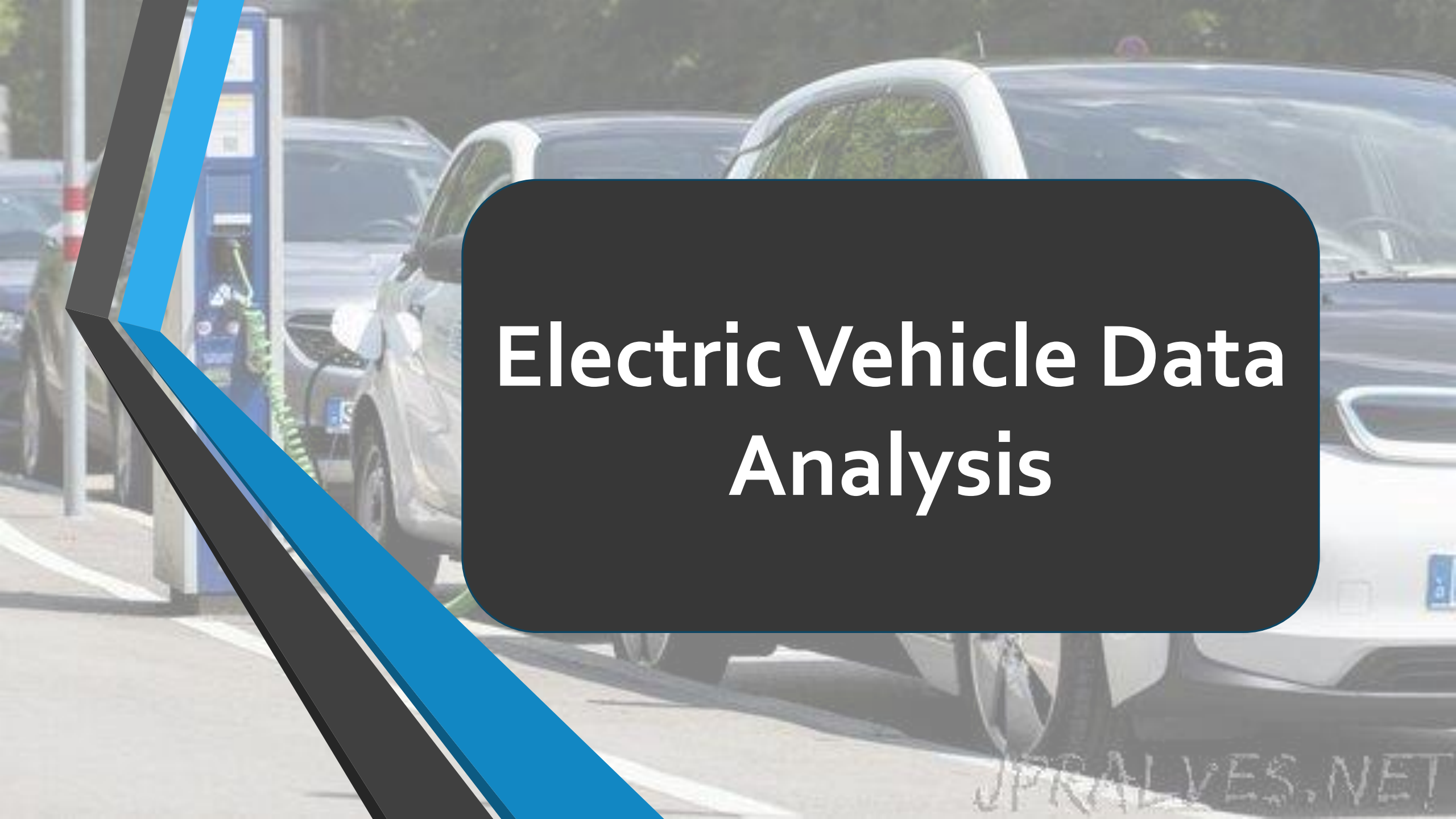


Electric Vehicle Data Analysis

- The electric vehicle data analysis presents an overview on the EV market focusing on key performance metrics, adoption trends, and market dynamics.
- By examining the patterns and consumer behaviour, this analysis aims to identify opportunities for optimizing EV infrastructure and accelerating sustainable mobility.
- Insights may be used for policy re-structuring, industry innovation, and consumer engagement.

Analysis Process Steps

1. Define Objectives
2. Identify Data Source
3. Data Collection and Cleaning
4. Data Processing
5. Choose a Visualisation Tool
6. Design Layout
7. Create Visualisation
8. Add Interactivity
9. Test and Validate

Objective

The analysis targets to uncover and highlight the following trends and performance indices of electric vehicles (2010 onwards) through an interactive dashboard.

- The total number of vehicles and the average electric range of the same indicating growth pattern and adoption trends.
- The total count and share of battery electric vehicle(BEV) and plug-in hybrid electric vehicle(PHEV).
- The trend of total vehicles by model year and state.
- The top N manufacturers dominating the market and the trends in purchase on account of model to give insights on consumer preference.
- Understand the clean alternative fuel vehicle(CAFV) eligibility.

- Dataset:
  - File Type : .csv
  - 150482 rows
  - Number of fields - 17
  - Field list - Vehicle ID, Country, State, City, Electric Range, Electric Vehicle Type, Model, Make, etc.
- Technology Used:
  - Tableau Public 2023.3

Calculated Fields

1. Total Vehicles = COUNTD([DOL Vehicle ID])
2. Avg Electric Range = AVG([Electric Range])
3. Total BEV Vehicles =

   COUNTD(IF [EVType] = "Battery Electric Vehicle (BEV)“

   THEN [DOL Vehicle ID] END)
4. Total PHEV Vehicles =

   COUNTD(IF [EVType] = "Plug-in Hybrid Electric Vehicle (PHEV)“

   THEN [DOL Vehicle ID] END)
5. % of BEV Vehicles = [Total BEV Vehicles]/[Total Vehicles]
6. % of PHEV Vehicles = [Total PHEV Vehicles]/[Total Vehicles]

ELECTRIC VEHICLE DATA ANALYSIS

Total Vehicles	Avg Electric Range	Total BEV Vehicles	Total PHEV Vehicles
1,08,500	81.58Miles	95,261	13,239
		% of Total: 87.80%	% of Total: 12.20%

CAFV Eligibility
(All)

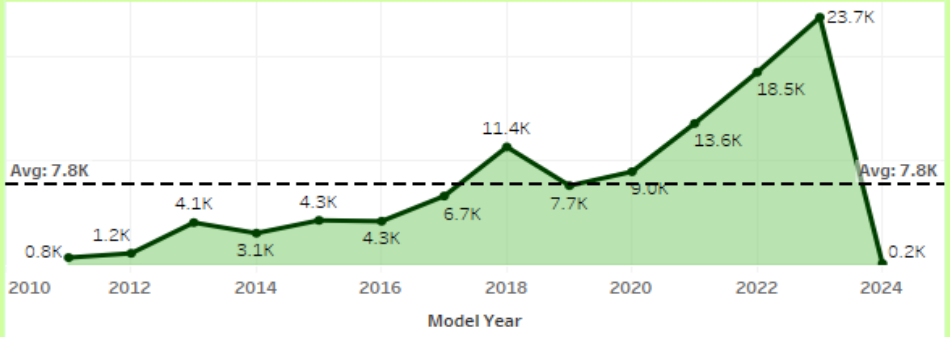
EVType
(All)

Model
(All)

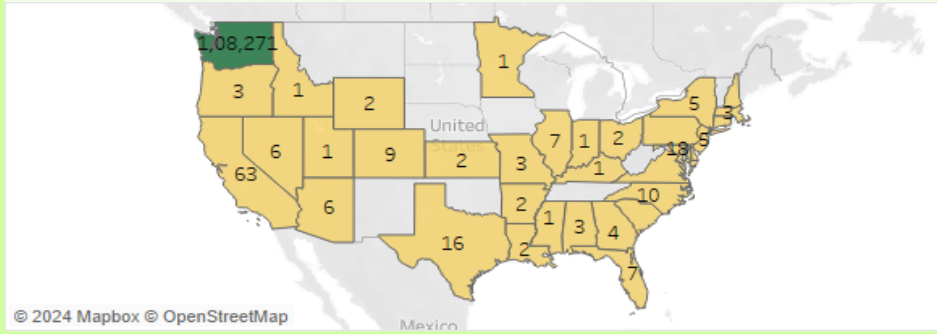
State
(All)

CAFV Eligibility
- Eligible
- Not Eligible
- Unknown

Total Vehicles by Model Year

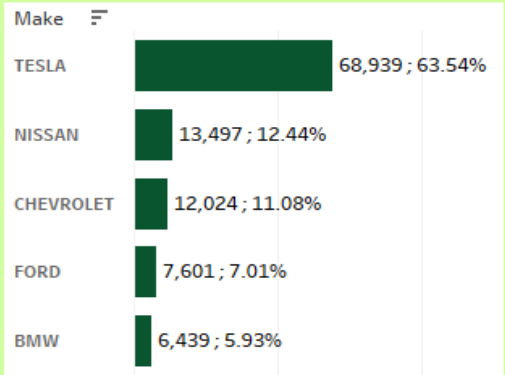


Total Vehicles by State

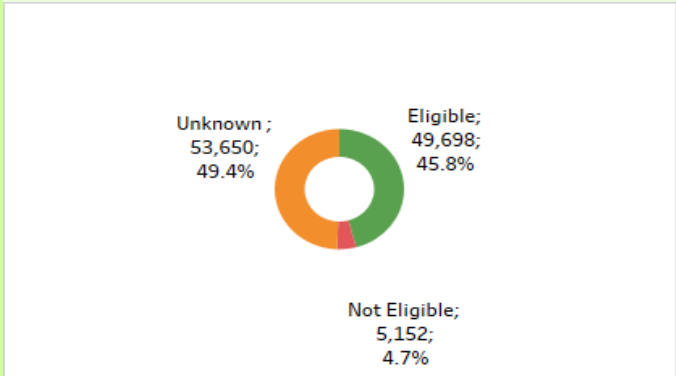


Top 5 EV Manufacturers

Top N: 5



Vehicles by CAFV Eligibility



Total Vehicles by Model

Model	Make	EVType	% of Total	Total
MODEL Y	TESLA	BEV	26.27%	28,501
MODEL 3	TESLA	BEV	25.54%	27,708
LEAF	NISSAN	BEV	12.15%	13,187
MODEL S	TESLA	BEV	7.01%	7,609
BOLT EV	CHEVROLET	BEV	5.28%	5,732
MODEL X	TESLA	BEV	4.71%	5,114
VOLT	CHEVROLET	PHEV	4.51%	4,890
MUSTANG MACH..	FORD	BEV	2.41%	2,619
X5	BMW	PHEV	1.91%	2,068
I3	BMW	BEV	0.55%	592
		PHEV	1.22%	1,325
FUSION	FORD	PHEV	1.60%	1,839

Conclusion

- Total vehicles are 150422 as calculated from 2010 onwards.
- The average electric range is 67.83 miles.
- Out of the total, 77.6% are BEV vehicles forming the majority, which are completely operated on battery, whereas, the PHEV vehicles amount to 22.39% with a total count of 33672.
- Average of total vehicle count over different years is 10.7k. Also, there is rapid increase in the number of electric vehicles post 2020. the sudden dip in the vehicle count in the year 2024 may be due to incomplete data as it is the ongoing year.
- The state-wise distribution of the count of total vehicles indicates that the majority of the dataset may be from the state with the code 'WA' as the count of total vehicles in this state contributes to around 99% of the total vehicle count.

Conclusion

- Among, the manufacturers, Tesla dominates the market with a share of 52.7% in the total vehicles count.
- 41.8% of vehicles possess CAFV eligibility, whereas for a major chunk of 46.3%, the battery range has not been researched and hence fall in the category of unknown CAFV eligibility.
- The models MODEL Y, MODEL 3 AND LEAF from Tesla and Nissan amount to 45% of the total vehicles and are of BEV type.