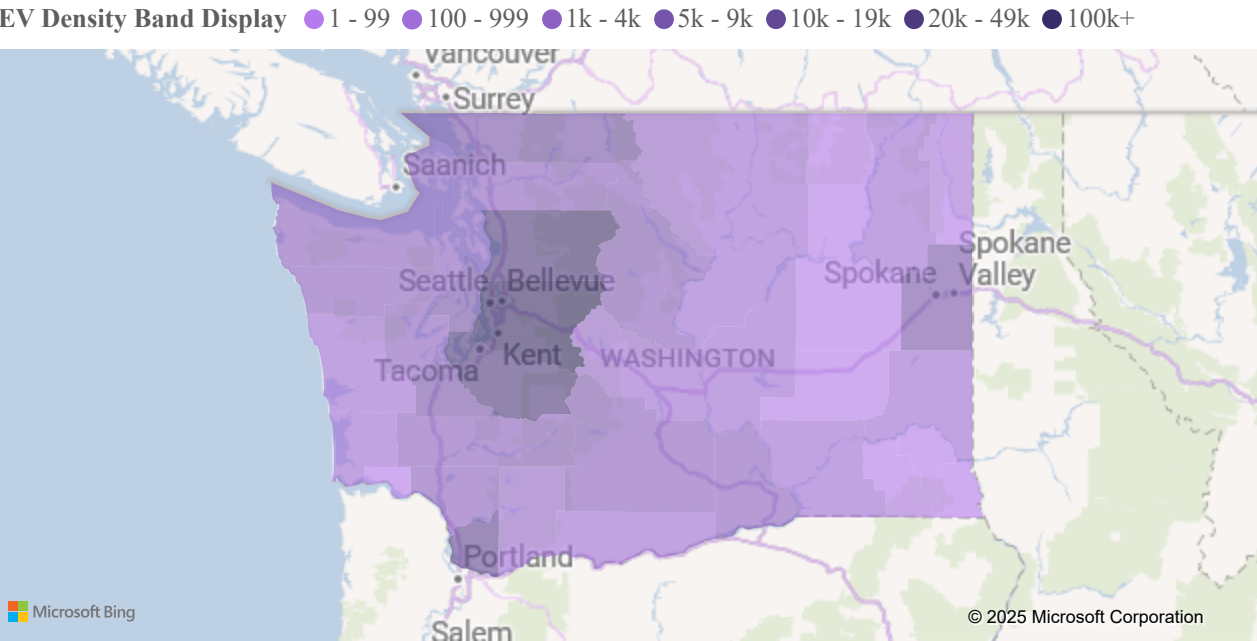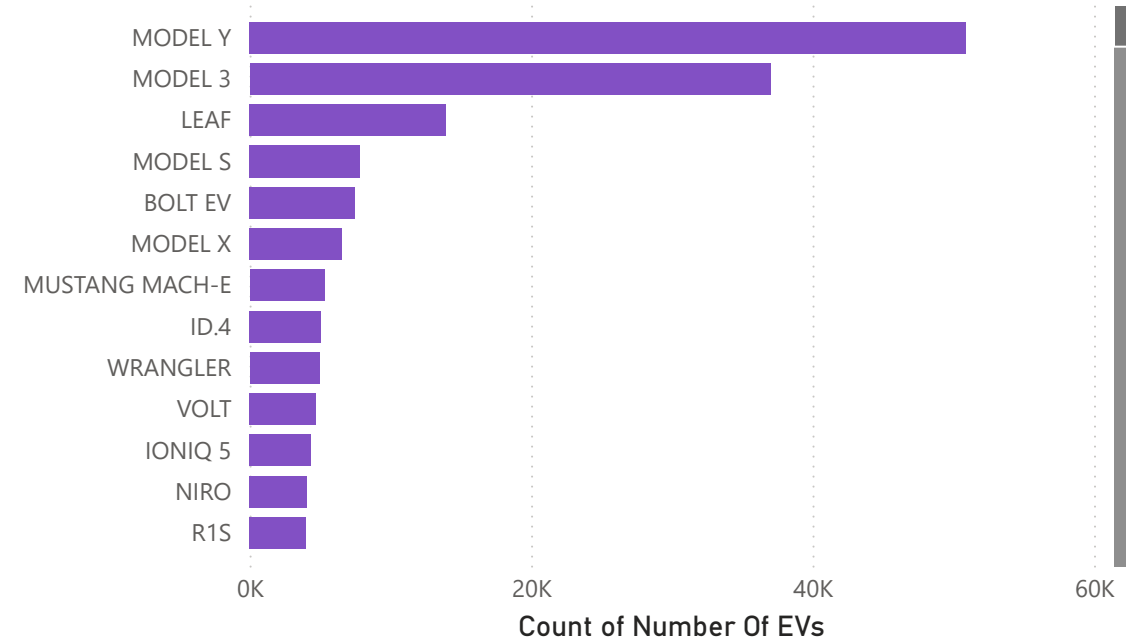# Overview of Electric Vehicle Adoption Analysis In The State Of Washington, United States of America
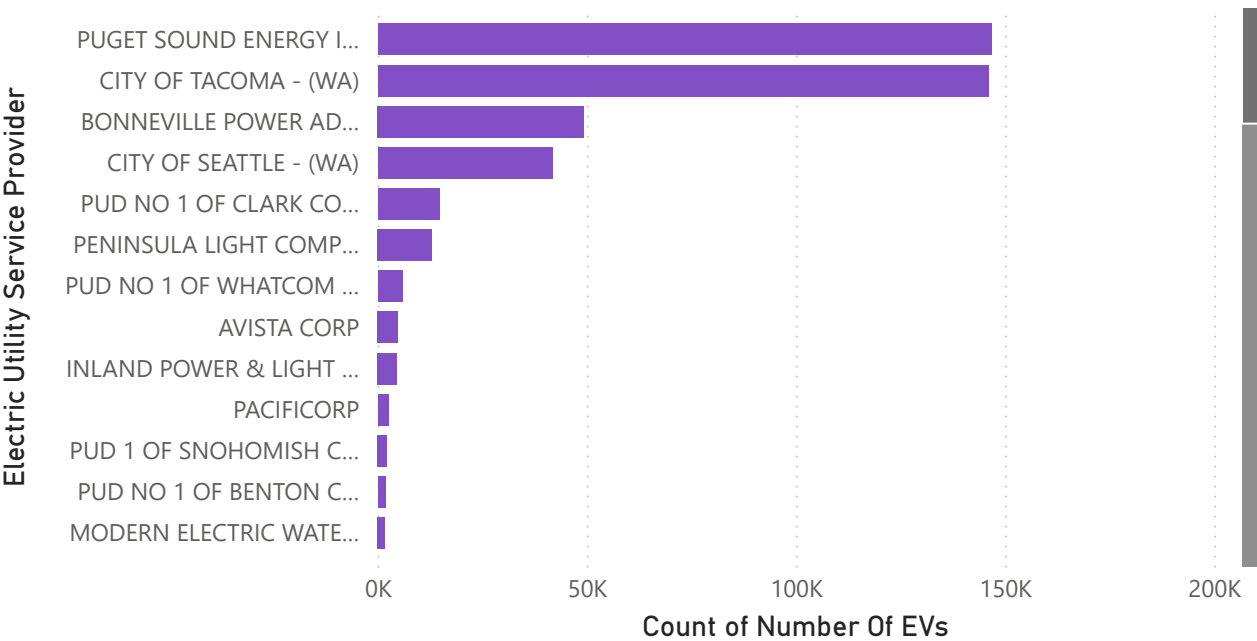
Density of vehicles per county in the state if Washington
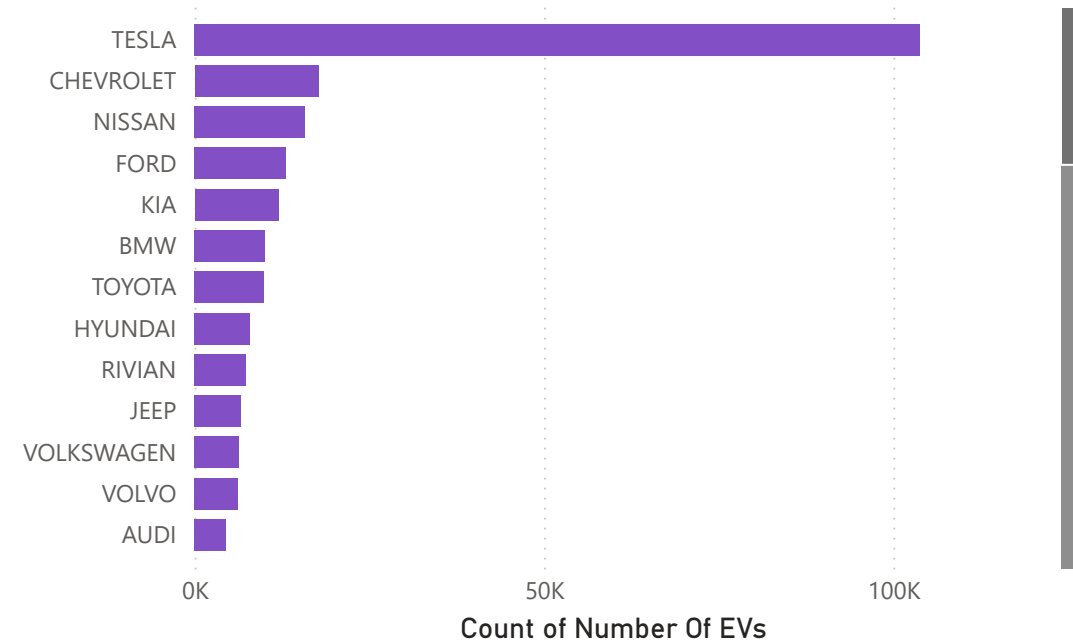
EV Density Band Display: 1 - 99 | 100 - 999 | 1k - 4k | 5k - 9k | 10k - 19k | 20k - 49k | 100k+

EV Model Distribution

Utility Service Providers Distribution

EV Manufacturer Distribution

Count of Number Of EVs

245.59K

The **total number of Electric Vehicles** in the dataset.
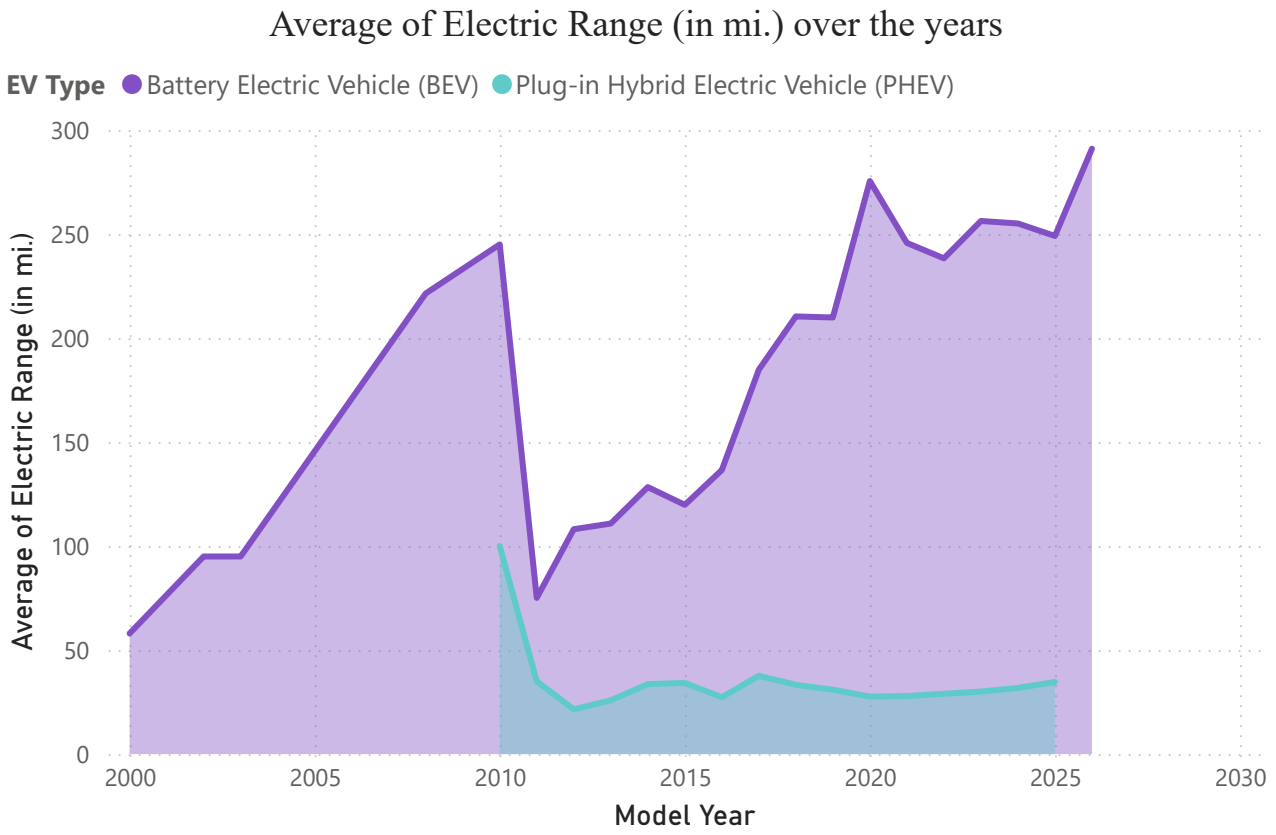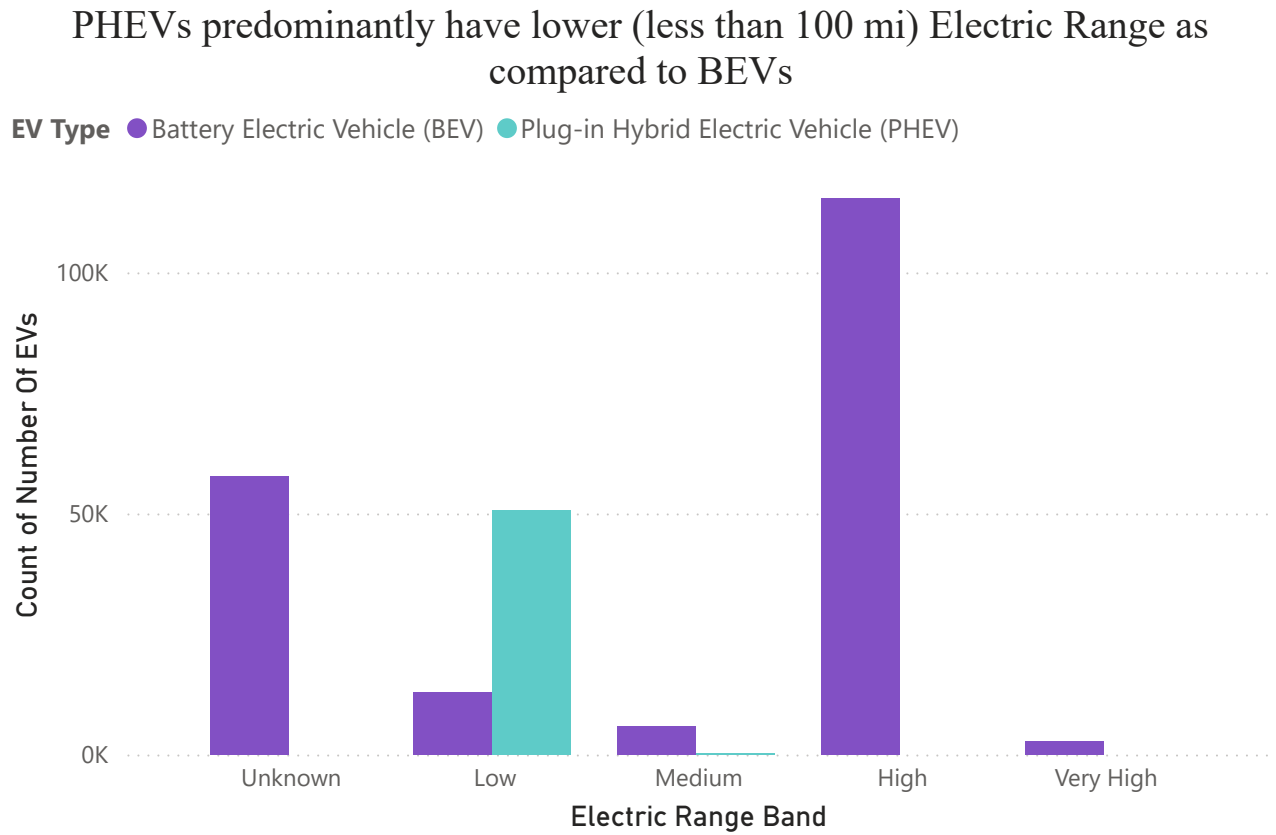

CAFV Eligible %

30.60%

CAFV- Clean Alternative Fuel Vehicle
Eligibility status for clean alternative fuel vehicle programs.


Battery Electric Vehicle %

79.00%

Percentage of Battery Electric Vehicles in the dataset.

PHEVs predominantly have lower (less than 100 mi) Electric Range as compared to BEVs

EV Type ● Battery Electric Vehicle (BEV) ● Plug-in Hybrid Electric Vehicle (PHEV)

Average of Electric Range (in mi.) over the years

EV Type ● Battery Electric Vehicle (BEV) ● Plug-in Hybrid Electric Vehicle (PHEV)

- BEVs significantly outperform PHEVs in electric-only range, though the consistent PHEV values highlight better reporting quality for hybrid models.
- The EVs have certainly clear upward trend in electric range, showing major improvements in battery efficiency.

Tesla leading in Average Electric Range

EV Type ● Battery Electric Vehicle (BEV) ● Plug-in Hybrid Electric Vehicle (PHEV)
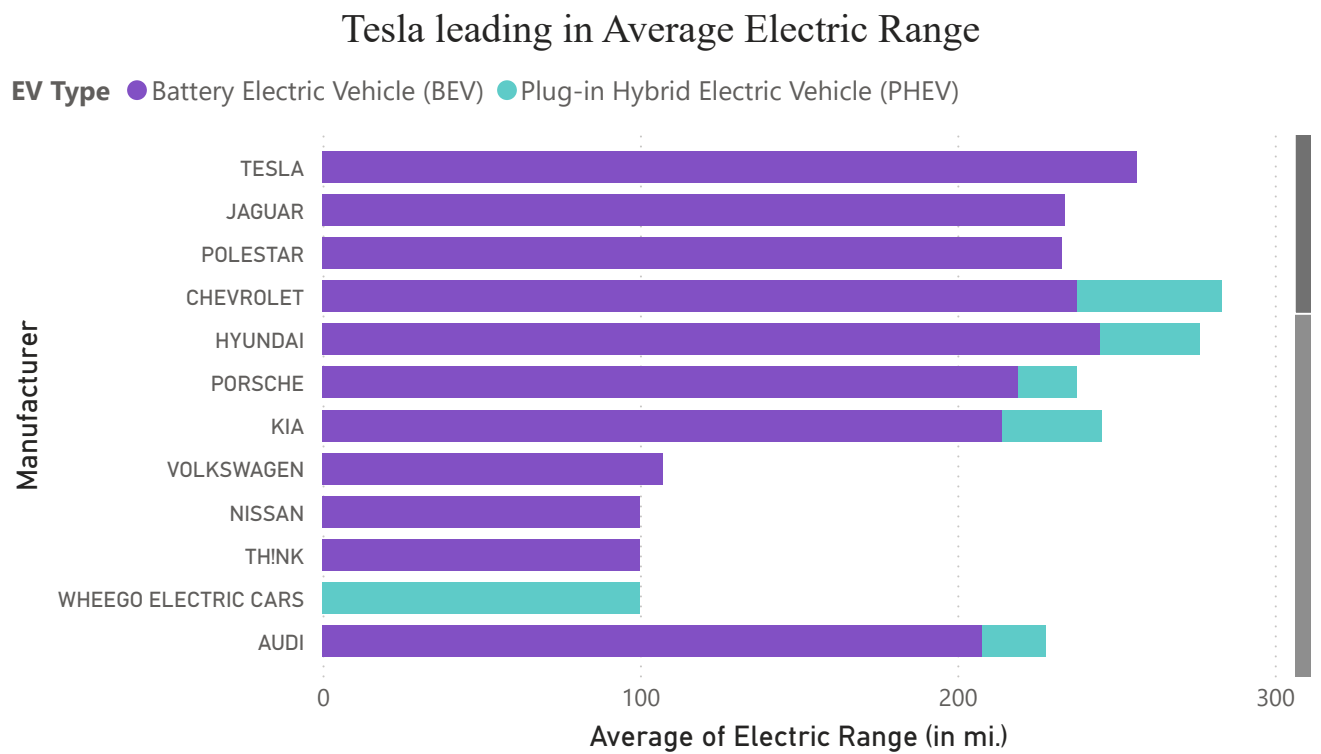
Missing Electric Range %

23.40%

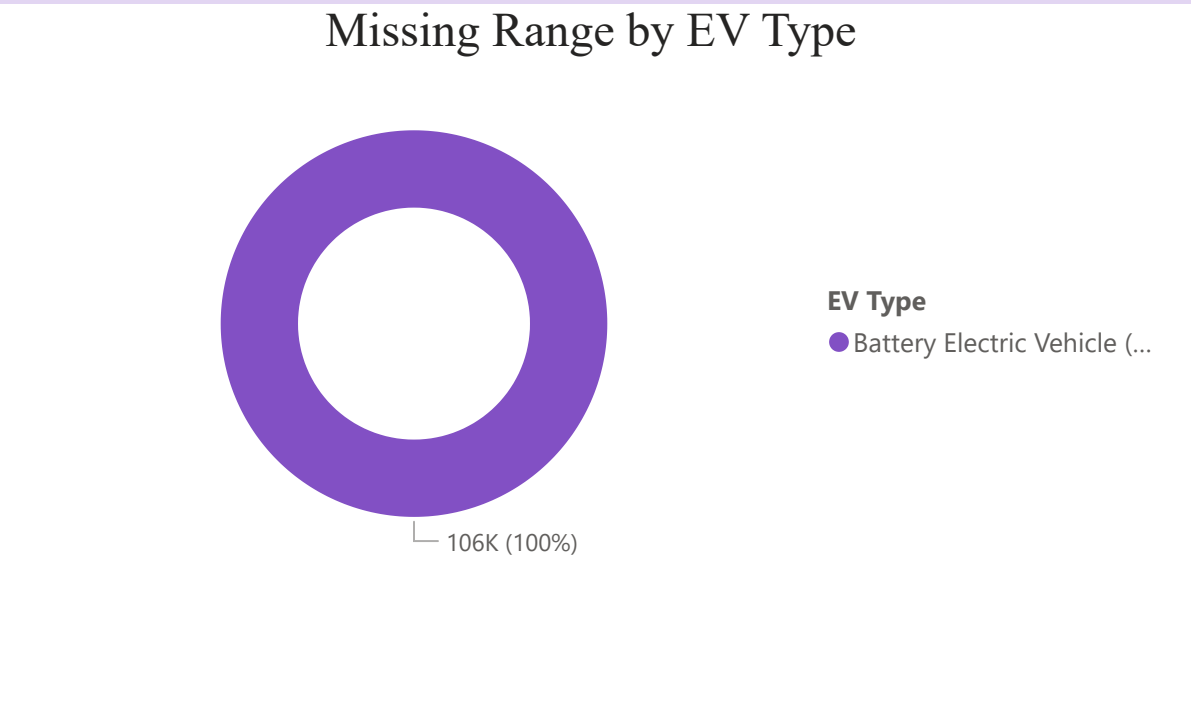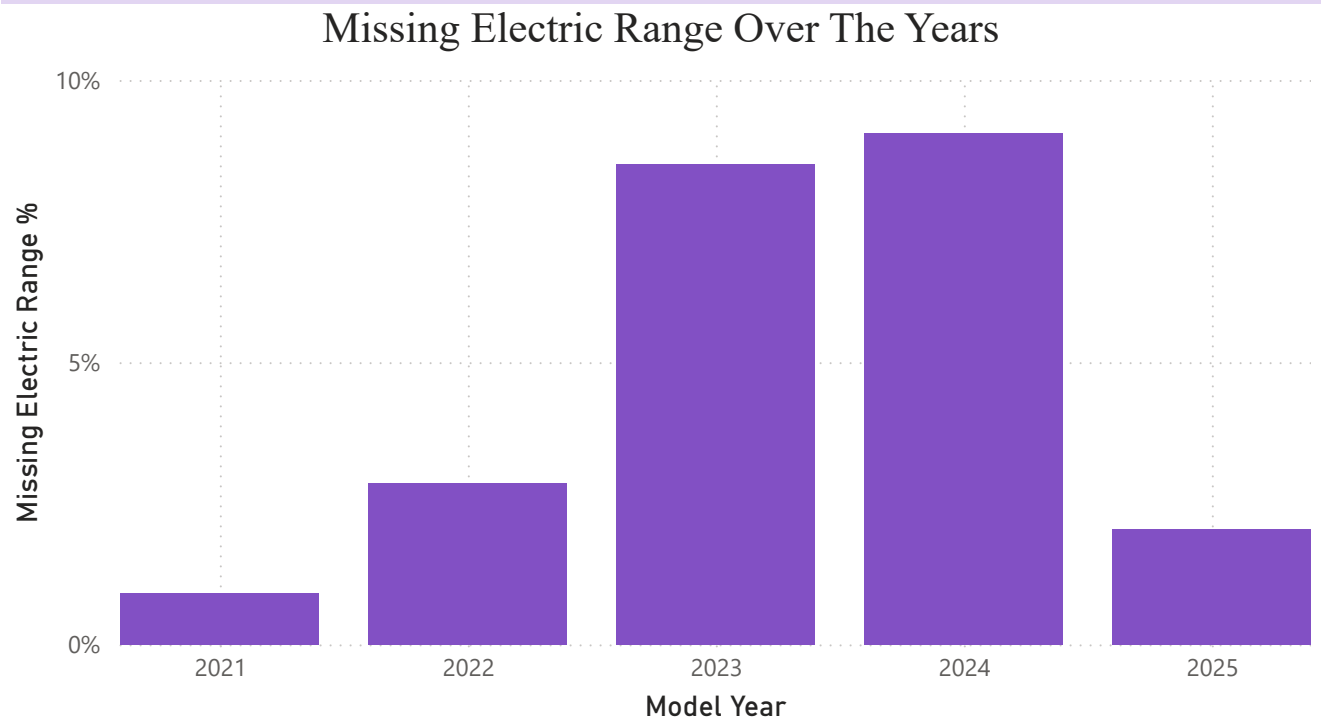The missing values of the maximum range of the vehicle on a single charge (in miles).

- A sharp spike in missing range data appears after **2021**. This likely reflects incomplete data for **newer vehicles** or delays in manufacturer reporting
- **Rivian** is one key example.

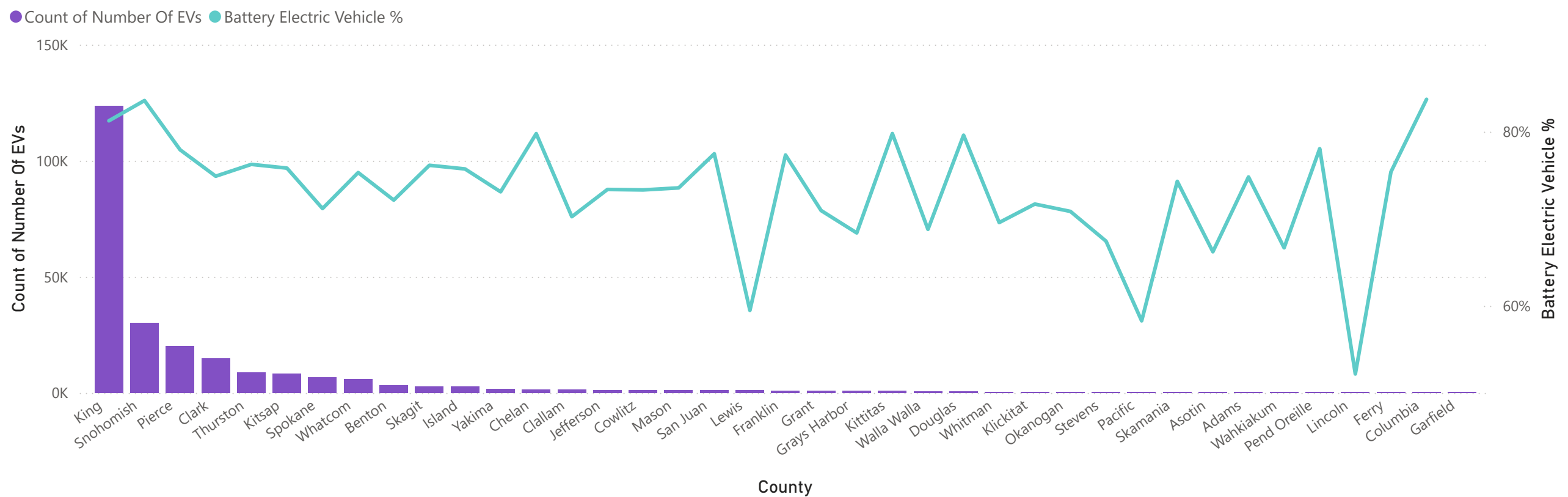- Interestingly, every **Plug-in Hybrid Electric Vehicle (PHEV)** in the dataset has a **known** electric range.
- All **missing** range values are associated only with **Battery Electric Vehicles (BEVs)**.
- This tells us that range reporting for **PHEVs is more standardized or consistent.**
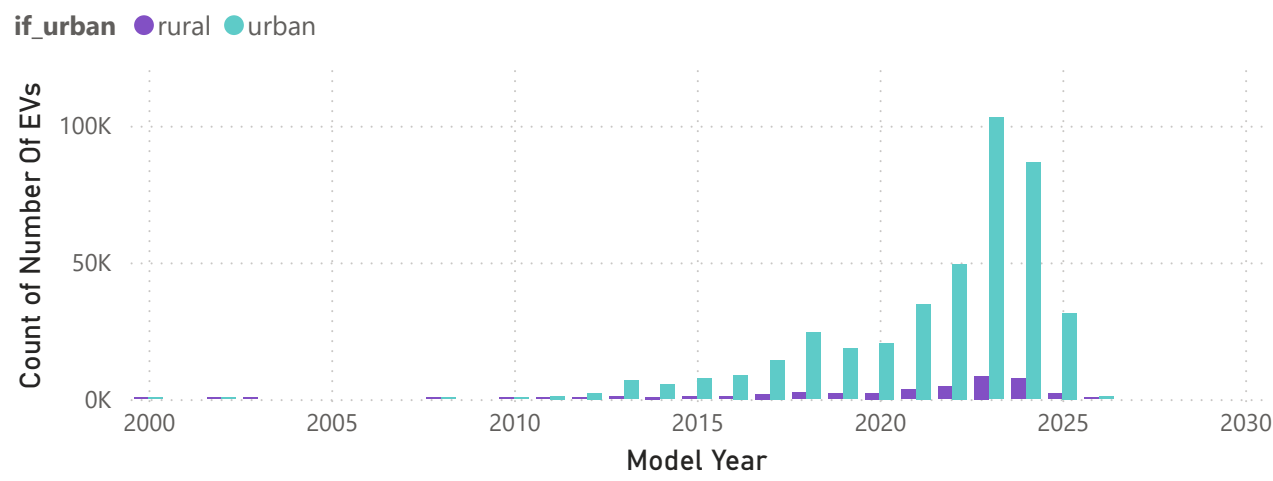
Missing Electric Range Over The Years

Missing Range by EV Type

EV Type
● Battery Electric Vehicle (...

106K (100%)

Distribution of EVs across state and BEV %

- Count of Number Of EVs
- Battery Electric Vehicle %

Y-axis (left): Count of Number Of EVs — 0K, 50K, 100K, 150K
Y-axis (right): Battery Electric Vehicle % — 60%, 80%

X-axis (County): King, Snohomish, Pierce, Clark, Thurston, Kitsap, Spokane, Whatcom, Benton, Skagit, Island, Yakima, Chelan, Clallam, Jefferson, Cowlitz, Mason, San Juan, Lewis, Franklin, Grant, Grays Harbor, Kittitas, Walla Walla, Douglas, Whitman, Klickitat, Okanogan, Stevens, Pacific, Skamania, Asotin, Adams, Wahkiakum, Pend Oreille, Lincoln, Ferry, Columbia, Garfield
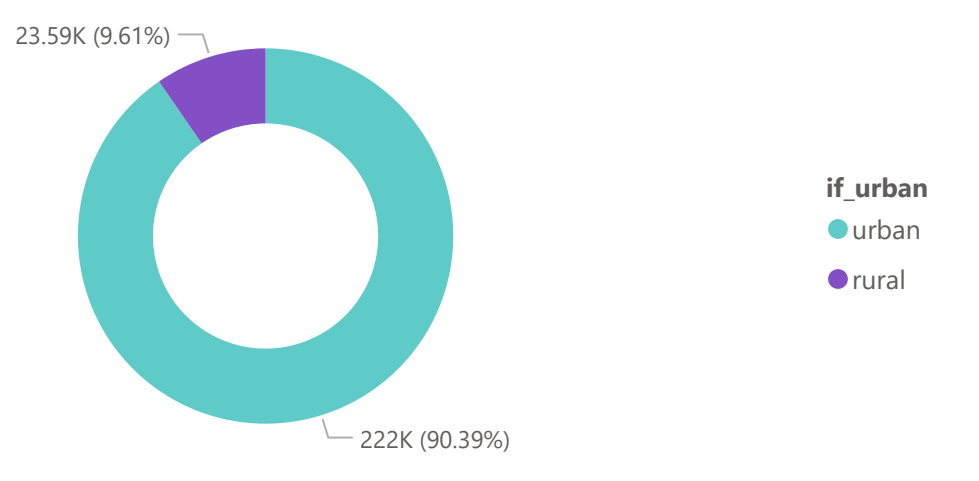
Rural EV adoption follows a similar **growth trajectory** to urban areas, though at a smaller scale, pointing at shared exposure to market trends There's a higher BEV adoption in rural counties like **Columbia** as compared to some other urban counties.
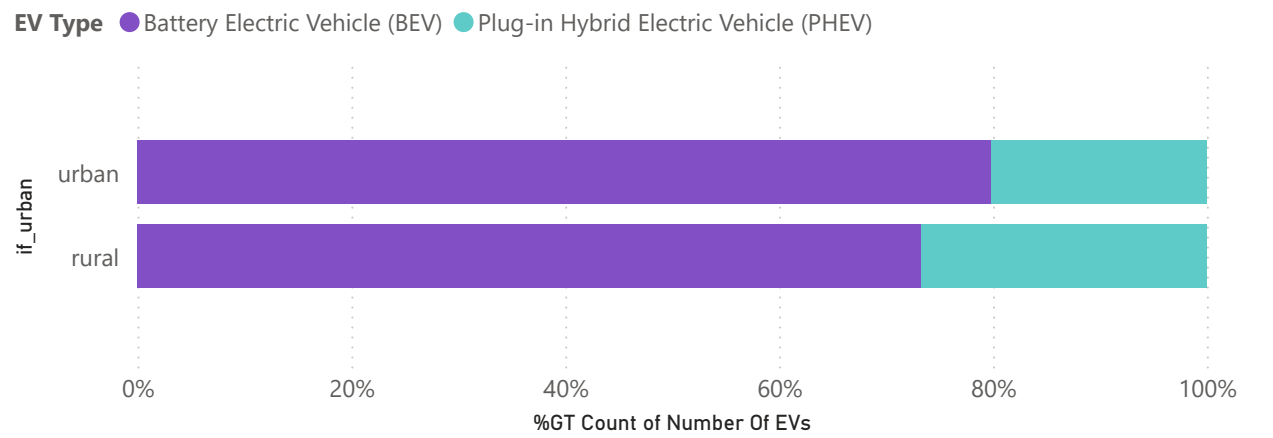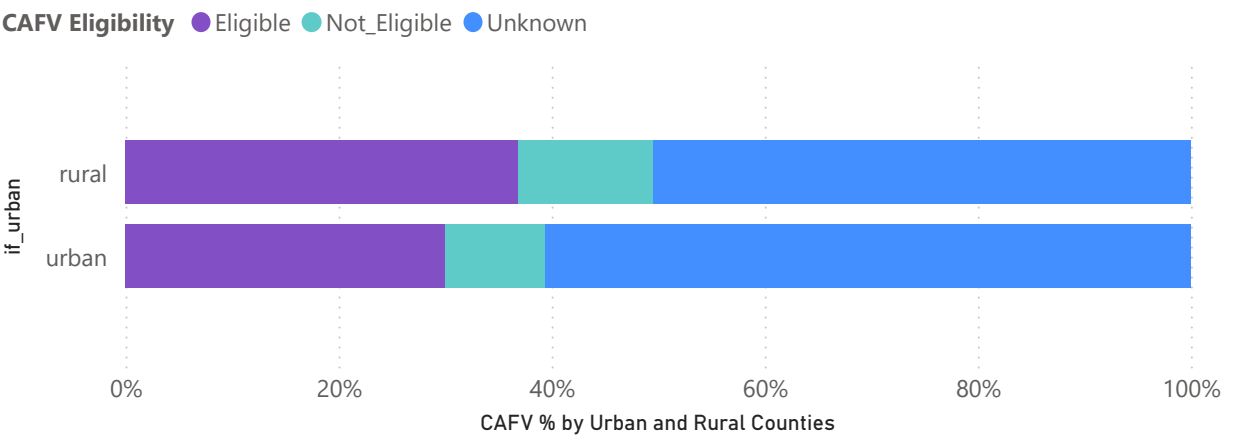
Distribution of EVs over the years

if_urban ● rural ● urban

Y-axis: Count of Number Of EVs — 0K, 50K, 100K
X-axis: Model Year — 2000, 2005, 2010, 2015, 2020, 2025, 2030

Distribution of EV in urban vs rural counties

23.59K (9.61%)
222K (90.39%)

if_urban
● urban
● rural

EV types as adopted by Urban and Rural counties

EV Type ● Battery Electric Vehicle (BEV) ● Plug-in Hybrid Electric Vehicle (PHEV)

Y-axis: if_urban — urban, rural
X-axis: %GT Count of Number Of EVs — 0%, 20%, 40%, 60%, 80%, 100%

CAFV eligibility In Rural and Urban Counties

CAFV Eligibility ● Eligible ● Not_Eligible ● Unknown

Y-axis: if_urban — rural, urban
X-axis: CAFV % by Urban and Rural Counties — 0%, 20%, 40%, 60%, 80%, 100%
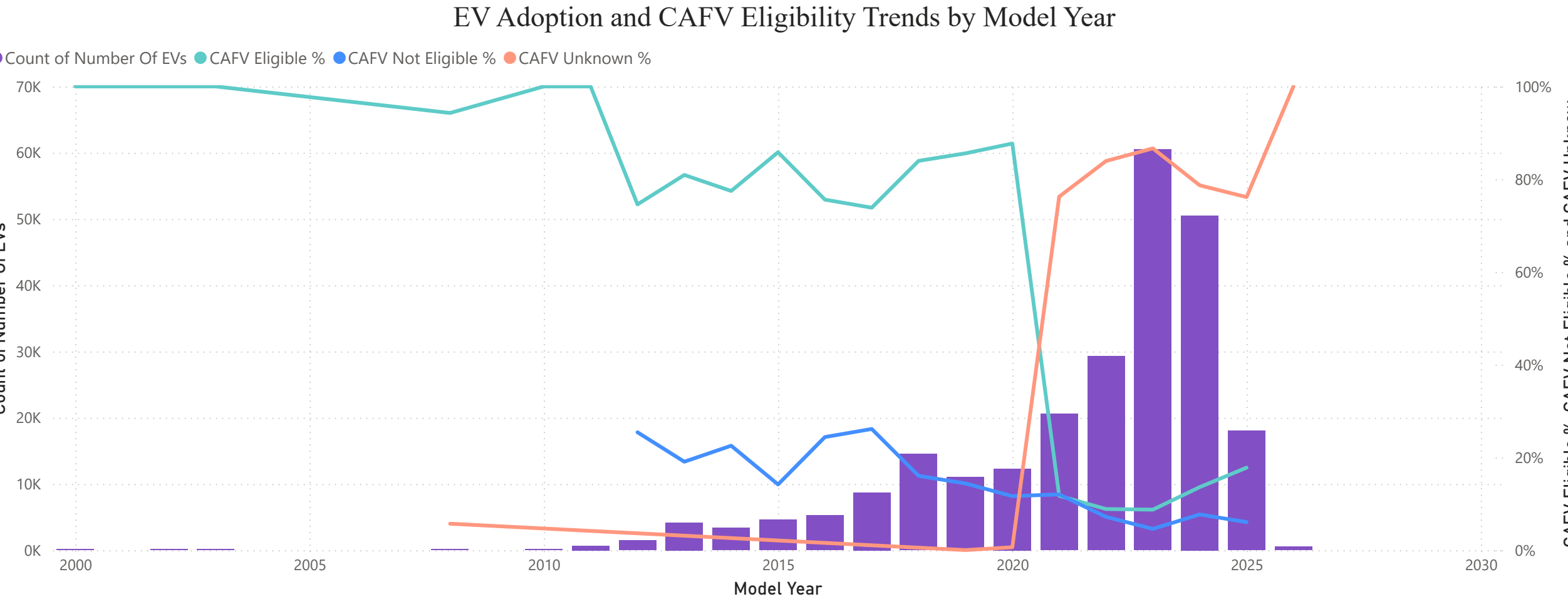
Rural areas show slightly lower average EV ranges. This could reflect slower adoption of **newer, long-range BEVs** or data gaps in specific models.

Average Electric Range in Urban and Rural Counties

Y-axis: if_urban — urban, rural
X-axis: Average of Electric Range (in mi.) — 0, 50, 100, 150
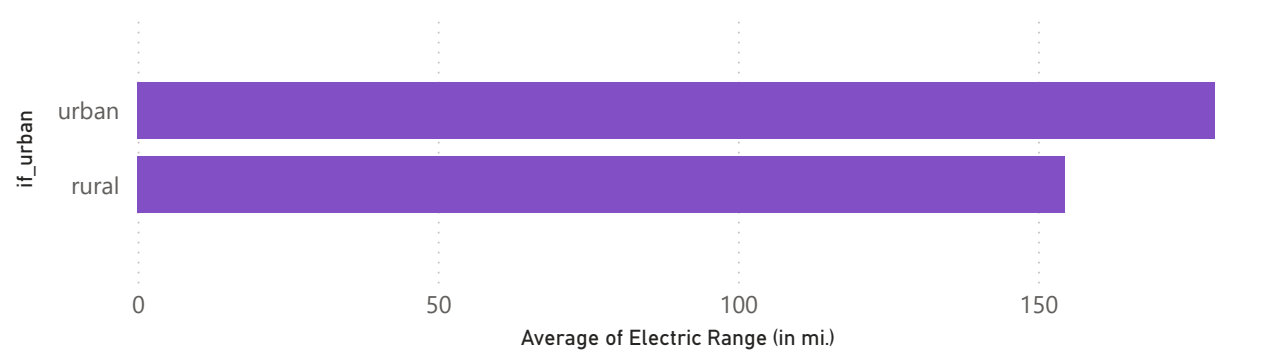
CAFV eligibility is slightly **lower in rural counties**, and a larger share of vehicles have missing or unknown eligibility status.

- EV adoption in Washington remains **largely urban-driven**. Rural regions lag not only in volume but in **range** and **CAFV eligibility**.
- This geographic divide could be critical in planning future EV incentives and infrastructure.

EV Adoption and CAFV Eligibility Trends by Model Year

● Count of Number Of EVs ● CAFV Eligible % ● CAFV Not Eligible % ● CAFV Unknown %

CAFV eligibility peaked in 2020 at **87.7%**, but dropped sharply in 2021 to just **11.7%**, while the share of vehicles with unknown eligibility surged to **76.24%**. This raises concerns about declining policy compliance or incomplete reporting in newer models.

CAFV Unknown %

59.68%

CAFV eligibility is unknown for nearly 60% of vehicles in the dataset, limiting the reliability of policy-aligned conclusions.

CAFV Eligibility Across Top 10 Manufacturers (By EV count)

● CAFV Eligible % ● CAFV Not Eligible %

BEVs tend to have CAFV eligible programs available as compared to PHEVs.
CAFV eligibility varies widely across utility service providers. Some regions are better aligned with policy compliant EVs, while others have higher proportions of vehicles with unknown or ineligible status.
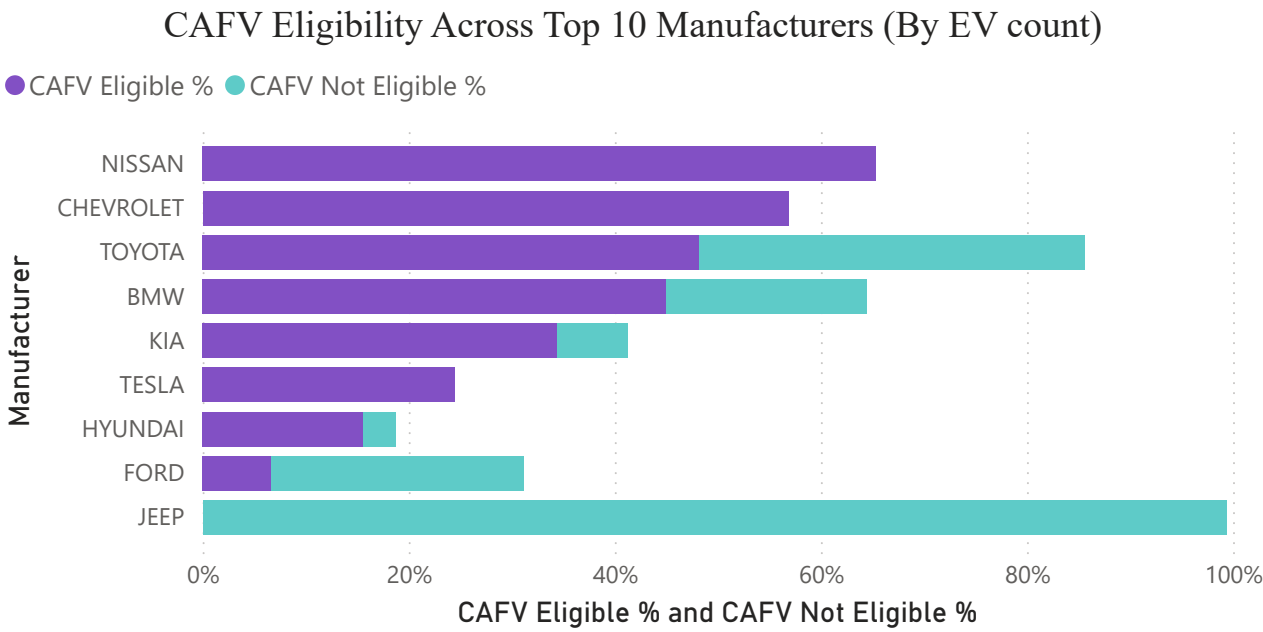
Manufacturers like **Nissan** and **Chevrolet** have higher proportions of **CAFV-eligible vehicles**, while others like **Ford** and **Jeep** show more variance or lower compliance. This reflects differing strategies in targeting state-level policy benefits

CAFV Eligibility by Leading Electric Utility Services

● CAFV Eligible % ● CAFV Not Eligible %

Relation between EV type and CAFV

CAFV - Clean Alternative Fuel Vehicle

EV Type ● Battery Electric Vehicle (BEV) ● Plug-in Hybrid Electric Vehicle (PHEV)