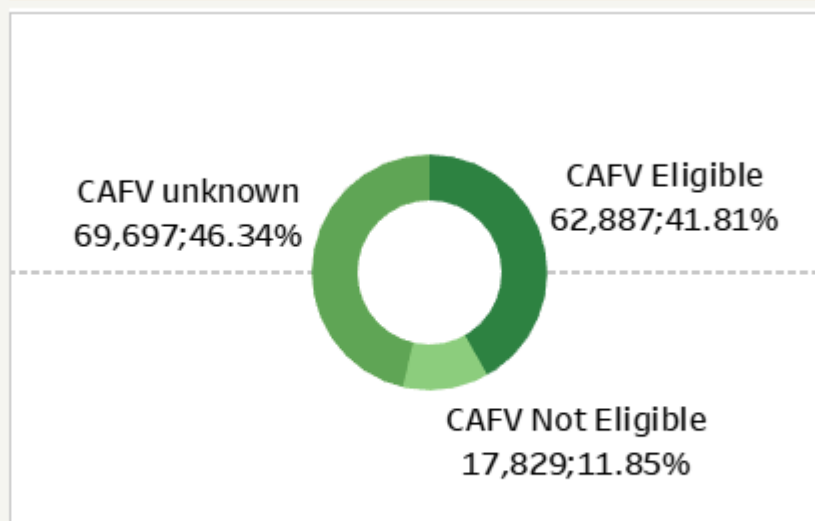
Total Vehicles by Model

Model	Make	EV T..	Total	% of Total
MODEL Y	TESLA	BEV	28,501	18.95%
MODEL 3	TESLA	BEV	27,708	18.42%
LEAF	NISSAN	BEV	13,187	8.77%
MODEL S	TESLA	BEV	7,609	5.06%
BOLT EV	CHEVROLET	BEV	5,732	3.81%
MODEL X	TESLA	BEV		

ELECTRIC VEHICLE DATA ANALYSIS

Total Vehicles

1   69K

Top N

6

CAFV Eligibility

(All) ▼

EV Type

(All) ▼

Model

(All) ▼

State

(All) ▼

Avg Electric Range	Total Vehicles	Total BEV Vehicles	Total PHEV Vehicles
90.21 Miles	**68,939**	**68,939**	**0**
		% of Total:100.0%	% of Total:0.0%

Total Vehicles by Model Year

Avg: 5.3K

18.0K18.0K

14.0K

11.1K

8.1K

7.1K

4.7K

1.6K 1.7K

1.1K

0.8K 0.7K

0.0K0.0K 0.1K

Avg: 5.3K

Total Vehicles by State

68,782

1

47   4   1

4   6 1   12 1

1 1 2 2 3

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Top 6 Total Vehicles by Make

TESLA	68,939;60.10%
NISSAN	13,497;11.77%
CHEVROLET	12,024;10.48%
FORD	7,601;6.63%
BMW	6,439;5.61%
KIA	6,198;5.40%

Total Vehicles by CAFV Eligiblity

CAFV Eligible
25,855;37.50%

CAFV unknown
43,084;62.50%

Total Vehicles by Model

Model	Make	EV Type	Total	% of Total
MODEL Y	TESLA	BEV	28,501	41.34%
MODEL 3	TESLA	BEV	27,708	40.19%
MODEL S	TESLA	BEV	7,609	11.04%
MODEL X	TESLA	BEV	5,114	7.42%
ROADSTER	TESLA	BEV	7	0.01%

ELECTRIC VEHICLE DATA ANALYSIS

Total Vehicles

1   63K

Top N

6

CAFV Eligibility

CAFV Elig... ▼

EV Type

(All) ▼

Model

(All) ▼

State

(All) ▼

Avg Electric Range	Total Vehicles	Total BEV Vehicles	Total PHEV Vehicles
156.6 Miles	62,887	47,039	15,848
		% of Total:74.8%	% of Total:25.2%

Total Vehicles by Model Year

Avg: 4.5K   0.8K 0.8K 1.3K   3.7K   2.8K   4.3K   4.3K   6.3K   12.1K   9.2K 9.2K 10.0K   2.2K 2.4K   3.5K   Avg: 4.5K   0.2K

Total Vehicles by State

62,734   1   42   1   6   2   61   1   17   5   3   2   1 3 2

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Top 6 Total Vehicles by Make

Make	Value
TESLA	25,855;47.46%
NISSAN	11,003;20.20%
CHEVROLET	8,847;16.24%
BMW	3,423;6.28%
KIA	2,705;4.97%
CHRYSLER	2,642;4.85%

Total Vehicles by CAFV Eligiblity

Total Vehicles by Model

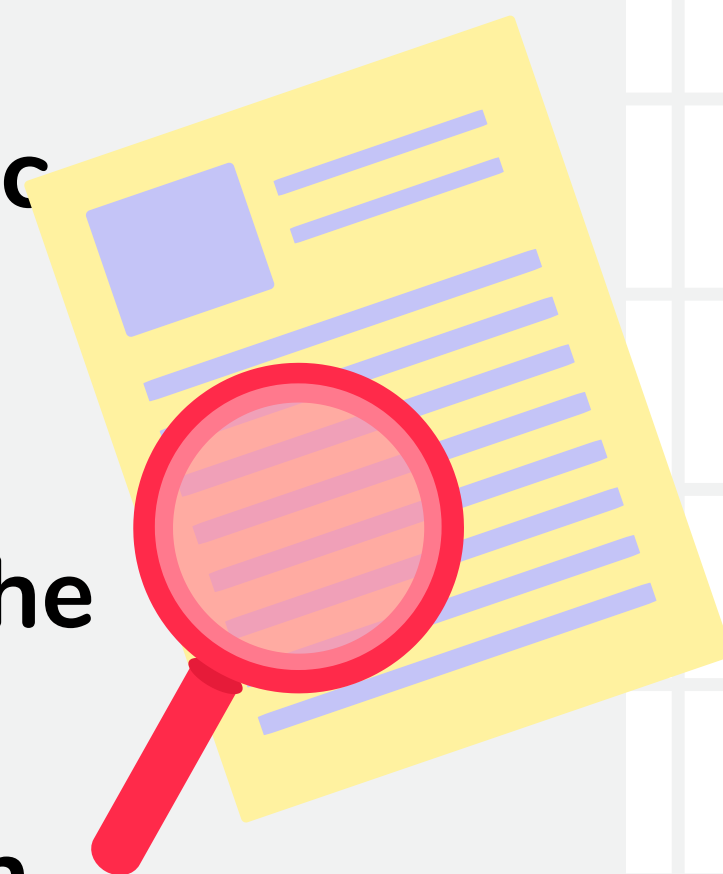| Model	Make	EV T..	Total	% of Total
MODEL Y	TESLA	BEV	2,278	3.62%
MODEL 3	TESLA	BEV	14,102	22.42%
LEAF	NISSAN	BEV	11,003	17.50%
MODEL S	TESLA	BEV	6,157	9.79%
BOLT EV	CHEVROLET	BEV	3,708	5.90%
MODEL X	TESLA	BEV		

KEY FINDINGS

- **Peak Year:** 2023 saw the highest number of electric vehicles.
- **Top State:** Washington leads in EV adoption.
- **Market Leaders:** Tesla, Nissan, and Chevrolet top the market.
- **CAFV Eligibility:** 41.81% eligible, 46.34% unknown, 11.85% not eligible.
- **Top Model:** Tesla Model Y is the best-selling model.

KEY FINDINGS

- Peak Year: 2023 saw the highest number of electric vehicles.
- Top State: Washington leads in EV adoption.
- Market Leaders: Tesla, Nissan, and Chevrolet top the market.
- CAFV Eligibility: 41.81% eligible, 46.34% unknown, 11.85% not eligible.
- Top Model: Tesla Model Y is the best-selling model.

BUSINESS IMPLICATIONS

- Strategic Planning: These insights can guide manufacturers and policymakers in targeting regions for EV incentives and marketing efforts, ultimately driving further adoption.

- Consumer Guidance: Buyers can use the dashboard to identify leading EV models and manufacturers, understand market trends, and make informed purchasing decisions based on model popularity and regional adoption.

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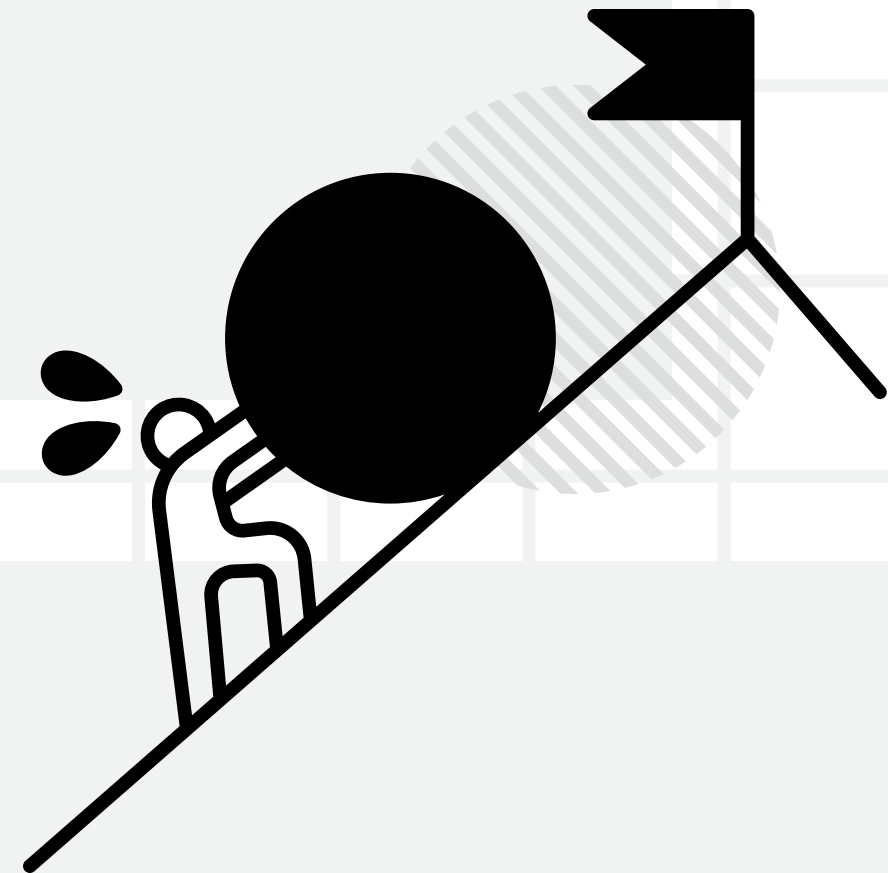
BUSINESS IMPLICATIONS

- **Market Positioning: Insights into top manufacturers and popular models guide companies in positioning their products and understanding competitive dynamics.**

CHALLENGE

One of the main challenges was handling inconsistent data entries and missing values, which could have skewed the analysis.

SOLUTION

I addressed this issue by performing data cleaning in Excel, including removing duplicates, standardizing text entries ensuring the dataset was accurate and reliable for analysis.
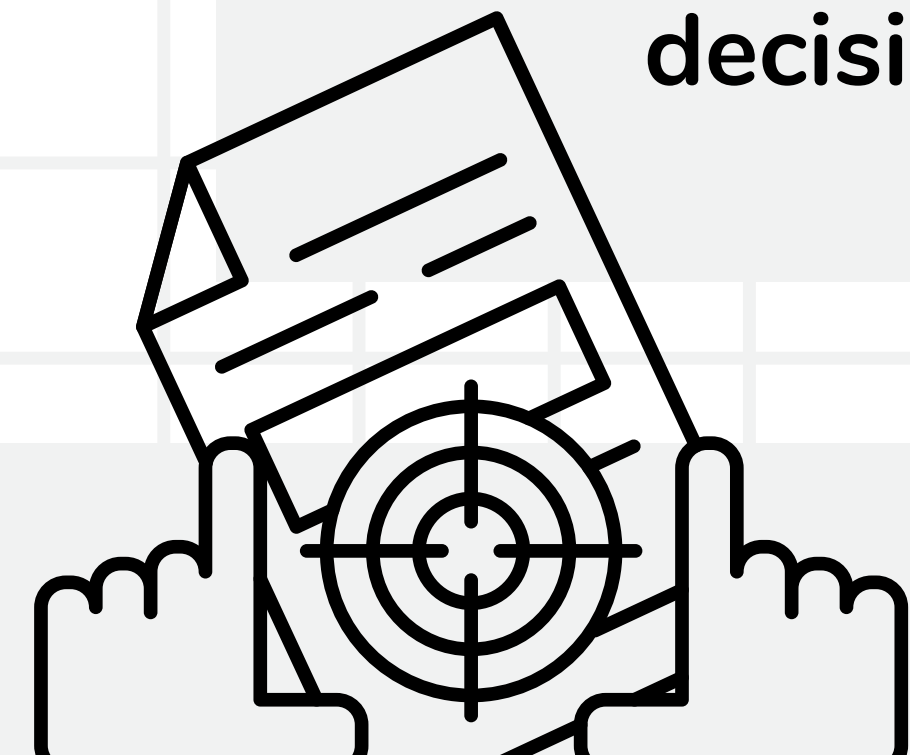
SUMMARY

The dashboard effectively visualizes the growth, distribution, and market share of EVs, providing valuable insights for stakeholders.

FUTURE SCOPE

- Market Opportunities: Identify emerging regions and trends to target for expansion.
- Product Development: Guide innovation based on popular models and manufacturers.
- Consumer Guidance: Help buyers make informed decisions with up-to-date market insights.

Thank you!