

CALIFORNIA GOVERNOR'S OFFICE OF BUSINESS AND ECONOMIC DEVELOPMENT

2026

California Zero-Emission Vehicle Market Development Strategy



California Governor's
Office of Business and Economic
Development (GO-Biz)

October 2026



Table of Contents

4 Executive Summary

6 Introduction

6 Background

8 California Leads the Way

9 Zero-Emission Vehicles in the Broader Context

10 Complementary Efforts

10 Vehicle Miles Traveled Reduction

10 Economics & Workforce Transition

12 Part 1: ZEV Market Update

12 California's ZEV Market Evolution and Current Status

12 California ZEV Investments

13 Federal Action and California's Response

14 Vehicles

14 Infrastructure

16 CA ZEV Market by the Numbers

18 Part 2: ZEV Market Development

19 The Four Pillars of ZEV Market Development

20 Four Pillar Definitions

20 Core Principles

21 Market Acceleration Playbook

24 ZEV Market Roles and Responsibilities

24 Role of Government in the ZEV Market

24 Unique Responsibilities of Each Actor

24 Governor's Office and California Legislature

24 California State Agencies

25 Key Stakeholder Groups

25 California ZEV Market Development Stakeholders/Partners

26 Part 3: Implementation

26 ZEV Strategy Components

26 ZEV Equity Action Plan

26 Agency ZEV Action Plans

26 Metrics

27 Conclusion

28 Appendix

29 Appendix A: ZEV Market Development Strategy Who's Who

40 Appendix B: State Agency Objectives and ZEV-Related Reports

77 Appendix C: Key Stakeholder Groups and High-Level Objectives

94 Appendix D: Measuring Success

109 Appendix E: Strategy Implementation and Lessons Learned

110 Appendix F: Glossary

Executive Summary

A fully zero-emission transportation system requires an organized, collaborative, and cross-cutting approach. Through this document, the Zero-Emission Vehicle (ZEV) Market Development Strategy, the Governor's Office of Business and Economic Development (GO-Biz) and our partners seek to accelerate large-scale and equitable ZEV market development.

The ZEV Strategy purposely affords flexibility for government and stakeholders to innovate, while seeking to ensure transparency and accountability. To accomplish this, the ZEV Strategy is centered around the four market pillars: vehicles, infrastructure, end users, and workforce. The pillars must all be fully supported and are built upon a foundation of five core principles: equity in every decision, embracing all zero-emission pathways, collective problem-solving, public actions drive greater private investment, and designing for system resilience and adaptability.

The market pillars and underlying core principles inform the ZEV Strategy's roadmap for who is focused on what — the roles and responsibilities of each public and private market player. This is the first update to the original ZEV Strategy published in 2021. Each state agency that touches the ZEV market submits a brief action plan annually, setting the agency's priorities according to their objectives included herein. All objectives advance the market for one or more of the pillars.

The ZEV Strategy sets the state's high-level course of action and identifies the primary strategies state agencies use to advance the ZEV market. A corresponding public [ZEV Strategy website](#) houses the above-mentioned components and tracks the state's progress towards meeting Executive Order [N-79-20](#) and EO [N-27-25](#) targets and agency objectives. Progress tracking of diverse market metrics, or market health indicators, will also facilitate ongoing collaboration and information sharing to refine our understanding of market advancement and inform our course of action.

A ZEV Equity Action Plan will be published separately and updated with the ZEV Strategy (every three years) but will include metrics that are tracked and updated more frequently to measure improved access to ZEVs, supporting infrastructure, and zero-emission transportation options in underserved communities. The first ZEV Equity Action Plan is in development and will be published in 2026.

Rapidly eliminating transportation emissions and reducing reliance on fossil fuels requires leadership and contributions from many — from industry and political leaders to community members and neighbors—especially at this critical moment when climate and clean energy programs across the country are under attack by the federal government and the war in Iran has created global volatility and gas price spikes.

At its core, the ZEV Strategy leans in on collaboration and constructive competition among these leaders who remain committed to clean transportation technology, and those who will join in the future. This document is intended to help guide our journey. Our progress to date is only made possible because of the tremendous contributions of a host of visionaries and leaders in all sectors. California continues to lead the way, together.

THE WAR IN IRAN has created the largest supply disruption in the history of the global oil market, driving gas price increases for drivers across the country.¹ These price increases are a reminder that so long as our transportation system runs on petroleum, Californians—like all Americans—remain exposed to global forces beyond our control. Every Californian who makes the switch to a zero-emission vehicle is one less household exposed to the next price spike at the pump. The case for California's ZEV strategy has always been compelling: cleaner air, lower costs, better health outcomes for communities. The war in Iran is simply the latest reminder of what's also at stake when our transportation system remains tethered to global oil markets.

1. [Oil Market Report, March 2026, Analysis, IEA](#)



Introduction

The primary goal of the Zero-Emission Vehicle (ZEV) Market Development Strategy is to accelerate large scale and equitable ZEV market development. Scale is needed to bring down cost, accelerate private capital investment, and reduce the need for direct public investment. Equity is needed to ensure that communities impacted most from a combination of economic, health, and environmental burdens are actively prioritized and directly benefit from public investment through increased zero-emission mobility options, job opportunities, and cleaner air.

The ZEV Market Development Strategy (ZEV Strategy) should enable outcomes beneficial to California's core health, science, equity, and economic development motivations: improved air quality, reduced greenhouse gas emissions, robust access to and investment in clean transportation, good-paying jobs and expanding workforce opportunities for underserved communities, and ensuring a clean, reliable, and resilient energy system.

The ZEV Strategy serves as a roadmap for how the state, working with local, federal, community, and private sector partners, aims to achieve our near-term ZEV market development goals. The ZEV Strategy is written from the state government policy and implementation point of view. State actions are more detailed, but the ZEV Strategy also focuses on the fundamental roles nonstate government actors play, establishing guideposts for what our broad community believes is needed from each class of active stakeholders to enable success. The intended result is for any stakeholder, existing or new, to be able to identify their niche and plug in to the system to contribute to and benefit from ZEV market success and expansion.

The ZEV Strategy is organized in three parts: 1) an update on the ZEV market and its evolution since the first ZEV Strategy was published, 2) our vision and plan for the strategies that state agencies deploy, and 3) details on implementation of the ZEV Strategy to scale an equitable ZEV market.

Background

In 2020, following a record-setting wildfire season, historic heat wave, and drought exacerbated by the effects of climate change, Governor Gavin Newsom signed Executive Order N-79-20, setting the following zero-emission vehicle targets for California:²

- 100% of in-state sales of new passenger cars and light-duty trucks will be zero-emission by 2035
- 100% zero-emission medium and heavy-duty vehicles in the state by 2045 where feasible and by 2035 for drayage trucks, and
- 100% zero-emission off-road vehicles and equipment operations by 2035, where feasible.

To help meet these targets, Governor Newsom tasked the Governor's Office of Business and Economic Development (GO-Biz) to collaborate with multiple agencies and partners to shepherd the administration's ZEV Strategy. GO-Biz published the first ZEV Strategy in 2021. Since then, California's ZEV market and federal dynamics have evolved significantly.

2. In addition to the targets in [Executive Order N-79-20](#), California has intermediate goals set by [Executive Order B-48-18](#), including 5 million ZEVs on California roads by 2030 and 250,000 public and shared charging stations and 200 hydrogen fueling stations by 2025.

One of the most significant changes came from three ill-advised, unconstitutional, and unlawful congressional resolutions disapproving three actions by the U.S. Environmental Protection Agency (U.S. EPA) that granted California preemption waivers to which it is entitled under the Clean Air Act. In response, Governor Newsom signed Executive Order N-27-25 on June 12, 2025, reaffirming the state's commitment to accelerate the deployment of zero-emission technologies, including passenger, medium- and heavy-duty vehicles, consistent with the deployment targets and other actions directed in Executive Order N-79-20.³ California is also challenging these illegal actions in federal court.

In February 2026, the U.S. EPA also repealed the Endangerment Finding, further weakening federal efforts to regulate greenhouse gas emissions and creating new legal and policy challenges for states, like California, resolute in achieving climate and public health goals. California maintains that the repeal contradicts established scientific evidence and statutory obligations under federal environmental law and is taking action to challenge the decision in court.

The spike in global oil and gas prices in 2026 that resulted from President Trump's war in Iran further highlights the benefits of deploying ZEVs and reducing dependence on fossil fuels.

The 2026 ZEV Strategy sets the direction for the ongoing, purposefully evolving effort to turn California's zero-emission vision into reality. This document is structured to break down silos and ensure cross-cutting work throughout the California State government to achieve our ZEV goals.

California's vehicle regulations, incentives, investments, and sales helped create the zero-emission vehicle market as it stands today. The next step — increasing equitable statewide deployment — requires continuing and expanding creative public-private partnerships⁴ to accelerate investment and streamline implementation to expedite a fully self-sustaining, scalable ZEV market.

3. Executive Order N-27-25.

4. Public-private partnerships include public-private funding and cost share opportunities, such as utility infrastructure programs that leverage ratepayer funding to help pay for some of the fueling infrastructure while fleet entities, such as private companies, transit agencies, school districts, and others pay for part of the infrastructure need and are required to procure eligible ZEVs in order to participate. Likewise, state, regional and local funding, financing, and other programs leverage both public and private capital for market development.

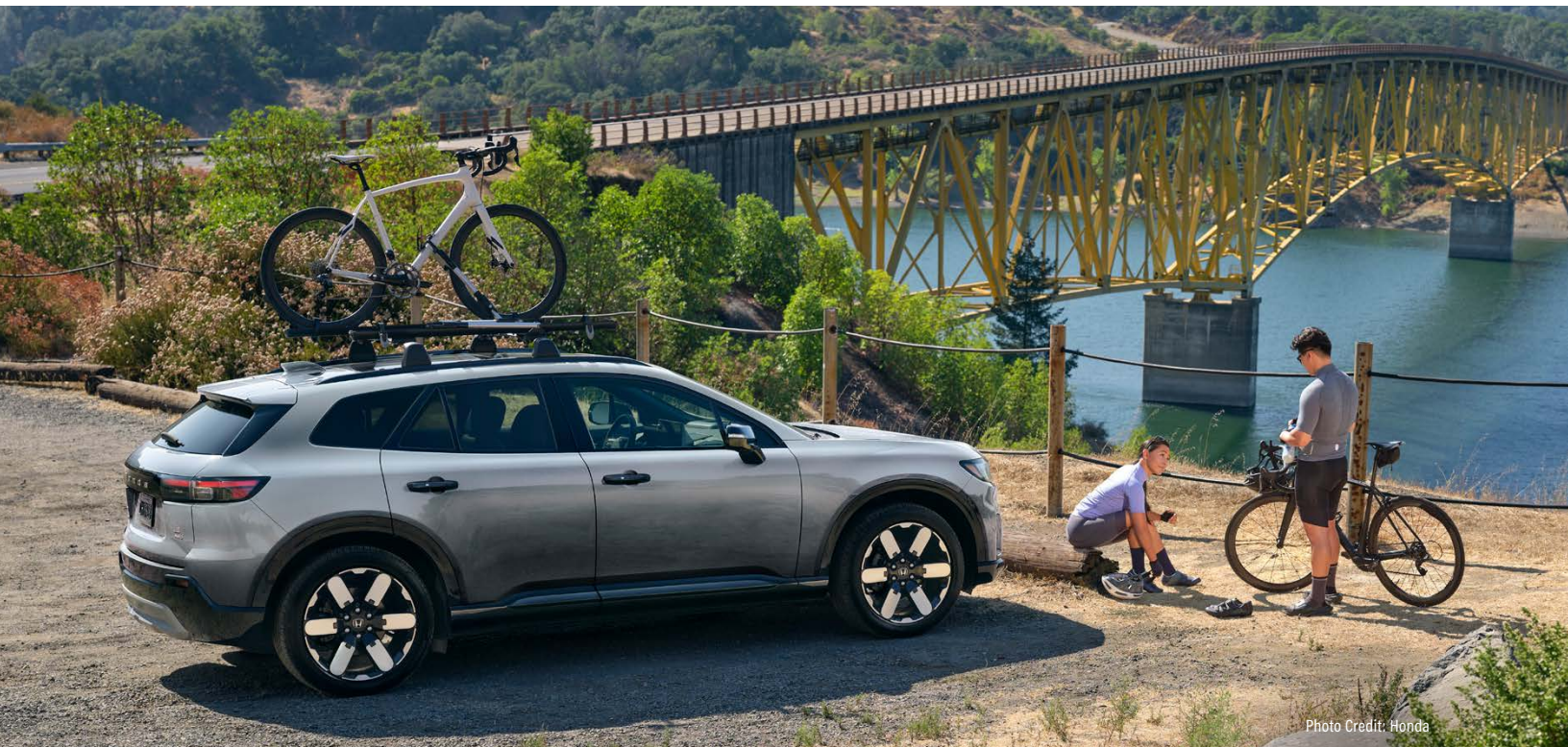


Photo Credit: Honda

California Leads the Way

Private sector innovation and investment coupled with public sector funding and programs in the Golden State have enabled first-in-the-nation deployment of zero-emission vehicles and infrastructure across all vehicle types. Here are just a few recent highlights!

CARS AND LIGHT-DUTY VEHICLES

- Leading the nation with more than 2.7 million ZEVs sold.
- Deploying the largest-in-the-nation public electric vehicle (EV) charging network with over 200,000 public and shared EV chargers.

BUSES AND TRUCKS

- First-in-the-nation all-zero-emission school bus fleet.
- Opening the largest zero-emission truck charging depot in the U.S. at nation's largest port.
- Building supporting infrastructure to enable the first zero-emission freight truck to cross the U.S.-Mexico border.
- Deploying thirty fuel cell electric class 8 trucks in northern California—the largest commercial fleet of fuel cell electric trucks in the nation to date—supported by the first commercial hydrogen truck fueling station in the U.S., which can fuel 200 trucks per day and can serve both light- and heavy-duty vehicles.

GRID RESILIENCE

- Demonstrating V2X bi-directional charging project utilizing electric school buses to act as a virtual power plant and discharge electricity back to the grid.
- Developing the first V2G-capable electric tractor in California.

RAIL

- Launching first-in-the-nation hydrogen-powered switcher locomotive.
- Developing North America's first federally compliant self-powered, zero-emission passenger train, a hybrid hydrogen and battery Zero-Emission Multiple Unit (ZEMU).

MARINE

- Unveiling the nation's first all-electric tugboat.
- Launching the first hydrogen fuel cell passenger ferry in the United States.

AVIATION

- Delivering the first electric vertical take-off and landing (eVTOL) aircraft to the U.S. Air Force and the first delivery of an electric air taxi in the U.S.
- Designing, building, and testing first-of-a-kind rapid liquid hydrogen refueling vehicle for aviation and other heavy-duty applications.

“ California didn’t reach 2.5 million zero-emission vehicles by accident — we invested in this future when others said it was impossible. While Washington now cedes the global clean vehicle market to China, California is ensuring American workers and manufacturers can compete and win in the industries that will define this century. ”

— GOVERNOR GAVIN NEWSOM
January 2026



Photo Credit: ChargePoint



Zero-Emission Vehicles in the Broader Context

While the ZEV Strategy focuses primarily on increasing the share of ZEVs on the road, state policy also prioritizes reducing vehicle miles traveled (VMT) by locating more homes, jobs, services, and education in close proximity to each other so that people can rely less on personal cars and trucks and rely more on transit, biking, walking, and micro-mobility options like e-bikes, e-scooters, and ZEV carpools.^{5,6}

Similarly, California's Sustainable Freight vision is to develop a modern, safe, integrated, and resilient system that continues to support California's economy, jobs, and healthy, livable communities. This includes deploying zero-emission equipment everywhere feasible—especially for California communities that live near ports, railyards, and freight corridors, who suffer disproportionate health impacts from freight transport—reducing emissions from a health and climate perspective while ensuring our fleets remain globally competitive.⁷

California's ZEV market also encompasses emerging opportunities such as aviation, locomotive, and marine vehicles, as well as vehicle-grid integration products and services.⁸ While the primary focus of this ZEV

Strategy remains on passenger and commercial automobiles and work vehicles, we recognize that these emerging opportunities are an important aspect of our transition to a carbon-neutral economy. The State is encouraging these emerging opportunities through clean transportation investments as well as general business development support, although they are not addressed within this Strategy.

The ZEV Strategy effort focuses on delivering safe, reliable zero-emission answers within the broader framework of clean transportation. This Strategy specifically focuses on the following modes:

Personal/Shared Mobility: Zero-emission e-bikes, e-scooters, and motorcycles, public transit, shared ZEVs (carpooling, carsharing, and ridesharing), single occupant ZEVs

5. Additionally, broader work-from-home opportunities help reduce VMT and its associated emissions and other consequences, which has become more apparent after the COVID-19 pandemic.
6. [California Air Resources Board \(CARB\) 2022 Scoping Plan for Achieving Carbon Neutrality](#): Achieve a per capita VMT reduction of at least 25 percent below 2019 levels by 2030 and 30 percent below 2019 levels by 2045.
7. [CARB Sustainable Freight Action Plan](#)
8. Examples of vehicle-grid integration include managed one-way charging, bidirectional charging, and automated load management systems.



Photo Credit: Electrify America

Freight Movement & Delivery: Zero-emission vehicles and equipment (drayage, port cargo handling equipment, last-mile delivery, long-haul trucking, etc.)

Off-Road Applications: Zero-emission vehicles and equipment (forklifts, transport refrigeration units, construction and agricultural equipment, etc.)

Complementary Efforts

Vehicle Miles Traveled Reduction

The California State Transportation Agency (CalSTA) in coordination with the California Department of Transportation (Caltrans), the California Transportation Commission (CTC), and other partner state agencies, led the development of the Climate Action Plan for Transportation Infrastructure (CAPTI) to identify near term actions and investment strategies that help leverage transportation infrastructure investments to reduce our dependence on driving and improve clean and active transportation, sustainable freight, and transit options. This effort will have the practical impact of reducing vehicle miles traveled, as outlined in EO N-79-20 and N-19-19.⁹ The ZEV Strategy does not address transportation planning or programming, but rather works to ensure clean transportation and ZEV options are available and deployed within these systems.

Economics & Workforce Transition

The Labor and Workforce Development Agency (LWDA), the Governor's Office of Land Use and Climate Innovation (LCI), and GO-Biz are working together as specified in SB 162 (2021) to administer California Jobs First (formerly Community Economic Resilience Fund (CERF) Program). [California Jobs First](#) supports the development of regional strategies to diversify local economies and develop sustainable industries to create high-quality, broadly accessible jobs for all Californians.

The California Jobs First [State Economic Blueprint](#) is built on the foundation of thirteen regional plans, and is California's economic roadmap to create, attract, and ensure access to good-paying jobs for all Californians. The Blueprint identifies the strategic sectors vital for driving California's future growth and innovation, representing the diverse strengths of each region. Across the state's 13 Jobs First Collaboratives, 12 identified the clean economy as a regional strategic sector, and six identified ZEVs specifically as a priority growth subsector in which to focus their attention and resources.

The ZEV Strategy will leverage this work, and other related efforts, to ensure California is prepared to meet the needs of the ZEV market, while continuing to attract businesses and expand economic opportunity within the state.

9. [Executive Order N-19-19](#)

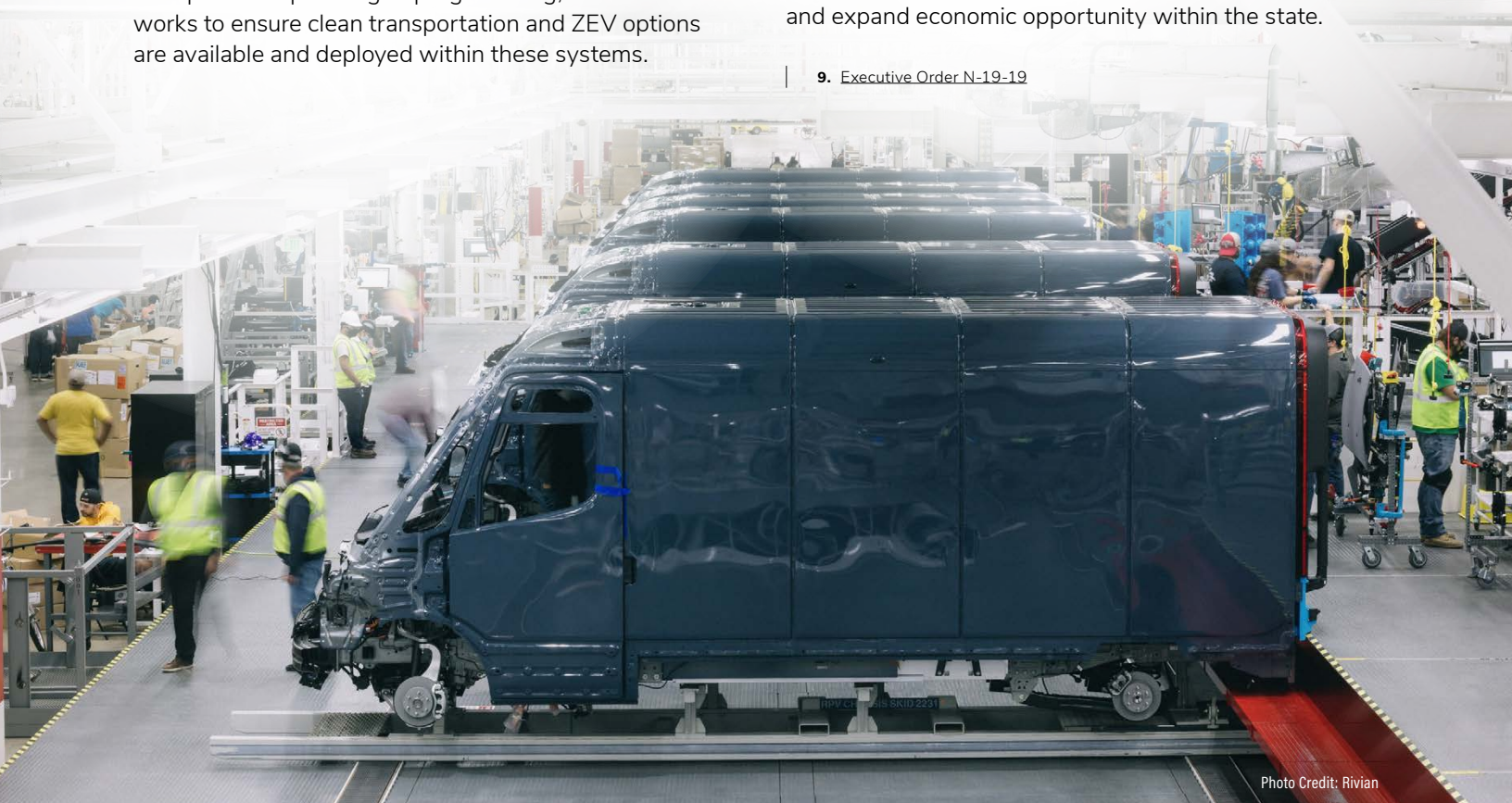


Photo Credit: Rivian



EVSE 1

ABB

EVgo[®]
FAST CHARGING

KONG

C6714

START CHARGE
Plug-In
EV
50kW
50kW
50kW
Customer Service: 1-877-455-3833

PART 1:

ZEV Market Update

California's ZEV Market Evolution and Current Status

The ZEV market has evolved greatly since the first ZEV Strategy was published in 2021 due to both market forces and California's market enabling actions. California's ZEV market progress has been made through the implementation of multiple critical policies and market signals, including regulations, funding and financing, and education and outreach, coupled with important market development actions and investments by public and private entities.

This section summarizes major advancements and barriers overcome, as well as actions the state is taking to further spur the market and continue to address challenges. End users are ultimately at the core of enabling our rapid and equitable deployment of ZEVs and taking their needs into consideration is central to our decision-making and actions as we accelerate the ZEV market.

Ensuring equitable outcomes in ZEV market development has been a priority throughout the ZEV Strategy process. Equity in every decision remains the first principle in this framework. After the first ZEV Strategy was published, a ZEV equity advocate position was created in statute and serves as the lead in working with ZEV stakeholders to define equity across state agency programs and develop a plan to track and improve access to ZEVs in low-income, disadvantaged, and historically underserved communities. The ZEV Equity Action Plan is part of the ZEV Strategy. It will be published separately and available on the GO-Biz ZEV Strategy website.

California ZEV Investments

Incentives funded through [California Climate Investments](#),¹⁰ the [Clean Transportation Program](#), and other sources have played a critical role in California's ZEV market to date. Since 2021, the state has invested nearly \$6.6 billion (\$2.3 billion General Fund) to accelerate ZEV deployment and supporting infrastructure. The 2026–27 Budget includes \$288 million for ZEVs with \$135 million (and additional automaker match funds) to establish a new light-duty ZEV incentive program. Governor Newsom proposed the program in direct response to the federal administration ending the ZEV federal tax credits program to keep ZEVs more affordable and accessible to all.

The driving policy for this multi-year, multi-agency effort is to equitably reduce carbon emissions from the transportation sector and speed up the adoption of ZEVs for transportation with a focus on communities most impacted by air pollution. Continued public and private funding, financing, investments, and other incentives will be essential to accelerating market growth and ensuring access to ZEVs and clean air for all Californians.

10. California Climate Investments uses billions of Cap-and-Invest dollars to fund projects that reduce harmful emissions, protect public health, strengthen local economies, and support natural environments. With a strong focus on communities most impacted by pollution and limited access to resources, California Climate Investments help build a more equitable and sustainable future.

Federal Action and California's Response

Under the Biden-Harris administration, California received historic climate and clean energy investments from the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act. With funding from the BIL, the state is set to receive \$384 million over five years to help build out the nationwide, interconnected network of DCFC chargers along the National Highway System under the National Electric Vehicle Infrastructure (NEVI) Formula Program. State and local agencies in California were also awarded \$399 million corridor and community funding through the Charging and Fueling Infrastructure (CFI) Discretionary Grant Program.

With the change in federal administration, tailwinds have turned to headwinds. The Trump Administration has made clear its intention to claw back committed infrastructure funds, eliminate clean vehicle incentives and tax credits, impose tariffs driving up the price of ZEVs and clean infrastructure deployment, and rescind California's waivers under the Clean Air Act.¹¹ At the same time that he attempts to slow California's progress in deploying ZEVs, President Trump also started a war in Iran that caused global oil and gas prices to spike, impacting Americans across the country who are paying for it at the pump.

In response to this dynamic and evolving situation, California is taking steps to protect our market development efforts, reduce our dependence on fossil fuels, and ensure our commitment to reducing transportation emissions remains strong and focused. Governor Newsom signed executive order [N-27-25](#), doubling down on the state's commitment to clean vehicles.¹² The state also joined the 11-state Affordable Clean Cars Coalition, led by the U.S. Climate Alliance, that will work together to develop solutions that make cleaner vehicles more affordable and accessible to all Americans who want them.¹³

California is also responding to federal action in the courts. The state filed a lawsuit after President Trump signed illegal resolutions in an attempt to disapprove California's Clean Air Act waivers.¹⁴ California co-lead and won a multistate federal lawsuit in which a judge ruled that the U.S. Department of Transportation illegally withheld about \$1 billion in NEVI Formula Program funds intended for electric vehicle charging infrastructure.¹⁵ Additionally, California filed a lawsuit challenging President Trump's authority to unilaterally

enact tariffs, which have created economic chaos and driven up prices.¹⁶ The Supreme Court agreed with California, striking down Trump's tariffs.¹⁷

Additionally, California was one of seven awardees of the Department of Energy (DOE) Regional Clean Hydrogen Hubs (H2Hubs) awarded up to \$1.2 billion. The state worked with stakeholders to create the Alliance for Renewable Clean Hydrogen Energy Systems (ARCHES), a public-private partnership established to rapidly scale up California's hydrogen market.¹⁸ In October 2025, DOE canceled its committed funding to ARCHES as a part of its broader effort to eliminate billions in clean energy funding. In February 2026, California led a coalition of 13 states to file a lawsuit against Trump for illegally terminating the energy and infrastructure funding programs.¹⁹ Although federal funding remains uncertain at the time of publication, the ARCHES partnership and frameworks established under it deepened the collective understanding of California's vast hydrogen market potential. California's companion Hydrogen Market Development Strategy directly addresses this new context, as affordable renewable hydrogen remains central to the state's ZEV and carbon neutrality commitments.

While long-term federal impacts on the ZEV market are unclear, California is committed to finding new and innovative policy, regulatory, and partnership opportunities to accelerate the deployment of ZEVs and supporting infrastructure. In response to EO N-27-25, state agencies have already identified areas to maintain the state's momentum, including recommendations for private investment, incentives, infrastructure, fuel pricing, regulations, and procurement.²⁰

11. President Donald J. Trump, Executive Orders, Unleashing American Energy, January 20, 2025. <https://www.whitehouse.gov/presidential-actions/2025/01/unleashing-american-energy/>
12. [Governor Newsom signs executive order doubling down on state's commitment to clean cars and trucks, kickstarts next phase of leadership](#)
13. [Following illegal Senate vote, California and 10 other states launch Affordable Clean Cars Coalition](#)
14. *California v. United States*, No. 4:25-cv-04966-HSG (N.D. Cal. filed June 12, 2025).
15. *State of Washington, et al., v. U.S. Department of Transportation, et al.*, No. 2:25-cv-00848 (W.D. Wash. Filed May 7, 2025).
16. *California v. Trump*, No. 3:25-cv-03372 (N.D. Cal. filed April 16, 2025).
17. *Learning Resources, Inc., et al. v. Trump, President of the United States, et al.* Certiorari Before Judgment to the United States Court of Appeals for the District Of Columbia Circuit No. 24-1287. Argued November 5, 2025—Decided February 20, 2026*
18. [ARCHES-Fact-Sheet-1.pdf](#)
19. *California, et al. v. Wright, et. al.*, No. 3 :26-cv-01417 (N.D. Cal. filed February 18, 2026).

Vehicles

Light-duty ZEVs. Consumers have more passenger ZEV options to choose from than ever before. In 2025, 150 light-duty ZEV models were available, which was up 36% from the previous year.²¹ For over a decade, dedicated state and federal vehicle incentives have brought both new and used ZEVs within easier reach, especially with targeted incentives for underserved communities. While affordability remains a constraint for some consumers, used ZEVs can offer a more affordable option than new vehicles. California has a large and growing used vehicle market, and sources are reporting falling used electric vehicle prices and significant growth in the used ZEV market over the last five years.²²

Medium- and Heavy-duty ZEVs. Strong sales and growing participation in the state's clean truck and bus incentive program demonstrate record demand for zero-emission trucks and buses.²³ A wide range of battery electric and fuel cell electric vehicle (FCEV) options are now available and on the road to fit varied use cases in the medium- and heavy-duty ZEV market segment, including school buses, transit buses, long-haul trucks, port drayage trucks, and last mile delivery vans.²⁴

The diversity of needs as California's sights set on 100% ZEV underscores the complementary nature of BEVs and FCEVs, both of which are essential to achieve a fully decarbonized transportation future. Rapid innovation in this space, including trucking- and charging-as-a-service models, are increasing options to mitigate upfront costs as fleets transition to zero-emission.

Infrastructure

EV Charging Stations. Ensuring EV charging stations are readily available, convenient, and efficient for drivers has emerged as a focal point in supporting our rapid market growth of ZEVs. Through technology advancements and a feedback loop of continual improvement, newer generation chargers being deployed address early challenges with charger uptime and common system or design issues. To further support charger reliability, California has for many years set minimum uptime requirements for California Energy Commission (CEC) funded infrastructure projects.

CEC has adopted EV Charger Data and Reliability Standards with requirements for: 1) EV charging port inventory reporting; 2) DCFC reliability recordkeeping and reporting; 3) A 97 percent DCFC uptime standard; 4) Data sharing on the real-time availability and

accessibility of publicly available charging ports. These regulations apply equally to charging ports that serve light-, medium-, and heavy-duty EVs.²⁵

The landscape of connector types for electric vehicle charging has also changed significantly over the last several years. SAE International, a global standards development organization, formalized Tesla's North America Charging Standard (NACS) as the J3400 standard, and nearly all major automakers and charging infrastructure providers have switched to the NACS connector from the Combined Charging System (CCS) connector for light-duty vehicles. CEC, which leads ZEV infrastructure policy, planning, and investments for the state, has noted that a "one-connector future" is likely beneficial to drivers and the market and indicated that as part of its continuous evaluation of the most appropriate technical requirements, it will continue to monitor developments including communication interoperability between J3400 and CCS, industry clarification of J3400 adapter and charger retrofit options, and J3400 product availability.^{26,27}

Hydrogen Fueling Stations. With respect to hydrogen and FCEVs, many of today's retail stations have multiple dispensers and can dispense four to eight times more hydrogen than those initially deployed. While investments to improve and grow the existing retail network continue to be made, the pace of development has been slower than anticipated. Station performance has become a central focus due to mechanical and hydrogen supply issues. Uptime is improving significantly thanks to the dedication of station developers, equipment providers, and agencies working to resolve these challenges. This progress comes as the market matures and expands to meet the needs of medium- and heavy-duty use cases.

20. [ZEV Forward | California Air Resources Board](#)

21. Veloz: [EV Market Matures in Q2 2025 with Diversified Models, More Trade-Ins, and Steady Sales](#)

22. Recurrent Research: [Used Electric Car Prices & Mark Report](#)

23. [Nearly 1 in 4 new trucks, buses and vans in California go zero-emission, 2 years ahead of schedule](#)

24. California HVIP Vehicles: <https://californiahvip.org/vehicles/>

25. EV charging stations at single-family homes and multi-family dwellings with fewer than four dwelling units are excluded. Applicability of the standards, and who must report information to the CEC, varies based on the date the charger was installed, whether it received public funding, and the type of charger. For more information, see [EV Charger Data and Reliability Standards](#).

26. [Statement on North American Charging Standard/J3400 \(September 2023\)](#)

27. [Updated Recommendation on ISO 15118 Ready Chargers \(February 2024\)](#)

An equally important factor in achieving dependable station performance is the price of hydrogen at the pump, which remains a significant barrier today. Building supply dedicated to transportation and growing demand are essential steps toward lowering costs, ensuring consistent fuel availability and strengthening driver confidence in station reliability. As production volumes increase, both FCEV and hydrogen costs are expected to fall, creating opportunities to deliver value for medium- and heavy-duty fleets and drivers with longer daily range needs.

These necessary elements are recognized by the hydrogen sector and numerous focused efforts within California and across the U.S. are being made to expand scale and drive costs out of the system.^{28,29} GO-Biz is developing an all-of-government Hydrogen Market Development Strategy—modeled after the ZEV Strategy—to help organize our collective efforts to leverage hydrogen to accelerate clean energy deployment and decarbonize our transportation and industrial sectors.



Photo Credit: FirstElement Fuel

Electric Grid. California has more than 80 electric load serving entities, including investor-owned utilities (IOU), public utilities, community choice aggregators, and rural electric co-ops. Across each service area, electricity is poised to fuel the state's future, and the utility grid must be ready to meet customer needs without delay—a common challenge encountered today.

State agencies are advancing grid and transmission planning to support electrification of buildings and transportation, with a focus on policies that promote load growth that aligns with system needs. For example, CPUC is working to enable and direct IOUs to keep pace with the rapid growth of EV charging infrastructure. Through the state's established interagency planning framework, CPUC staff are engaged in broader transportation electrification planning initiatives with CEC, CAISO and CARB to ensure the grid is ready.³⁰

Permitting. Extended permitting timelines for charging and hydrogen fueling stations have been a longstanding challenge in California. While more remains to be done, the state has taken steps to streamline the EV charging and hydrogen fueling station permitting processes to accelerate the deployment of EV charging and hydrogen fueling infrastructure by removing unreasonable barriers and costs to their installation, such as permit streamlining laws, legal clarification of the applicability of the laws, and direct project-level support and resources.^{31,32,33}

28. [2025 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development \(Report Pursuant to Assembly Bill 126; Reyes, Chapter 319, Statutes of 2023\)](#)
29. [Senate Bill 643: Clean Hydrogen Fuel Production and Refueling Infrastructure to Support Medium- and Heavy-Duty Fuel Cell Electric Vehicles and Off-Road Applications](#)
30. This interagency coordination is anchored in several major efforts, such as: [Integrated Energy Policy Report \(IEPR\)](#); [Grid Modernization for a High-DER Future](#); [Demand-flexibility and Rate Design](#); [Proactive Planning Framework for Transportation Electrification](#); [Timely Connection of New Customers to the Electrical Grid](#).
31. Assembly Bill 1236 (Chiu, 2015), mandates that all California cities and counties adopt an ordinance to expedite the permitting process for new EV charging stations and provide a checklist to applicants. AB 970 (McCarty, 2021) builds on AB 1236 and codifies specific timelines for the permitting process. SB 1283 (Ashby, 2026) further clarifies the state streamlining requirements. For more information, see the GO-Biz [Plug-in Electric Vehicle Charging Station Readiness](#) webpage.
32. Senate Bill 1291 (Archuleta, 2022), requires all California cities and counties to develop an expedited, streamlined permitting process for hydrogen fueling stations according to specific criteria. SB 1418 (Archuleta, 2024), builds on SB 1291, requiring jurisdictions to create an expedited permitting ordinance and checklist for hydrogen fueling stations and limit project review to health and safety requirements. For more information, see the GO-Biz [Hydrogen Fueling Station Readiness](#) webpage.
33. In 2025, the Office of the Attorney General issued a [Legal Alert](#) to further clarify interpretation, application, and preemption considerations related to AB 1236 in response to implementation challenges.

CA ZEV Market by the Numbers

- California is the **number one** ZEV market in the U.S.³⁴
- A record **29.1%** of all new cars purchased in the third quarter of 2025 were ZEVs, and the annual new light-duty ZEV sales share in 2025 was **22.9%**, up from just **12%** in 2021.³⁵
- California surpassed its **1.5 million** passenger ZEVs goal **two years ahead** of schedule.³⁶
- **2,784,253** passenger ZEVs have been sold in the state as of publishing.³⁷
- In 2025, the medium- and heavy-duty ZEV population was **8,868**, with **3,920** buses, **2,705** trucks, and **2,873** delivery vans on the road.³⁸
- ZEVs made up nearly **23%** of new medium- and heavy-duty truck sales in California in 2024—more than double the state's target and the highest total of ZEV sales ever reported for trucks.³⁹
- Since 2021, more than **57,000** ZEVs have been sold in California's medium- and heavy-duty market.⁴⁰
- There are **224,438** Public and Limited Access Electric Vehicle Chargers in California.⁴¹
- The state has **58** public light-duty hydrogen refueling stations, **one** mixed-use hydrogen refueling station, and an additional **32** light-duty and **three** mixed-use stations planned.⁴²

34. U.S. Department of Energy, Alternative Fuels Data Center

35. California Energy Commission (2025). New ZEV Sales in California. Data last updated December 31, 2025. Retrieved January 15, 2026 from <https://www.energy.ca.gov/zevstats>.

36. California Surpasses 1.5 Million ZEVs Goal Two Years Ahead of Schedule

37. California Energy Commission (2026). New ZEV Sales in California. Retrieved from <https://www.energy.ca.gov/zevstats>.

38. California Energy Commission (2025). Medium- and Heavy-Duty Zero-Emission Vehicles in California. Data last updated December 31, 2025. Retrieved April 28, 2026 from <https://www.energy.ca.gov/zevstats>.

39. Nearly 1 in 4 new trucks, buses and vans in California go zero-emission, 2 years ahead of schedule

40. Nearly 1 in 4 new trucks, buses and vans in California go zero-emission, 2 years ahead of schedule

41. California Energy Commission (2026). Electric Vehicle Chargers in California. Retrieved from <https://www.energy.ca.gov/zevstats>.

42. California Energy Commission (2026). Hydrogen Refueling Stations in California. Retrieved from <https://www.energy.ca.gov/zevstats>.

#1

22.9% · 224,438 · 8,868 · 2.7M · 29.1% · 57,000



Photo Credit: Rivian



PART 2:

ZEV Market Development

The Four Pillars of ZEV Market Development

The first ZEV Strategy organized the market around four key pillars — vehicles, infrastructure, end users, and workforce—built on a foundation of core principles, with equity in every decision as the first principle. We have found this framework to be helpful in organizing our collective efforts and will continue to use the pillars, core principles, and ZEV Strategy components (described in Part 3) in this 2026 update.

The ZEV Strategy reaffirms the state's commitment to a zero-emission transportation system. It focuses on building, maintaining, and balancing the four pillars to identify key market implementation gaps. Each metric, objective, and collective problem-solving action in the ZEV Strategy directly maps back to at least one of the four pillars, the investments required to build them, and/or outcomes. Each action and decision is rooted in one or more of our core principles.



Photo Credit: Tesla, Inc.



ZEV Market Development Strategy

Four Pillar Definitions

- **Vehicles:** New and used plug-in electric and hydrogen fuel cell electric cars, trucks, delivery vans, transit buses, and equipment used for transporting people and freight, as well as for construction, mining, materials handling, industrial operations, agriculture, recreation, and other industries. This also includes zero-emission solutions like ZEV carsharing and micro-mobility options (e.g., e-bicycles, e-scooters). This pillar includes zero-emission high-speed rail, locomotives, marine vessels, and aircraft that transport passengers and freight, as well as the supply chain needed to support all vehicle types.
- **Infrastructure:** Fueling infrastructure needed to support all ZEVs, including electric vehicle charging stations, hydrogen fueling stations, catenary systems and the energy systems that supply them. Vehicle-grid integration (e.g., through battery electric vehicles), and grid integration of fueling systems (e.g., hydrogen produced through electrolysis) are important components to cost-effectively expand renewable energy penetration, improve resilience, and drive charging and fueling value for end users and the grid. Includes the supply chain to enable infrastructure build-out.
- **End Users:** Consumers, riders, fleet operators, transportation network companies, car dealers, drivers, transportation planning agencies, transit agencies, program administrators, ports, regional, local, and tribal governments and communities, trucking companies, fuel providers, and more.
- **Workforce:** The human workforce, including supply chains needed to design, manufacture, sell, construct, install, service and maintain ZEVs, ZEV infrastructure, ZEV distribution systems, dealerships, energy systems, networks of charging and fueling stations, and other ZEV-related build. Furthermore, including those at third-party support companies and agencies whose work with ZEV focused institutions is critical to operating and expanding the ZEV market, such as marketing and advertising firms, roadside assistance companies, financial institutions, insurance agencies, recyclers, and circular economy participants.

Core Principles

The following principles will continue to serve as the foundation for decision-making and implementation:

1. **Equity in every decision.** The communities negatively impacted by social, economic, and environmental burdens are also those closest to the solutions. Continual, meaningful engagement and capacity building within underserved communities is key to ensuring that the ZEV market provides direct and assured benefits to those most impacted by poor air quality and lack of access to clean mobility and good-paying jobs. We actively look for opportunities to implement community-led ideas and share decision-making power; each decision or action should incorporate underserved communities' ideas and direct feedback.
2. **California embraces all zero-emission pathways.** We are technology neutral and actively embrace and support all viable pathways to zero emissions through policymaking, funding, and other state decisions/actions. This includes but is not limited to new and used battery electric, hydrogen fuel cell electric, and directly connected electric systems, such as catenary bus lines, and electrified rail including high-speed rail, across all vehicle sizes and classes, and connections to zero-emission transit or other mobility options.⁴³
3. **Collective problem-solving.** Success depends on active engagement and collaboration between all levels of government, industry, non-governmental organizations (NGOs), communities, and other engaged stakeholders (e.g., end users).
4. **Public actions drive greater private investment to scale investable markets.** Public and private sector actors have unique, complementary roles to play in scaling the ZEV market. Public policies and actions should help limit market risk and ensure fair and equitable access and activate market-based mechanisms; private actions drive scale and provide innovative solutions.
5. **Design for resilience and adaptation.** We are developing the ZEV system holistically, with resilience and adaptation front of mind. ZEVs enable opportunities to stabilize and support our energy system for the benefit of all, including increasing reliability, resilience, and renewable energy penetration.

43. The state is also monitoring the demonstration of advanced technologies, including battery swapping, wireless charging, and mobile charging units.

Market Acceleration Playbook

In the first ZEV Strategy, the focus of the document was on the “why” (why ZEVs are crucial to our clean energy transition and why we need a strategy) and the “what” (what are the ZEV market pillars and our core principles, what are stakeholder roles, what are agencies’ objectives, and what metrics will show progress). In this update we add the “how” (how the efforts we undertake lead to the ZEV future we want to achieve).

The Market Acceleration Playbook (below) describes the strategies the state focuses on to foster the key outcomes across the four market pillars that are needed

to ensure continuous and accelerated growth of the ZEV market in the near-term. Not every agency employs every strategy; it is the collective effort that enables the system. Equity in every decision is fundamental to our success and is infused throughout all aspects of the playbook.

Table 1 identifies the primary strategies ZEV-related state agencies use to advance the ZEV market. (Note: not every agency is reflected in this table and some of those listed are boards and departments of other agencies listed in the table). For more detailed information see [Appendix A](#) and [Appendix B](#).

ZEV Market Acceleration Playbook

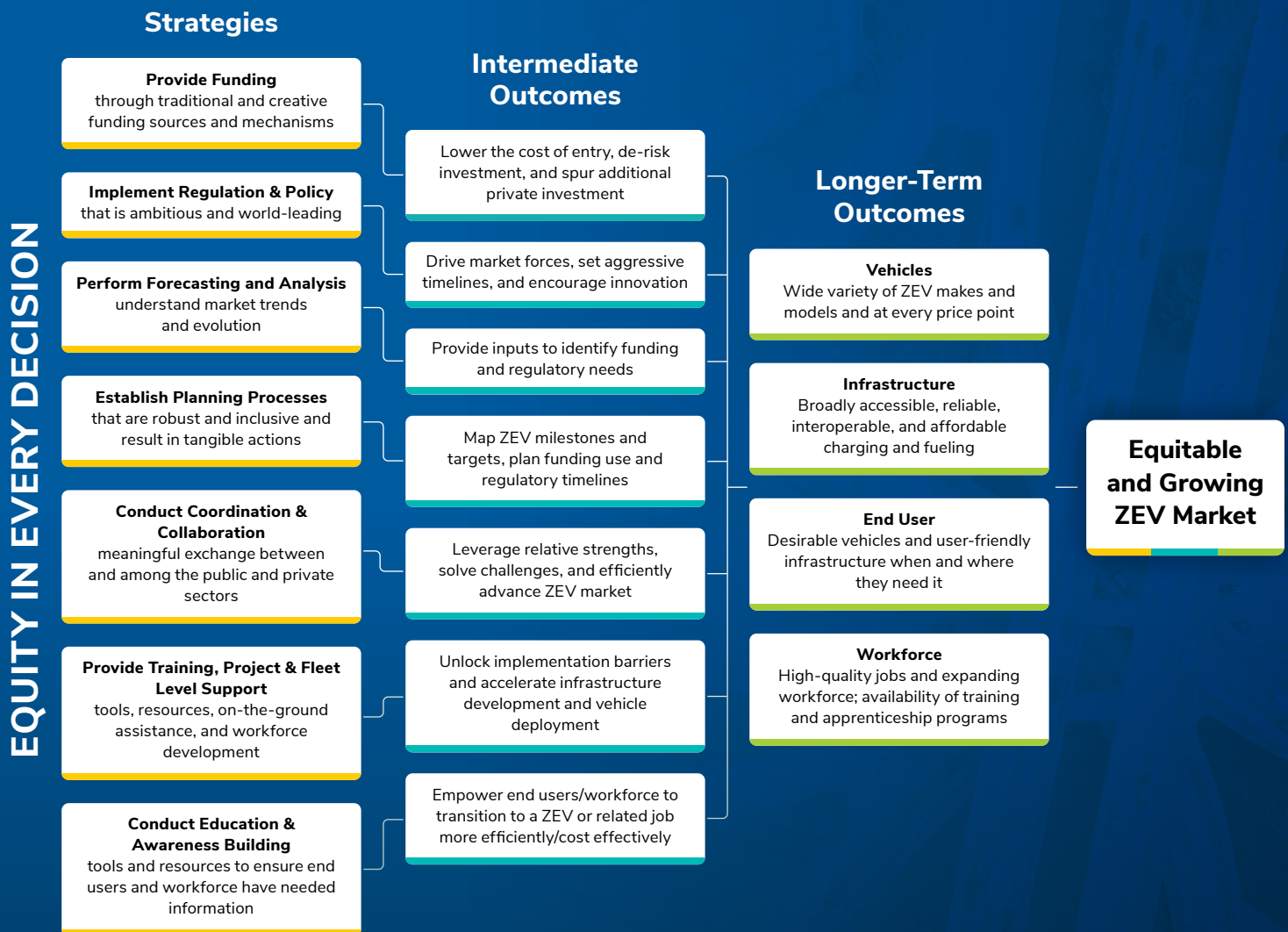


Table 1 | State ZEV Market Acceleration Strategies by Agency

Agency	Funding/ Incentives	Regulation & Policy	Forecasting & Analysis	Planning	Coordination & Collaboration	Training, Project & Fleet-level Support	Education & Awareness
CA Air Resources Board (CARB)	●	●	●	●	●	●	●
CA Building Standards Commission (CBSC)		●					
CA Bureau of Automotive Repair (CDCA-BAR)		●					●
Contractors State License Board (CDCA-CSLB)		●				●	●
CA Dept. of Food and Agriculture (CDFA), Division of Measurement Standards (DMS)		●				●	●
CA Dept. of Forestry and Fire Protection (CAL FIRE)		●					●
CA Dept. of General Services (DGS)	●			●			
CA Dept. of Housing and Community Development (HCD)		●					
CA Dept. of Motor Vehicles (DMV)			●				
CA Dept. of Transportation (Caltrans)	●		●	●	●	●	
CA Energy Commission (CEC)	●	●	●	●	●	●	●

Agency	Funding/ Incentives	Regulation & Policy	Forecasting & Analysis	Planning	Coordination & Collaboration	Training, Project & Fleet-level Support	Education & Awareness
CA Environmental Protection Agency (CalEPA)	•	•	•	•	•		•
CA Governor's Office of Business and Economic Development (GO-Biz)				•	•	•	•
CA Governor's Office of Land Use and Climate Innovation (LCI)				•	•		
CA High-Speed Rail Authority (HSR)				•		•	
CA Infrastructure and Economic Development Bank (IBank)	•						
CA Labor and Workforce Development Agency (LWDA); CA Workforce Development Board (CWDB); Employment Training Panel (ETP)	•	•	•	•	•	•	•
CA Public Utilities Commission (CPUC)	•	•	•	•	•	•	•
CA State Transportation Agency (CalSTA)	•			•	•	•	
CA State Treasurer's Office (STO)	•						
CA Strategic Growth Council (SGC)	•			•			•
CA Transportation Commission (CTC)	•			•		•	

ZEV Market Roles and Responsibilities

One of California's strongest assets is a diverse group of motivated stakeholders that play active roles in developing the ZEV market. [Appendix A](#) lists stakeholders who play an active role in ZEV market development. Lead and supporting roles are distributed within each stakeholder class, usually with one or more leads per pillar to help establish which group is best positioned to impact the overall success within the pillar.⁴⁴

Role of Government in the ZEV Market

Within the context of developing the ZEV market, the government's role is to develop, implement, and improve policies that enable and encourage investment and market expansion, while increasing access and ensuring that direct benefits reach all communities. Policies must be developed in close collaboration with all stakeholder groups included in this document.

Incentives, including direct investments, revenue-neutral market-based policies, tax benefits, access to low-interest loans, and a maturing used ZEV marketplace, will continue to play a pivotal role in filling market gaps and creating opportunities to increase access and accelerate the transition to ZEVs. The ZEV Strategy process aims to create a responsive system to focus incentives and related policies around equity and scale, with a goal of leveraging incentives to accelerate private investment.

Unique Responsibilities of Each Actor

Each agency and stakeholder group has unique contributions to bring to ZEV market development. Readers can view detailed objectives for each agency or stakeholder in [Appendix B](#) and [Appendix C](#), respectively.⁴⁵ These guiding objectives were developed with direct and indirect feedback from each group—with a focus on contribution to the larger ZEV market system.⁴⁶ Each objective maps back to at least one of the four pillars of market development, and/or target outcomes.

California state agencies have the most detailed objectives. The objectives of non-state government

actors hinge on what our leading partners are striving to deliver in the context of state goals. Many objectives necessarily overlap, given the reality that multiple parties are needed to usher in success.

The expectation is for staff and leadership to consider the broader context as they look for gaps in implementation, policy, or participation, ways to innovate, and how to streamline and improve processes.

Our hope is that a reader can use these tables to quickly understand the role of any given stakeholder group, and how each entity fits within the context of the greater effort.

GOVERNOR'S OFFICE AND CALIFORNIA LEGISLATURE

The Governor's Office and California Legislature set the vision for the state. Together, they establish budget priorities and help focus the state agencies' collective effort on targets to achieve California's environmental, economic, and social goals. The Governor's Office and the Legislature play a foundational role in building the ZEV market by setting aggressive targets, passing laws that advance ZEVs and infrastructure, and raising awareness of critical challenges and solutions.

CALIFORNIA STATE AGENCIES

The agencies listed in this Strategy have leading and/or supporting roles in building and incentivizing the ZEV market, and we continue to benefit from strong agency leaders and innovative staff throughout state government. [Appendix B](#) presents each agency's objectives relative to scaling the ZEV market and prioritizing efforts, as well as the key related documents each agency produces, contributes to, or supports.⁴⁷ The goal is to empower agency leaders and staff to focus, streamline, and accelerate the administration's market development efforts.

44. Note: none of the lead or support designations are meant to diminish any group's contributions. Leaders are generally in a prime position to impact outcomes; supporters play crucial roles but generally have slightly less influence on the subject ZEV market development pillar. It is important to acknowledge that success hinges on the system, not any single actor.

45. Non-state agency objectives were established with direct and indirect input and will be updated.

46. The ZEV Strategy is designed to be an iterative process; feedback from stakeholder groups will be integrated in ZEV Strategy updates, as appropriate, and throughout implementation.

47. State agency objectives are intended to be developed on three-year cycles that coincide with the ZEV Market Development Strategy updates, as outlined in Executive Order N-79-20. However, agencies may review and revise objectives in the interim, as needed, to better support the evolving ZEV market.

KEY STAKEHOLDER GROUPS

Numerous stakeholder groups beyond California state government agencies play key roles in advancing the ZEV market—the state cannot achieve scale alone. [Appendix C](#) offers an overview of these key groups and their high-level objectives. While comprehensive, it is not all inclusive; as the ZEV market continues to evolve, roles and objectives may change, and new entrants will emerge to respond to the needs of a mature market. The level of detail provided for these groups is intentionally less than what is outlined for state agencies. The purpose of including key stakeholders in this Strategy is to illuminate the broader ZEV stakeholder landscape, highlight key areas of focus for each group, provide an entry point for those aiming to join the ZEV market, and help identify gaps and areas of overlap so that we can more effectively organize our collective effort.

California ZEV Market Development Stakeholders/Partners

- **California State Agencies**
- **Local and Regional Government**
 - Air Districts
 - City/County Government
 - Metropolitan Planning Organizations
 - Regional Transportation Planning Agencies
- **Federal and Tribal Governments**
 - Federal Government Agencies and National Labs
 - Tribal Governments
- **Vehicle Manufacturers and Supply Chain**
 - Dealerships (and dealership groups; direct sales)
 - Light-Duty Manufacturers
 - Medium- and Heavy-Duty Manufacturers
 - New Market Entrants
 - Off-Road Vehicles and Equipment Manufacturers
 - Suppliers
 - Micromobility Manufacturers
- **Grid Operators, Electricity, and Hydrogen Providers**
 - Balancing Authorities
 - Community Choice Aggregators
 - Electric Utilities, Load-Serving Entities
 - Electric Vehicle Charging Station Providers and Installers
 - Gas Utilities
 - Hydrogen Producers
 - Hydrogen Station Developers and Operators
 - Registered Service Agencies
- **Fleets (public and private)**
- **Non-Governmental Organizations**
 - Codes and Standards Bodies
 - Collaboratives
 - Community-Based NGOs
 - Environmental NGOs
 - Equity and Environmental Justice NGOs
 - Trade Associations
- **Community Members**
- **Investors/Financing Institutions**
- **Organized Labor**
- **Academia**
 - Community Colleges
 - Universities
- **International Partnerships**

PART 3:

Implementation

ZEV Strategy Components

The ZEV Strategy has several components that are updated frequently (i.e., ZEV Equity Action Plan, Agency ZEV Action Plans, and Metrics). ZEV Strategy implementation is detailed below with more information on each of these activities available on the publicly accessible [Zero-Emission Vehicle Market Development Strategy](#) website.

ZEV Equity Action Plan

The first [ZEV Equity Action Plan](#)⁴⁸ is being developed with robust engagement and input from community-based organizations and leaders, environmental justice groups, and other key equity stakeholders. It will help streamline and align ZEV equity definitions and activities across state agencies. The ZEV Equity Action Plan will also include recommendations to advance equity by reducing transportation-related emissions and supporting an equitable zero-emission vehicle industry and workforce in low-income, disadvantaged, and historically underserved communities. The ZEV Equity Action Plan will be published and updated with the ZEV Strategy (every three years) but will include metrics that are tracked and updated more frequently to measure improved access to ZEVs, supporting infrastructure, and zero-emission transportation options in underserved communities.

Agency ZEV Action Plans

Annually, state agencies with a role in the ZEV market submit a brief action plan to GO-Biz. These plans are designed to be a prioritization exercise that highlights key accomplishments and identifies areas that need the most focus within each agency's sphere of influence. The agencies communicate their equity focus and detail

actions that they are seeking to implement, advance, or improve under their ZEV Strategy objectives (detailed in [Appendix B](#)). The actions are intended to be concise in form, and ambitious in substance. All are aimed at advancing the market in one or more of the four pillars. The action plans increase transparency and accountability to the objectives and are available on the [Agency ZEV Action Plans](#) page of the ZEV Strategy website.

Metrics

The ZEV Strategy website includes ZEV metrics, tracking progress to diagnose issues and provide easily understandable trends and opportunities for stakeholders to go deep into the data. It also allows for analysis of where there are needs for further investment and focus to meet the State of California's air quality, climate, and equity goals.

The metrics are organized around the four market pillars, with the goal of incorporating the key outcomes, each with a series of targets and/or policy drivers against which progress can be measured. The metrics on the ZEV Strategy website prioritize simplicity and link to maintained state agency or partners' resources wherever possible.

Full details of available metrics for ZEV Strategy pillars and key outcomes can be found in [Appendix D](#).

⁴⁸. Development of the ZEV Equity Action Plan is required by [SB 1251](#) (Gonzalez, 2022). The ZEV Equity Action Plan will build on the [Equity Engagement and Implementation Plan](#) that GO-Biz published in 2021, which provided a ZEV Equity lay of the land, inventory of existing engagement on equity in the ZEV space, and priorities for state agency improvement.

Conclusion

Shifting the entire transportation system from fossil fuels to renewable energy in the timeframe required to meet or exceed California's health and science-based goals is an immense lift. But, with the shared targets outlined in EO N-79-20 and EO N-27-25, as well as continued collaboration and contributions from multiple parties, it is possible. In the past five years alone, we have witnessed considerable growth and momentum in the marketplace. This Strategy aims to move the transition from possible to inevitable by creating a framework and process for collaboration and decision-making across stakeholders and partners.

If we fast forward to 2035 and 2045 and look back at what worked, we can predict one thing with certainty: success will have had many partners. We

will have met the challenge with a diverse team of stakeholders from multiple sectors and underserved communities—neighborhoods of California that disproportionately suffer from historic environmental, health, and other social burdens—who came together to solve problems, create opportunities, and increase equity.

As such, this ZEV Strategy is intended to empower stakeholders to work toward generating maximum positive impact on the market. The idea is to set a strong course with the understanding and expectation that conditions will change, and that regardless of whether these changes turbocharge the market to new levels or create new headwinds, we have a solid foundation from which to continue to push forward. We firmly know where we need to go, yet we are flexible in how we get there. In a word, the California ZEV Strategy hinges on one of California's most important assets: its people.



Photo Credit: Lucid Motors



Appendix

APPENDIX A:

ZEV Market Development Strategy Who's Who

Legend

Lead (●): The group is positioned to take primary responsibility for the given ZEV market pillar (there may be more than one lead per stakeholder class).

Support (●): The group makes active contributions within the ZEV market pillar in a supporting role.

ZEV Connection: High-level summary that includes statutory and/or administrative direction. Not comprehensive.

Equity Connection: Top-level equity objective for each agency or partner. Designed to be both aspirational and pragmatic.

Strategies: Primary strategies that state agencies deploy to foster key outcomes within the four pillars. From the [Market Acceleration Playbook](#).

Table 2 | State Agencies

ZEV Stakeholder	ZEV Connection	Equity Connection	Strategies	Vehicles	Infrastructure	End Users	Workforce
California Air Resources Board (CARB)	Air Quality, health, climate, ZEV regulations and policies; investments and incentives that grow the market equitably; consumer awareness	Improve air quality; vehicle & mobility access for all, metrics development for equity projects; outreach, technical assistance, and capacity building	- Funding - Regulation & policy - Forecasting & analysis - Planning - Coordination & collaboration - Training, project/ fleet-level support - Education & awareness	Lead	Support	Lead	Support
California Building Standards Commission (CBSC)	Building standards that enable ZEV infrastructure	Continue to increase access to infrastructure for all communities through building code updates	Regulation & policy	–	Support	–	–
California Department of Consumer Affairs (CDCA), Bureau of Automotive Repair (BAR)	Consumer assurance	Protect consumers in used market	- Regulation & policy - Education & awareness	–	–	Support	Support

ZEV Stakeholder	ZEV Connection	Equity Connection	Strategies	Vehicles	Infrastructure	End Users	Workforce
California Department of Consumer Affairs (CDCA), Contractors State License Board (CSLB)	Support and metrics that support implementation of AB 841, which requires all EV charging infrastructure and equipment that is state-funded to be installed by a contractor with the appropriate license classification, as determined CSLB, and other trades	Data collection and analysis for ZEV infrastructure licensing in CA regions	- Regulation & policy - Training, project/fleet-level support - Education & awareness	–	–	–	 Support
California Department of Finance (DOF)	Public investment oversight, public investor guidance	State investments to increase access	Funding	 Support	 Support	 Support	 Support
California Department of Food and Agriculture (CDFA), Division of Measurement Standards (DMS)	Device specifications and standards for public stations (consumer and vendor protection)	Ensure fair and accurate transactions	- Regulation & policy - Training, project/fleet-level support - Education & awareness	–	 Support	–	 Support
California Department of Forestry and Fire Protection (CAL FIRE)	Fire code adoption and support, & national standard adoption and support. Enforcement of regulations on state property	Broad ZEV infrastructure safety	- Regulation & policy - Education & awareness	 Support	 Support	 Support	 Support
California Department of General Services (DGS)	Electric vehicle charging stations installation at state properties, ZEV first purchasing, charging accessibility, hydrogen station support.	Contracting to enable equitable growth of good-paying jobs	- Funding - Planning	 Support	 Support	 Support	 Support
California Department of Housing and Community Development (HCD)	Building standards that require ZEV infrastructure and facilitate future charging	Pursue standards that benefit low-income housing	Regulation & policy	–	 Support	–	–
California Department of Motor Vehicles (DMV)	ZEV adoption data and registration processes	Ensure DMV customer processes are accessible to all, track ZEV adoption via vehicle registration	Forecasting & analysis	 Support	–	 Support	–

ZEV Stakeholder	ZEV Connection	Equity Connection	Strategies	Vehicles	Infrastructure	End Users	Workforce
California Department of Resources Recycling and Recovery (CalRecycle)	Battery & fuel cell recycling, waste to energy	Projects supporting diverse workforce	• See CalEPA	 Support	 Support	 Support	 Support
California Department of Toxic Substances Control (DTSC)	Battery recycling	Regulations protect vulnerable populations	• See CalEPA	 Support	–	–	–
California Department of Transportation (Caltrans)	ZEV fleet and infrastructure; transportation funding programs; transportation planning and research; highway right-of-way; highway signage for ZEV fueling	Deployment of ZEV fleet and supporting infrastructure; ZEV infrastructure access; contracting to enable equitable job growth	• Funding • Forecasting & analysis • Planning • Coordination & collaboration • Training, project/fleet-level support	 Support	 Lead	 Support	 Support
California Energy Commission (CEC)	ZEV infrastructure investment and analysis, interoperability-related market engagement, fuel consumption tracking, energy system resilience and forecasting, ZEV technology research and demonstration, ZEV-related manufacturing, workforce training and development	Increase access for and investments in priority communities; ⁴⁹ support ZEV adoption and access in multi-family housing; pathways to good-paying jobs in priority communities; conduct ZEV-related pilot projects in equity communities	• Funding • Regulation & policy • Forecasting & analysis • Planning • Coordination & collaboration • Training, project/fleet-level support • Education & awareness	 Support	 Lead	 Support	 Support
California Environmental Protection Agency (CalEPA)	Battery recycling, waste to hydrogen, electricity	Equity component to all projects	• Funding • Regulation & policy • Forecasting & analysis • Planning • Coordination & collaboration • Education & awareness	 Support	 Support	–	–

⁴⁹. Priority communities include neighborhoods of California that disproportionately suffer from historic environmental, health, and other social burdens. See glossary for full definition and references to relevant statutes.

ZEV Stakeholder	ZEV Connection	Equity Connection	Strategies	Vehicles	Infrastructure	End Users	Workforce
California Governor's Office of Business and Economic Development (GO-Biz)	ZEV Strategy lead, Business support, permit streamlining	Target economic expansion in underserved communities—focus on minority and small owned businesses/suppliers	- Planning - Coordination & collaboration - Training, project/fleet-level support - Education & awareness	Support	Support	Support	Support
California Governor's Office of Land Use and Climate Innovation (LCI)	Transition to carbon-neutral economy, local government connection	Support local and regional resilience planning and implementation	- Planning - Coordination & collaboration	—	—	Support	Lead
California High-Speed Rail Authority (HSR)	California's biggest passenger ZEV along with ZEV maintenance equipment and ZEV bus fleet	Progressive contracting, economic development, job training	- Planning - Training, project/fleet-level support	Lead	Support	Support	Support
California Infrastructure and Economic Development Bank (IBank)	Finance support for ZEV expansion	Financing products to ensure equitable access to capital, clean energy infrastructure, and good-paying jobs.	Funding	Support	Support	—	—
California Labor and Workforce Development Agency (LWDA)	Maximizing public climate investments in ZEV workforce transition to carbon-neutral economy	Inform the workforce system to meet the demands of a rapidly expanding ZEV market.	- Funding - Regulation & policy - Forecasting & analysis - Planning - Coordination & collaboration - Training, project/fleet-level support - Education & awareness	—	—	—	Lead
California Public Utilities Commission (CPUC)	Regulate IOU infrastructure investments and ZEV-related programs, rate design to encourage long-term growth, affordable electricity, grid reliability	Equitable investment in and incentives for priority communities, encourage broad employment opportunities, affordable rates for fueling	- Funding - Regulation & policy - Forecasting & analysis - Planning - Coordination & collaboration - Training, project/fleet-level support - Education & awareness	Support	Lead	Support	Support

ZEV Stakeholder	ZEV Connection	Equity Connection	Strategies	Vehicles	Infrastructure	End Users	Workforce
California State Transportation Agency (CalSTA)	ZEV-based transportation systems	Focus program investments on robust access	• Funding • Planning • Coordination & collaboration • Training, project/fleet-level support	 Support	 Support	 Support	–
California Strategic Growth Council (SGC)	ZEV enabling investments in communities, community awareness and capacity building	Job development and mobility improvement in priority communities	• Funding • Planning • Education & awareness	 Support	 Support	 Support	 Support
California Transportation Commission (CTC)	Transportation planning, investment, funding	Plans and project applications describe benefits to priority communities; investment in priority communities	• Funding • Planning • Training, project/fleet-level support	 Support	 Support	–	–
California Workforce Development Board (CWDB)	Investing in and providing support through program design and policy development for the ZEV industry to build a workforce development infrastructure.	Integration of strategies that center worker voice, equity, climate benefit, and increase access to high quality jobs to build economic opportunity and mobility for underserved and/or under resourced communities.	• Funding • Regulation & policy • Planning • Coordination & collaboration • Education & awareness	–	–	–	 Support
Division of the State Architect (DSA)	Electric vehicle charging station accessibility regulations and installation at public K–12 schools and community colleges	Ensure access to ZEV fueling for disabled Californians through regulations that are already in effect in the California Building Code	• Regulation & policy	–	 Support	 Support	–
Employment Training Panel (ETP)	Job training support for companies expanding their ZEV workforce or retraining	Prioritize investments to underrepresented communities	• Funding • Training, project/fleet-level support • Education & awareness	–	–	–	 Support

ZEV Stakeholder	ZEV Connection	Equity Connection	Strategies	Vehicles	Infrastructure	End Users	Workforce
California State Treasurer's Office (STO): California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA)	Finance support for ZEV projects including vehicles and charging/fueling infrastructure	Lending to facilitate access to capital for small businesses including supplemental support in priority communities	Funding	● Support	● Support	● Support	● Support
California State Treasurer's Office (STO): California Pollution Control Financing Authority (CPCFA)	General credit enhancement for loans made to small businesses by lenders can include ZEV projects. Specific credit enhancements for loans made to small businesses for ZEVs and/or charging/fueling infrastructure are funded by independent contributor. Tax-exempt conduit bond issuances in specific categories which can include ZE and infrastructure as part of project.	Credit enhancements facilitate access to capital for small businesses including supplemental support in priority communities	Funding	● Support	● Support	● Support	● Support



Photo Credit: Rivian

Table 3 | Local and Regional Governments

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Air Districts	Indirect Source Rules requiring ZEVs, incentives and creative market expansion programs; support ZEV Mobile Source Measures and Transportation Control Measures in updates to pollutant plans; evaluate success in reducing emissions in AB 617 Communities	Focus incentives and outreach in priority communities	● Lead	● Lead	● Lead	—
City/County Government	Permitting, weights and measures, zoning, code development and adoption; municipal fleets; planning (e.g., Climate Action Plans and EV Readiness Plans); directional fueling/charging signage; vehicle and infrastructure incentives	Actively engage priority communities	● Support	● Lead	● Support	● Support
Metropolitan Planning Organizations (MPOs)	Regional Transportation Plans and Sustainable Communities Strategies focused on maximizing ZEV mobility and infrastructure	Design planning processes to incorporate environmental justice and directly benefit priority communities	● Support	● Support	● Support	● Support
Regional Transportation Planning Agencies (RTPAs)	Regional Transportation Plans include regional ZEV goals	Regional Transportation Plans include equity goals	● Support	● Support	● Support	● Support

Table 4 | Federal and Tribal Governments

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Federal Government Agencies and National Labs	Regulations and policies, research development and deployment, project funding, and broad partnership to scale the ZEV market	Programs explicitly direct resources to priority communities	● Lead	● Lead	● Lead	● Lead
Tribal Governments	Pursue ZEV solutions to benefit residents	Collaborate with stakeholders to ensure tribal priorities and needs are addressed	● Support	● Lead	● Lead	● Lead

Table 5 | Vehicle Manufacturers and Supply Chain

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Dealerships (and dealership groups; direct sales)	Key point of contact for drivers, fleets, and education/marketing honoring warranty via service, repair, and maintenance	Educate customers on ZEV benefits	Lead	Support	Lead	Support
Light-Duty Manufacturers	Production, advertising, deployment, sale and maintenance of ZEVs	Scale the market for the benefit of all	Lead	Support	Lead	Support
Medium- and Heavy-Duty Manufacturers	Production, deployment, cost reduction, customer assistance, cost of ownership analysis	Scale the market for the benefit of all and concentrate deployments in priority communities	Lead	Support	Lead	Support
New Market Entrants (Note: Applies to all categories)	Bring new vehicles, infrastructure, software, innovation and human behavior solutions (and attendant data—challenge the status quo	Create innovative ways to accelerate market access and benefits to priority communities	Lead	Lead	Lead	Lead
Off-Road Vehicles and Equipment Manufacturers	Zero-emission off-road vehicles, equipment, and rail technologies	Target early deployments in segments with the greatest human impact	Lead	Support	Lead	Support
Suppliers	Produce vehicle and infrastructure components	Create jobs for priority communities	Support	Support	—	Support
Micromobility Manufacturers	Production, advertising, deployment, sale and maintenance of e-bikes, e-scooters, etc.	Scale the market for the benefit of all	Lead	Support	Lead	Support

Table 6 | Fleets

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Fleets (Public and Private)	Fleet deployments in all applicable use cases	Deploy ZEV fleets in and near priority communities	Lead	Lead	Lead	Support

Table 7 | Grid Operators, Electricity and Hydrogen Providers

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Balancing Authorities	Maintain grid reliability and ensure investor/operator confidence	Maintain grid reliability for all communities of California	Support	Lead	Support	Support

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Community Choice Aggregators (CCAs)	Reliably provide electricity to customers and their vehicles; support infrastructure, resilience, technical assistance and customer education, ZEV/EVSE incentives (personal vehicles, public/private fleets, e-mobility), innovative pilots (including workforce training, VGI, etc.)	Prioritize light, medium and heavy-duty investments in priority communities through local data driven decision-making, targeted incentive programs, and progressive contracting to deliver maximum community benefit	Support	Lead	Lead	Support
Electric Utilities, Load-Serving Entities	Provide electricity to vehicles and electrolysis safely, reliably, affordably, and in a timely manner; support large-scale infrastructure deployment through investments and rate design, provide customer support and education, and ensure electric rates remain affordable	Fill in market gaps to support infrastructure development in priority communities, contracting to encourage minority and women owned business, equitable cost assignment	Support	Lead	Lead	Support
Electric Vehicle Charging Station Providers and Installers	Develop and maintain reliable EV charging stations to enable ZEV adoption at scale. EVCS technology enables grid-beneficial ZEV charging and positive end user charging experience	Hire from, invest in, and deliver and maintain charging solutions for priority communities	Support	Lead	Lead	Support
Gas Utilities	Research, test, develop, and if/ when deemed safe, leverage pipeline infrastructure to carry H2 and/or RNG to be converted to H2; develop/ support interconnection requirements and tariffs for hydrogen injection into gas system	Invest in priority communities, contracting to encourage minority and women owned business	Support	Lead	Lead	Support
Hydrogen Producers	Produce low-cost carbon-free hydrogen at scale	Hire from priority communities	Support	Lead	Lead	Support
Hydrogen Station Developers and Operators	Develop and maintain reliable hydrogen fueling networks strategically to spur ZEV adoption of light to heavy duty on road vehicles.	Hire from, and enable fuel cell travel in and around priority communities	Support	Lead	Lead	Support
Registered Service Agencies	Install, repair, and maintain commercial fueling devices	Ensure safe, reliable, and accurate transactions	Support	Support	Support	Support

Table 8 | Non-Governmental Organizations (NGOs)

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Codes and Standards Bodies	Develop and adopt codes, standards and protocols that ensure safety, consumer protection, and enable market scale. Educate local code enforcement officials on new codes and standards.	Achieve safety, consumer protection for all	● Support	● Support	● Support	–
Collaboratives	Multi-stakeholder collaboration	Connect, synthesize, and apply a diverse set of views	● Lead	● Lead	● Lead	● Support
Community-based NGOs	Policy research, analysis, and implementation; ZEV education, awareness, and advocacy; sharing lessons learned; connect priority communities to ZEV benefits and address community-based and specific transportation and mobility needs; solicit resident input and provide expertise on historical community conditions to build workable solutions	Community partnership, engagement, and capacity building	● Support	● Support	● Support	● Support
Environmental NGOs		Showcase diverse perspectives; help increase program effectiveness	● Support	● Support	● Support	● Support
Equity and Environmental NGOs		Bring voices and perspective to policymaking, represent the underrepresented	● Support	● Support	● Support	● Support
Trade Associations	Represent collective business interest to streamline policymaking input; workforce development	Pursue employees from priority communities, bring in minority owned businesses	● Support	● Support	● Support	● Support

Table 9 | Community Members

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Community Members	End users that influence market direction via consumer choices	Advocates for equitable ZEV and infrastructure deployment, and workforce development/transition	● Support	● Support	● Support	● Support

Table 10 | Academia

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Community Colleges	ZEV workforce pipelines and industry partnerships	Create opportunities for priority communities	● Support	● Support	● Support	● Lead
Universities	R&D, Analysis, Human capital/workforce development	Create opportunities for priority communities	● Support	● Support	● Support	● Lead

Table 11 | Investors

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Investors/ Financing Institutions	Private capital scales the market	Create broad opportunities	Lead	Lead	Lead	Lead

Table 12 | Organized Labor

ZEV Stakeholder	ZEV Connection	Equity Connection	Vehicles	Infrastructure	End Users	Workforce
Organized Labor	Support the current unionized manufacturing, installation, maintenance, and operations workforce in developing new skills to help in meeting the industry and policy driven demand	Provide career opportunities to meet the rapid expanding ZEV workforce demand for workers experiencing barriers towards gaining employment	Support	Support	Support	Lead



Photo Credit: Toyota



Photo Credit: Toyota

APPENDIX B:

State Agency Objectives and ZEV-Related Reports

As part of the ZEV Strategy, each agency (or groups of agencies, as indicated below) will work to deliver results under one or more objectives. To focus actions under these objectives, each agency or agency group will submit concise annual agency action plans designed to concentrate efforts on key deliverables or results. These action plans are meant to be prescriptive enough to ensure accountability, yet open enough to encourage innovation. If new data or insights justify a shift in priority, agencies adjust and share the changes.

Agencies are listed alphabetically. Each agency’s objectives directly or indirectly relate to one or more market development pillars, as shown in the following tables.

Legend

- Direct (●):** Main target of the objective
- Indirect (●):** Ancillary benefit of the objective



California Building Standards Commission (CBSC)

CBSC oversees California’s comprehensive building codes. For ZEVs, this means approving forward-thinking building codes that significantly reduce the cost of electric vehicle infrastructure, opening opportunities for consumer and fleet adoption.

Equity: Continue to increase access to infrastructure for all communities through building code updates and spur electric vehicle infrastructure in low-income or disadvantaged communities that otherwise would not have access.

BSC ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Building Standards: Collaborate with regulation-proposing and expert agencies (DSA, HCD, CEC & CARB, CPUC, GO-Biz) to advance building standards that prepare California for a 100% ZEV fleet.	● Indirect	● Direct	● Direct	-



California Air Resources Board (CARB)

CARB serves as the foundational agency for ZEV market development. Their regulations and incentive programs, both developed with active agency and stakeholder engagement, set the market development floor. CARB is responsible for promoting and protecting public health, air quality, and reducing the impacts from climate change by reducing criteria pollutants, toxic air contaminants, and greenhouse gas emissions.

Equity: Improve air quality, particularly in communities disproportionately impacted by pollution; increase clean vehicle and mobility awareness, affordability, and access for priority communities; collect quantitative and qualitative data and develop metrics to measure progress and impact over time.



Photo Credit: Rivian

CARB ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Analysis: Maintain shared analytical understanding of the role of transportation in air quality/toxic and climate emissions. State Implementation Plan and climate goals.	● Direct	● Direct	● Indirect	-
Regulation: Develop and implement regulations to require investment into production, sale and use of zero-emission vehicles/transportation and mobility, freight, and off-road equipment considering needs identified by communities most impacted by poor air quality. Propose building standards that prepare California for a 100% zero-emission vehicle fleet (coordinate with Building Standards Commission, Department of Housing and Community Development, California Energy Commission, California Public Utilities Commission, GO-Biz).	● Direct	● Direct	● Indirect	● Indirect
Incentives: Create and implement incentive systems that build awareness and market demand, facilitate market expansion—with a focus on equity and meeting unique community transportation and mobility needs, and share lessons learned to replicate or expand creative projects and approaches where feasible. Ensure that all incentives support the state's good-paying workforce goals as well and encourage good-paying market expansion and improved job quality for California workers.	● Direct	● Indirect	● Direct	● Direct
Community Engagement: Community engagement with feedback that informs annual funding, program development, and implementation. Explicit programs that develop partnerships and relationships that facilitate collaboration with our zero-emission vehicle programs.	-	-	● Direct	-
ZEV Market Development: Expand new and used zero-emission vehicle markets and programs, consumer education and awareness, and increase access to clean mobility. Lead hydrogen infrastructure analysis, support electric vehicle supply equipment analysis and local zero-emission vehicle readiness (in collaboration with the California Energy Commission, California Public Utilities Commission, and GO-Biz).	● Direct	● Direct	● Direct	● Direct
Mobility and Technology Advancement: Invest in research, development, and demonstration to advance clean mobility and zero-emission vehicle technology, including opening/enabling new markets.	● Direct	● Direct	● Direct	● Indirect
External Market Development: Leadership/collaboration with other states, nations, federal government, local government, and community-based organizations, etc.	● Direct	● Direct	● Direct	-
Consumer and Worker Awareness: Strengthen and expand zero-emission vehicle-related education and outreach, and tailor to unique needs of impacted communities, to ensure all Californians understand cleaner mobility options.	-	-	● Direct	● Direct

CARB ZEV Market Development Investments

CARB funds projects that target specific needs for ZEV vehicle deployment and workforce development and training. In total, these activities cover all vehicle segments and charging use cases (e.g., light-, medium-, and heavy-duty.)

Investments	Vehicles	Infrastructure	End User	Workforce
Clean Truck and Bus Voucher Incentive Project (HVIP): Market accelerator of advanced zero-emission technologies for commercial medium- and heavy-duty trucks and buses. Voucher incentives play a crucial role to scale market adoption for a wide variety of medium- and heavy-duty on-road vehicle types while set-asides offer focused support for certain vocations such as drayage trucks, public transit buses, and public school buses.	Direct	Indirect	Direct	Indirect
Clean Off-Road Equipment Voucher Incentive Project (CORE): Incentive vouchers provide a point-of-sale discount to offset the incremental cost of zero-emission off-road equipment such as forklifts, transport refrigeration units, mobile power units, construction and agricultural equipment and commercial harbor craft.	Direct	Indirect	Direct	Indirect
Funding Agricultural Replacement Measures for Emission Reductions (FARMER) Program: Provides funding administered through local air districts to replace older vehicles and equipment used at agricultural operations. Eligible projects include zero-emission utility terrain vehicles (UTV), irrigation pump electrification, and zero-emission off-road equipment.	Direct	Direct	Direct	Indirect
Sustainable Heavy-Duty Initiatives for Future Technology (SHIFT): Provides grant funding through a competitive solicitation process that helps accelerate the next generation of heavy-duty advanced technology vehicles, equipment, or emission controls not yet commercialized.	Direct	Direct	Indirect	Indirect



Photo Credit: Iwatani



Photo Credit: AC Transit

Investments	Vehicles	Infrastructure	End User	Workforce
Driving Clean Assistance Program (DCAP): Provides incentives and critical financial education and assistance for eligible low-income consumers who do or do not have a vehicle to retire (scrap), to purchase/lease a new/used clean vehicle in areas outside Regional Clean Cars 4 All program; financing assistance is available throughout California. Also provides Clean Cars 4 All access to regions not covered by regional programs (below).	 Direct	 Direct	 Direct	 Indirect
Regional Clean Cars 4 All (CC4A): Provides incentives to help lower-income consumers living in the five largest air districts, to replace their old higher-polluting vehicles with newer and cleaner transportation. Participants have the option to purchase or lease a new or used PHEV, or ZEV replacement vehicle, or an alternative mobility option such as an e-bike, voucher for public transit or a combination of clean transportation options. Additionally, buyers of PHEVs and BEVs are eligible for home charger incentives or prepaid charge cards if home charger installation is not an option. Additionally, the Enhanced Fleet Modernization Program (EFMP), a complementary program, is used to fund CC4A projects in two of the five air districts.	 Direct	 Direct	 Direct	 Indirect
Zero-Emission Assurance (ZAP) Program: Provides repair assistance for lower income Californians for replacement batteries or fuel cell components of used zero-emission vehicles; administered within DCAP.	 Direct	 Indirect	 Direct	 Direct
Access Clean California: Streamlines access to California Climate Investments' consumer-facing, equity focused clean transportation and clean energy incentive projects while providing resources that help the public learn about, apply for, and participate in these projects.	 Indirect	 Indirect	 Indirect	 Indirect
California Integrated Travel Project (Cal-ITP): Provides targeted payments and data innovation consulting support, including launching multiple pilot projects and scaling solutions that make public transit, electric vehicle charging, and other sustainable mobility options easier to access and more affordable for all Californians.	 Indirect	 Direct	 Direct	 Indirect
Clean Mobility Options (CMO): Offers funding for community transportation needs assessments and clean mobility projects, including carshare, bikeshare, ride-hailing and other micro-mobility projects aimed to increase zero-emission clean transportation options in communities and access to key destinations.	 Direct	 Direct	 Direct	 Direct
Sustainable Transportation Equity Project (STEP): Offers grants for clean transportation projects that combine complementary elements such as active transportation, public transit, and shared mobility services including EV carshare and e-bikeshare, which work together to increase residents' ability to get to key destinations without using a personal vehicle.	 Direct	 Direct	 Direct	 Direct
Clean Mobility in Schools (CMIS): Offers grants for clean transportation in and around schools, including carshare, active transportation, zero-emission school buses and delivery trucks, zero emission lawn and garden equipment and education for staff, students, and parents.	 Direct	 Direct	 Direct	 Direct
Sustainable Community-Based Transportation Equity Planning and Capacity Building Projects: Offers grants for communities to assess transportation needs, plan for clean transportation solutions, partnership building, workforce training and development, outreach, and community engagement.	 Indirect	 Indirect	 Direct	 Indirect

Investments	Vehicles	Infrastructure	End User	Workforce
Innovative Small E-Fleets (ISEF) Pilot Project: A set aside within HVIP that focuses on supporting small fleets by offering vouchers for medium- and heavy-duty zero emission trucks and buses. It provides innovative solutions such as all-inclusive leases, short-term rentals, truck-as-a-service, and other alternate business models.	● Direct	● Direct	● Direct	● Indirect
School Bus Incentive Programs: Administered through HVIP; provides funding for replacement of older, internal combustion engine school buses with new zero-emission school buses, coordinating with California Energy Commission to provide the complementary charging infrastructure and associated costs. Incentives are a major part of CARB's efforts to ensure clean school buses are operating at public schools.	● Direct	● Direct	● Direct	● Indirect
Zero-Emission Truck Loan Pilot: Provides loan support for the purchase of zero-emission heavy-duty vehicles by small fleets. Lenders can draw from a loan-loss reserve account in the event of a loan default. This allows fleets to access better interest rates since the loan is now at a lower loss risk. The California Pollution Control Authority administers the project, which is a replacement for the highly successful Truck Loan Assistance Program that closed in 2023.	● Direct	● Direct	● Direct	● Indirect



Photo Credit: EVgo

Key CARB Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
Climate Change Scoping Plan: 1) Transportation's contribution to GHG emissions, 2) ZEV penetration required to reach GHG targets.	Lead Agency, Ongoing
Mobile Source Strategy: 1) Overall strategy to decrease emissions from mobile sources, 2) major milestones that inform regulatory and incentive strategy.	Lead Agency, Ongoing
State Strategy for the State Implementation Plan: Determine the role ZEVs play in achieving the existing National Ambient Air Quality Standards (NAAQS) and how the state can speed up the timeline for NAAQS attainment.	Lead Agency, Ongoing
Funding Plan for Clean Transportation Incentives: Annual funding strategy—which sectors and communities need pilot project funding, rebate style funding, or subsidized financing. Equitable ZEV deployment, ZEV manufacturing, ZEV replacement, aligning vehicle purchase incentives, reduced risk of purchasing new and used ZEVs, outreach plans and strategies, community transportation needs assessments, light-duty ZEV market findings, and long-term heavy-duty investment strategy, and long-term planning for light-duty zero-emission vehicle market, light-duty vehicle purchase incentives, clean Mobility Investments, and outreach (see below).	Lead Agency, Ongoing
Long-Term Heavy-Duty Investment Strategy: Three-year roadmap for investing Low Carbon Transportation and AQIP funds in clean heavy-duty vehicles and off-road equipment. The Strategy aligns incentive funding with State air quality, climate, and equity goals by tracking progress, defining investment outcomes, and recommending priority technologies and investment levels to accelerate commercialization and market transformation.	Lead Agency, Ongoing
Senate Bill 1403 School Bus Incentive Program Report: This report provides an update on the State's school bus incentive programs. This law requires CARB, in consultation with the California Energy Commission (CEC), to annually report "milestones achieved by the State's school bus incentive programs and the projected need for funding taking into consideration the State's school bus inventory, turnover, and useful life," as part of the Heavy-Duty Investment Strategy.	Lead Agency, Ongoing
Long-Term Plan for Light-Duty Zero-Emission Vehicle Market, Light-Duty Vehicle Purchase Incentives, Clean Mobility Investments, and Outreach: Includes a five-year forecast of funding needs, a market and technology assessment, an assessment of when a self-sustaining market is expected, and recommendations on modifying existing incentives to recognize expected changes in future market conditions.	Lead Agency, Ongoing
Carl Moyer Program Guidelines: Incentive funding opportunities to turn over heavy-duty on-road vehicles, off-road equipment, and fund infrastructure. Additional opportunities and flexibilities to advance zero emission projects.	Lead Agency, Ongoing
Cap-and-Trade Auction Proceeds Investments Plan: Funding priorities relative to all climate sectors, connection to relevant implementing agencies.	Lead Agency, Ongoing
Evaluation of Fuel Cell Electric Vehicle Deployment & Hydrogen Fuel Station Network Development—AB 126: 1) CARB's analysis of current status and near-term projections of FCEV deployment and station network development, 2) actions necessary to maintain progress and continued future expansion, 3) recommendations to CEC on future station development co-funding through AB 126, 4) technical recommendations.	Lead Agency, Ongoing
Community Air Protection Incentive Guidelines: ZEV role in addressing disproportionate air quality burdens on the most impacted communities.	Lead Agency, Ongoing
California's Sustainable Communities and Climate Protection Act Progress Reports—SB 150: Updated every four years; ZEV component measures progress on transportation improvements.	Lead Agency, Ongoing
Low Carbon Fuel Standard Guidance Documents: How to leverage the LCFS to generate revenue for ZEV infrastructure, and guidance for utilities on spending requirements of electricity credit proceeds from the sale of LCFS credits, including Clean Fuel Rewards Program (EV purchase incentive) contributions and electrification investments.	Lead Agency, Ongoing
SB 498 ZEV Report: Policy recommendations for increasing ZEV use.	Lead Agency, One-Time
SB 350 Low-Income Barriers Study, Part B) Overcoming Barriers to Clean Transportation Access for Low-Income Residents (CARB, CEC, CPUC, Caltrans, others): Identified barriers for priority communities to access clean transportation options, mobility, and new and used ZEVs. Implement strategies to address these barriers.	Lead Agency, Ongoing

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
Hydrogen Station Network Self-Sufficiency Analysis per Assembly Bill 8: 1) Potential scenarios by which to eliminate state support and estimated self-sufficiency date, 2) Impact of factors that drive hydrogen station economics, 3) Most effective cost reduction opportunities, 4) Benefits to the consumer through reduced price at the pump.	Coauthor, Supporting Agency
SB 100 (CEC, CPUC and CARB): ZEV role in meeting 100% zero carbon by 2045 requirement.	Coauthor, Supporting Agency
SB 1000 (CEC, CPUC and CARB): Ensure chargers are equitably deployed and vehicles are integrated into the grid.	Coauthor, Supporting Agency
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities, and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency
Vehicle-Grid Integration Roadmap (CEC, CAISO, CPUC, CARB): Actions state can take to advance VGI, accelerate development and deployment.	Coauthor, Supporting Agency
Electric Vehicle Charging Infrastructure Assessment—AB 2127 (CEC, CARB, CPUC): Amount/locations of chargers needed to end the need for combustion.	Coauthor, Supporting Agency
AB 74 Carbon Neutrality Studies (CalEPA, CEC, CARB, GO-Biz, OPR, CalSTA, Labor and Workforce Development Agency, Natural Resources Agency): 1) Identify strategies to significantly reduce vehicle emissions and achieve carbon neutrality, 2) Identify strategies to decrease demand and supply of fossil fuels, while managing the decline of fossil fuel use.	Coauthor, Supporting Agency
AB 8 Time and Cost to 100 Hydrogen Stations (CEC, CARB, with support from GO-Biz): Status and impact of public and private investment; station development timelines.	Coauthor, Supporting Agency
Electrify America Investment Plans: How Electrify America invests Volkswagen Environmental Mitigation Trust money into California's ZEV market.	Approving Agency
AB 794: Implemented new compliance requirements regarding labor standards for drayage and short haul trucking fleets participating in applicable CARB incentive programs.	Lead Agency
SB 1275: Established the Charge Ahead California Initiative to increase the number of zero-emission and near zero-emission vehicles on California's roads and to increase access to these vehicles for lower-income Californians and priority populations.	Lead Agency
SB 1075 Report (CARB, CEC, CPUC): Report on the development, deployment, and use of hydrogen across all sectors as a key part of achieving the State's climate, air quality, and energy goals.	Lead Agency, One-Time





California Department of Consumer Affairs, Bureau of Automotive Repair (BAR)

BAR offers various programs and resources for consumers that can be applied to ZEVs to help consumers navigate and grow confidence in the technology.

Equity: BAR protects consumers in the secondhand market by investigating consumer complaints related to Automotive Repairs.

BAR ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Consumer Confidence: Establish systems that give consumers confidence that used PHEVs, BEVs, and FCEVs will serve their needs for multiple years.	● Direct	-	● Direct	-
Maintenance and Repairs: Encourage and support training in the automotive repair industry by offering presentations during quarterly BAR Advisory Group and BAR Educational Advisory Group meetings.	-	-	-	● Indirect
Data: Build on existing data sharing practices to help inform collective understanding of market health and consumer response to issues surrounding ZEV repairs.	● Indirect	-	-	● Direct



California Department of Consumer Affairs, Contractors State License Board (CSLB)

CSLB supports implementation of AB 841 and protects California consumers by licensing and regulating the state's construction industry.

Equity: Collect data and perform analysis to ensure sufficient ZEV infrastructure licensing in priority communities across the state.

CSLB ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Consumer Protection: Establish/enforce licensing procedures that ensure a well-trained workforce and meet market needs.	-	-	-	● Indirect
Data: Build on existing data sharing practices to help inform collective understanding of market health.	-	-	-	● Indirect



California Department of Food and Agriculture, Division of Measurement Standards (DMS)

DMS promotes accuracy in metering technology and other related fields in weights and measures for both electricity and hydrogen. They work within the national system, and often blaze the trail for other states and the nation to follow.

Equity: Ensure fair and accurate transactions.

DMS ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Consumer/Vendor Protection: Establish/enforce fuel quality and weights and measures laws and regulations that meet market needs and ensure accurate pricing and marketplace transparency.	-	● Direct	-	-
Workforce Training: Put systems in place to help ensure weights and measures testing does not become a bottleneck in the system. CDFA DMS is the lead agency in the training and coordination of county weights and measures officials who test, inspect, and seal commercial EVSE installed in their respective jurisdictions. Commercial EVSE cannot be used without inspection and approval, which poses a major barrier to infrastructure buildout. Additionally, any person or entity that installs and places in service a commercial EVSE must be registered with the Department and their staff must be licensed by the Department as service agents.	-	● Direct	-	● Direct



Photo Credit: EVgo



California Department of Forestry and Fire Protection (CAL FIRE)

CAL FIRE streamlines and adopts fire codes relevant to ZEVs, implements training, and educates communities on fire safety.

Equity: Promote ZEV infrastructure safety across California, making sure priority communities are proactively addressed.

CAL FIRE ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Fire Codes: Adopt fire codes & standards, interpret, and streamline codes for ZEV infrastructure that reflect the latest science and technology. Assist local fire marshals on code interpretation. Enforce the regulations in state buildings.	● Indirect	● Indirect	–	–
Enforcement Regulations on State Property: Plan review, construction inspections and approval of projects including the High-Speed Rail.	● Indirect	● Indirect	–	–
Training: Identify and integrate opportunities for ZEV related fire training in existing and new courses.	● Indirect	● Indirect	–	–



Photo Credit: EVgo



California Department of Transportation (Caltrans)

Caltrans operates a large fleet of vehicles and equipment; provides multiple-unit vehicles for intercity passenger rail lines; manages land; and administers funding for zero-emission passenger vehicle, freight, rail, and transit projects, that can all push the market toward zero emissions. Caltrans manages more than 50,000 miles of California's highway and freeway lanes, including planning and research efforts to provide a safe and reliable transportation network that serves all people and respects the environment.

Equity: Prioritize ZEV deployment and investments in priority communities while facilitating federal and state funding sources to assist our federal, state, regional, local, and industry partners in zero-emission vehicle, bus, and rail replacement, procurement, and deployment.

Caltrans ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Caltrans Fleet: Procure zero-emission vehicles and install supporting infrastructure to create the greenest fleet in the US and set a national standard.	● Direct	● Direct	-	● Indirect
Personal Vehicles: Provide reliable and convenient infrastructure for public charging and hydrogen fueling through administration of federally funded programs; strategically open state land to public and private ZEV infrastructure development.	● Indirect	● Direct	● Direct	● Direct
Freight/Commercial Vehicles: Create opportunities to use state land to support ZEV infrastructure; seek and administer state and federal transportation funding to support ZEV infrastructure; provide truck count data to support models for freight infrastructure needs.	● Indirect	● Direct	● Direct	● Direct
Rail: Pilot and deploy ZEV vehicles in Caltrans' intercity passenger rail fleet.	● Direct	● Indirect	-	● Indirect
Mass Transit: Administer funding to support the procurement of ZEVs and the development of public ZEV infrastructure; provide technical assistance to transit agencies to support their ZEV transitions.	● Direct	● Direct	● Direct	● Direct

Key Caltrans Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
California's Deployment Plan for the National Electric Vehicle Infrastructure (NEVI) Program (CEC, CalSTA): The state's NEVI Deployment Plan describes California's approach and progress in administering funding under the federal NEVI Formula Program to support a nationwide network of EV chargers that are convenient, affordable, reliable, and equitable.	Lead Agency, Annual
California Transportation Plan (CTP): Common framework to guide transportation decisions and investments by all levels of government and private sector. Analysis and recommendations regarding current transportation issues and future trends.	Lead Agency, Quadrennial
The California Fleet Freight Management Plan (CFMP): The CFMP is a comprehensive plan that governs the immediate and long-range planning activities and capital investments by the state with respect to freight movement.	Lead Agency, Quadrennial
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency One-Time
California State Rail Plan: Provide framework for California's rail network, set the stage for cleaner and better rail and community connections.	Lead Agency, Quadrennial
Low Carbon Transit Operations Program (LCTOP) Guidelines: Assist transit providers with funding for the purchase of zero-emission buses and multiple-unit rail vehicles, along with the accompanying infrastructure.	Lead Agency, Annual
Caltrans System Investment Strategy (CSIS): CSIS establishes a framework for the evaluation of transportation infrastructure projects in alignment with the state's Climate Action Plan for Transportation Infrastructure, including a guiding principle related to zero-emission vehicle infrastructure.	Lead Agency, Ongoing



Photo Credit: ChargePoint



California Energy Commission (CEC)

CEC is the lead state agency for zero-emission vehicle (ZEV) customer-side infrastructure policy, planning, and investments. ZEV infrastructure deployment is a public and private effort with multiple state agencies and private entities making investments to enable the transition away from fossil fuels. This includes efforts to expand charging and hydrogen fueling, vehicle-grid integration (VGI), and planning for resilient transportation systems powered by renewable energy. This also includes funding research, development, and deployment of ZEV infrastructure and technologies, workforce development, and investments in ZEV related manufacturing. The CEC has provided more than \$1 billion in funding for these efforts with the aim to accrue health, environmental, and economic benefits from such investments—particularly in priority communities—while transforming the transportation sector.

Over the past 14 years of the Clean Transportation Program, the State has seen a steady and strong growth rate of ZEV sales, but the challenges to complete the transformation are still present. The CEC continues to invest in ZEV infrastructure, workforce development, and manufacturing in collaboration with state agencies, the federal government, and private companies to continue the transportation electrification efforts to collectively meet the State's goals. The CEC's efforts rely on data, science, and public stakeholder input.

Equity: The CEC has a strong focus on benefiting and investing in priority communities. These investments aim to increase general access, support ZEV adoption, and increase access in multi-family housing. These investments will also support ZEV focused pathways to good-paying jobs and conduct ZEV-related community-supported pilot projects. Additionally, recent Clean Transportation Programs include expanded solicitation eligibility to explicitly include California Native American tribes.



Photo Credit: Electrify America

CEC ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Analysis: Develop and maintain analysis on ZEV infrastructure needs and progress as well as data and shared analytical understanding of the integration of transportation into the energy system, in collaboration with CARB, CPUC, GO-Biz, and other agencies. Forecast transportation energy demand for all vehicles, including ZEVs. Maintain database of California's ZEV-related manufacturing companies to inform market development.	Direct	Direct	Direct	Indirect
Infrastructure Development: Catalyze the development and deployment of economically and environmentally sustainable ZEV infrastructure that is interoperable, convenient, and simple for drivers, with focus on gaps in access for California's most impacted communities. Enable public and private sector investment in ZEV infrastructure, with focus on freight transport given its disproportionate pollution burden. Oversee Publicly Owned Utilities' electricity resource planning, including plans for transportation electrification through investments and rates.	Indirect	Direct	Indirect	Direct
Research, Development & Demonstration: Support wide range of innovative technologies to accelerate deployment of ZEV infrastructure, VGI, and increase benefits for all residents and markets.	Direct	Direct	Direct	Indirect
Regulatory: Develop new inventory and reliability reporting standards, uptime standards, and interoperability standards to increase state understanding of, and consumer confidence in, EV infrastructure.	Indirect	Direct	Direct	Indirect
Infrastructure Resilience: Support energy storage as feasible, VGI, hydrogen supply, grid and fueling infrastructure reliability, and on-site generation.	Direct	Direct	Direct	Indirect

CEC ZEV Market Development Investments

Objectives	Vehicles	Infrastructure	End User	Workforce
CALeVIP 2.0 Block Grant Program: Provide funds for installing publicly available high-speed direct current fast charging stations, directing at least half of funding to low-income and disadvantaged communities.	Indirect	Direct	Direct	Indirect
Communities In Charge Block Grant Program: Provide funds for a light-duty electric vehicle (EV) charging incentive project designed to transform EV accessibility, catalyze new markets, and swiftly deploy level 2 EV charging stations.	Indirect	Direct	Direct	Indirect
EnergIZE Commercial Vehicles Block Grant Program: Provide funds for EV and hydrogen refueling infrastructure equipment and upgrades via targeted funding lanes to support ZEV buses and trucks to speed up deployment and installation of medium- and heavy-duty stations.	Indirect	Direct	Direct	Indirect
Manufacturing and Training: Bring manufacturing to the State and support workforce development along with the integration of Electric Vehicle Infrastructure Training Program (EVITP) training and qualifications to ensure safe installation of charging infrastructure.	Indirect	Indirect	Indirect	Direct
Continued Solicitations: Provide funds to solicitations and projects that target specific needs for ZEV infrastructure deployment and workforce development and training. In total, these activities cover all vehicle segments and charging use cases (e.g., light-, medium-, and heavy-duty, multi-unit dwellings, public charging, etc.)	Indirect	Direct	Direct	Direct

Key CEC Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
AB 2127 Statewide EV Charging Infrastructure Assessment (CEC): Number, type, and location of chargers needed to serve the light-, medium-, and heavy-duty battery electric and plug-in hybrid electric vehicles projected to meet California's regulations and policy goals.	Lead Agency, Biennial
AB 8 Time and Cost to 100 Hydrogen Stations (CARB, CEC, GO-Biz): Status and impact of public and private investment; station development timelines.	Lead Agency, Annual
Clean Transportation Program Investment Plan (CEC): Determine ZEV sectors, community priorities, and market segments in need of funding for infrastructure deployment.	Lead Agency, Annual
EPIC Investment Plan (CEC, CPUC): Fund needed ZEV technology innovations such as smart charging, VGI, bi-directional charging, EV battery reuse and recycling, and distributed energy resources for resiliency.	Lead Agency, Annual
Integrated Energy Policy Report (CAISO, CARB, CEC, CPUC): Analyze ZEV infrastructure needs, grid impacts, VGI, and opportunities to reach 100% ZEVs. Forecast ZEVs and associated energy demand to inform utility planning.	Lead Agency, Annual Updates
SB 1000 California EV Infrastructure Deployment Assessment (CEC): Equity analysis of the distribution of EV chargers.	Lead Agency, Biennial
SB 643 Fuel Cell Electric Vehicle (FCEV) Infrastructure and Hydrogen Production Report (CARB, CEC, CPUC): Statewide assessment of the FCEV infrastructure, fuel production, and distribution needed to meet California's zero-emission truck, bus, and off-road vehicle goals.	Lead Agency, Triennial
ZEV and Infrastructure Statistics Website (CARB, CEC, CPUC, DMV, U.S. Department of Energy): Update the ZEV dashboard with the statistics of ZEV sales, infrastructure counts and population.	Lead Agency, Annual
ZEV Infrastructure Plan, aka ZIP (CEC, with input from CARB, CPUC, GO-Biz, and other state agencies): Statewide strategy for ZEV infrastructure, including policies and investments.	Lead Agency, Biennial
SB 100 Joint Agency Report (CARB, CEC, CPUC): ZEV role in meeting 100% zero carbon by 2045 requirement.	Coauthor, Supporting Agency
SB 350 Low-Income Barriers Study, Part B: Overcoming Barriers to Clean Transportation Access for Low-Income Residents (CARB, Caltrans, CEC, CPUC, others): Identify barriers for low-income and priority communities and low-income households to access clean transportation options, enhanced mobility, and new and used ZEVs. Implement strategies to address these barriers.	Coauthor, Supporting Agency
Sustainable Freight Action Plan (California Transportation Commission, CalSTA, Caltrans, CARB, CEC, CPUC, GO-Biz): Actions each agency can take to 1] achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities and 2] reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency
AB 8 Evaluation of FCEV Deployment & Hydrogen Fuel Station Network Development (CARB, CEC, DMV, Go-Biz): CARB led analysis of the status and near-term projections of FCEV deployment and station network development which includes recommendations on the actions necessary to maintain progress and continued future expansion.	Receiving Agency
Integrated Resource Plan (Publicly Owned Utilities): Ensure that electricity sector contributes to California's economy-wide ZEV and greenhouse gas emissions reductions goals.	Receiving Agency



California Environmental Protection Agency (CalEPA)

CalEPA oversees a variety of agencies, including CARB, that work to restore, protect and enhance California's environment. This table focuses on non-CARB related work.

Equity: Leverage analysis tools and outreach to strategically focus agency actions on high-impact projects and policies.

CalEPA ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Disadvantaged Communities Identification: Determine the state's disadvantaged communities using the California Communities Environmental Health Screening Tool (CalEnviroScreen).	● Indirect	● Indirect	● Indirect	● Indirect
California Department of Resources Recycling and Recovery (CalRecycle):				
A: Recycling: Promote and set up systems for battery and fuel cell reuse and recycling.	● Indirect	-	● Direct	● Direct
B: Second Life of Batteries: Classification, transportation, disposal of used batteries.	-	-	● Indirect	● Direct
C: Biomass and Organics to Hydrogen or Electricity: Develop systems to promote and enable the connection of waste resources to California's energy system, including in alignment with state's Low Carbon Fuel Standard regulation.	-	● Direct	-	● Indirect
Department of Toxic Substances Control (DTSC):				
Second Life of Batteries: Classification, transportation, disposal of used batteries.	-	-	● Indirect	● Direct

CalEPA/CalRecycle/DTSC ZEV Market Development Investments

Objectives	Vehicles	Infrastructure	End User	Workforce
Funding for Carbon-Neutrality studies: Contracted with the University of California to conduct two independent studies to identify strategies to support California's goal to dramatically reduce transportation fossil fuel demand and supply by 2045.	● Indirect	● Indirect	● Indirect	● Indirect
Environmental Justice Action Grants: Provides grants to community-based organizations and tribal governments to address environmental justice issues, which may include clean transportation.	● Indirect	● Indirect	● Indirect	● Indirect

Key CalEPA Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
AB 74/Carbon Neutrality Studies (CalEPA, CEC, CARB, GO-Biz, OPR, CalSTA, Labor and Workforce Development Agency, Natural Resources Agency): 1) Identify strategies to significantly reduce vehicle emissions and achieve carbon neutrality. 2) Identify strategies to decrease demand and supply of fossil fuels, while managing the decline of fossil fuel use.	Lead Agency, Published April 2021
Lithium-ion Car Battery Recycling Advisory Group Recommendations (CalEPA, DTSC, CalRecycle): Determine policies for the recovery, repurposing, and recycling of lithium-ion vehicle batteries sold with motor vehicles of in all classes.	Lead Agency, Published May 2022



California High-Speed Rail Authority (HSR)

High-Speed Rail will become the state's largest zero-emission vehicle, with feeder bus service provided by ZEVs, ZEV on-rail and on-road maintenance fleets, and its stations will serve as ZEV mobility hubs.

Equity: Develop contracts, economic development plans, and job training programs in a manner that benefits priority communities and leads to more, new good-paying jobs.

HSR ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
ZEV Mobility Hubs: Integrate multi-modal ZEV transitions at stations.	● Direct	● Direct	● Direct	● Direct
System Resilience: Establish world-class resilience for California's rail system.	● Direct	● Direct	● Direct	● Indirect
ZEV Fleet: Link the rail journey with ZEV bus fleets, incentivize ZEV on-rail maintenance fleets and work with partners to develop a workforce that can operate and maintain the system and fleet.	● Direct	● Direct	● Indirect	● Direct
ZEV Contract Requirements: Reinforce regulation and policy by requiring ZEV across multiple classes for construction and operation.	● Indirect	● Indirect	● Indirect	● Indirect

Key HSR Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
High Speed Rail Business Plan (every other year): The plan for the project's implementation including type of service, proposed construction timeline, alternative financial scenarios for different levels of service, forecasts of ridership and costs, and risks and mitigation measures.	Lead Agency, Ongoing
High-Speed Rail Sustainability Report (every year): The progress the Authority is making in fulfilling environmental, economic, and cultural sustainability commitments, including its work on stations as multimodal hubs, charging infrastructure work, and renewable energy planning.	Lead Agency, Ongoing



California Infrastructure and Economic Development Bank (IBank)

IBank finances public infrastructure and private development projects through its Infrastructure State Revolving Loan Fund (ISRF) and Climate Tech Finance programs. Through the Climate Catalyst Program, IBank works to cultivate private partnerships and mobilize capital to grow key climate solutions.

Equity: The ISRF program focuses on small and mid-sized public entities, including those in underserved communities. By providing these entities with low-cost financing, IBank supports enhanced economic opportunity, community well-being, and resilience. Similarly, IBank's climate financing programs focus on supporting underserved areas and sectors to foster equitable prosperity in the climate transition.

IBank ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
ZEV Project Finance: Increase financing opportunities for ZEV projects and bring more private capital into the market.	● Direct	● Direct	● Indirect	● Indirect

IBank ZEV Market Development Investments

Objectives	Vehicles	Infrastructure	End User	Workforce
Climate Catalyst Fund: Issues loans and other financial products to a range of potential borrowers, including private, nonprofit, tribal and public actors.	● Direct	● Direct	● Indirect	● Indirect
Infrastructure State Revolving Fund (ISRF): Provides low-cost public financing primarily to state and local government entities, including cities, counties, and special districts for a wide variety of public infrastructure and economic expansion projects.	Direct for public entities	Direct for public entities	● Indirect	● Indirect

Objectives	Vehicles	Infrastructure	End User	Workforce
Conduit Bonds: A: Industrial Development Bonds (IDBs): Tax-exempt financing for qualified manufacturing and processing companies, including those involved in ZEVs. B: 501(c)3 Bonds: Tax-exempt financing to eligible nonprofit public benefit corporations for the acquisition and/or improvement of facilities and capital assets. C: Exempt Facility Bonds (EFBs): Tax-exempt financing for projects that are government-owned or consist of private improvements within publicly-owned facilities. D: Public Agency Revenue Bonds (PARBs): Bond financings for various state entities' economic or public development projects and programs.	 Indirect	 Direct	 Indirect	 Indirect
Small Business Finance Center Loan Guarantee Program: Features a loan guarantee program designed to assist small businesses that experience capital access barriers.	Direct for small businesses with up to 750 employees.	Direct for small businesses with up to 750 employees.	 Indirect	 Indirect
Climate Tech Finance Loan Guarantee Program: Provides focused capital support for innovative projects in the climate solutions sector.	Direct for businesses with up to 750 employees and greenhouse gas emission reduction benefits.	Direct for businesses with up to 750 employees and greenhouse gas emission reduction benefits.	 Indirect	 Indirect
Expanding Venture Capital Access Program: Provide capital to unrepresented venture capital managers, entrepreneurs, and business owners to promote climate equity and climate justice. Venture Capital Firms with IBank investment may invest in early stage zero-emissions vehicles solutions.	 Direct	 Direct	 Indirect	 Indirect



Key IBank Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
The Climate Catalyst Fund released the Climate Financing Request for Information alongside the California State Treasurer's Office in December 2023 to inform potential Zero-Emissions Transportation program offerings. The Climate Catalyst Fund Program Criteria, Priorities, and Guidelines for Selected Projects outlines the program goals, requirements, and application process. The Climate Catalyst Revolving Loan Fund is designed to jumpstart critical climate solutions through flexible, low-cost credit and credit support.	Lead Agency, Ongoing
The Infrastructure State Revolving Fund (ISRF) Loan Criteria outlines the program goals, requirements, and application process. ISRF is authorized to directly provide low-cost public financing to state and local government entities for eligible public and economic development projects.	Lead Agency, Completed
The IBank Conduit Bond Criteria outlines the program goals, requirements, and application process. IBank issues four types of bonds: Industrial Development Bonds, 501(c)(3) Bonds, Public Agency Revenue Bonds (PARBs), and Exempt Facility Bonds.	Lead Agency, Completed
The Small Business Finance Center—Loan Guarantee Program (SBLGP) features a loan guarantee program designed to assist small businesses that experience capital access barriers. The program's program goals, eligibility, and application process are outlined in the SBLGP Policy Manual. In 2022, the IBank Small Business Finance Center partnered with the Bay Area Air District to expand the Climate Tech Finance Program, which provides loan guarantees to climate entrepreneurs for innovative projects, statewide.	Lead Agency, Completed
The Expanding Venture Capital Access Program Criteria provides detailed information on program goals and eligibility.	Lead Agency, Completed



California Labor & Workforce Development Agency (LWDA)

LWDA leads California's efforts to protect and improve our current and future workforce. They play a pivotal role in ensuring our labor pool is prepared to meet the demands of a rapidly expanding ZEV market.

Equity: Collaborate with GO-Biz and OPR to create high-quality, broadly accessible jobs for all Californians.

LWDA ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Economic Transition: As specified in SB-162 (2021) work with GO-Biz and OPR to develop and oversee regional strategies to diversify local economies and develop sustainable industries to create high-quality, broadly accessible jobs for all Californians.	–	–	–	 Direct



California Public Utilities Commission (CPUC)

CPUC oversees investor-owned utility investments in ZEV infrastructure and the development and affordability of rates, rebates, and other ZEV customer-facing programs with a focus on accelerating the ZEV market and maximizing ratepayer benefits.

Equity: Investment in and incentives for priority communities, encourage broad employment opportunities, pursue affordable rates for fueling, minimize and equitably distribute costs for ZEV infrastructure.

CPUC ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Electric Grid Planning: Responsible for the oversight of investor-owned utilities distribution planning, electric resource planning and transmission planning in collaboration with the CAISO.	-	Direct	Indirect	Indirect
Electric Grid Investments: Oversee ZEV enabling investments in distribution and transmission spending through the investor-owned utilities' Phase I General Rate Cases (GRCs) which address the investor-owned utilities' overall costs of developing, operating, and maintaining their utility systems. Costs are then recovered through customer rates which are set in the investor-owned utilities' Phase II GRCs.	-	Direct	Direct	Indirect
Utility Investment: Enable widespread, safe ZEV adoption via utility investments on customer side infrastructure, with a focus on investing in priority communities. Includes implementation of AB 841(2020) to develop and implement EV infrastructure rules to support charging infrastructure.	-	Direct	Direct	Indirect
Electricity Rates that are aligned with the CPUC's rate design principles, promote VGI and electrolytic hydrogen fuel production at times that are beneficial for the electric grid over the long term, while also protecting ratepayers and ensuring rates remain affordable.	Direct	Direct	Direct	Indirect
Private Investment: Enable and encourage aggressive private investment in ZEV infrastructure, such as through existing programs that require site host cost-sharing and procurement of vehicles as precursor to participation and working with utilities to accelerate the energization and interconnection processes.	Indirect	Direct	Direct	Indirect
Vehicle-Grid Integration: Promote cost-effective VGI to minimize impacts and maximize benefits of ZEV deployment on the electric grid, improve resilience and enable ZEV market opportunities.	Direct	Direct	Direct	Indirect
Hydrogen in Pipelines: Work with gas utilities to understand both the potential and constraints to integrating hydrogen into existing or new pipeline networks; develop implementation strategies as appropriate.	-	Direct	Direct	Indirect
Education and outreach through technical assistance efforts around customer's ZEV charging needs, site hosting capacity, ratepayer funded ZEV programs, electric rates, charging behavior and fueling from the grid.	Indirect	Direct	Direct	Indirect

CPUC ZEV Market Development Investments

Objectives	Vehicles	Infrastructure	End User	Workforce
Funding Cycle 1 Technical Assistance: Provides \$36 million for a statewide program supporting Transportation Electrification customers with technical assistance, including services supporting timely energization.	Indirect	Direct	Direct	Indirect
Funding Cycle 0: Provides over \$1.5 billion in ratepayer funded incentives for utility and customer-side of the meter infrastructure to support the installation of light-, medium-, and heavy-duty ZEV charging infrastructure. Programs span the initial light-duty pilots authorized in 2016 to broader programs enrolling customers through the end of 2026.	Indirect	Direct	Direct	Indirect

Key CPUC Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
Transportation Electrification Framework: Define role, guidelines, and requirements of IOUs for reaching the state's transportation electrification goals.	Lead Agency, Ongoing
AB 50/SB 410 Implementation (CPUC, CEC): Develop average and maximum energization timing targets for customers requesting new or upgraded electric service from their utility. Establish a process for customers to report energization delays to the utility and CPUC. Direct the utilities to refine their Distribution Planning Process to improve distribution infrastructure planning forecasts. Consider utility costs recovery mechanisms, as requested by the utility(s).	Lead Agency, Ongoing
VGI Working Group Report (CPUC, CEC, CARB, CAISO): Determine and enable opportunities to realize VGI benefits, responsibly accelerate ZEV market and achieve grid reliability and resiliency.	Lead Agency, Ongoing
SB 100 (CEC, CPUC and CARB): ZEV role in meeting 100% zero carbon by 2045 requirement.	Coauthor, Supporting Agency
SB 1000 (CEC, CPUC and CARB): Ensure chargers are equitably deployed and vehicles are integrated into the grid.	Coauthor, Supporting Agency
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency
Low-Income Barriers Study, Part B (CARB, CEC, CPUC): Identify barriers for lower income communities to access enhanced mobility and ZEV market. Determine and implement strategies to address these barriers.	Coauthor, Supporting Agency
Electric Vehicle Charging Infrastructure Assessment—AB 2127 (CEC, CARB, CPUC): Amount/locations of chargers needed to serve the populations of battery electric and plug-in hybrid electric vehicles envisioned in California's policy goals.	Coauthor, Supporting Agency
Vehicle-Grid Integration Roadmap (CEC, CAISO, CPUC, CARB): Actions state can take to advance VGI, accelerate development and deployment.	Coauthor, Supporting Agency
Integrated Resource Plans (IOUs): Ensure that electricity sector contributes to California's economy-wide ZEV adoption and GHG emissions reductions goals.	Receiving Agency



California State Transportation Agency (CalSTA)

CalSTA oversees California's transportation departments and can steer programs to emit zero emissions, where applicable.

Equity: Focus program investments on robust clean mobility access.

CalSTA ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Planning: Ensure state transportation planning prioritizes zero-emission mobility and freight movement, sustainable transportation, and mobility access. Focus on communities most in need.	● Direct	● Direct	● Direct	● Direct
Funding: Increase funding opportunities in ZEV fueling and charging infrastructure and ZEV fleet implementation funding programs.	● Direct	● Direct	● Indirect	-
Equity and Sustainability: Make transportation systems more inclusive and sustainable (active transportation, integrated travel project, complete streets, VMT reduction).	-	● Direct	● Direct	● Direct

Key CalSTA Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
California Transportation Plan: 1) CalSTA and state's transportation agencies view of VMT and ZEV's as compatible and complementary, 2) How California can build a more efficient and environmentally friendly transportation system through VMT and GHG reductions.	Lead Agency, Ongoing
Transit and Intercity Rail Capital Program: 1) Funding assistance for transit providers for the purchase of zero-emission buses and rail, along with the accompanying infrastructure, 2) the role ZEBus and ZETrain play in the larger transit picture, 3) Methodologies to determine the funding for these technologies.	Lead Agency, Ongoing
Climate Action Plan for Transportation Infrastructure: How to leverage state funding programs where the State of California plays a role in scoping, recommending or selecting specific projects to further the implementation of the transportation vision.	Lead Agency, One-Time
AB 74/Carbon Neutrality Studies (CalEPA, CEC, CARB, GO-Biz, OPR, CalSTA, Labor and Workforce Development Agency, Natural Resources Agency): 1) Identify strategies to significantly reduce vehicle emissions and achieve carbon neutrality, 2) Identify strategies to decrease demand and supply of fossil fuels, while managing the decline of fossil fuel use.	Coauthor, Supporting Agency
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities, and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency



California Transportation Commission (CTC)

CTC oversees funding programs with some opportunities to fund ZEV related projects

Equity: Craft project applications that describe and highlight potential benefits of investing in priority communities.

CTC ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Align Funding: Prioritize ZEV investments, and align funding with sister agencies, where feasible.	● Direct	● Direct	● Direct	-
Road Funding: Develop equitable strategies to ensure roads continue to be maintained as revenue generated from gasoline and diesel declines.	-	● Indirect	● Direct	-
Regional Level Transportation Planning: Collaborate with regional transportation planning agencies to incorporate zero-emission infrastructure into transportation planning where feasible.	● Indirect	● Direct	● Direct	● Indirect

Key CTC Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
Active Transportation Program (ATP) Guidelines: Funds expansion of nonmotorized infrastructure to increase walking and bicycling, such as walkways, bike lanes, and bike-share.	Lead Agency, Ongoing
Regional Transportation Planning Guidelines: Guides regional planning for Metropolitan Planning Organizations and Regional Transportation Planning Agencies, with opportunities to guide analysis and prioritization of ZEV related projects.	Lead Agency, Ongoing
Local Partnership Program (LPP) Guidelines: Funds road maintenance, other transportation infrastructure improvements, and transit vehicle acquisition.	Lead Agency, Ongoing
Trade Corridor Enhancement Program (TCEP) Guidelines: Funds infrastructure improvements on trade corridors, including limited freight rail and port investments.	Lead Agency, Ongoing
Solutions for Congested Corridors Program (SCCP) Guidelines: Funds multi-modal improvements along the state's most congested corridors.	Lead Agency, Ongoing
Local Streets and Roads Program (LSRP) Guidelines: Sets rules for formulaic investment in local roadway maintenance—tangible opportunities to support ZEVs.	Lead Agency, Ongoing
California Transportation Plan (CTP) Guidelines: Provides guidance for the development of the CTP, which describes goals and objectives for the State's transportation system.	Lead Agency, Ongoing

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
SB 1121 State and Local Transportation Needs Assessment: Assesses the cost to operate, maintain, and provide for the necessary future growth of the state and local transportation system, including a forecast of the expected federal, state, and local revenues to pay for the cost identified in the needs assessment, any shortfall in revenue to cover the cost, and recommendations on how any shortfall should be addressed.	Lead Agency, Ongoing
Senate Bill 671 Clean Freight Corridor Efficiency Assessment: Identifies the zero-emission freight infrastructure needed to support the California Air Resources Board's Advanced Clean Trucks and Advanced Clean Fleets regulations.	Lead Agency, One-time (December 2023)
Multimodal Corridor Planning Guidelines: Provides guidance for eligible programs that can receive funding through the Congested Corridors Program.	Lead Agency, Ongoing Coauthor, Supporting Agency
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to: 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities, and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency
State Highway Operation and Protection Program Guidelines (SHOPP): Funds capital improvements relative to the maintenance, safety, operation, and rehabilitation of the state highway system.	Coauthor, Supporting Agency
State Transportation Improvement Program (STIP): Funds state highway improvements, intercity rail, and regional highway and transit improvements.	Coauthor, Supporting Agency



California Workforce Development Board (CWDB)

CWDB is uniquely positioned to support relevant job training and transition partnerships, with a focus on quality jobs and broader access to them, as well as related policy development and implementation.

Equity: Continue to focus programmatic and policy work directly on building economic opportunity and mobility for those who have been marginalized, disadvantaged, and/or denied opportunity.

CWDB ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Program Development and Administration: Invest in workforce development projects in both private and public sectors that support State of California ZEV mandates and goals, including vehicle deployment, charging/refueling infrastructure installation, and vehicle operations and maintenance.	-	-	-	● Direct
Local Guidance: Provide guidance to local workforce development boards to support State of California ZEV mandates and goals. (Note: focus on areas with existing industry clusters—i.e., LA Basin and Bay Area).	-	-	-	● Direct

CWDB ZEV Market Development Investments

The California Workforce Development Board (CWDB) commits to investing to help further the development of a robust and equitable zero emission vehicle (ZEV) industry in California by playing the role of funder, convener, and promoter of regional, industry sector-based training partnerships that deliver equity, sustainability, and job quality.

Objectives	Vehicles	Infrastructure	End User	Workforce
High Road Training Partnership (HRTTP): Invest in and assist local industry-based partnerships of good-paying employers, workers and their representatives, and other entities that deliver economic equity, job quality, and sustainability for the ZEV market.	-	-	-	● Direct
High Road Construction Careers (HRCC): Invest in and assist local partnerships that link local building and construction trades councils to local workforce development boards, community colleges, and community-based organizations, creating structured pathways to state-certified apprenticeships relevant to the ZEV market.	-	-	-	● Direct

Key CWDB Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
AB 398 (2017) Climate and Labor Report: Establish vision for ensuring major climate policies and programs support good-paying jobs with accessible training pathways, particularly for disadvantaged Californians.	Lead Department
AB 74/Carbon Neutrality Studies (CalEPA, CEC, CARB, GO-Biz, OPR, CalSTA, Labor and Workforce Development Agency, Natural Resources Agency): 1) Identify strategies to significantly reduce vehicle emissions and achieve carbon neutrality. 2) Identify strategies to decrease demand and supply of fossil fuels, while managing the decline of fossil fuel use.	Coauthor, Supporting Department
SB 170 (2021): The expansion of the High Road Training Partnerships program and establish HRTTPs aligned with the California Community Colleges.	Coauthor, Supporting Department
SB 154 (2022): 1) Support the Low Carbon Economy Grant program. 2) Development of the Oil and Gas Well Capping Pilot initiative in Kern and Los Angeles Counties to upskill journeyworkers on well capping projects. 3) Development and expansion of High Road Training Partnerships for health and human services.	Coauthor, Supporting Department
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities, and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Department
AB 680 Greenhouse Gas Reduction (CWDB/LDWA) (2021): Administration and assist Greenhouse Gas Reduction Fund (GGRF) funding guidelines for administering agencies to ensure that all applicants to grant programs funded by the GGRF meet specified standards, including fair and responsible employer standards and inclusive procurement policies.	Supporting Department



Department of Finance (DOF)

DOF plays a pivotal role in budget development, which has a direct impact on ZEV related programs.

Equity: Promote long-term economic sustainability of all communities while recognizing the particular needs of priority communities.

DOF ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Public Investment: Steward budget process to support ZEV market development.	Indirect	Indirect	Indirect	Indirect

Key DOF Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
California Climate Investment Framework: Strategy for the state's pension funds, with recommendations for making climate conscious decisions.	Lead Agency, Ongoing



Photo Credit: Honda



Department of General Services (DGS)

DGS leads state agency procurement and ZEV adoption and integration into the State of California fleets and enables municipal fleet adoption through contracting.

Equity: Leverage contracting to expand the ZEV market and enable equitable growth of good-paying jobs.

DGS ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Procurement Policies: Implement vehicle and infrastructure procurement policies to exceed the timelines outlined in EO N-79-20.	● Direct	-	● Direct	-
Petroleum Reduction: Pursue strategies to reduce the state fleet's petroleum consumption by 50% (from 2015 levels) by 2030. ⁵⁰	● Direct	● Direct	● Direct	-
ZEV Procurement and Distribution: Enable non-state public entities to leverage state contracts to purchase ZEVs and supporting equipment and develop policies to encourage ZEVs retired from the state fleet directly benefit communities most in need.	● Direct	● Direct	● Direct	-
Fleet and Workplace Infrastructure: Lead state government efforts to install fleet charging to enable accelerated fleet electrification; identify opportunities and encourage use of public hydrogen stations. Develop new strategy to address post-pandemic workplace charging needs in anticipation of accelerated EV adoption in California. (Partners: CEC, CPUC, CARB, Caltrans, CDCR, EDD, Fish & Wildlife; agencies with fleets).	● Indirect	● Direct	● Indirect	● Direct
VMT Reduction: Develop and maintain programs to reduce state worker vehicle miles traveled and/or enable shifts to less impactful travel modes. (Partner: CalHR, all agencies)	-	-	● Direct	-
ZEVs on Rental Car Contracts: Make it easier to implement now that BEVs commonly have more than 200 miles of range, and FCEV market is expanding.	● Direct	-	● Direct	-
Division of the State Architect	-	-	-	-
Accessibility Regulations: Electric vehicle charging stations are completely integrated into California's building standards for commercial and public facilities. Collaborate with the Building Standards Commission to advance building standards for EV charging at public K-12 schools and community colleges.	-	● Direct	● Direct	-

Key DGS Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
ZEV First Purchasing Policy Management Memos: How to leverage the state fleet to support ZEV adoption.	Lead Agency, Ongoing

50. Goal set in final AB 236 report following completion of AB 236 (Lieue, 2007) goal to reduce state fleet petroleum usage by 20%.



Department of Housing and Community Development (HCD)

HCD develops and proposes for adoption building standards for residential dwellings, including single and multifamily buildings, enabling cost effective home charging.

Equity: Pursue standards that preserve and expand safe and affordable housing opportunities, benefiting priority communities.

HCD ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Building Standards: Collaborate with expert agencies (CARB, BSC, CEC, CPUC, GO-Biz) and other interested stakeholders, to ensure California residential building standards support charging for electric vehicle related advancements and demand.	-	● Direct	● Direct	-



Department of Motor Vehicles (DMV)

DMV handles registrations and ownership transactions. DMV also provides Motor Carrier permits (MCP), clean air decals (CAD), international registration plan (IRP) and other registration products/services that are essential to intrastate and interstate commerce.

Equity: Ensure that DMV customer processes are accessible to all. Track market data to enable assessment of market access to the new and used ZEV market.

DMV ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Data: Collect, maintain, and share ZEV registration and odometer data to enable robust market analysis, while protecting consumer privacy.	● Indirect	● Indirect	● Indirect	● Indirect
Market Access: Clearly delineate processes to enable new technology to be tested in real world settings, create opportunities for OEMs and fleets to work together to build market confidence.	● Direct	-	● Direct	-
Education: Increase awareness of ZEVs through various touchpoints (e.g., driver tests, DMV materials, mailers, etc.).	-	-	● Direct	-



Employment Training Panel (ETP)

ETP specializes in employee training programs. These can be leveraged to introduce and improve ZEV related job skills and increase compensation and retention.

Equity: Prioritize investments and programs that serve priority communities.

ETP ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Training: Ensure California-based companies and public agencies can easily train current and future employees on ZEV-related systems.	-	-	-	● Direct



Governor's Office of Business and Economic Development (GO-Biz)

GO-Biz leads the ZEV Market Development Strategy and serves as the first point of contact for ZEV related businesses to engage with state government.

Equity: Facilitate economic expansion in underserved communities and integrate minority-owned and small businesses/suppliers into the growing ZEV market. Ensure robust outreach and engagement with priority communities and developing processes to align agencies to ensure equity in every decision.

GO-Biz ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
ZEV Strategy: Organize and lead the development and implementation of the ZEV Market Development Strategy.	● Direct	● Direct	● Direct	● Direct
ZEV Equity: Steer the development of a shared, cross-agency definition of equity, and set an equity agenda for the deployment of ZEVs, ZEV infrastructure, and workforce development.	● Direct	● Direct	● Direct	● Direct
Infrastructure Permitting: Streamline ZEV infrastructure development.	-	● Direct	-	-
Market Development Growth: Actively support clean mobility business development and work with industry, labor agencies and stakeholders to enable equitable job growth (leverage Business Investment Services, Cal Competes, and the Office of the Small Business Advocate).	● Indirect	● Indirect	-	● Direct

Objectives	Vehicles	Infrastructure	End User	Workforce
Incorporate Industry Voice: Feed business perspective into agency decision-making and regulatory processes—strategic problem solving, market	● Indirect	● Indirect	● Indirect	● Indirect
International Business: Attract foreign direct investment, assist companies in gaining access to new markets, share lessons learned with, and learn from, global partners.	● Indirect	● Indirect	● Indirect	● Indirect
ZEV Consumer Awareness: Expand consumer awareness and buy-in with an additional focus on priority communities and convert this awareness into decisions to drive or ride in ZEVs.	–	–	● Direct	–

Key GO-Biz Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
ZEV Market Development Strategy: 1) Articulate core principles for collective ZEV action, 2) Identify ZEV targets, 3) Establish roles and objectives of agencies and stakeholder groups, 4) Organize collective problem-solving, 5) Ensure lessons learned are captured and incorporated.	Lead Agency, Ongoing
Equity Action Plan: 1) Actionable steps and metrics to measure and improve access to zero-emission vehicles, infrastructure, and zero-emission vehicle transportation options in low-income, disadvantaged, and historically underserved communities, 2) Recommendations to advance equity by reducing pollution driven by the transportation sector and related industries in low-income, disadvantaged, and historically underserved communities, including emissions from medium- and heavy-duty vehicles, and by supporting an equitable zero-emission vehicle industry and workforce.	Lead Agency, Ongoing
Electric Vehicle Charging Station Permitting Guidebook: 1) Current plug-in electric vehicle (PEV) landscape in California, 2) Station development phases, process, best practices and pitfalls, 3) Future market perspectives.	Lead Agency, Ongoing
Hydrogen Station Permitting Guidebook: 1) Hydrogen and fuel cell electric vehicles (FCEV) ecosystem and current landscape in California, 2) Hydrogen station development phases, process, best practices and pitfalls, 3) Future market perspectives.	Lead Agency, Ongoing
Sustainable Freight Action Plan (CTC, CARB, CEC, CPUC, Caltrans, CalSTA, GO-Biz): Actions each agency can take to 1) achieve California's vision of a modern, safe, integrated, and resilient freight system that continues to support California's economy, jobs, and healthy, livable communities, and 2) reach the Plan's targets for freight system efficiency, transitioning to zero-emission technologies, increased competitiveness and economic growth.	Coauthor, Supporting Agency
Evaluation of Fuel Cell Electric Vehicle Deployment & Hydrogen Fuel Station Network Development—AB 8 (CARB, CEC, GO-Biz): 1) CARB's analysis of current status and near-term projections of FCEV deployment and station network development, 2) actions necessary to maintain progress and continued future expansion, 3) recommendations to CEC on future station development co-funding through AB 8.	Coauthor, Supporting Agency
Electric Vehicle Charging Infrastructure Assessment—AB 2127 (CEC, CARB, CPUC, GO-Biz): Amount/locations of chargers needed to serve the populations of battery electric and plug-in hybrid electric vehicles envisioned in California's policy goals.	Coauthor, Supporting Agency
Agency Action Plans—ZEV Market Development Strategy: Actions each agency will take to achieve their ZEV Market Development Strategy objectives.	Receiving Agency



Governor's Office of Land Use and Climate Innovation (LCI)

LCI serves as California's comprehensive state planning agency—driving land use, economic development and workforce insights and guidance that directly impact the ZEV market.

Equity: Lead the development and implementation of the Community Economic Resilience Fund (CERF) and support local and regional resilience planning and implementation through the Integrated Climate Adaptation and Resiliency Program.

LCI ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Land Use Synergies with ZEV: Support cross-sectoral and interagency conversations that bring priorities together, including around land use planning and guidance, implementation of SB 743, transportation, housing and development, freight and logistics, etc.	-	-	● Direct	● Direct
Economic Transition: As specified in SB 162 (2021) work with the Labor Agency and GO-Biz to develop and oversee regional strategies to diversify local economies and develop sustainable industries to create high-quality, broadly accessible jobs for all Californians.	-	-	-	● Direct

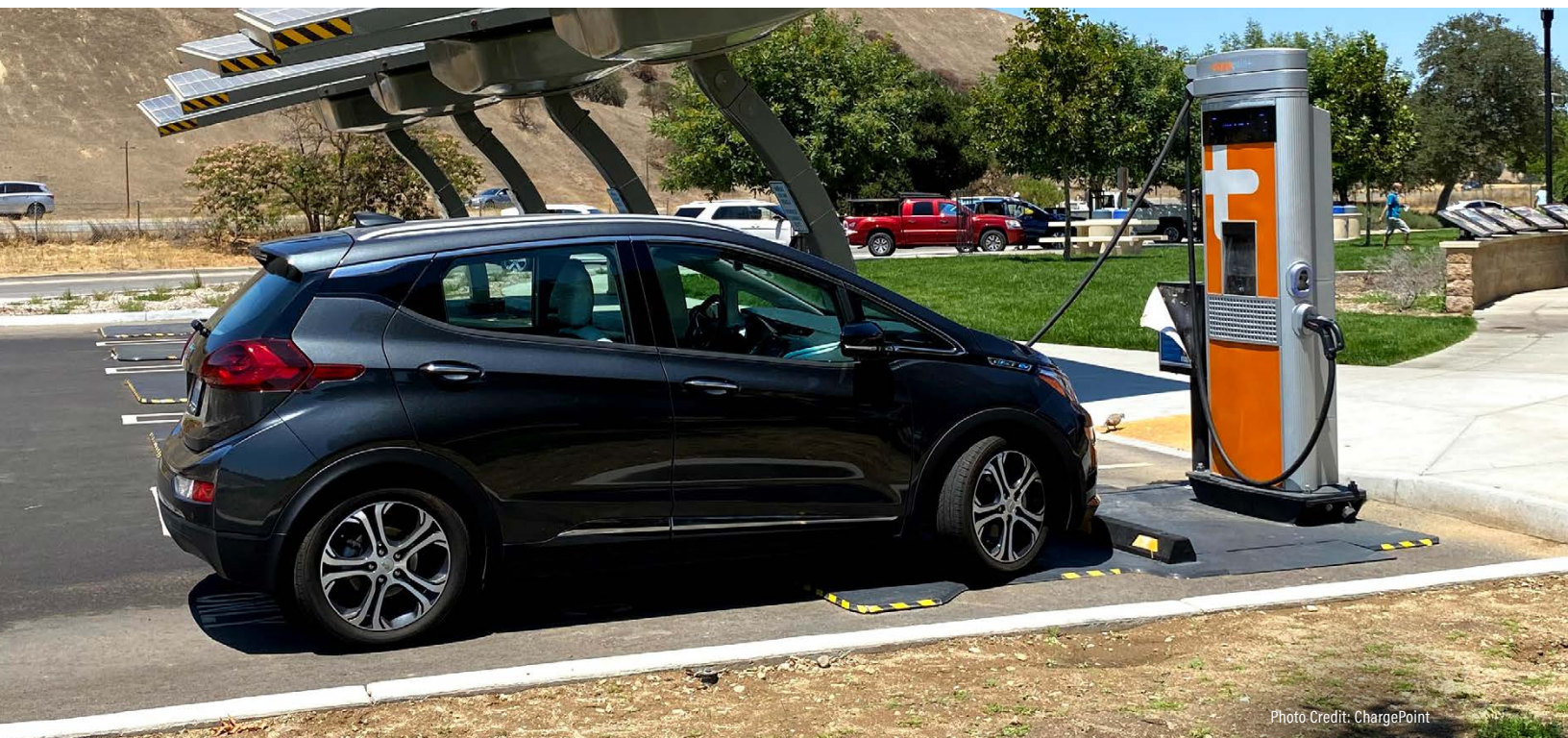


Photo Credit: ChargePoint



State Treasurer's Office (STO), California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA)

Boards, Commissions and Authorities under the STO have authority to finance, provide tax relief, administer programs, and invest according to state and federal policy.

California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) administers a front-end tax incentive program for the purchases of tangible property to encourage increased manufacturing investments in the state.

Equity: The Sales and Use Tax Exclusion (STE) Program's annual allocation was strategically distributed into different sized project pools to serve small and large green projects.

CAEATFA ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Tax Exclusions: Identify and implement creative approaches to support alternative energy, advanced transportation manufacturing, advanced manufacturing of ZEV-related products and technologies, and lithium extraction and recovery.	Indirect	Indirect	-	Indirect

Key CAEATFA Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
STE Program: Promote advanced transportation, renewable fuels, alternative energy, and lithium extraction and recovery.	Lead Agency, Ongoing



Photo Credit: Rivian



State Treasurer's Office (STO), California Pollution Control Financing Authority (CPCFA)

California Pollution Control Financing Authority (CPCFA) administers the California Capital Access Programs (CalCAP) which provide credit enhancements. For lenders, CalCAP credit enhancements are risk management tools available to them only when they provide private capital in the form of loans to small businesses. For small businesses, credit enhancements are incentives to lenders to loan to small businesses. CalCAP Collateral Support and CalCAP for Small Business are currently funded by the State Small Business Credit Initiative (SSBCI) and enrolled loans can be for a wide variety of small business needs, including ZEV and infrastructure.

CPCFA has the statutory ability to work with third parties, including state agencies, as "independent contributors" to CalCAP. Independent contributors identify a policy goal which can be addressed through a CalCAP credit enhancement mechanism, and a source of capital. The independent contributor provides funding and program goal and CPCFA provides the mechanism and the administrative functions. Previous independent contributor programs include CalCAP CARB for air quality-compliant heavy-duty trucks and CalCAP EVCS for electric vehicle charging stations owned by small businesses and available for public use. New independent contributor programs are under development.

CPCFA's Tax-Exempt Bond Program issues conduit bonds in the federally defined categories of solid waste, water furnishing, and wastewater. Purchase of ZEV and infrastructure can be included as part of a qualifying project. Production of a fuel such as green hydrogen for ZEV could be an eligible project if the feedstock used was solid waste.

CPCFA Equity: Increase knowledge of and access to private capital via loans for very small businesses (10 and fewer employees) and small businesses owned by self-identified members of historically underserved groups.



Photo Credit: FirstElement Fuel



Photo Credit: FirstElement Fuel

CPCFA ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
CalCAP Credit Enhancements for Loans for ZEV and Infrastructure Purchases by Small Businesses: CalCAP Collateral Support and CalCAP for Small Business, both funded by State Small Business Credit Initiative (SSBCI), are credit enhancement programs which encourage financial institutions to make loans to small businesses by providing risk management tools for enrolled loans. Eligible loan purposes are a wide variety of small business needs, including ZEV projects. CPCFA is also working on additional programs which will combine CalCAP credit enhancement mechanism and administration by CPCFA with policy goal(s) and funding from an "independent contributor" agency. This includes a CARB pilot program which will enroll loans for ZE heavy-duty vehicles and will involve CEC to include charging/fueling infrastructure. CPCFA is also exploring a program for ZEV and infrastructure with an electric utility.	 Indirect	 Indirect	 Indirect	 Indirect
Tax-Exempt Bond Issuances and Industrial Development Bonds (IDBs): Purchase of ZEV and infrastructure can be included as part of a qualifying solid waste, water furnishing, or wastewater cleaning project. Production of a fuel such as green hydrogen for ZEV could be an eligible project if the feedstock used was solid waste. CPCFA can issue Industrial Development Bonds for projects which include one of CPCFA's categories in the industrial project. CPCFA was the first state-wide financing authority to adopt Green Bond standards and issuances can be certified as green bonds.	 Indirect	 Indirect	 Indirect	 Indirect
National Green Bank Funding: California's Green Bank is composed of CPCFA, CAEATFA, and IBank. The application process for National Green Bank funding is headed by IBank. It could include expansion of the CalCAP credit enhancement program for ZE vehicles and infrastructure currently in development with CARB and CEC.	 Indirect	 Indirect	 Indirect	 Indirect

Key CPCFA Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
California Capital Access Programs (CalCAP):	
A. CalCAP Collateral Support and CalCAP for Small Business: https://www.treasurer.ca.gov/cpcf/calcap/collateral https://www.treasurer.ca.gov/cpcf/calcap/sb	Lead Agency, Ongoing
B. ZEV Truck Loan and Infrastructure Pilot Program with the California Air Resources Board (CARB) and California Energy Commission (CEC): In development, no documents yet available.	Receiving Agency, In Development
C. Potential Utility Independent Contributor ZEV and Infrastructure Program: In development, no documents yet available.	Receiving Agency, In Development
D. Potential National Green Bank Funding: In development, no documents yet available.	Lead Agency, In Development
Tax-Exempt Bonds, Industrial Development Bonds, and Green Bonds: https://www.treasurer.ca.gov/cpcf/tax-exempt - CPCFA issuances can be certified as green bonds.	Lead Agency, Ongoing



Strategic Growth Council (SGC)

SGC invests in communities, creating opportunities to enable ZEV adoption.

Equity: Support job development and mobility improvement in priority communities.

SGC ZEV Market Development Objectives

Objectives	Vehicles	Infrastructure	End User	Workforce
Incentivize ZEVs in All Programs: Infrastructure and planning grant programs incorporate ZEV and ZEV infrastructure incentives and funding in their sustainable community development strategies.	● Indirect	● Indirect	● Direct	● Direct
Update Guidelines with ZEVs in Mind: ZEV deployment and infrastructure incentives/guidelines in SGC grant programs are continually updated to reflect State of California priorities, including proactive support for small minority owned businesses.	● Indirect	● Indirect	● Direct	● Direct

Key SGC Documents Related to ZEV Market Development

Report & Key ZEV Market Related Questions Addressed	Role & Frequency
Affordable Housing and Sustainable Communities (AHSC) Program Guidelines: Supports opportunities to fund ZEVs and ZEV infrastructure in AHSC projects.	Lead Agency, Ongoing
Transformative Climate Communities (TCC) Program Guidelines: Supports opportunities to fund ZEVs and ZEV infrastructure in TCC projects.	Lead Agency, Ongoing



Photo Credit: EVgo

APPENDIX C:

Key Stakeholder Groups and High-Level Objectives

Numerous stakeholder groups beyond California State Government Agencies play key roles in advancing the ZEV market—the state cannot achieve scale alone. This section offers an overview of these key groups and their high-level objectives. While comprehensive, it is not all inclusive; as the ZEV market continues to evolve, roles and objectives may change, and new entrants will emerge to respond to the needs of a mature market.

The level of detail provided for these groups is intentionally less than what is outlined for state agencies. The purpose of including key stakeholders in this Strategy is to illuminate the broader ZEV stakeholder landscape, highlight key areas of focus for each group, provide an entry point for those aiming to join the ZEV market, and help identify gaps and areas of overlap so that we can more effectively organize our collective effort.

Governor's Office and California Legislature

The Governor's Office and California Legislature set the vision for the state. Together, they establish budget priorities and help focus the state agencies' collective effort on targets to achieve California's environmental, economic, and social goals. The Governor's Office and the Legislature play a foundational role in building the ZEV market by setting aggressive targets, passing laws that advance ZEVs and infrastructure, and raising awareness of critical challenges and solutions.

Local and Regional Government

Local and regional governments serve pivotal roles in ZEV market development. From permitting to building standards, transportation planning to investments, we rely on local leaders and policies to hasten the transition to zero emissions for all Californians.

California has 482 cities, 58 counties, 35 air districts, 18 metropolitan planning organizations, and 26 regional transportation agencies, each with different realities and constituencies. The following objectives are high-level and directional; their application will vary across the state.



Photo Credit: ChargePoint

Local and Regional Government

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Air Districts	California's 35 air districts play varying roles in ZEV market development depending on district size, population, air quality, and other local factors. They lead and collaborate with regional stakeholders to broaden and promote ZEV adoption and innovative clean mobility and administer incentive programs like Clean Cars 4 All.	• Shared understanding of local air quality • Enable and fund, as appropriate, broad ZEV adoption and innovative clean mobility • Push the technology/ deployment envelope • Support ZEV infrastructure networks • Tailor local education, outreach, and incentives to the needs of community • Develop strategies to increase ZEV adoption, as appropriate • Measure impacts of strategies in reducing air pollution regionally and in AB 617 communities • Manage settlement programs • Adoption of local facility based mobile source rules that require ZEVs at commercial airports, warehouse distribution centers, seaports, and railyards	● Lead	● Lead	● Lead	-



Photo Credit: Electrify America

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
City/County Government	Local governments approve and oversee ZEV infrastructure permitting, zoning building code, certify weights and measures, operate their own fleets, lead land use planning, and implement policies that directly impact ZEV deployment.	• Reduce car dependence in communities, including transit and micro-mobility • Streamline permitting for ZEV infrastructure • Development of City or Regional ZEV Readiness Plans or Roadmaps • Adopt aggressive building standards that facilitate the transition to ZEVs, micro-mobility, and reduced car dependence; and ensure new construction can meet future demand to avoid unnecessary retrofitting costs • Direct investment in ZEV infrastructure in well-attended, frequently used and municipally-owned property; and deploy and/or create concessions to encourage private investment • Explore reduced parking requirements in exchange for charging infrastructure installation • Support consumer awareness programs such as ride-and-drives and targeted outreach • Engage large employers and property owners to encourage ZEV infrastructure deployment • Create emissions-free zones • Prioritize ZEV deployment in fleets and procurement decisions (leading by example) • The Zero-Emission Forklift⁵¹ rule requires state and local government fleets to phase-out Class IV and Class V Large-Spark Ignition (LSI) forklifts. Voluntary compliance from private entities is encouraged. • The Advanced Clean Fleets⁵² rule requires state and local government agencies with medium and heavy-duty vehicles to reduce emissions by phasing in ZEVs • Create or facilitate ZEV programs that focus investment in priority communities	 Support	 Support	 Support	 Support

51. <https://ww2.arb.ca.gov/our-work/programs/zero-emission-forklifts>

52. <https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets>

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Metropolitan Planning Organizations (MPOs)	MPOs lead regional transportation planning. They play a pivotal role in getting people out of cars, optimizing freight corridors, and deploying strategies to encourage ZEV adoption.	• Develop and implement Sustainable Community Strategies and Regional Transportation Plans that incorporates ZEV related policies • Implement projects that support the Sustainable Freight Action Plan • Permit streamlining outreach and support • Apply for and implement state and federal funding that encourages ZEV adoption • Develop regional ZEV readiness plans, tools, and studies	Support	Support	Support	Support
Regional Transportation Planning Agencies (RTPAs)	RTPAs serve a role very similar to MPOs, but for rural regions. They develop long range planning to ensure their region's vision and goals are clearly identified, and effective decisions are made to reach those goals. These plans should support the state's ZEV goals.	• Develop and implement strategies to integrate ZEVs into Regional Transportation Plans • Identify and communicate ZEV related opportunities and barriers; work with stakeholders to implement solutions • Permit streamlining outreach and support • Apply for and implement funding that encourages ZEV adoption • Develop regional ZEV readiness plans, tools, and studies	Support	Support	Support	Support



Photo Credit: Electrify America

Federal and Tribal Governments

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Federal Government Agencies and National Labs	Through policy priorities and funding decisions, the federal government plays a key role in how quickly we can accelerate the ZEV market throughout the country. Federal environmental, energy and transportation agencies and national labs set vehicle emission standards, provide funding and thought partnership for early stage R&D, data collection and analysis, and facilitate stakeholder collaboration.	- Set policies and provide incentives to encourage development and deployment of ZEV technologies by OEMs and fuel providers, and that support workforce development to support the ZEV market - Set policies and provide incentives that enable broader access and greater uptake of ZEVs among end users - Invest in ZEV related R&D and technology advancement, leveraging national labs and other resources - Collaborate with key stakeholder groups to identify ZEV market barriers and potential solutions - Continue, expand, or create tax related opportunities to encourage investment in renewable generation, storage and ZEV infrastructure - Pursue ZEV advancements and deployment with the US military	● Lead	● Lead	● Lead	● Lead
Tribal Governments	There are 169 California Native American Tribes in the state, including 109 federally recognized tribes. Engagement by and with tribal leaders ensures equitable transportation solutions and ZEV access to tribal communities.	- Identify areas of mutual concern and strengthen partnerships to implement solutions - Work with stakeholders to ensure infrastructure planning is inclusive of tribal communities - Collaborate with outreach and educational entities to ensure messaging and outreach efforts reflect tribal community perspectives and needs	● Support	● Lead	● Lead	● Lead

Vehicle Manufacturers and Supply Chain

Delivering zero emissions to all is only a dream without vehicle manufacturer investment in, and commitment to zero-emission technologies. Success hinges on automaker ability to deliver products that meet and exceed customer expectations across all vehicle classes. Further, California will need vehicle manufacturers to market their ZEVs more prominently to build consumer awareness and demand.

California has a long history of working constructively with automakers to develop policies and incentives to seed the ZEV market. This work will be leveraged and expanded in working with other vehicle and infrastructure manufacturers, with an aggressive eye toward scale.

The following are some of the components of various supply chains in automobile and rail industries that could grow in California.

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Dealerships (and dealership groups; direct sales)	Auto dealerships are on the front line of customer and fleet engagement. They can encourage ZEV adoption and grow consumer and fleet confidence in ZEV technology. Dealers are often the first place for consumers to have questions answered about ZEV infrastructure. It is critical that agencies work with dealerships (including used car dealerships) to understand consumer ZEV needs and preferences and provide information on critical incentives and low-cost financing. Dealerships also offer routine vehicle maintenance, and honor vehicle warranties. The provision of reliable dependable ZEVs followed by ongoing service and support are what keeps fleet customers coming back.	- Stage new and used ZEVs on the lot in visible locations - Train sales and service people with continuous training programs - Provide marketing and education materials to trainees and customers for more informed car buying choices - Facilitate transparency in ZEV ownership, including helping customers understand total cost of ownership - Partner with ZEV education and outreach organizations - Pursue opportunities to support and enable charging and fueling infrastructure	Lead	Support	Lead	Support
Light-Duty Manufacturers	With nearly 30 million passenger vehicles on California roads, this market segment plays a key role in the development and cost reduction of components. Cars are also important in raising the awareness and visibility of ZEVs among the public.	- Develop desirable products in all vehicle classes and platforms - Increase number of affordable models - Create ZEV platforms that perform well in various use cases - Develop used vehicle market - Increase awareness and excitement for ZEVs through diverse marketing and advertising - Infrastructure needs identification and deployment support	Lead	Support	Lead	Lead

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Medium- and Heavy-Duty Manufacturers	The largest contributor to GHG emissions and air pollutants. Many priority communities disproportionately suffer from medium- and heavy-duty truck emissions.	• Products that meet various needs of fleet owners and operators • Continued product improvement and cost reduction • Operations and maintenance training for fleet operators • Early customer assistance and total cost of ownership analysis • Insights on ZEV and infrastructure experience • Input into infrastructure planning, timing, and scaling help coordinating with local utilities to ensure grid planning begins prior to vehicle arrival • Network development for service, repairs, parts	● Lead	● Support	● Lead	● Lead
New Market Entrants (Note: applies to all categories)	New market entrants challenge the status quo by bringing new vehicles, infrastructure, components, software, innovation and human behavior solutions (and attendant data). Applies to multiple categories (but only included here).	• Introduce disruptive technologies and business models • Increase access to priority communities • Be accountable to the same vehicle and support expectations as established OEMs.	● Lead	● Lead	● Lead	● Lead
Off-Road Vehicles and Equipment Manufacturers	Forklifts, farm and construction equipment, rail, aviation, etc.	• Zero-emission technology development and deployment • Input into infrastructure planning, timing, and scaling, including connections between on-road and off-road vehicles • State-of-the-art verified⁵³ and certified vehicles and equipment⁵⁴ that meet performance and operational requirements • Robust supply chain • Input into co-locating ZEV infrastructure • Early customer hand-holding • Operation/maintenance training and workforce development	● Lead	● Support	● Lead	● Support
Suppliers	Robust, local supply chains can bring down cost, reduce emissions, and increase resilience.	• Create components that improve ZEV and ZEV infrastructure processes and opportunities	● Support	● Support	–	● Support

53. [CARB: Locomotive Emission Verifications, Technology Demonstrations, and Incentives](#)

54. [CARB: Certified Vehicle and Engines](#)

Fleets

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Fleets (Public and Private)	(For example, local and regional public fleets, transit agencies, freight and logistics, ports, airports, warehouses, Transportation Network Companies, vehicle and equipment rental companies, corporate fleets, etc.) Fleets represent unique opportunities to scale the market, especially for fleets that “return to base” regularly to recharge or refuel. ZEV adoption in fleets can drive down costs, create market opportunities, and facilitate rapid learning. Fleet operators’ understanding of total cost of ownership introduces opportunities that can help scale vehicle production. Entities that enable fleet adoption, but may not own all vehicles on location, play a pivotal role as well, such as airports, ports, warehouses, etc.	• ZEV adoption in increasing amounts over time; share lessons learned • Evaluate routes and duty cycles to determine operational feasibility of BEVs and/or FCEVs, as well as needed infrastructure locations and throughput capacity to support • Direct communication and collaboration with automakers, fueling providers, and ZEV car sharing/rental companies • Quantified shift to eVMT, including for both passenger and freight • Larger fleets help pave the way for smaller fleets • Case studies, best practice sharing and pros and cons assessments—private or public infrastructure, upfront cost/ funding challenges • Assess utilization gains of fleet chargers to inform future programs • Workforce development and training • Infrastructure deployment • Direct and honest knowledge and experience sharing within public fleet sectors.	● Lead	● Lead	● Support	—



Photo Credit: EVgo

Grid Operators, Electricity and Hydrogen Providers

Electricity and hydrogen providers are keystone players in the market. Reliable, affordable, renewable energy delivery systems will serve to expand the market.

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Balancing Authorities	Balancing authorities, such as the California Independent System Operator, maintain reliability on the grid and operate transparent, wholesale energy markets. Both components are core to end user and investor/operator confidence.	• Ensure electricity is available when needed • Optimize the connection of renewable electricity • Support multi-stakeholder efforts to enable robust vehicle grid integration • Develop opportunities to accelerate renewable electricity-based production of hydrogen as a strategy to increase grid resilience, and increase renewable energy utilization and production	 Support	 Lead	 Support	 Support
Community Choice Aggregators (CCAs)	CCAs serve as a backbone of transportation electrification in the communities they serve, from procuring renewable resources, designing rates, expanding storage and ensuring resilience, to interfacing with customers through their electricity account and customer-facing programs that help facilitate the transition to ZEVs. CCAs are uniquely positioned to work with their local government partners to leverage local data to make strategic investments that maximize community benefit and streamline local process.	• Develop ZEV enabling rates • Support local permit streamlining and reach building code adoption • Innovate ways to enable transportation electrification • Incentives for drivers, fleets, new mobility and charging infrastructure • Deploy charging infrastructure in underserved communities • Build support to increase ZEV resilience, including storage • Consumer adoption/education/technical assistance • Vehicle-Grid Integration pilots and programs • Invest in system reliability and resilience	 Support	 Lead	 Lead	 Support

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Electric Utilities, Load-Serving Entities	Public- and investor-owned electric utilities serve as a backbone of transportation electrification, including installing ZEV charging infrastructure, procuring renewable resources, providing long-term rate options, managing the grid, timely interconnecting new ZEV loads, expanding DERs including storage and renewables, and ensuring resilience, interfacing with and educating customers, as well as providing customer-facing transportation electrification programs.	• Encourage investments in and enable charging infrastructure and ZEVs broadly, at scale, and with prioritization of underserved communities; such as through incentives for charging infrastructure and ZEVs (e.g., Clean Fuel Reward program) • Long-term ZEV-enabling rate design (charging and hydrogen production) and affordable, equitable rates for all ratepayers • Fast and safe interconnection and energization through streamlined process • Identify available capacity for ideal interconnection locations to provide grid benefits at lower cost for charging infrastructure and electrolytic hydrogen production, and refueling facilities • Deploy distribution level power systems for electrolytic hydrogen production and refueling in underserved communities • Provide an environment to beta test emerging ZEV technologies • Build grid infrastructure to support increase in ZEVs, including grid-scale storage and on-site clean power generation • Appropriately targeted consumer outreach and education • Vehicle-Grid Integration pilots and programs • Reliability and resilience of grid and ZEV-fueling infrastructure	 Support	 Lead	 Lead	 Support

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Electric Vehicle Charging Station Providers and Installers	Electric Vehicle Charging Stations (EVCS) and their providers are cornerstones of the ZEV market—charging stations enable electric vehicle adoption. Positive charging experiences facilitate market growth and beneficial charging supports grid integration and state energy goals. Charging options are rapidly increasing, from an expanding network of public DC charging stations to mobile solutions for charging flexibility.	• Network and market expansion, interoperability, including roaming, sustainability, reliability, and resilience, and expansion • Inform policy, regulation, and incentive design • Grid integration and customer experience support • Charging strategy development and education • Network and cybersecurity • Charging standards and protocol development and implementation • Enable technology development • Workforce development • Share permit and interconnection experience to identify streamlining opportunities	 Lead	 Support	 Lead	 Support
Gas Utilities	Gas utilities can leverage their systems safely to enable an increase in the production and distribution of renewable natural gas and hydrogen, both of which can serve as electrification feedstocks. ⁵⁵	• Develop strategies for natural gas pipelines to become hydrogen carriers, as feasible, such as accelerated interconnection process for hydrogen injection into the gas grid, including permit streamlining • Identify ideal interconnection locations to enable green hydrogen injection from electrolytic hydrogen production facilities • Develop strategies to enable hydrogen supply and hydrogen station expansion	 Lead	 Support	-	-

⁵⁵. Renewable natural gas can be used to create electricity or hydrogen. Hydrogen is used to create electrons, either in stationary applications or on-board fuel cell electric vehicles.

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Hydrogen Producers	Hydrogen has been used at scale in industrial applications for decades—success hinges on scaling a dedicated hydrogen production stream to support the retail and commercial vehicle markets. Producers will also need to continue to innovate and develop decarbonized production technologies that drive down costs.	• Advance innovative business models to drive down the cost of hydrogen • Cost reduction to be competitive with gasoline and diesel • Cross sector connection • Establish a reliable renewable hydrogen supply chain, including feedstock and renewable electricity sources • Distribution of molecules reliably, safely, and efficiently with competitive options • Technology advancement for decarbonized or renewable production • Active engagement in codes and standards development	 Lead	 Support	–	–
Hydrogen Station Developers and Operators	Station developers and operators are crucial to the consumer and fleet facing side of the hydrogen marketplace—hydrogen stations enable the adoption of fuel cell electric cars, trucks, and buses. Success hinges on deploying a sufficient number of stations to get broad geographic coverage to support the consumer and commercial vehicle adoption.	• Market and network expansion • Station locations to leverage wide geographic distribution while serving demand near our urban cores, suburban and rural destinations • Heavy duty stations strategically located in ports and along freight corridors to support drayage, regional haul and eventually long-haul goods movement. • Partner with existing gas/diesel fueling operators to provide an opportunity to transition these small businesses	 Lead	 Support	–	–
Registered Service Agencies	RSAs install, repair and service commercial fueling devices to ensure they dispense accurate quantities of electricity or hydrogen.	• Keep training up to date so that metrology does not become a station opening bottleneck	 Support	 Support	–	–

Non-governmental organizations (NGOs)

NGOs serve critical broad ranging functions throughout the ZEV market. They use their insights to improve policymaking, conduct education and outreach, bring parties together, employ experts who help push the boundaries of what the collective believes is possible. From a state perspective, we need environmental, equity, and community-based NGOs to hold us all accountable to our goals, help us identify blind spots, particularly when it comes to ensuring we are building a diverse, inclusive market.

We have grouped NGOs by primary purpose below (the grouping is imperfect).

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Codes and Standards Bodies	Groups such as the American Society for Testing and Materials (ASTM) International, National Fire Protection Association (NFPA), UL Electrochemical Safety Research Institutes, National Institute of Standards and Technology (NIST), Society of Automotive Engineers (SAE) International set model codes, standards and protocols that facilitate safe operation and enable scale by organizing industry around shared standards.	- Align stakeholders around shared charging and fueling standards - Maximize safety and consumer protection for charging and fueling stations and within vehicles - Enable market innovation	Support	Support	Support	-
Collaboratives	Various state agencies are members of, or partners with the following collaboratives that bring multiple stakeholders together to problem solve and create opportunity (alphabetical order): CALSTART, California Electric Transportation Coalition, , California Hydrogen Business Council, Charge Ahead Coalition, Clean Cities Coalitions, Coalition for Clean Air, Coast to Coast Smart e-mobility, Electric Vehicle Charging Association, Hydrogen Fuel Cell Partnership,, International ZEV Alliance, National Governors Association, Pacific Coast Collaborative, Regional ZEV Collaboratives (e.g., Sacramento PEV Collaborative, Bay Area EV Council, LAEDC E4 Mobility Alliance, Los Angeles Transportation Electrification Partnership, San Diego Regional Accelerate to Zero Emissions Collaboration), Transportation Decarbonization Alliance, U.S. Climate Alliance, Under2° Coalition, Veloz, and Western Governors Association.	- Education and awareness - Multi-stakeholder problem solving, setting forward-leaning agendas - Cross-sector relationship building - Collaborative vision setting - Thought partnership - Implementation	Lead	Lead	Lead	Support

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Community-based NGOs	NGOs across sectors—whether focused on environmental, social, or economic outcomes—play a key role in raising core issues at the local, state, and national levels, ensuring agency accountability, and providing results from research and studies to help inform ZEV policy and market development. They provide technical support and capacity-building to communities. They can also serve as a trusted resource for public outreach and education and can mobilize their constituents to help advance goals.	1. For community-based NGOs, the objectives are: • Bring in localized voices and expertise • Inform policy, regulation, and incentive design • Help design transportation systems that can meet unique community needs • Build capacity and community awareness • Workforce development	● Support	● Support	● Support	● Support
Environmental NGOs		2. For Environmental NGOs the objectives are: • Provide policy recommendations based on research and analysis • Encourage and enable policy, regulatory, and incentive design innovation • Hold agencies accountable • Implementation of programs	● Support	● Support	● Support	● Support
Equity NGOs		3. For the Equity NGOs the objectives are: • Bring in new voices and expertise • Represent the underrepresented • Help design transportation systems that can address multiple barriers, while also meeting unique community needs • Advise on equity pilots and programs • Collaborate on equity and mobility metrics for success • Build capacity and community awareness • Hold agencies and programs accountable—and enable opportunities to better reach priority communities	● Support	● Support	● Support	● Support
Trade Associations	Trade associations serve to advance the specific needs of their members in advancing the ZEV market. They can also serve to convene stakeholders for collaboration and information sharing, research and analysis, and development of advocacy materials.	• Work with stakeholders across sectors to determine, amplify, and advocate for policies and legislation that will accelerate the ZEV market • Provide consolidated feedback representative of the specific industry group	● Support	● Support	● Support	● Support

Community Members

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Community Members	Community members represent the voices of their community. They are end users that influence market direction via consumer attitudes and choices. They can also serve to organize and advocate for ZEV transition efforts that best suit their community's unique needs.	- Choose to purchase, lease, or ride in ZEVs - Provide input for where chargers and stations are needed to support their community's ZEV transition - Identify areas of improvement for customer experience - Serve as a voice for their unique community needs - Inform and participate in workforce development opportunities	Support	Support	Support	Support

Investors

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Investors/Financing Institutions	Private investment, and a robust private market, plays a pivotal role in getting to 100% ZEV sales. The system works equitably if investors (broadly defined) make money selling or operating ZEV mobility at prices that welcome the entire market. Getting there requires active and ongoing collaboration between investors and the public sector.	- Thought partnership on how to bring in more private capital - Forward-looking investment to help accelerate technology development and ZEV utilization - Communicate investment priorities	Lead	Lead	Lead	Lead
Philanthropy	Together with robust public funding and private investment, philanthropic action helps smooth the pathway for broader, more equitable adoption of zero-emission transportation in California.	- Funding education, awareness, and technical assistance. - Supporting equity-focused organizations and community capacity. - Catalyzing early-stage financial innovation and research. - Bridging public policy and grassroots participation to ensure inclusive deployment.	Support	Support	Support	Support

Academia

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Community Colleges	Community colleges play a fundamental role in training California's workforce, exposing students to new technology, establishing training partnerships with ZEV companies, and more.	- Build robust ZEV related training programs that build transferable skills and are connected to both current and future jobs - Maintain close connection with industry partners to ensure students are trained for what the marketplace needs - Pilot programs such ZEV carsharing, e-bike sharing, and EV charging	Support	Support	Support	Lead
Universities (University of California, California State Universities, Private Universities)	Universities serve a key role in educating students and the future workforce, as well as producing primary research and analyses from a trusted third-party source.	- Create future employees for ZEV companies, government and local agencies/groups - Research, internships, and development/innovation - Pipelines to bring innovations to market - Pilot programs such ZEV carsharing, e-bike sharing, and EV charging	Support	Support	Support	Lead

Organized Labor

Stakeholder Group	ZEV Connection	Objectives	Vehicles	Infrastructure	End Users	Workforce
Organized Labor	Labor unions both train and represent workers. They can deliver the job quality essential to a good-paying ZEV industry, and the skilled workforce needed to build it.	- Promote high-quality jobs for ZEV workers - Deliver highly skilled workers across ZEV industries and occupations - Generate equity and opportunity in the ZEV labor market through industry partnerships that join business, labor, education, community, and social services - Expand apprenticeship programs	Support	Support	Support	Lead

International Relationships

California is a global hub for ZEV deployment and remains invested in success. Our international efforts underscore our commitment to the success of the ZEV market in California, other states, and nations. Our international cooperation includes information-sharing and engaging in policy dialogue with our overseas partners, recognizing that California plays an outsized role as a subnational government in helping advance the global ZEV market. We also help California ZEV companies gain access to new markets through export development programs and trade missions. Additionally, our foreign direct investment efforts aim to attract international ZEV companies that will bring good-paying jobs to our state directly and through the diverse supplier networks they support, while also maintaining California's position as the epicenter of innovation. "California ZEV" is a brand with enormous international recognition and influence, and we engage internationally because we know that each ZEV that replaces an internal combustion engine makes the world incrementally better.



Photo Credit: Electrify America

APPENDIX D:

Measuring Success

California has a series of targets, reports, and tools to pull from to measure ZEV market success. This Appendix organizes these targets and resources around six sections: Outcomes, Vehicles, Infrastructure, End Users, Workforce, and Investment. The [ZEV Market Development Strategy website](#) will pull from these sources to help stakeholders easily assess ZEV market health and outcomes. It will point to existing tools, such as the CEC's [Zero Emission Vehicle and Infrastructure Statistics](#), whenever possible.

Developing metrics for the ZEV Strategy website will be an iterative process and rely heavily on stakeholder

input. The website will be adjusted over time to include additional or refined metrics to better capture progress towards meeting our targets.

The metrics are designed to help stakeholders quickly answer two fundamental questions: 1) is the market scaling relative to our targets? 2) are priority communities directly and equitably benefiting as the market scales? This will require speaking directly to communities and implementing a bottom-up approach to understand if we are achieving our goals.

ZEV Metrics Summary—Key Outcome Metrics

Air Quality	Greenhouse Gases	Mobility Access*	Jobs/Economic Development*
Quantity of criteria air pollution and toxic emissions reduced from transportation sector, with a focus on priority communities	Quantity of GHG emissions reductions and fossil fuel consumption from transportation sector	Percent of population and commerce with access to high-quality, clean transportation, and mobility options with capabilities comparable to existing equipment. Emphasize priority communities	- Quantification of in-state ZEV-related employers and jobs, with a focus on good paying job access, emphasizing priority communities/peoples - In-state ZEV related manufacturing and supply chain footprint



Photo Credit: Tesla, Inc.

Four Pillars Metrics

Vehicles	Infrastructure	End Users*	Workforce*
- Progress toward CA's LD, MHD, off-road vehicle and equipment targets - New and used vehicle market penetration - Priority community⁵⁶ access to ZEVs - Micro-mobility deployment numbers and usage	- Progress toward CA's fueling infrastructure targets and projected needs for LD, MHD, off-road vehicle and equipment. - Access to charging/ fueling with a focus on priority communities. - ZEV fuel cost competitiveness - Hydrogen production capacity relative to demand - Charging system reliability and resilience	- Fleet deployments in or near priority communities - General consumer and fleet awareness and understanding of ZEVs - Consumer exposure to ZEVs: ZEV carsharing and ridesharing; ride and drive - Consumer and fleet outreach, education awareness campaigns across vehicle classes and vocations	- Trained and skilled workforce - Identify pathways to increase technicians for vehicles, equipment, and infrastructure - Estimate of ZEV-related industry jobs in California - Priority community access to pathways, pre-apprenticeships, apprenticeships, and good jobs - Leverage industry workforce partners for job/career access
Investment and Financing			
Public and private investment tracking—target increased and accelerated private investment.			

*** Note:** Data collection and analysis processes for these outcomes and pillars are still being developed and will be continually refined through ZEV Strategy implementation. New developments and ongoing efforts toward defining and measuring these areas include:

- **Mobility Access:**

- Reports published by CEC can provide basis for establishing baselines and identifying indicators to monitor in future: e.g. Home Charging Access in California (January 2022 | CEC-600-2022-021).
- For CARB community mobility projects, accessibility improvements are tracked by monitoring service use and community mobility needs over time. At the project level, ridership data, such as total trips, unique users, repeat riders, and changes over time helps assess whether services expand transportation options and gain community adoption. These metrics are paired with surveys to understand how and why access is changing, including trip purpose (e.g., work, school, medical, groceries) and whether these trips were previously unmet. Surveys also identify residents without personal vehicles or facing car ownership barriers, providing insight into how projects enhance mobility in priority communities and populations.

- **Jobs/Economic Development:**

- Launch of the California Zero-Emission Vehicle Related Manufacturing web application by the CEC, with contributions from GO-Biz.

- **End Users:**

- State collaboration with external research groups, most notably Consumer Reports, to obtain California-specific consumer survey data and provide input on future research efforts.
- GO-Biz ZEV Consumer Awareness Grants yielded consumer outreach data and lessons learned.

- **Workforce:**

- Expand zero-emission education and career pathway partnerships with high schools, college automotive programs and adult education and vocational schools.
- Support development of California Career Technical Education Model Curriculum Standards for zero-emission program career cluster with the California Department of Education.
- Working group on ZEV jobs initiated, with effort ongoing at time of Strategy publication.

56. Priority communities include neighborhoods of California that disproportionately suffer from historic environmental, health, and other social burdens. See glossary for full definition and references to relevant statutes.

Outcomes

Air Quality Improvements

Air quality improvement, including criteria pollutant and toxic emissions reductions, throughout California with focus on achieving attainment of air-quality standards and particularly in vulnerable communities.

Target	Target Date	Policy Driver	Measurement Resource
Reduction of specified pollutants, including PM10 and PM2.5, Ozone, Nitrogen Dioxide, and others	Ongoing	California Ambient Air Quality Standards (CAAQS) Federal Clean Air Act California Climate Investments	Compliance with CARB California Ambient Air Quality Standards Bureau of Automotive Repair Smog Check Performance Reports and Smog Check Executive Summary Reports
AB 617 Localized Community Emission Reductions	2024	AB 617 (2017), Community Air Protection Program	CARB Community Air Protection Blueprint 2.0 and Local Community Emission Reduction Plans
Projects funded with Community Air Protection Incentives achieve measurable emissions reductions in communities	Ongoing	AB 617 (2017) and CARB Community Air Protection Incentives	CARB Community Air Protection Incentives Project Dashboard CARB Community Air Grants
Micrograms per cubic meter (µg/m ³) annual PM 2.5 standard for South Coast, San Joaquin Valley, Imperial County, City of Portola in Plumas County	2025	U.S. EPA standard	Compliance with 2016 Mobile Source Strategy and Revised 2016 State Implementation Plan
Achieve 8-hour ozone standard for South Coast and San Joaquin Valley	80 ppb by 2023 75 ppb by 2031 70 ppb by 2037	U.S. EPA standard CARB Mobile Source Strategy necessary to achieve ozone and PM2.5 standards	Compliance with 2016 South Coast and San Joaquin Valley Air Quality Management Plans and future local air quality management plans Compliance with 2020 Mobile Source Strategy and 2022 State Implementation Plan
Reduce NOX emissions compared to 2016 levels	70% by 2023 80% by 2031	U.S. EPA standard CARB Mobile Source Strategy necessary to achieve ozone and PM2.5 standards	

GHG emissions reductions

Greenhouse gas (GHG) emissions from transportation decline over time to meet overall state GHG emissions reduction targets.

Target	Target Date	Policy Driver	Measurement Resource
GHG emissions 40% below 1990 levels	2030	SB 32 (2016)	Compliance with CARB 2017 Climate Change Scoping Plan , Low Carbon Fuel Standard (LCFS)
GHG emissions 85% below 1990 levels	2045	California Climate Crisis Act (AB 1279, 2022)	Compliance with CARB 2022 Scoping Plan for Carbon Neutrality LCFS Reported % CI Reduction
Carbon neutrality	2045	Executive Order B-55-18	
Reduction of fossil fuel consumption in transportation sector	Ongoing	Executive Order N-79-20	
Net-zero emissions of greenhouse gases from state agency operations	2035	SB 1203 (2022)	In development for 2024: Required state agency emission inventory reporting
Zero GHG emissions per passenger mile traveled by transportation network companies (TNCs)	2030 Interim annual compliance targets	Clean Miles Standard Regulation SB 1014 (2018) California Climate Investments	CPUC Clean Miles Standard Program CPUC TNC Data Portal CARB Clean Miles Standard



Photo Credit: Ford

Equitable Priority Community Access to Clean Transportation

Access to high-quality clean transportation and mobility options for all Californians, with focus on ensuring the state's most vulnerable communities are prioritized and have more equitable access to and experience direct benefits of clean mobility.

Target	Target Date	Policy Driver	Measurement Resource
Continual, meaningful engagement and capacity building within priority communities	Ongoing	SB 1251 (2022)	Number and activity of task forces/ work groups that include priority community representation Number and activity of state agency-organized public engagement events, community meetings, etc. related to ZEVs (ex: CARB Monthly Evening Community Meetings) State partnerships/collaborations with community-based organizations (ex: GO-Biz MOU with Valley Clean Air Now) To Be Developed: GO-Biz ZEV Equity Action Plan Language accessibility for materials and meetings ZEV Equity Task Force CARB provides funding through the Planning and Capacity Building project to promote transportation equity, identify and address transportation needs, and enhance community-scale mobility and accessibility.
Increased transportation equity and quality in priority communities	Ongoing	SB 1275 (2014) SB 350 (2015) SB 150 (2017) AB 630 (2017) SB 129 (2021) SB 1020 (2022) SB 1382 (2022) SB 1403 (2018)	CARB SB 150 reporting For CARB project tracking and reporting for clean mobility incentives, see: Sustainable Transportation Equity Project, Clean Mobility in Schools, Clean Mobility Options Voucher Pilot Program, Planning and Capacity Building For CARB project tracking and reporting for light-duty purchase incentives, see: CARB's Clean Cars 4 All website, the Assembly Bill 630 Report, Clean Vehicle Rebate Project Statistics, the California ZEV Insights Dashboard, and Medium- and heavy-duty projects For metrics tracked and reported for California Climate Investments projects, see the Quantification, Benefits, and Reporting Materials webpage. Caltrans Race and Equity Action Plan and Transportation Equity Index California's Zero-Emission School Bus Update

Target	Target Date	Policy Driver	Measurement Resource
At least 35% of Cap-and-Invest (formerly Cap-and-Trade) revenues allocated to projects that benefit priority populations ⁵⁷	Ongoing	AB 1550 (2016) and precursor SB 535 (2012)	CARB's annual Funding Plan for Clean Transportation Incentives . California Climate Investments Data and Reports , Data Dashboard , Project Map , and Project Profiles .
At least 35% of CPUC-approved IOU investments allocated to programs and projects in disadvantaged communities	Ongoing	AB 841 (2020)	CPUC tracking of IOU investments
50% Clean Transportation Funding in Priority Communities	Ongoing	AB 126 (2023)	CEC Clean Transportation Program investment plan proceedings
Equitable statewide deployment and access to charging stations	Ongoing	SB 1000 (2018)	CEC SB 1000 process within Clean Transportation Program
Increasing ZEV readiness (light-, medium-, and heavy-duty), prioritizing vulnerable communities	Ongoing	AB 118 (2007), AB 1532 (2012), SB 535 (2012), SB 1018 (2012), AB 8 (2013), SB 1275 (2014), SB 350 (2015), AB 126 (2023) CEC Clean Transportation Program Investment Plan CARB Innovative Clean Transit Regulation	California Climate Investments —Data Dashboard CARB Low Carbon Transportation Incentives and Air Quality Improvement Program CARB Innovative Small e-Fleets project outcomes CARB Innovative Clean Transit Regulation reporting data CEC Clean Transportation Program outcomes, including Medium- and Heavy-Duty ZEV Infrastructure Blueprint grants Strategic Growth Council Transformative Climate Communities grants San Bernardino ZEV Readiness Efforts GO-Biz Streamlining (EVCS and H₂ Permitting , Building Standards)
Leverage local clean transportation funding to enhance equity	Ongoing	SB 2297 (1988) SB 98 (1999)	Mobile Source Air Pollution Reduction and Air Quality Management District outcomes

57. Priority populations include residents of: (1) communities identified as disadvantaged by the California Environmental Protection Agency per Senate Bill 535; (2) census tracts identified as low-income per Assembly Bill 1550; or (3) a low-income household per Assembly Bill 1550. See Glossary for more information on the definitions of priority populations.

ZEV Employers and Jobs

Economic Development and Job Creation: Increasing the number of in-state ZEV-related employers and jobs will maximize economic opportunities, increase participation in equity communities, and accrue the benefits associated with increased the transition to zero-emission transportation.

Target	Target Date	Policy Driver	Measurement Resource
Growing availability and efficacy of workforce development pathways that support high-quality jobs and a carbon-neutral economy	Ongoing	Federal Workforce Innovation & Opportunity Act	California Workforce Development Board program participation, service, and outcome data IDEAL ZEV Workforce Pilot training results Automotive Career Fair Job events statewide with CARB and OEM Partners
Increasing number of in-state ZEV employers	Ongoing, annual	Executive Order B-48-18, Executive Order N-79-20, AB 398 (2017), AB 841 (2020)	CEC ZEV-Related Manufacturing Data (web application and downloadable list) Number of Electric Vehicle Infrastructure Training Program certifications
Increasing number of people employed in ZEV jobs	Ongoing, annual	Executive Order B-48-18, Executive Order N-79-20, AB 398 (2017), AB 841 (2020)	Tracking by Labor Agency (including Workforce Development Board and Employment Training Panel), CEC, Office of Planning & Research. Map K-14 high-voltage/electric vehicle programs CPUC tracking of IOU investments Atlas Public Policy Automakers Dashboard: EV-Only Employees
Encouraging on-road, off-road, and transit ZEV programs to integrate relevant workforce policies to improve job quality	Ongoing	AB 680 (2021), Funding Guidelines for Agencies that Administer California Climate Investments	California Climate Investments reported project data ZEV program guidance documents



Photo Credit: Honda

Vehicle Metrics

Light-duty Vehicles

Target	Target Date	Policy Driver	Measurement Resource
1.5 million ZEVs	2025	Executive Order B-48-18, EO N-79-20	CEC ZEV Statistics: New ZEV Sales Light-Duty Vehicle Population
5 million ZEVs	2030		
At least 50% of new car sales are ZEVs	2028	CARB Advanced Clean Cars II ⁵⁸	
100% of new car sales are ZEVs	2035		
DGS ZEV Fleet Purchases: at least 50% of the light-duty vehicles purchased for state fleet each year are zero-emission	2024–25 and annual, ongoing	Executive Order B-16-12, Green Fleet Initiative, SB 1203 (2022)	State Fleet ZEV Compliance
Increased zero-emission micro-mobility options and usage	Ongoing	Executive Order N-79-20, California Climate Investments	Tracking of funded projects and deployments of zero-emission micro-mobility options, usage

58. Not enforceable at time of writing due to congressional resolutions of disapproval.



Photo Credit: Tesla, Inc.

Medium- and Heavy-duty and Off-road Vehicles and Equipment

Target	Target Date	Policy Driver	Measurement Resource
100% of new transit bus purchases are zero-emission	2029	CARB Innovative Clean Transit Regulation	Reporting for CARB Innovative Clean Transit
100% of on-road transit buses are zero-emission	2040	CARB Innovative Clean Transit Regulation	Reporting for CARB Innovative Clean Transit
100% of school buses that are newly purchased or contracted by local educational agencies are zero-emission	2035	AB 579 (2023)	HVIP California ZEV Population Dashboard CEC ZEV Stats Dashboard: School Bus Delivery Tracker
100% of on-road airport shuttles are zero-emission	2035	Zero-Emission Airport Shuttle Rule ⁵⁹	See footnote
100% of in-use drayage trucks are zero-emission	2035	Executive Order N-79-20, Executive Order N-27-25, Advanced Clean Trucks Rule ⁶⁰	See footnote
100% of in-use off-road vehicles and equipment are zero-emission where feasible	2035	Executive Order N-79-20	Reporting for CARB rules: Transport Refrigeration Unit and Zero-Emission Forklift
100% of medium- and heavy-duty on-road sales in CA are ZEVs	2036	CARB Advanced Clean Fleets Regulation, ⁶¹ Executive Order N-27-25	See footnote
100% of on-road medium- and heavy-duty vehicles are zero-emission where feasible	2045	Executive Order N-79-20, Executive Order N-27-25, Advanced Clean Trucks Rule, ⁶² Advanced Clean Fleets Regulation ⁶³	HVIP California ZEV Population Dashboard
Increased percentage of DGS newly purchased vehicles for the state fleet with gross vehicle weight rating 19,000+ pounds that are zero-emission	15% by 2025, 30% by 2030	AB 739 (2017)	Tracking of ZEV & Hybrid First Purchasing Mandate for Medium- and Heavy-Duty Vehicles
50% of state and local government fleet purchases of vehicles over 8,500 lbs GVWR must be ZEV, unless using ZEV Milestones Option	2024–2029	Advanced Clean Fleets Regulation	Reporting for CARB Advanced Clean Fleets
100% of public fleet purchases of vehicles over 8,500 lbs GVWR must be ZEV unless using ZEV Milestones Option	2030 ⁶⁴	Advanced Clean Fleets Regulation	
100% of affected vehicles (GVWR > 8,500 lbs., off-road yard tractors) in State and Local Government fleets using the ZEV Milestones Option must be ZEVs, phased in starting 2025	2025–2042	Advanced Clean Fleets Regulation	

59. Not enforceable at time of publication due to congressional resolutions of disapproval.

60. Not enforceable at time of publication due to congressional resolutions of disapproval.

61. Not enforceable at time of this publication.

62. Not enforceable at time of this publication due to congressional resolution.

63. Not enforceable at time of this publication.

64. Adopted by California Air Resources Board but not yet approved by OAL.

Vehicle Market Expansion Capability

Target	Target Date	Policy Driver	Measurement Resource
100% market share with increasing number of light-duty models for sale (used and new) in variety of vehicle classes and at a variety of price points.	Annual increases until 100% in 2035	Executive Order N-79-20, ZEV Regulation	Annual number of announced and available vehicle models: Veloz EV Market Report Annual number of available models by vehicle type (e.g., compact, sedan, sport, CUV, SUV, van, pickup) and price point (data source not yet identified)
100% market share with increasing number of medium- and heavy-duty on-road models for sale in all 2b-8 vehicle classes	Annual increases until 2036	Executive Order N-79-20, Innovative Clean Transit Regulation, Zero-Emission Airport Shuttle Rule, ⁶⁵ Advanced Clean Trucks Rule ⁶⁶	Annual number of available models reported for CARB Advanced Clean Trucks manufacturer rule and Advanced Clean Fleets rule Annual number of available models by vehicle type from Zero-Emission Technology Inventory
100% market share, where feasible, with increasing number of off-road models for sale in all vehicle and equipment classes	Annual increases until 2035	Executive Order N-79-20	Annual number of announced and available vehicle and equipment models by type (e.g., yard tractor, wheel loader, excavator, forklift, gantry crane, transport refrigeration units, locomotives, harbor craft, etc.) (Data source not yet identified)
ZEV lifecycle sustainability and end of life strategy clear and implemented	Ongoing	Executive Order N-79-20	Lithium-ion Car Battery Recycling Advisory Group final report and related efforts

⁶⁵. Not enforceable at time of this publication due to congressional resolutions.

⁶⁶. Not enforceable at time of this publication due to congressional resolutions.



Photo Credit: Prologis

Infrastructure Metrics

The following metrics track progress toward the state's fueling targets for light-duty vehicles, medium- and heavy-duty vehicles, and off-road equipment.

Light-duty Vehicle Fueling

Target	Target Date	Policy Driver	Measurement Resource
200 hydrogen stations	2025	Executive Order B-48-18	CEC ZEV Statistics Dashboard: Hydrogen Stations
250,000 shared chargers, including 10,000 DCFC			CEC ZEV Statistics Dashboard: EV Chargers
Timely buildout of public and shared private charging and retail hydrogen fueling stations that keeps pace with projected passenger ZEV demand.	Ongoing	Executive Order B-48-18 AB 8 (2013) CEC IEPR/AB 2127 (2018) process AB 126 (2023)	AB 8 Report : Projected Station Deployment Compared to AB8 and EO B-48-18 Goals and related indicators AB 126 Report : 2024 Annual Evaluation of Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development CEC ZEV Statistics Dashboard: EV Chargers, Hydrogen Stations AB 2127 Electric Vehicle Charging Infrastructure Assessment
Develop strategies to further enable VGI and increase renewable electricity penetration	2030	SB 676 (2018) SB 123 (2023) AB 2127 (2018)	Annual utility activity and outcome reporting to CPUC, per Decision 20-12-029
Support the incorporation of dynamic utility rates and load flexibility for EV charging			Pending CEC SB 123 regulation AB 2127 Electric Vehicle Charging Infrastructure Assessment
Improve data and tools for EV charging demand analysis and distribution grid readiness			Flexible Demand Appliance Standards
Increased reliability of California EV charging network	Biennial reporting starting 2025	AB 2061 (2022) AB 126 (2023) Federal NEVI standards	Semiannual Inventory Reports
Increased reliability of California H2 refueling network	Ongoing	AB 126 (2023)	Data collection methods currently under development (CEC per AB 126)

Medium- and Heavy-duty and Off-road Vehicle and Equipment Fueling

Target	Target Date	Policy Driver	Measurement Resource
Timely deployment of charging and fueling infrastructure to support medium-, heavy-duty, and off-road vehicle and equipment targets	Ongoing	Executive Order N-79-20, Executive Order B-48-18, AB 2127 (2018), and CARB LCFS program	CEC Integrated Energy Policy Report and CARB Clean Transportation and Air Quality Improvement Program analyses CARB tracking of regulatory progress, LCFS Data Dashboard, Quarterly Summaries, and ZEV Infrastructure Crediting In development: CEC Electric Vehicle Infrastructure Project Tracker Senate Bill 643: Clean Hydrogen Fuel Production and Refueling Infrastructure to Support Medium- and Heavy-Duty Fuel Cell Electric Vehicles and Off-Road Applications AB 2127 Electric Vehicle Charging Infrastructure Assessment
Develop strategies to further enable VGI and increase renewable electricity penetration	2030	SB 676 (2018) SB 123 (2023) AB 2127 (2018) SB 59 (2024)	Annual utility activity and outcome reporting to CPUC, per Decision 20-12-029
Support the incorporation of dynamic utility rates and load flexibility for EV charging			Pending CEC SB 123 regulation AB 2127 Electric Vehicle Charging Infrastructure Assessment
Improve data and tools for EV charging demand analysis and distribution grid readiness			Flexible Demand Appliance Standards



End User Metrics

Consumer and fleet awareness of light-, medium-, heavy-duty, and off-road ZEVs must continue to expand to achieve market-advancing levels of consumer and fleet demand for ZEV.

End User Awareness, Understanding, and Demand

Target	Target Date	Policy Driver	Measurement Resource
Increasing general consumer and fleet awareness and understanding of ZEVs Consumer exposure to ZEVs: ZEV carsharing and ridesharing; ride and drives Increased consumer understanding of incentives	Ongoing, Annual	Executive Order B-48-18, Executive Order N-79-20	Veloz Electric for All campaign metrics and impact surveys UC Davis Institute of Transportation Studies Surveys and Analysis (particularly for used ZEV market) Consumer Reports Battery Electric Vehicle and Low Carbon Fuels Survey CARB ride and drive metrics Zero Emissions Showcases + Ride & Drives
Consumer and fleet outreach, education awareness campaigns across vehicle classes and vocations Emphasis on engagement with priority communities in all of the above	Ongoing, Annual	Executive Order B-48-18, Executive Order N-79-20	Veloz Electric for All campaign metrics and impact surveys CARB Access Clean California technical assistance and capacity building efforts; SB 350 Outreach Strategic Roadmap: User engagement with Cal Fleet Advisor and ZEV Truck Stop CEC Clean Transportation Program and CARB Low Carbon Transportation Incentives and Air Quality Improvement Program tracking CARB Drive Forward Community Engagement
Increasing consumer and fleet demand/purchase of ZEVs	Ongoing, Annual	Executive Order B-48-18, Executive Order N-79-20	CEC ZEV Statistics: New ZEV Sales Light-Duty Vehicle Population CARB Statistics: Insights on CA Light-Duty ZEV Programs (includes CC4A, CVRP, CVAP, and DCAP)

Workforce Metrics

A trained and sufficient workforce is fundamental to boost the California economy and scale the ZEV-related market. This set of metrics focuses on workforce as an input. Job growth is captured as an outcome earlier in the document.

Workforce Sufficiency

Target	Target Date	Policy Driver	Measurement Resource
Growth of in-state ZEV-related manufacturing and supply chain footprint	Ongoing	Executive Orders N-79-20, B-48-18	Quantity of in-state ZEV-related manufacturers: CEC Zero-Emission Vehicle Related Manufacturing data Quantity of ZEV supply chain companies (critical minerals, components, etc.)
Workforce that can meet timing, scale needs	Ongoing	Executive Order N-79-20	Access to career technical education (CTE), training, and apprenticeship programs In development: Valley CAN assessment of community college readiness for ZEV and ZEV infrastructure maintenance training Develop and implement new CTE curriculum standards for electric and hybrid vehicles. Support automotive career events for high school and college STEAM programs Ongoing: LWDA analysis of occupational skills for climate jobs O*NET occupational skills data US Energy & Employment Jobs Report
Certified electricians that can facilitate state's ZEV infrastructure goals	Ongoing	AB 841 (Ting, 2020)	Number and expansion of Electric Vehicle Infrastructure Training Program (EVITP) certified electricians especially in rural and tribal areas



Photo Credit: ChargePoint

Investment Metrics

Investment in ZEV manufacturing, consumer and fleet purchases, and fueling infrastructure must continue to rise and state investments should consider market readiness to appropriately leverage private investment.

Tracking Private Investment

Target	Target Date	Policy Driver	Measurement Resource
Increasing private investment in ZEV-fueling infrastructure	Ongoing, annual	Executive Orders B-48-18, N-79-20, LCFS ZEV Infrastructure Crediting	CEC Clean Transportation Program CARB LCFS Data Dashboard , Quarterly Summaries , and ZEV Infrastructure Crediting ; CARB funding, or directed funding (e.g., settlement funds) for infrastructure California Climate Investments data dashboard Volkswagen Environmental Mitigation Trust CPUC R.20-08.022 and Transportation Electrification Framework Atlas EV Hub Automakers Dashboard: EV Only Investment (can filter for charging)
Increasing private investment in ZEV research and development, manufacturing, and production	Ongoing, annual	Executive Orders B-48-18, N-79-20	Atlas EV HUB Global Private Investment Dashboard: Investment Country—USA and Automakers Dashboard: EV Only Investment (can filter for vehicles, parts, and batteries) GO-Biz Investment tracking via Pitchbook CEC Clean Transportation Program
Increasing private investment in ZEV procurement by consumers and fleets	Ongoing, annual	Executive Orders B-48-18, N-79-20	CARB Advanced Clean Cars , Advanced Clean Trucks (manufacturer and fleet rules) ⁶⁷ CARB Low Carbon Transportation and Air Quality Improvement Program tracking

⁶⁷. Not enforceable at time of this publication due to congressional resolutions.

APPENDIX E:

Strategy Implementation and Lessons Learned

The first ZEV Strategy established a framework for implementation but was designed to be an iterative process that integrates feedback and lessons learned throughout implementation. We have found several of the components outlined in the first ZEV Strategy to be useful tools, aiding a diverse group of ZEV stakeholders to row in the same direction to scale the market and make progress toward the state's targets.

For example, the annual [Agency ZEV Action Plans](#) clarified the roles that nearly 30 state agencies play in the ZEV market and increased transparency for internal and external stakeholders around each agency's key objectives and activities in the ZEV space. The Action Plans also improved state agency coordination and alignment, and regular meetings between staff led by GO-Biz helped build relationships and encouraged collaboration.

On the other hand, we also found that some components were more challenging to implement and/or did not provide the intended/expected benefits. We have adjusted those components in this ZEV Strategy update and have included brief descriptions/observations below.

Pillar Priorities

One component envisioned in the first ZEV Strategy that we found less useful was the annual priority summaries for each market pillar. The Pillar Priority documents were meant to focus on policy and implementation harmony across agencies and stakeholders and communicate market development areas, outlining the top-level strategies—with a focus on state policy leadership and regional and local

opportunities—to accelerate implementation. The documents had an annual target date for completion of March 15. In practice, we found that, with state agencies completing annual action plans, it took longer than expected in the year to outline collective priorities (the documents were published in August 2021 and October 2022) and subsequently the documents became a review/summary rather than a priority setting exercise.

Metrics

The first ZEV Strategy included the goal of publishing ZEV market metrics on a quarterly basis. However, the wide range of data sources that we consult have different update cadences. Some are updated annually rather than quarterly, and those that are updated quarterly may be subject to occasional delays, especially as methodology continues to be refined. There also remain topical areas for which centralized or comprehensive data sources do not yet exist, like ZEV workforce development. We have therefore adjusted our goal and will aim to update ZEV market metrics twice per year instead of quarterly. The [GO-Biz ZEV Strategy website](#) links to dynamic data sources wherever possible, so that readers can click through to the most current data. As noted in the first ZEV Strategy, the Metrics Snapshots will continue to evolve as new data sources are identified and incorporated.

APPENDIX F:

Glossary

Battery Electric Vehicle (BEV): A zero-emission vehicle that uses electricity stored in a battery to power one or more electric motors and can be plugged in at home, work, fleet, or public charging stations.

Core Principles: A set of five principles that provide the foundation for decision-making throughout the Strategy development process and can be adjusted over time as priorities shift and the market advances. The core principles are equity in every decision, embrace all zero-emission pathways, collective problem solving, public-private partnership, resilience and adaptation.

End Users: The pillar of ZEV Market Development that encompasses consumers, riders, fleet operators, transportation network companies, car dealers, drivers, transportation planning agencies, program administrators, ports, regional and local governments and communities, trucking companies, and fuel providers.

Fuel Cell Electric Vehicle (FCEV): A zero-emission vehicle that is powered by electricity generated by an on-board fuel cell that electrochemically combines hydrogen (from the tank) and oxygen (from the air), with only harmless water vapor created as byproduct. Hydrogen is stored on-board the vehicle as a compressed gas.

Infrastructure: The pillar of ZEV Market Development that encompasses fueling infrastructure needed to support all ZEVs such as electric vehicle charging stations (EVCS), hydrogen fueling stations, catenary systems and the energy systems that supply them, vehicle-grid integration, and the supply chain that enables infrastructure build out that offers the opportunity to fuel a ZEV at a lower cost than conventional fossil fuels.

Light-Duty Vehicles: Have a gross vehicle weight rating of at most 8,500 pounds.

Medium- and Heavy-Duty Vehicles: Have a gross vehicle weight rating above 10,000 pounds. Medium-duty vehicles are between 8,501 and 26,000 pounds

while heavy-duty vehicles includes vehicles above 26,000 pounds.

Metrics: Includes quantitative and qualitative indicators of ZEV market growth and health that will be tracked over time. A selection of key metrics will be shared on a publicly accessible website to display progress towards meeting state ZEV targets, filling market gaps, and meeting other key success indicators. Additional metrics are available in various public data sources and reports, as detailed in [Appendix D](#). Metrics are organized by pillar: Vehicles, Infrastructure, End Users, and Workforce. Progress will be updated regularly, leveraging existing processes where feasible to facilitate ongoing collaboration and information sharing.

Micro-mobility: Light-weight transportation options optimized to move an individual a short distance. Electronic scooters and bikes, as well as traditional bicycles and scooters are the most prominent examples of micro-mobility technologies.

Objectives: A goal to be achieved or a target to be reached. Meeting ZEV objectives will help grow or scale the ZEV market.

Off-road vehicles and equipment: Vehicles and equipment designed to do work off-road.

Pillars of Market Development: Provide an illustrative and organized focus for the strategy document. There are four pillars: vehicles; infrastructure; end users; workforce. Each are fundamental to building the market. If one pillar falls behind, the market suffers; if the pillars are balanced, the market thrives.

Priority Communities: Includes neighborhoods of California that disproportionately suffer from historic environmental, health, and other social burdens. These burdens include, but are not limited to, poverty, high unemployment, inadequate access to educational resources and training opportunities to secure good-paying jobs, air and water pollution, presence of hazardous wastes, high incidence of asthma, heart disease, and other chronic illnesses. Due to historic

discrimination, these communities often include high levels of residents and households with people of color, low-income status, seniors, people with disabilities, non-English speakers, and those who have limited awareness of or access to clean transportation and mobility options. This definition recognizes the need to be inclusive and deliberate in acknowledging past and current policies resulting in the accrual of these burdens and minimizing further harms as paramount in meeting the State's equity goals and fostering actions that distribute community benefits intentionally and equitably. Priority communities include disadvantaged communities (DACs), low-income communities, and underserved communities, which are specific terms used in many of the statutes and regulations in the Strategy (e.g., Senate Bill 535 (De León, 2012), Senate Bill 350 (De León, 2015), Assembly Bill 1550 (Gomez, 2016), Assembly Bill 841 (Ting, 2020)).

Stakeholder: An individual or group that has a stake or interest in any decision, activity, or enterprise of the ZEV market.

State Agency Action Plans: Brief documents that identify regulatory and programmatic objectives, processes, and priorities helping provide both transparency and accountability. Each plan advances at least one of the four pillars of market development.

Vehicles: The pillar of ZEV Market Development that encompasses light-, medium-, and heavy-duty battery electric vehicles and hydrogen fuel cell electric vehicles, equipment used for transporting people and freight. This also includes zero-emission solutions like ZEV carsharing, e-bicycles, e-scooters. While not vehicles under the law, we also include high-speed rail, locomotives, marine vessels, and aircraft that transport passengers and freight.

Vehicle-Grid Integration (VGI): Any method of altering the time, charging level, or location at which grid-connected electric vehicles charge or discharge, in a manner that optimizes plug-in electric vehicle interaction with the electrical grid and provides net benefits to ratepayers by doing any of the following: increasing electrical grid asset utilization; avoiding otherwise necessary distribution infrastructure upgrades; integrating renewable energy resources; reducing the cost of electricity supply; offering reliability services consistent with Section 380 or the Independent System Operator tariff. For purposes of the Strategy, we also consider the broader grid integration of fueling systems (e.g., hydrogen produced through electrolysis).

Vehicle Miles Traveled (VMT): The miles traveled by motor vehicles over a specified length of time (e.g., daily, monthly or yearly) or over a specified road or transportation corridor.

Workforce: The pillar of ZEV Market Development that encompasses the human workforce, including supply chains, that is needed to design, manufacture, sell, construct and install, service and maintain ZEVs, ZEV infrastructure, ZEV distribution systems, dealerships, energy systems, networks of charging and fueling stations, and other ZEV-related build. Workforce also includes those at third-party support companies and agencies whose work with ZEV focused institutions.

Zero-Emission Vehicle (ZEV): A zero-emission vehicle is any type of vehicle that has no tailpipe emissions. These cars run on electric motors and are powered by electricity delivered from batteries or hydrogen and fuel cells. In contrast to conventional internal combustion vehicles, driving a ZEV reduces air pollution, lowers greenhouse gas emissions, and helps integrate renewable energy into the transportation sector.

Zero-Emission Vehicle (ZEV) Equity: ensuring that all Californians — regardless of where they live — have access to affordable and clean transportation options, including zero-emission passenger vehicles, transit, and supporting infrastructure. Achieving ZEV equity requires public engagement and education, along with strategies that address the specific needs of individuals and communities. The goal is to improve public health and expand economic opportunities and good-paying jobs, while supporting dependable access to clean transportation, and reliable charging and fueling across the state.



**California Governor's
Office of Business and Economic
Development (GO-Biz)**

October 2026

Layout and Production: California Department of
General Services, Office of State Publishing