

California ZEV Market Development Strategy

ZEV Pillar Priorities - Implementation

An annual implementation document focused on near-term actions to create market opportunity, remove barriers, and further collective understanding.

Context

The ZEV Market Development Strategy (ZEV Strategy) organizes and connects multiple documents and efforts to help align individual and collective efforts within the state government, working with stakeholders, to build the ZEV market. The core components include:



1. [ZEV Market Development Strategy Website](#). A living site that hosts all ZEV Strategy related documents. The site will evolve through time, share the latest information, and house the ZEV Metrics Portal (connecting to existing and new agency efforts). Updated regularly.
2. [ZEV Market Development Strategy Document](#). This overarching document establishes a framework for collective action based on a foundation of five core principles. The plan is organized around the four core pillars of the ZEV Market: Vehicles, Infrastructure, End Users and Workforce. Updated every three years, or sooner if needed.
3. [Agency ZEV Action Plans](#). These action plans focus on executing the agency objectives outlined in the ZEV Market Development Strategy, with special attention given to equity and collaboration. Updated Annually.

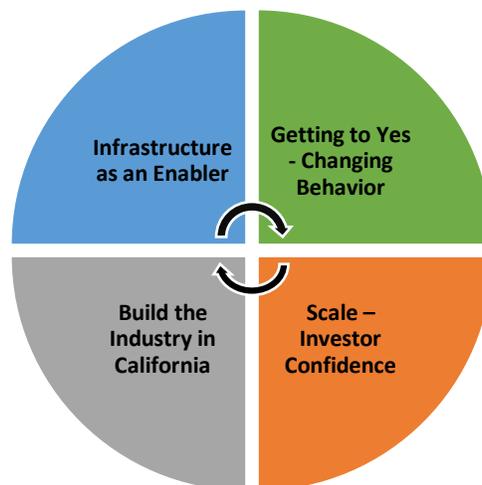
- 4. Pillar Priority Implementation Documents.** Comprised of two documents: an Equity Engagement & Implementation Plan document and this ZEV Pillar Priority Implementation document. Updated annually, or sooner if needed.

This ZEV Pillar Priority Implementation document is designed to do two things: 1) articulate a simple, unifying frame for stakeholders to reference as we implement across the ZEV pillars, and 2) highlight a near-term course under each market pillar to improve collective understanding and sharpen focus on priority policy development.

2021 Implementation Framework

In the next year, over 100 zero-emission commercial freight vehicles will be available from 46 manufacturers, and 67 ZEV passenger vehicles and truck models are already available in California.¹ Infrastructure is quickly becoming, or in many cases has already become, the constraining factor across multiple market segments.

Given where we are in the market, achieving mainstream, broad-scale adoption in California and beyond requires four key elements:



- **Infrastructure as a Market Enabler:** Access to charging and hydrogen fueling stations is fundamental to market success. Most often, stations need to be built ahead of demand, especially to enable adoption in priority communities. **Key 2021 focal areas: direct investment with goal of stretching public dollars as far as possible, station development streamlining, workforce assessments, increased access in priority communities.**
- **Getting to Yes / Changing Behavior (smart mobility):** Getting people and freight into zero emission transportation requires a series of decisions and nudges related to rational economics or emotional behavior, often both. It requires making the

¹ [Global Commercial Drive To Zero Program — Zero-Emission Technology Inventory \(globaldrivetozero.org\); Sales Dashboard | Veloz](#)

transition to zero emissions as convenient as possible, and bolstering confidence in the technology and reliability of charging and fueling. Creating an environment that helps consumers and fleet operators better understand their options and overcome real and perceived barriers is critical to rapidly growing the ZEV market.

Key 2021 focal areas: incentives to enable adoption, reducing the cost of electricity and hydrogen to the end user, expanding market access to low- and moderate-income Californians.²

- **Scale—Increase Investor Confidence:** Scaling the market hinges on increasing access to capital—capital access is directly related to indicators that an emerging market can grow into a thriving market, investor confidence in the stability of the policy environment, and the ability to implement projects. **Key 2021 focal areas: pursue long-term public funding to fill market gaps, increase access to private capital through various finance tools, regulatory development to increase market certainty.**

- **Build the Industry in California:** California's market size, workforce pool, geology, and policy environment create robust opportunities for in-state design, manufacturing, raw material harvesting, and recycling. Expanding capacity in California is good for the state and the broader global market. **Key 2021 focal areas: develop shared understanding of workforce demand and supply, enable public investments in manufacturing and workforce development, increase access to high road jobs for priority populations, connect in-state IP resources to market opportunities.**

Individual Pillar Priorities

The table below provides background and a more detailed view of individual pillar priorities for the next year. For each pillar, the table:

- identifies lead and primary supporting agencies as well as lead stakeholders;
- explains the high-level relationship among each pillar;
- includes how we plan to address existing knowledge/metric gaps;
- lists the key near-term actions within each pillar, or backbone policy development;
- highlights local and regional leadership activities; and
- illustrates how the Governor Newsom's California Comeback Plan supports each of the pillars.

It should be noted that many critical actions exist outside of this table, often found in Agency Action Plans. The table below takes a top-level view of strategic efforts.

² In many cases the cost to the end user is low. For example, home charging is far less expensive than gasoline; and hydrogen fuel is currently subsidized by automakers.

ZEV Pillar Priorities Table

	Vehicles	Infrastructure	End Users	Workforce
Lead Agencies	<ul style="list-style-type: none"> ➤ California Air Resources Board (CARB) ➤ High-Speed Rail (HSR) 	<ul style="list-style-type: none"> ➤ California Energy Commission (CEC) ➤ California Public Utilities Commission (CPUC) 	<ul style="list-style-type: none"> ➤ CARB 	<ul style="list-style-type: none"> ➤ California Workforce Development Board (CWDB) ➤ Office of Planning and Research (OPR)
Lead Stakeholders	<ul style="list-style-type: none"> ➤ Vehicle manufacturers (including supply chain) ➤ Grid operators, electricity and hydrogen Providers ➤ Fleets ➤ NGOs and collaboratives ➤ Investors/financing institutions ➤ Labor and workforce organizations 	<ul style="list-style-type: none"> ➤ Utilities, CCAs, charging and hydrogen station providers 	<ul style="list-style-type: none"> ➤ Automakers, dealers ➤ Consumers and consumer organizations, fleets, ports, etc. ➤ Collaboratives and NGOs ➤ Utilities, CCAs, charging and hydrogen station providers ➤ Academia 	<ul style="list-style-type: none"> ➤ Labor and workforce organizations ➤ Utilities ➤ Automakers ➤ Charging and hydrogen station providers ➤ Academia
Primary Supporting Agencies	<ul style="list-style-type: none"> ➤ CEC ➤ CPUC ➤ Department of General Services (DGS) ➤ Department of Motor Vehicles (DMV) ➤ Caltrans 	<ul style="list-style-type: none"> ➤ CARB ➤ Caltrans ➤ Governor's Office of Business & Economic Development (GO-Biz) ➤ California Infrastructure and Economic Development Bank (IBank) 	<ul style="list-style-type: none"> ➤ CEC ➤ CPUC ➤ California Department of Transportation (Caltrans) ➤ DGS ➤ GO-Biz 	<ul style="list-style-type: none"> ➤ OPR ➤ Labor Agency, ➤ Employment Training Panel (ETP) ➤ CEC ➤ GO-Biz

		<ul style="list-style-type: none"> ➤ State Treasurer's Office ➤ Building Standards Commission (including Housing and Community Development and Division of the State Architect) ➤ CalEPA 		
	Vehicles	Infrastructure	End Users	Workforce
<p>Shared Understanding Goals for 2021 As a collective group of stakeholders, we lack a shared understanding of key market measures. In 2021, we plan to address the following shared knowledge gaps (all will be linked on the ZEV Market Development Strategy website). Lead agencies are identified -</p>	<ul style="list-style-type: none"> ➤ Big ZEV (MD/HD) Counting. Develop a shared understanding of Big ZEV deployment numbers, both existing and projected to aid grid and hydrogen planning (CEC, CARB, DMV) ➤ Used ZEV tracking. Develop a shared understanding of where used ZEVs go; focus on whether priority communities have equitable access. <i>Leverage data collection from CARB and other funding programs to track used</i> 	<ul style="list-style-type: none"> ➤ Big ZEV (MD/HD) Infrastructure Counting. Develop a shared understanding of Big ZEV infrastructure numbers – chargers/fueling stations (CEC, CPUC, Caltrans, DGS) ➤ Infrastructure Needs Assessment and Access. AB 2127, SB 1000 and AB 8 assessments have provided valuable analysis for the state. These efforts should be continued and expanded upon to determine 	<ul style="list-style-type: none"> ➤ Consumer Awareness. Year over year awareness measurement. Light-duty, passenger vehicles (non-fleet). <i>Leverage existing data and develop a strategy to track awareness metrics (CARB, CEC, CPUC, GO-Biz).</i> ➤ Fleet Awareness. Year over year awareness measurement. Light-, medium-, heavy-duty and off-road ZEVs. <i>Leverage existing data and develop a strategy to track awareness</i> 	<ul style="list-style-type: none"> ➤ ZEV Related Jobs. Develop a shared understanding of California's ZEV workforce, leveraging existing studies. (CWDB, OPR, CEC, GO-Biz) ➤ Expected and needed ZEV Jobs. Estimate needed ZEV ecosystem jobs as compared to state readiness. Including electricians, pipefitters, construction, manufacturing, technician labor supply, etc. Underway via EV and Hydrogen Strike Forces.

	<p>ZEVs and priority community access. (DMV, CEC, CARB, CPUC, GO-Biz)</p> <p>➤ Equity related metrics. Several equity programs exist, we strive to develop shared metrics to track collective progress through time. See <i>Equity Implementation Document (in-development)</i>.</p>	<p>infrastructure need and access. (CEC, CARB, GO-Biz)</p>	<p>metrics (CARB, DGS, Caltrans)</p> <p>➤ Fleet Satisfaction. Year over year ZEV operations satisfaction, e.g., improving TCO over time. (CARB, DGS, Caltrans)</p> <p>➤ Equitable Access. Track access to ZEVs and effectiveness of ZEV awareness campaigns and assistance for priority communities. Incorporate California Integrated Travel Project into smart mobility (CARB, CEC, CPUC, GO-Biz)</p>	<p>➤ ZEV Companies in California. Consistently track and maintain list of current ZEV companies in the state. (CEC, GO-Biz)</p>
	Vehicles	Infrastructure	End Users	Workforce
<p>Backbone Policy Development (Please view Agency Action Plans for more detailed information)</p>	<p>➤ CARB ZEV regulatory development and implementation.</p>	<p>➤ CEC: AB 2127 and SB 1000 charging assessments, Clean Transportation Program, EPIC, IEPR, etc.</p> <p>➤ CEC & CARB: AB 8 hydrogen assessment.</p> <p>➤ CPUC and Utilities: Transportation Electrification</p>	<p>➤ CARB: Incentive Programs</p> <p>➤ CPUC: Electricity Rates and Transportation Electrification Framework opportunities</p> <p>➤ CARB, CPUC: Clean Fuel Reward Program and transportation</p>	<p>➤ CWDB: High-road workforce development for CA ZEV industry</p> <p>➤ ETP: advance ZEV-related training</p> <p>➤ OPR: Just Transition Plan, from EO-N-79-20.</p> <p>➤ CEC Clean Transportation Plan</p>

		<p>Framework; grid/transmission planning and resiliency.</p> <ul style="list-style-type: none"> ➤ Building Standards Commission: building code development (multi-family and commercial) 	<p>electrification programs, investments</p> <ul style="list-style-type: none"> ➤ CEC: Infrastructure deployment planning ➤ BSC & HCD: Building standards, multi-family 	<p>workforce programs/funding.</p>
	Vehicles	Infrastructure	End Users	Workforce
Implementation	<ul style="list-style-type: none"> ➤ Increase Access: (see Equity Engagement & Implementation Strategy – multiple agencies + NGO Collaborative programs) 	<ul style="list-style-type: none"> ➤ Reduce Soft Costs: Permit & Interconnection Streamlining; Recycling (GO-Biz, CPUC, CEC, DTSC) 	<ul style="list-style-type: none"> ➤ Raise End User Awareness and Simplify Decision Making (CARB, CEC, CPUC, GO-Biz) ➤ Funding Alignment across programs³ (CARB, CEC, CTC, CalSTA, CPUC) 	<ul style="list-style-type: none"> ➤ Connect Just Transition Framework (OPR and CWDB) ➤ Leverage state databases to connect what is happening on the ground to what is needed (CWDB, ETP, OPR, GO-Biz, CSLB, BAR)
Local & Regional Leadership	<ul style="list-style-type: none"> ➤ GO-Biz to work with stakeholders to map regional collaboration efforts, along with points of contact, websites, etc. Key examples include the Transportation Electrification Partnership in Los Angeles, the Bay Area EV Strategic Council, Sacramento PEV Collaborative, Accelerate to Zero Emissions Collaboration in San Diego. 			
Local & Regional Leadership Highlights	<ul style="list-style-type: none"> ➤ Public fleet deployment of ZEVs (e.g., city/county) 	<ul style="list-style-type: none"> ➤ City, County, Air District, Community Choice Aggregator, Metropolitan Planning 	<ul style="list-style-type: none"> ➤ Local and regional funding and financing programs for drivers, operators, and fleets 	<ul style="list-style-type: none"> ➤ Community college courses and development of curriculum for ZEV-

³ Note: Funding and regulatory program administration improvements are designed to be inherent in each agency's public process. A key part of the ZEV Strategy is to better align programs across agencies.

	<p>vehicles, transit agencies, etc.)</p> <ul style="list-style-type: none"> ➤ Incorporating ZEVs into local and regional transportation planning; ZEV Readiness Plans and Roadmaps ➤ Local/regional funding and financing programs, e.g., Clean Cars 4 All, community car share 	<p>Organization, Regional Transportation Planning Organization and other local/regional infrastructure funding, financing, and infrastructure deployment programs</p> <ul style="list-style-type: none"> ➤ Local EV-infrastructure building reach codes ➤ City/county charging station permit streamlining ➤ Incorporating ZEV infrastructure into local and regional planning, and public interest advocacy 	<ul style="list-style-type: none"> ➤ Consumer and fleet ZEV education/ outreach programs 	<p>related employment, e.g., Rio Hondo College technician program for electric and fuel cell technologies</p> <ul style="list-style-type: none"> ➤ Business and workforce development programs, e.g., Los Angeles Cleantech Incubator startup program
	Vehicles	Infrastructure	End Users	Workforce
California Comeback Plan (approved July 2021)	<ul style="list-style-type: none"> ➤ \$925M Passenger vehicle & transport. equity incentives ➤ \$1.36B clean truck, transit, school bus, offroad incentives (CARB – 3 years) ➤ \$407M – Transportation Package (CalSTA – <i>Vehicles and Infrastructure</i>) 	<ul style="list-style-type: none"> ➤ \$915M infrastructure Investment (CEC - 3 years) ➤ \$407M – Transportation Package (CalSTA – <i>Vehicles and Infrastructure</i>) 	<ul style="list-style-type: none"> ➤ See Vehicle + Infrastructure Investments ➤ \$5M consumer awareness (GO-Biz) 	<ul style="list-style-type: none"> ➤ \$920M Labor and Workforce Development (not just ZEV) ➤ \$250M ZEV Manufacturing