# change vehicles to 2022 for standardize

# Electric Vehicle Report Introduction

Electric Vehicles (EVs) are revolutionizing transportation as a fossil free environmental alternative to traditional gas-powered vehicles. Understanding the trends and challenges of EV adoption and charging infrastructure is crucial for local policymakers. This report provides: • A comprehensive analysis of EV sales by city and county (focusing on Contra Costa County), featuring interactive graphs standardized by the total number of cars in each respective city and county • Detailed information on EVs and EV chargers in each city, including a map of public charger locations, a chart of most the popular models, and highlight the federal electric bus program, which is driving the transition to zero-emission buses. • Graphs on key factors related to the EV landscape are also included: the average cost of ownership, car fires, and well-to-wheel emissions. These factors, offer a holistic view of the EV landscape in California and empowers readers to make informed decisions about the future of sustainable transportation.

All data used is sourced from publicly available datasets, ensuring transparency and accountability.

# Contra Costa County - City Electric Transportation Rankings

Rankings are the culmination of three factors: 1. EV sales in each city standardized by the number of vehicles registered in each city 2. The number of Public EV charging stations in each city also Standardized by number of vehicles registered in each city. 3. Bonus points were awarded to Brentwood for participating in the California Energy Commissions EV Bus program

## ZEV sales for each city Standardized by number of cars registered in the city

The presented graph displays a ranking of 2022 Zero Emission Vehicle (ZEV) car sales, standardized by the number of cars in each city. The data used for this graph was sourced from the California Energy Commission (CEC)

## Charging Stations per car registered in each city

This graph ranks the cities of Contra Costa County on the number of Charging stations per car in their city. Data collected from the Alternate fuel database. Note only public charging stations were used in this analysis.

## CEC School Bus Replacement Program

The California Energy Commission (CEC) has launched the School Bus Replacement Program, which aims to replace California’s oldest diesel buses with all-new battery electric buses and install supporting charging infrastructure. In addition to the School Bus Replacement Program, the California Air Resources Board (CARB) provides funding for electric school buses and supports the transition to a zero-emission school bus fleet. Data on those recipients has not been included in this report. If you know how/where to get that information please reach out.

# Map of Public EV chargers in Contra Costa County

This is a map of EV charging stations in Contra Costa County colored Network. Hover over each marker to see the number of stations and click on each to see the Network Facility and city.

Electric vehicle (EV) charging is important because it enables the transition to a cleaner and more sustainable transportation system, reducing the carbon footprint and air pollution caused by traditional vehicles. The availability of a robust and reliable charging infrastructure is crucial to encourage the adoption of EVs and to provide drivers with the confidence to travel longer distances. Additionally, EV charging offers economic benefits by reducing fuel costs and providing new business opportunities in the energy sector.

## ZEV sales by Model

Zero Emission Vehicles or ZEV Encompasses Electric Vehicles, Hydrogen Vehicles and Plug in Hybrid Vehicles. The main report focuses on Just EVs because, Hydrogen and PHEV vehicles are less efficient than true electric vehicles. They have lower energy efficiency due to the support of an internal combustion engine in PHEVs or the inefficiency of producing and delivering hydrogen in hydrogen fuel cell vehicles. The infrastructure for charging electric vehicles is more developed than that for refueling hydrogen vehicles. Hydrogen fuel cell vehicles are more expensive to produce than BEVs and PHEVs tend to be more expensive than BEVs. Hydrogen fuel cell vehicles and PHEVs still produce emissions, while BEVs are considered to be more efficient, cost-effective, and environmentally friendly.

# Common Counterpoint in EV Adoption

## Average Cost of Ownership

Calculate your cost of Ownership <https://atlaspolicy.com/fleet-procurement-analysis-tool/>

## Car Fires

Electric vehicles (EVs) have a lower risk of fires than internal combustion vehicles (ICVs) because they do not have a fuel system that can ignite. However, when an EV does catch fire, it can be more difficult to extinguish due to the high-voltage battery and the potential for reignition. ICVs are more likely to catch fire due to fuel leaks or electrical malfunctions, but these fires are typically easier to control and extinguish.

Ford and GM have both had recent recalls on their electric vehicles due to thermal runaway. However EVs remain far less likely to catch fire then their Internal Combustion counter parts. The data shown here is from the Bureau of Transportation crash report(2017).

# California County Level Breakdown

## 2022 ZEV sales by County

California is a leader in Electric vehicle sales. There are may rebates and incentive for purchasing and EV. Use this calculator to see what you are currently eligible for: <https://ev.pge.com/incentives/>

# Data Description and Citation

The data used in this analysis includes the following:

* Alternative Fuel Station Locations: This dataset includes the locations of alternative fuel stations in the United States, including electric charging stations, compressed natural gas stations, and hydrogen fueling stations. This data was obtained from the Alternative Fuels Data Center (AFDC) and can be downloaded at <https://afdc.energy.gov/data_download/>.
* Zero-Emission Vehicle (ZEV) Sales: This dataset includes annual sales data for new ZEVs, including battery electric vehicles and fuel cell electric vehicles, in California. This data was obtained from the California Energy Commission (CEC) and can be downloaded at <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/new-zev-sales>.
* Vehicles in Each City: This dataset includes the number of vehicles in each city in California. The data was obtained from the American Community Survey 2022.

When using this data, please cite the following sources:

* Alternative Fuels Data Center (AFDC). (2022). Alternative Fuel Station Locations [Data file]. Retrieved from <https://afdc.energy.gov/data_download/>
* California Energy Commission (CEC). (2022). Zero-Emission Vehicle (ZEV) Sales [Data file]. Retrieved from <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/new-zev-sales>
* United States Census Bureau. (2022). American Community Survey 2022 [Data file]. Retrieved from <https://www.census.gov/programs-surveys/acs/data.html> If you have any questions or comments about this report or the data sources used, please feel free to reach out to the author at [Ajohns2050@gmail.com](mailto:Ajohns2050@gmail.com).

# Additional Resources

## Well to Wheel CO2 Emission from the DoE

# Our Sponsors