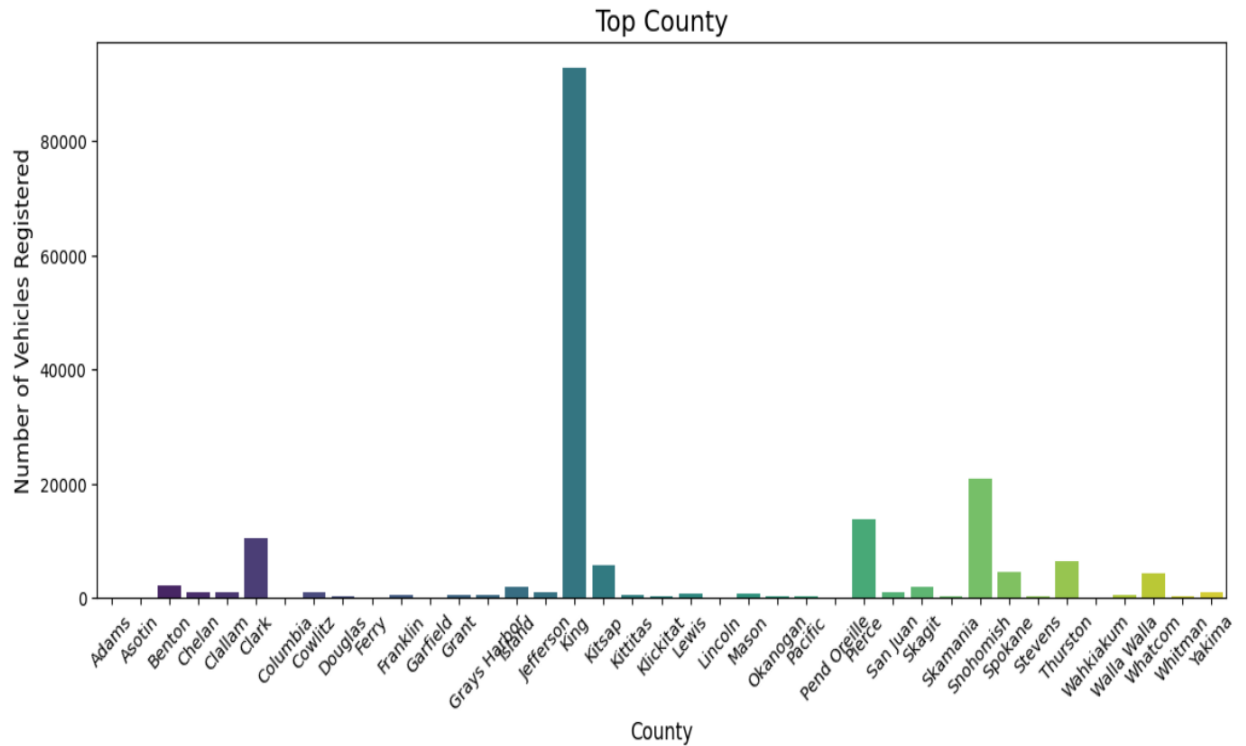# Electric Vehicles Market Size Analysis

Insight 01:

Analyzing the EV Adoption over Time by visualizing the number of EVs registered by County. It will give us an insight into how the EV population has grown over the years.


Top County

Summary:

From the above bar chart, it's clear that EV adoption has been Fluctuating. The graph shows an in King country is highest on the graph. Skamania country is low as per king county.

Insight 02:

Analyzing the Where was the maximum growth trend of EV production in model by visualizing the number of EVs registered by Model.


Growth Trend of Electric Vehicle By Model
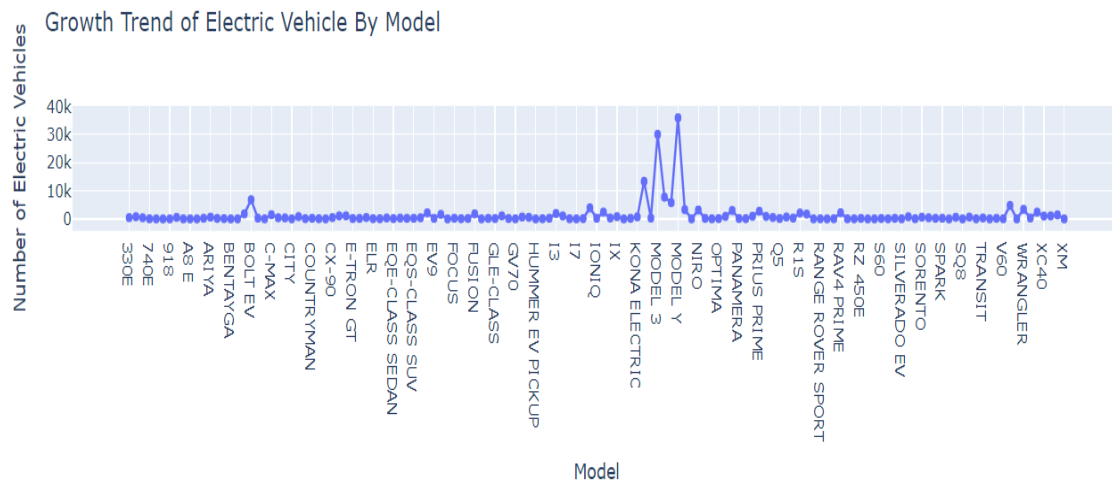
Summary:

From the above bar chart, it's clear that EV adoption has been increasing over time, especially noting a significant upward trend starting around Model 3. Model Y is the highest on the graph, indicating a peak in EV adoption.
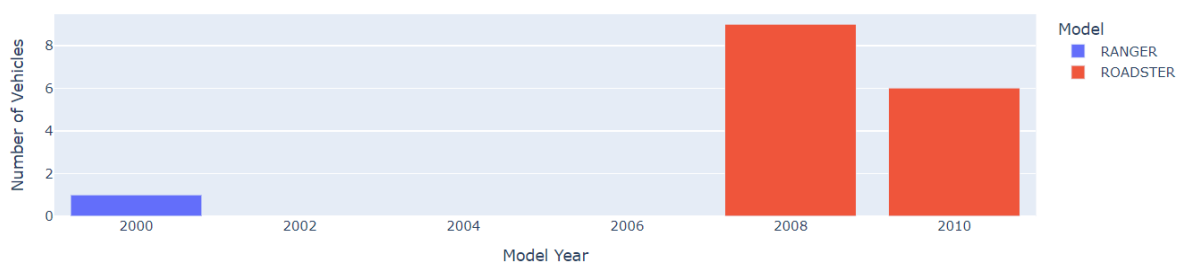
Insight 03:

What were the EV production trends in Seattle, Issaquah and Pacific from 1997 to 2010?

Where was the maximum EV production from these 3 King countries?

Comparison of Electric Vehicle Models (1997 to 2010)
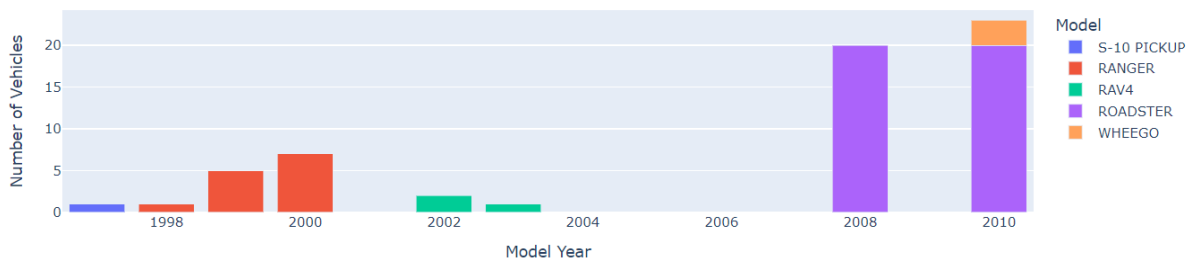
Comparison of Electric Vehicle Models (1997 to 2010) in Seattle, Issaquah, and Pacific

Summary:

In overall data 2010 Production of Roadster was less than the wheego. In 2010 EV production of roadster was below 6 EV production as compare of 2008

Insight 04:

Geographical Distribution: Understand where EVs are most registered (e.g., by county or Electric Vehicle Type).

Top Cities in top counties by EV Registrations
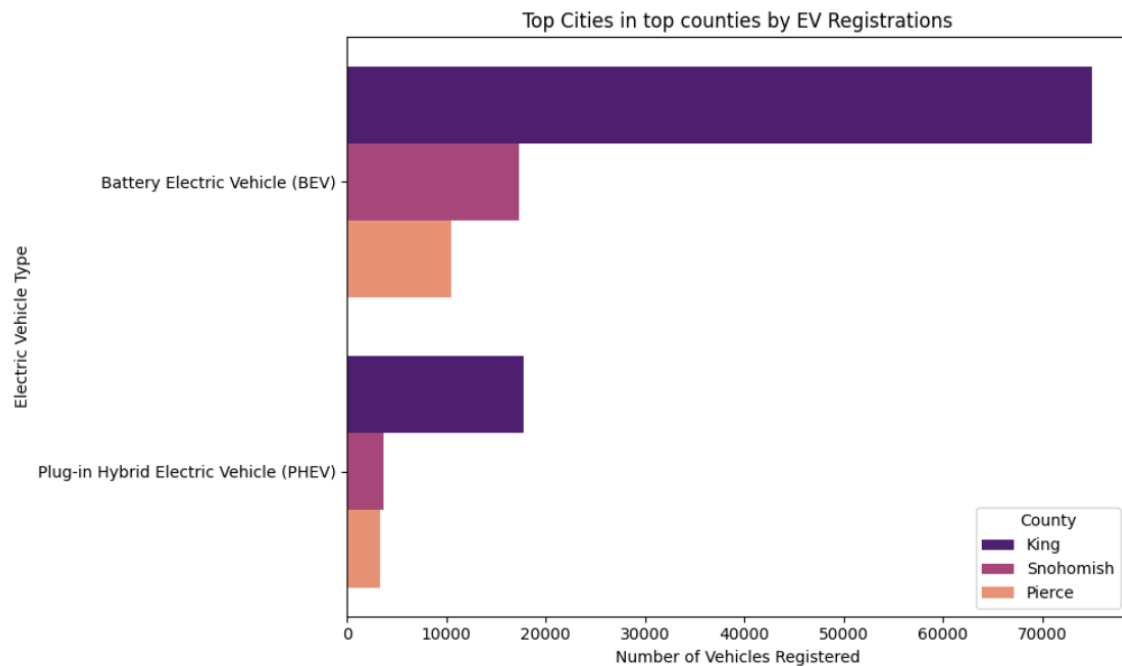
Summary:

The above graph compares the number of electric vehicles registered in various cities within three counties: King, Snohomish, and Pierce. The horizontal bars represent cities; their length corresponds to the number of vehicles registered, color-coded by county. Key findings from the above graph.

1. BEV which is in King County, has the highest number of EV registrations by a significant margin, far outpacing the other cities listed.

2. Also in Snohomish County, BEV with the subsequent highest registrations, though these are considerably less than king.

3. Pierce county, have the fewest EV registrations among the EV types listed.

4. Overall, the graph indicates that EV adoption is not uniform across the cities and is more concentrated in certain areas, particularly in King County.

Insight 05:

Understand the distribution of electric vehicle model by year.

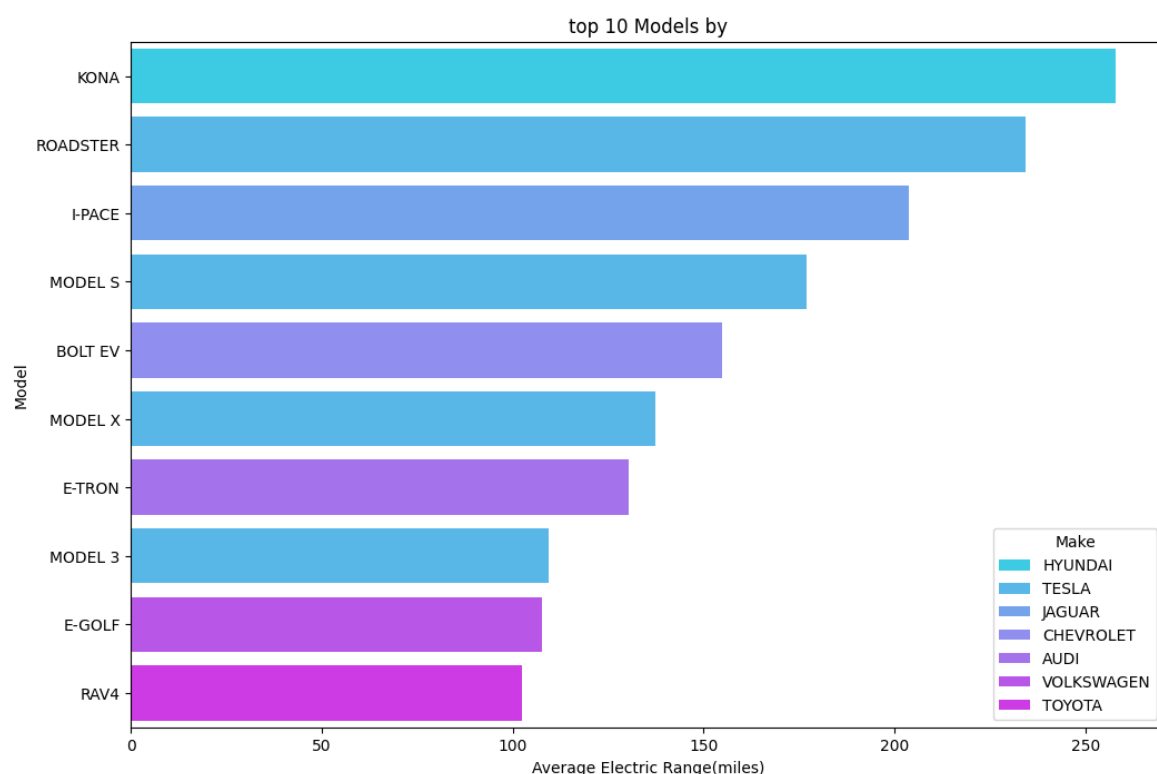Distribution of Model Years
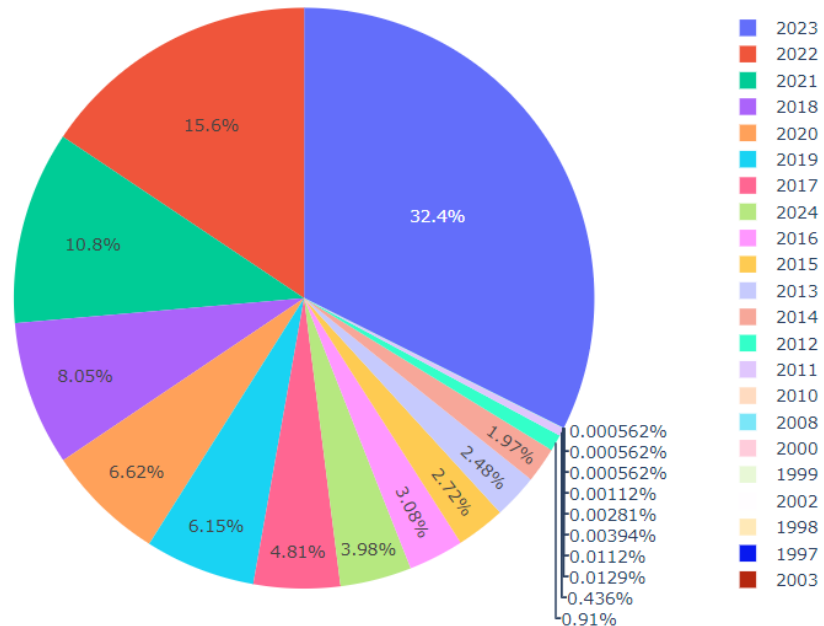
Summary:

A pie chart showing the proportion of each electric vehicle model year.

The above graph compares the number of electric vehicles registered in yearly. The pie chart shows highest number 32.4% in 2023 EV registration. Their length corresponds to the number of vehicles registered, color-coded by Year.

1. 2023 has the highest number 32.4% of EV registrations by a significant margin, far outpacing the other year listed.

2. 2022 has the 15.6% is subsequent highest registrations, though these are considerably less than 2023.

Insight 06:

How electric ranges vary among the top manufacturers and models. This analysis can reveal how different manufacturers are addressing the crucial aspect of electric range and highlight which models stand out for their superior range capabilities:
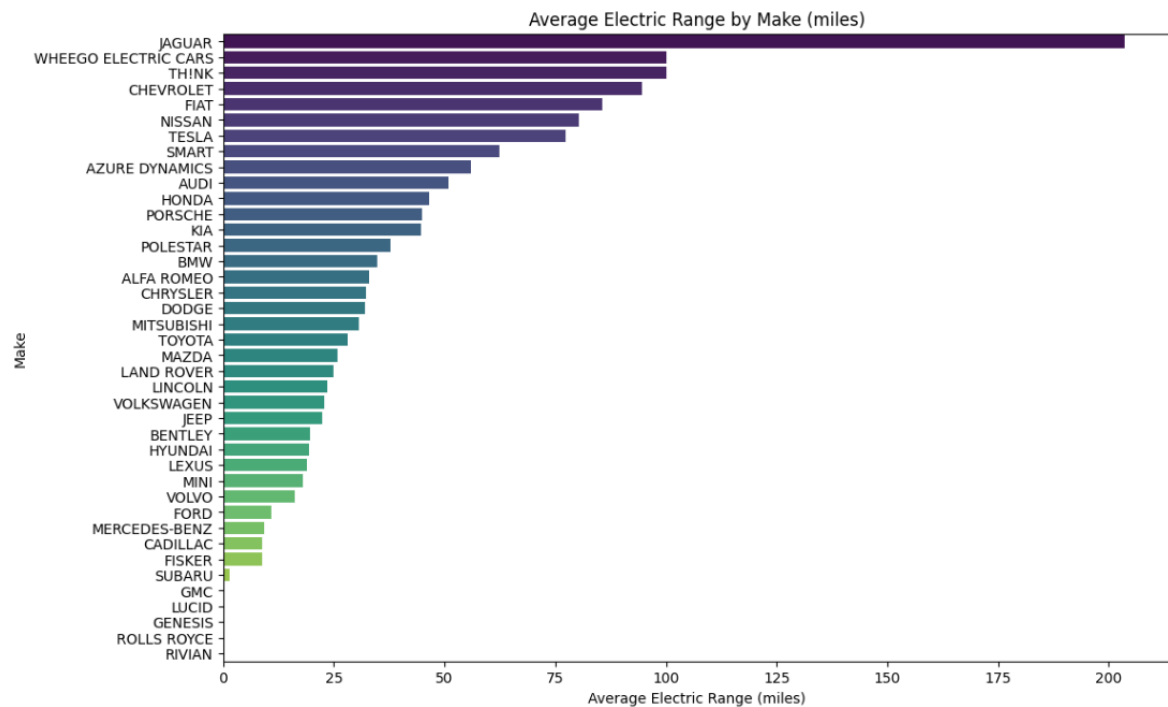

Con:

The above graph shows the distribution of electric vehicle registrations among different models from the top three manufacturers: HUUNDAI, TESLA, JAGUAR and CHEVROLET. Here are the findings:

The HUNDIA KONA has the highest average electric range among the models listed. HUNDIA's models (MODEL S, MODEL X, and MODEL 3) occupy the majority of the top positions, indicating that on average, HUNDIA's vehicles have higher electric ranges.

The TESLA ROADSTER has the second highest average electric range among the models listed. The CHEVROLET BOLT EV is an outlier among the CHEVROLET models, having a substantially higher range than the JGUAR from the same maker.

Insight 07:

Identify which manufacturers offer electric vehicles with the longest average Electric Range.

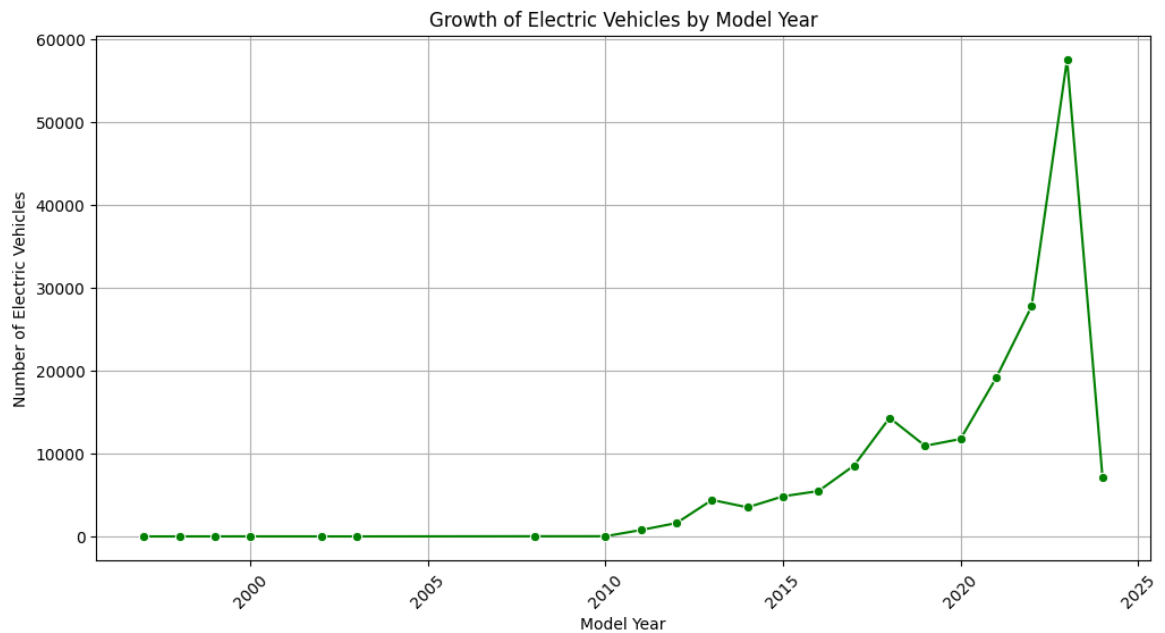Average Electric Range by Make (miles)

Summary:

A bar plot showing the average electric range for each manufacturer.

The above graph shows the distribution of electric vehicle registrations among different models from the top three manufacturers: JAGUAR, WHEEGO ELECTRIC CARS, and THINK. Here are the findings:

The JAGUAR has the highest average electric range among the models listed.it is far outpacing the other year listed.

Insight 08:

Analyse how the number of electric vehicles has changed over the years.

Growth of Electric Vehicles by Model Year

Summary:

A line graph showing the number of electric vehicles registered by model year.

- **Average Electric Range**: This analysis helps identify manufacturers that prioritize long-range vehicles, crucial for consumer choice and market positioning.
- **Vehicle Type Distribution**: Understanding the share of different electric vehicle types informs trends in consumer preferences and market strategies.
- **Growth Over Time**: Tracking electric vehicle growth is essential for assessing market expansion and the impact of regulations or incentives.

Insight 09:

Analyze how the electric range varies across different manufacturers.you could create a box plot to show the distribution of **Electric Range** across different **Makes** or **Models**. This will help highlight the median, quartiles, and potential outliers in electric ranges for each vehicle category.

Box Plot of Electric Range by Model Year
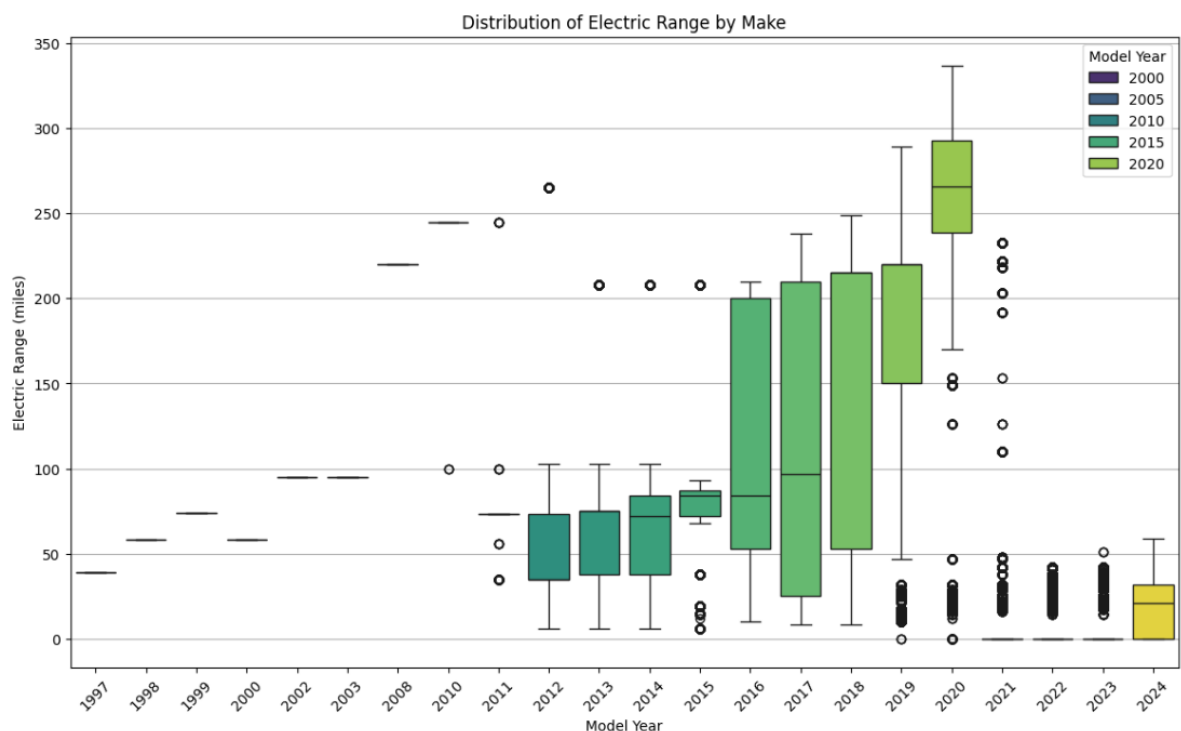
Summary:

A box plot is an excellent way to visualize the distribution of a continuous variable across different categories. For your electric vehicle dataset.

This visualization is helpful for identifying which makes have higher average ranges and where significant variability exists.

Insight 10:

Analyse the distribution of electric ranges to understand the most common ranges among electric vehicles. which is a critical factor for analyzing the market size of electric vehicles. The electric range indicates how far an EV can travel on a single charge, and advancements in battery technology have steadily increased these ranges over the years.
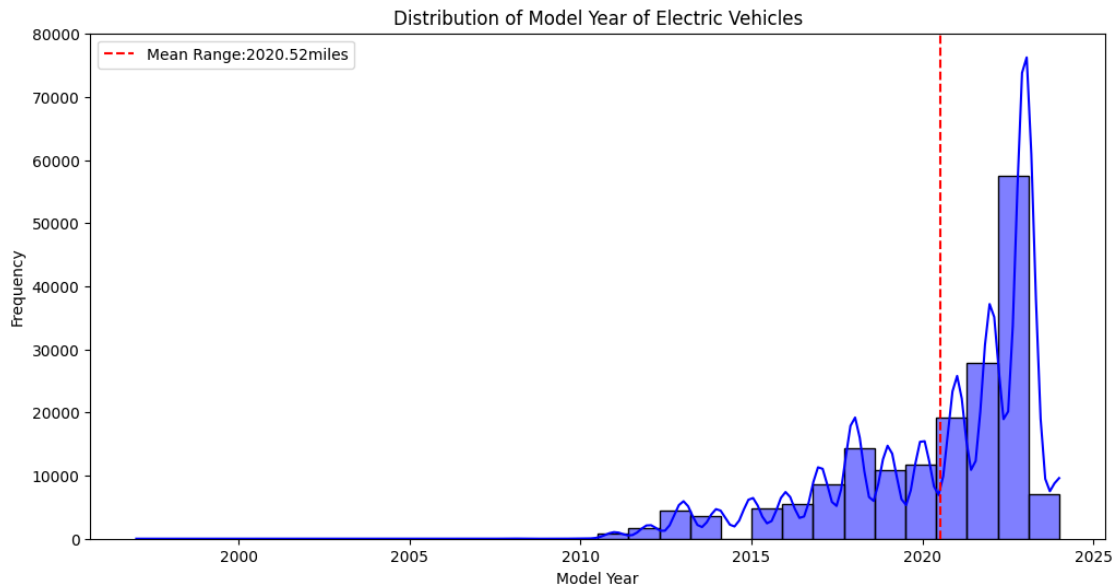
- The histogram will provide a clear visualization of how electric ranges are distributed across the dataset, highlighting any common ranges, gaps, or outliers.

- There is a high frequency of vehicles with a low electric range, with a significant peak occurring before 2020.
- The distribution is skewed to the right, with a long higher ranges, although the number of vehicles with higher ranges is much less frequent.
- The mean electric range for this vehicle set is approximately 2020 year, which is relatively low compared to the highest ranges shown in the graph.
- It suggests that while Evs are available with high electric ranges, the average range is skewed lower due to a substantial number of vehicles with shorter ranges.