

## California ZEV Market Development Strategy

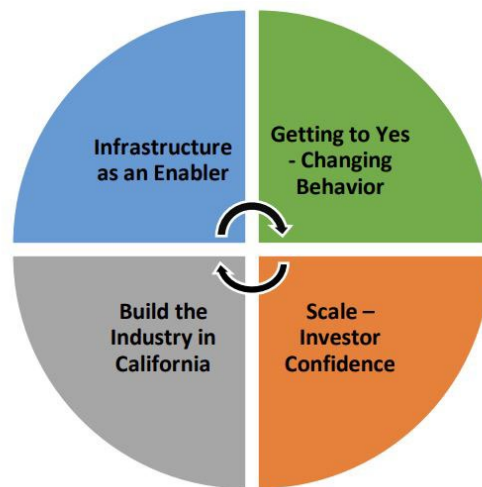
### ZEV Pillar Priorities – Implementation

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)—updated every three years—organizes and connects multiple documents and efforts to help align individual and collective efforts within the state government, and work with stakeholders, to build the ZEV market.<sup>1</sup> The ZEV Strategy is organized around the four core pillars of the ZEV Market: Vehicles, Infrastructure, End Users, and Workforce.

The ZEV Pillar Priorities Implementation document—updated annually—takes a top-level view of the system and identifies the most pressing issue(s) that the state can focus on to help the market grow equitably. The [2021 ZEV Pillar Priorities Implementation document](#) identified four key elements to achieve mainstream, broad-scale adoption of ZEVs:



Last year, the state focused heavily on the infrastructure pillar of the ZEV market. Through infrastructure assessments and reports, public outreach, and stakeholder engagement, the state identified needs in public charging and hydrogen refueling stations that must be addressed for the state to meet its ZEV adoption goals.<sup>2</sup> In 2021, the state passed an historic budget, the [California Comeback Plan](#), and added to the budget in 2022 with the [California Blueprint Plan](#). This combined \$10 billion package includes targeted investments in ZEV infrastructure to fill those gaps with a focus on

<sup>1</sup> The core components of the ZEV Strategy include: [ZEV Market Development Strategy Website](#); [ZEV Market Development Strategy Document](#); ZEV Pillar Priorities Document; [Equity Engagement and Implementation Plan](#); [Agency ZEV Action Plans](#); and [ZEV Market Development Metrics](#).

<sup>2</sup> For more details, see the California Energy Commission's [Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment](#), [SB 1000 Assessments](#), and the [Joint Agency Staff Report on Assembly Bill 8](#).

equity. The California Energy Commission's (CEC) Clean Transportation Program 2021-2023 Investment Plan seeks to direct at least 50 percent of investments toward projects that benefit low-income and disadvantaged communities.<sup>3</sup>

Additionally, the CEC together with partner agencies, drafted the [Zero-Emission Vehicle Infrastructure Plan \(ZIP\)](#). The ZIP details the state's near- and long-term actions, in collaboration with the private market, to ensure that charging and fueling infrastructure meets the needs of the growing ZEV market.

The state also engaged with stakeholders to learn about and better understand the challenges and potential solutions for the build-out of charging and fueling infrastructure that will be required to support the growing fleet of zero-emission medium- and heavy-duty trucks and buses. The California Air Resources Board (CARB) led a series of public workgroup meetings with partner agencies to engage with fleets around the proposed Advanced Clean Fleets regulations.

State agencies will continue to work on improving availability and access to charging and refueling infrastructure in 2022 and beyond, including leveraging funds available through the Infrastructure Investment and Jobs Act (2021) and the Inflation Reduction Act (2022).

## 2022 Implementation Framework – Improving the End User Experience

For a successful transition from internal combustion engine vehicles to 100 percent ZEVs, the shift needs to be seamless—and we know that today it is not seamless for all drivers and operators. Based on studies, stakeholder engagement, and anecdotal evidence, end users—individual consumers and fleets—are facing challenges (e.g., affordability, availability, and reliability of charging and fueling).<sup>4</sup> As ZEV adoption increases and there are more ZEVs on California roads, the state is working with stakeholders to understand these barriers, find solutions, and improve the overall end user experience.

Recognizing that the end user experience is complex and varied, we define it broadly to encompass plug-in charging and hydrogen fueling; passenger vehicles and big ZEVs<sup>5</sup>; individual consumers, priority communities, and fleets.<sup>6</sup> The table below shows issues that we have identified collectively, actions and potential solutions, lead and support agencies, and key stakeholder groups.

---

<sup>3</sup> <https://www.energy.ca.gov/news/2021-11/cec-approves-14-billion-plan-zero-emission-transportation-infrastructure-and>

<sup>4</sup>The California 2021-22 Budget provided GO-Biz a one-time \$5 million General Fund allocation to accelerate implementation of the ZEV Strategy's End User Pillar. GO-Biz awarded grants to Veloz and Valley CAN for engagement efforts that fill information gaps, address barriers, and present opportunities to accelerate ZEV adoption within hard-to-reach and underrepresented communities and across California.

<sup>5</sup>A big ZEV is a combination of medium- and heavy-duty zero-emission vehicles, including: large bus fleets (i.e. school, transit, and etc.); large commercial fleets (i.e. semi-tractor, box trucks, and etc.); and off-road (i.e. agriculture, aviation, construction, locomotive, marine, and etc.).

<sup>6</sup> ZEV Market Development Strategy definition of End Users: Consumers, riders, fleet operators, transportation network companies, car dealers, drivers, transportation planning agencies, program administrators, ports, regional and local governments and communities, trucking companies, fuel providers, and more.

October 2022

The ZEV transition will take all of us, and we need your input to help determine the health of the market and improve the system. Are we reaching the communities we are trying to reach (low-income and disadvantaged communities) and are the ZEV jobs going to people in those communities? In addition to the opportunities identified below, are there others you have identified? Please send us your suggestions at [zev@gobiz.ca.gov](mailto:zev@gobiz.ca.gov).

## 2022 End User Implementation Table

Table 1

Opportunities to Improve the System	Actions (Current and Future)	Lead Agencies	Support Agencies	Key Stakeholder Groups
Improve reliability of public plug-in EV charging stations (EVCS)	<ul style="list-style-type: none"> <li>-Require reliability for infrastructure that receives incentives</li> <li>-Require maintenance</li> <li>-Improve reporting and data collection</li> <li>-Promote standardization between deployments of ZEV and Infrastructure</li> <li>-Support building redundancy into charging network providing consumers choice and back-up charging options</li> </ul>	CEC	CARB, GO-Biz	<ul style="list-style-type: none"> <li>-Consumers and consumer organizations</li> <li>-Charging station providers</li> <li>-OEM manufacturers and suppliers</li> </ul>
Simplify multi-modal transportation use	<ul style="list-style-type: none"> <li>- Incorporate California Integrated Travel Project into smart mobility (Pilot projects ongoing)</li> </ul>	CalSTA, Caltrans	CARB, CEC, GO-Biz	<ul style="list-style-type: none"> <li>-Consumers and consumer organizations</li> <li>-Charging station providers</li> <li>-Air Districts</li> </ul>
Increase affordability of ZEVs and access to funding	<ul style="list-style-type: none"> <li>- Simplify the application for state funds</li> <li>-Layer public and private investments</li> <li>- Equity focused policies within incentives, grants, and regulations</li> </ul>	CARB, CEC, CPUC, CalSTA	GO-Biz	<ul style="list-style-type: none"> <li>-OEMs, dealers</li> <li>-Investors/financing institutions</li> </ul>
Increase ZEV awareness and adoption	<ul style="list-style-type: none"> <li>-Funding for education and outreach to boost the ZEV market, and learn from consumers/operators</li> </ul>	GO-Biz	CARB, CEC, CalSTA	<ul style="list-style-type: none"> <li>- State Agencies</li> <li>-Coalitions and NGOs</li> <li>-Consumers and consumer organizations</li> <li>-Air districts</li> </ul>

Opportunities to Improve the System	Actions (Current and Future)	Lead Agencies	Support Agencies	Key Stakeholder Groups
Develop a more resilient hydrogen supply chain	<ul style="list-style-type: none"> <li>-Leverage federal hydrogen hub program to support the scaling up/availability of hydrogen fuel to meet the state's growing needs (esp. relevant for transit and commercial users)</li> <li>-Make it easier for MD/HD fleets to get fuel for H2 trucks and buses (and encouraging scale in production to make it affordable for them)</li> <li>-Develop renewable hydrogen production facilities</li> </ul>	GO-Biz, CEC	CARB, DGS	<ul style="list-style-type: none"> <li>-Hydrogen providers</li> <li>-Collaboratives</li> <li>-NGOs</li> <li>-Academia</li> </ul>
Ensure availability of trucks and buses required by ACF	<ul style="list-style-type: none"> <li>-Manufacturers ZEV sales requirement (Advanced Clean Trucks regulation)</li> </ul>	CARB	GO-Biz	<ul style="list-style-type: none"> <li>-Fleet owners and operators</li> <li>- Vehicle manufacturers (including supply chain)</li> <li>- Labor and workforce organizations</li> </ul>
Ensure adequate electrical service to support growing number of fleets/big ZEVs	<ul style="list-style-type: none"> <li>-CPUC/CEC/utilities—rate case design to support timely build out</li> <li>-Utilization of planning data to address geographically specific grid needs</li> <li>-Policy that promotes near-term solutions where grid service is not yet adequate (onsite generation and storage)</li> </ul>	CPUC, CEC	CARB, GO-Biz	<ul style="list-style-type: none"> <li>-Fleet owners and operators</li> <li>- Grid operators, utilities, CCAs, charging and hydrogen station providers</li> <li>-Labor and workforce organizations</li> </ul>

Opportunities to Improve the System	Actions (Current and Future)	Lead Agencies	Support Agencies	Key Stakeholder Groups
<p>Plan for fleet/big ZEV charging and fueling infrastructure</p>	<ul style="list-style-type: none"> <li>-Forecasting need and planning load management (CARB/CEC exchange data, model and analyze, share with CPUC and utilities)</li> <li>-Funding for CEC blueprint planning grants</li> <li>-Draft SB 643 (in addition to AB 2127 report) statewide assessment of the fuel cell electric vehicle (FCEV) infrastructure, fuel production, and distribution needed to meet California's zero-emission truck, bus, and off-road vehicle goals</li> <li>-Draft SB 671 statewide assessment to identify priority freight corridors and their infrastructure needs</li> <li>-Industry installing charging depots and fueling stations</li> </ul>	<p>CARB, CEC, CTC</p>	<p>CPUC, CalSTA, Caltrans, GO-Biz</p>	<ul style="list-style-type: none"> <li>-Fleet owners and operators</li> <li>- Grid operators, utilities, CCAs, charging and hydrogen station providers</li> <li>-Labor and workforce Organizations</li> <li>-Academia</li> </ul>
<p>Support medium- and heavy-duty vehicle fleets and operators with transition to ZEVs</p>	<ul style="list-style-type: none"> <li>-Advanced Clean Fleets implementation assistance programs including in-person workshops and online resources</li> <li>-Proved technical assistance/education to small fleets &amp; owner/operators. This would start early on during the planning/infrastructure phase through the purchase of the vehicle along with training for the operational aspects</li> <li>-Community outreach especially with underserved and disadvantaged communities</li> </ul>	<p>CARB, GO-Biz</p>	<p>CEC</p>	<ul style="list-style-type: none"> <li>-Fleet owners and operators</li> <li>-Air districts</li> <li>-Electricity and Hydrogen providers</li> <li>-Consultants</li> <li>-NGOs (Calstart, HFCP, etc.)</li> </ul>

Opportunities to Improve the System	Actions (Current and Future)	Lead Agencies	Support Agencies	Key Stakeholder Groups
<p>Increase financial assistance and incentive programs throughout the state with a focus on small fleets</p>	<ul style="list-style-type: none"> <li>-Ongoing/significant funding incentives to attract buyers and financial institutions which can foster early adoption, create a secondary market of used ZE vehicles and to offset higher upfront costs and taxes</li> <li>-Provide options to include infrastructure and stack other incentives</li> <li>-Collaborate with other pilot, funding, and outreach programs to share lessons learned and provide support to each other on how to understand and best serve small fleets &amp; owner/operators (Share information)</li> <li>-Ongoing discussions and collaborations with Financial Institutions, Manufacturers, Dealerships, various State Agencies, Air Districts, Trucking Associations, Ports, Environmental Justice Groups, Community Groups and Vocational Schools</li> <li>-Increase public infrastructure</li> </ul>	<p>CARB, CEC</p>	<p>CPCFA, GO-Biz</p>	<ul style="list-style-type: none"> <li>-Fleet owners and operators</li> <li>-Lenders</li> <li>-Electricity and Hydrogen providers</li> <li>-Consultants</li> <li>-NGOs (Calstart, HFCP, etc.)</li> <li>-Ports</li> <li>-Manufacturers</li> <li>-Municipalities, Public Utilities</li> <li>-Dealerships</li> <li>-Environmental Justice Groups</li> <li>-Vocational Schools</li> <li>-Trucking Associations</li> <li>-Labor and Workforce Organizations</li> <li>-Community Groups</li> <li>-State Agencies</li> <li>-Property Owners</li> </ul>

Opportunities to Improve the System	Actions (Current and Future)	Lead Agencies	Support Agencies	Key Stakeholder Groups
Increase availability of at home charging (particularly in multifamily dwellings)	<ul style="list-style-type: none"> <li>-Update residential EV charging building standards through CALGreen code cycles</li> <li>-Funding for home charging</li> </ul>	HCD, CEC	CARB	<ul style="list-style-type: none"> <li>- State Agencies</li> <li>-Coalitions and NGOs</li> <li>-Consumers and consumer organizations</li> <li>-Architects and engineers</li> <li>-Building industry</li> <li>-Building officials</li> <li>-Building owners and managers</li> </ul>
Increase availability of charging at retail, offices, and public schools	-Update nonresidential EV charging requirements in the California Green Building standards Code	BSC, DSA	CARB, CEC, GO-Biz	<ul style="list-style-type: none"> <li>-Coalitions and NGOs</li> <li>-Consumers and consumer organizations</li> <li>-Building and property managers</li> </ul>
Increase availability of medium- and heavy-duty charging at warehouses/grocery stores, and other retail stores/commercial office buildings/manufacturing facilities	Update nonresidential EV charging requirements in the California Green Building standards Code	BSC	CARB, CEC, GO-Biz	<ul style="list-style-type: none"> <li>-Coalitions and NGOs</li> <li>-Consumers and consumer organizations</li> <li>-Building and property managers</li> </ul>



Opportunities to Improve the System	Actions (Current and Future)	Lead Agencies	Support Agencies	Key Stakeholder Groups
Contractor availability	<p>-Serve as a resource to electrical contractors and Division of Labor Standards Enforcement to recruit, train, and certify electrical workers in disadvantaged, rural, tribal, and areas impacted by the transition from fossil fuels.</p> <p>-Support training certifications for contractors of publicly funded EVCS through the Electric Vehicle Infrastructure Training Program (EVITP)</p>	CSLB, CEC	DIR, CWDB, ETP	<p>-Grid Operators</p> <p>-Electricity and Hydrogen Providers</p> <p>-NGOs</p> <p>-Organized Labor</p> <p>-Academia</p>