California Air Resources Board
Zero Emission Vehicle
2022
Action Plan

Introduction

The California Air Resources Board (CARB) is focused on the transition to zero emission vehicles (ZEVs) and low carbon transportation in all of its work, with a strong focus on equitably reducing community exposure to vehicular air pollution using a broad portfolio of regulatory, incentive, and planning strategies. These strategies embrace both upstream and downstream portions of the sector, from fuels production to vehicle design, and are implemented in partnership with the federal government, other states, CARB works to develop, promote, and support new clean technologies and to make them broadly accessible to Californians. California agencies, local governments, and communities. The subset of activities identified in this report focus on near-term, concrete, actions anticipated in 2022, but inform this larger strategy.

At the same time, CARB continues to develop and implement cross-cutting strategies, Key themes include:

- A strong emphasis on partnerships. For instance, CARB works to support national, state, and local regulators who are advancing ZEVs and low carbon transportation planning. These efforts include, for instance, working with US EPA to forward regulations in its jurisdiction that can cut pollution or promote ZEVs, supporting other federal efforts (both regulatory and incentive-based), collaborating with other states that seek to advance these policies, and working with regulators in California. Within California, these collaborations include ongoing work with energy, transportation, and housing regulators to ensure the transportation system continues to evolve towards an affordable, equitable, new state that reduces dependence on single-occupancy vehicles and provides more transportation choices.

- Recognizing important connections between sectors and working to decarbonize the economy as a whole. CARB's many fuels and power sector programs and collaborations work to reduce the carbon intensity of fuels, drop electricity sector emissions, and support economy-wide transitions – including development of needed infrastructure for a zero emission economy. CARB works to plan and develop these programs in tandem with vehicle programs. CARB is also focused on collaborating with other agencies to ensure continuing charging and fueling infrastructure buildout occurs comprehensively and equitably, with reliable access for all.

- A deep focus on equity. CARB is committed to eliminating class- and race-based disparities in vehicular pollution exposure, opening up transportation opportunities for all, including in its incentive and regulatory programs. CARB looks to set priorities and develop programs in close collaboration with communities. CARB is working to develop clear metrics that assess for racial equity in its programs, with metrics in varying stages of development by program -- this includes identifying and documenting inequities, examining the root causes of inequities, and working with stakeholders and

communities to understand potential adverse impacts and advance equitable alternatives and improvements where possible.

- Anticipating future needs across categories. As the zero emission vehicle sector continues to develop, for instance, CARB recognizes that it is important to consider materials demand and disposal for batteries as part of its zero emission vehicle rollout, and is developing regulations that help to ensure the durability of these technologies as a result.

These themes, along with emerging priorities in this evolving space, continue to inform CARB's work, along with the specific priorities described below.

Pillars				Objectives
Vehicles	Infrastructure	End User	Workforce	
D	D	I		**1. Analysis**. Maintain shared analytical understanding of the role of transportation in air quality/toxic and climate emissions. SIP and climate goals.
D	I	I	I	**2. 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% ZEV fleet (coordinate with BSC, HCD, CEC, CPUC, GO-Biz).
D	I	D		**3. Incentives**. Create and implement incentive systems that build awareness and market demand, facilitate market expansion — with a focus on 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 state's high-road workforce goals as well and encourage high-road market expansion and improved job quality for CA workers.
		D		**4. Community Engagement.** Community engagement with feedback that informs program development and implementation. Explicit programs that develop partnerships and relationships that facilitate collaboration with our ZEV programs.
D	D	D	D	**5. CA ZEV Market Development**. Expand new and used markets and programs, consumer education and awareness, and increase access to clean mobility. Lead H2 infrastructure analysis and station confirmation testing, support EVSE analysis (in collaboration with CEC, CPUC and GO-Biz) and pursue the development of EV charging infrastructure building standards in the CALGreen Code (in collaboration with BSC, HCD, CEC, CPUC, and GO-Biz).
D	D	D	I	**6. Mobility and Technology Advancement**. Invest in research, development, and demonstration to advance clean mobility and ZEV technology, including opening/enabling new markets.
D	D	D		**7. External Market Development**. Leadership/collaboration with other states, nations, federal government, local government and community-based organizations, etc.
		D	D	**8. and 9. Consumer and Worker Awareness**. Strengthen and expand ZEV related education and outreach, and tailor to unique needs of impacted communities, to ensure all Californians understand how to transition to cleaner mobility options.

1. Analysis

1.1 State SIP Strategy

The 2022 State SIP Strategy (SSS) will include measures and commitments to reduce emissions to support attainment of the 70 ppb standard in all nonattainment areas across California. SSS measures encompass actions to establish requirements for cleaner technologies (both zero-emissions and near zero-emissions), deployment of these technologies into the fleet, accelerating the deployment of cleaner technologies through incentives and reducing vehicle miles travelled (VMT). There are many Zero Emission Vehicle (ZEV)-focused measures in the SSS. Examples include on-road measures like Advanced Clean Fleets, Zero-Emission Truck Measure, and Advanced Clean Cars II, as well as off-road measures such as the Off-Road Zero-Emission Targeted Manufacturer Rule. A streamlined infrastructure build-out is necessary to support zero emission vehicles and equipment from these measures. As part of the SSS, CARB worked with the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) on an infrastructure assessment that presents CEC's updated projection of infrastructure demands for ZEV focused regulations in SSS, investigates key barriers and opportunities for meeting this demand, and highlights CPUC's various utility programs to support transportation electrification.

Website: https://ww2.arb.ca.gov/resources/documents/2022-state-strategy-state-implementation-plan-2022-state-sip-strategy

Key Collaborators
California Energy Commissions (CEC) and California Public Utilities Commission (CPUC)

Key Actions and Expected Results:
1. Release Draft 2022 State SIP Strategy – January 2022
2. Release Proposed 2022 State SIP Strategy – Summer 2022
3. Board Consideration – Summer 2022

1.2 SB 350 Low-income Barriers Study, Part B, and SB 350 Outreach Strategic Roadmap

CARB's Barriers Study identifies affordability, funding for clean transportation solutions and a lack of awareness of clean transportation options as barriers, and discusses community-specific barriers, such as safety, convenience and access. The report outlines key recommendations to overcome barriers and increase access for low-income residents, including: support for community transportation needs assessments, regional one-stop-shops including a streamlined application tool, grants and solicitation guidance, increased workforce training and development, expanded technical assistance and capacity-building, and an outreach plan. The

SB 350 Outreach Strategic Roadmap identifies strategies to coordinate clean transportation outreach and improve community engagement; implementation activities to support this effort are ongoing.

Website: https://ww2.arb.ca.gov/resources/documents/carb-barriers-report-final-guidance-document

Key Collaborators CEC; CPUC; GO-Biz; SGC; CWDB; CalTrans; Local and Regional Government; Federal and Tribal Governments; Non-Governmental Organizations; Communities

Key Actions and Expected Results:

1. Implementation efforts are ongoing to support equity and climate goals specific to clean transportation and mobility access, including community transportation needs assessments, technical assistance and capacity building
2. Outreach Roadmap measures will be further coordinated with state government and local agencies
3. Consider key lessons and outcomes from projects to inform potential changes to clean transportation and other incentive projects and develop relevant grants and solicitation guidance
4. Establish Access Clean California as a portal for priority community streamlined access to incentives

2. Regulation

2.1 Advanced Clean Cars 2

In addition to continuing standards for criteria emissions, the Advanced Clean Cars 2 regulation will set ZEV requirements with a goal of reaching 100% ZEV and PHEV sales by 2035, with implementation beginning with the 2026 model year. Stakeholder engagement began in 2020, with public workshops. New ZEV requirements will include consumer assurance provisions to increase consumer confidence in ZEVs throughout their life, including in the used car market.

Website: ww2.arb.ca.gov/our-work/programs/advanced-clean-cars-program

Key Collaborators
CEC; CPUC; Vehicle and Supply Chain Manufacturers; Non-Governmental Organizations; Communities; Local and Regional Government; Federal and Tribal Governments; Other State Governments

Key Actions and Expected Results:

1. Staff report with proposed regulation order posted for 45-day public comment period in April 2022
2. First of two public Board hearings in June 2022

2.2 Electric Vehicle Supply Equipment (EVSE) Standards Regulation

Implement and track compliance with CARB's EVSE Standards Regulation, adopted in 2019 pursuant to Senate Bill 454 (Corbett). The Regulation establishes requirements that electric vehicle service providers (EVSPs) must meet with the goal of enabling drivers to confidently and reliably access public charging infrastructure. In implementing the Regulation, CARB continues to evaluate barriers to access and the extent to which the Regulation is adequately addressing those barriers.

As part of that effort, staff conducted a Technology Review, including surveys of drivers' experiences accessing public charging stations and evaluated the availability and use of different payment methods to understand whether the requirements of the Regulation remain appropriate.

Website: ww2.arb.ca.gov/our-work/programs/electric-vehicle-supply-equipment-evse-standards

Key Collaborators
EVSE providers, EVSE manufacturers, Electricity Providers; Non-Governmental Organizations; CEC; GO-Biz

Key Actions and Expected Results:

1. The draft Technology Review has been published for public review and comment in February 2022 with a public workshop in mid-February
2. There will be an informational update to the CARB Board on the Technology Review in April 2022

CARB will also explore ways to integrate Cal-Integrated Transportation Planning (ITP) standards within CARB's incentive programs such as Low Carbon Transit Operation Program (LCTOP) and regulations such as EVSE Standards Regulation

2.3 The Clean Mile Standard

The Clean Mile Standard is a regulation to increase zero-emission miles and reduce greenhouse gas emissions from passenger ride-hailing services offered through transportation network companies like Uber and Lyft. The regulation requires, by 2030, that 90% of vehicle miles traveled in ride-hailing fleets be zero-emission miles and that ride-hailing fleets reduce their greenhouse gas emissions to 0 grams CO2 per passenger mile traveled. CARB adopted the Clean Miles Standard regulation in May 2021, and pursuant to Senate Bill 1014 (Skinner), CPUC begins proceedings to implement the standards.

Website: ww2.arb.ca.gov/our-work/programs/clean-miles-standard

Key Collaborators
CPUC; CEC; Local and Regional Government; Grid Operators, Electricity and Hydrogen Providers; Fleets; Non-Governmental Organizations; Organized Labor; TNC Drivers.

Key Actions and Expected Results:

1. Support CPUC in their proceedings to adopt the implementation of the regulation

2.4 Advanced Clean Trucks

The Advanced Clean Trucks (ACT) regulation, approved in 2020, ensures manufacturers produce and sell zero-emission medium- and heavy-duty trucks as an increasing portion of their sales from 2024 to 2035. The regulation is anticipated to result in 100,000 zero-emission trucks by 2030 and 300,000 by 2035.

Website: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-trucks

Key Collaborators
Vehicle Manufacturers and Supply Chain; Fleets; Grid Operators, Electricity and Hydrogen Providers; Local and Regional Government; Federal and Tribal Governments; CEC; CPUC, Caltrans; CTC; Organized Labor, Non-Governmental Organizations

Key Actions and Expected Results:
1. Manufacturers must produce and deliver for sale ZEVs starting with the 2024 model year
2. Manufacturers begin reporting vehicle sales information after the 2021 model year in early 2022

CARB will provide a summary of aggregated data collected through the Advanced Clean Trucks Large Entity Reporting requirement for public release

2.5 Advanced Clean Fleets

The primary goal of the ACF regulation is to accelerate the market for zero-emission trucks and buses by requiring fleets that are well suited for electrification to transition to ZEVs where feasible. The regulation would contribute to the goal of achieving the Governor's Executive Order N-79-20 to reach 100 percent ZE drayage trucks by 2035 and 100 percent ZE medium and heavy-duty vehicles by 2045, where feasible. The proposed regulation would end the sale of combustion-powered trucks in California by 2040. The proposed regulation complements the Advanced Clean Trucks regulation. The two regulations are expected to result in 520,000 ZEVs by 2035 and 1,250,000 ZEVs by 2045 together.

Website: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets

Key Collaborators
Fleets; Vehicle Manufacturers and Supply Chain; Fleets; Grid Operators; Electricity and Hydrogen Providers; Local and Regional Government; Caltrans; CEC, CPUC, Non-Governmental Organizations, Organized Labor

Key Actions and Expected Results:
1. Draft proposal released March 2021 which sets requirement on public fleets, drayage trucks, and high priority fleets meaning fleets who have 50 vehicles under common ownership and control or have greater than $50 million in annual revenue
2. First of two board hearings for regulatory adoption, October 2022
3. Proposal expanded to set 100 percent manufacturer sales requirement by 2040

2.6 Innovative Clean Transit

The Innovative Clean Transit regulation requires all public transit agencies to gradually transition to a 100% zero-emission bus fleet by 2040 and encourages them to provide innovative first- and last-mile connectivity and improved mobility for transit riders.

Website: https://ww2.arb.ca.gov/our-work/programs/innovative-clean-transit/program-update

Key Collaborators
Vehicle Manufacturers and Supply Chain; Technology Providers; Fleets; Grid Operators, Electricity and Hydrogen Providers; Workforce Training and Development Institutions; Labor and Workforce Development; Local and Regional Government; Federal and Tribal Governments; Academia; Non-Governmental Organizations; CPUC; HCD; International Relationships.

Key Actions and Expected Results:
1. Zero-emission bus rollout plans: all large transit agency plans are posted online
2. Reporting: all transit agencies are required to annually report their fleet inventories and relevant bus and fuel purchases starting March 2021
3. Comprehensive review: major data collection and analytical work was conducted in 2021 and the results for 40' standard buses will be presented in 2022

Ongoing: outreach to transit agencies and zero-emission bus manufacturers to further understand market barriers and develop solutions

2.7 Heavy-duty Phase 3 GHG Standards

There have been several phases of progressively more stringent greenhouse gas standards for medium- and heavy-duty engines and vehicles. The Phase 1 GHG standards, based on off-the-shelf technologies and applicable to 2014 and later model year medium- and heavy-duty engines and vehicles, were adopted by U.S.

EPA in 2011 and by CARB in 2013. The Phase 2 GHG standards, adopted by U.S. EPA in 2016 and CARB in 2018, were more technology-forcing than Phase 1. The requirements begin with model year 2021 for medium- and heavy-duty engines and vehicles and will be fully implemented by model year 2027. California is encouraging U.S. EPA to adopt Phase 3 GHG standards more ambitious and stricter than previous regulations with significant penetration of heavy-duty ZEVs and maximized carbon dioxide benefits.

Key Collaborators
Vehicle Manufacturers and Supply Chain; Fleets; Grid Operators, Electricity and Hydrogen Providers; Local and Regional Government; Federal and Tribal Governments; CEC; Caltrans; CalSTA; CTC; Organized Labor

Key Actions and Expected Results:

1. Encourage U.S. EPA to move quickly and aggressively to adopt stricter standards based on significant penetration of ZEVs. The importance of U.S. EPA action on Heavy-duty Phase 3 GHG standards is being called out in CARB's 2022 State SIP Strategy.

2.8 Zero-emission Forklifts

CARB will propose a measure to accelerate the deployment of zero-emission forklifts with a focus on those for which commercial options are readily available.

Website: https://ww2.arb.ca.gov/our-work/programs/zero-emission-forklifts

Key Collaborators Vehicle Manufacturers and Supply Chain; Fleets; Grid Operators, Electricity and Hydrogen Providers; Local and Regional Government; Non-Governmental Organizations; Caltrans; CEC; CPUC

Key Actions Expected Results:

1. Develop regulatory proposal for Board consideration
2. Conduct stakeholder and community outreach via public workshops leading up to the hearing. To enable broader stakeholder outreach, the timeframe for this rulemaking has been extended. Staff is now working to develop a regulatory proposal for Board consideration in 2023.

2.9 Zero-emission Airport Shuttle

Airport shuttle operators must begin adding zero-emission shuttles to their fleets in 2027 and complete the transition to ZEVs by the end of 2035.

Website: https://ww2.arb.ca.gov/our-work/programs/zero-emission-airport-shuttle

Key Collaborators Vehicle Manufacturers and Supply Chain; Fleets; Grid Operators, Electricity and Hydrogen Providers; Local and Regional Government; CEC; CA Airport Council; Non-Governmental Organizations

Key Actions and Expected Results:

1. The regulation applies to airport shuttle operators who own, operate, or lease vehicles at 13 California airports.
2. Reporting and record keeping requirements. as specified by the regulation must be reported to CARB no later than March 1, 2022.
3. All fleet owners must review and update the information submitted annually by March 1 of each subsequent reporting year through TRUCRS. Implementation is underway, no changes

2.10 Locomotives

By 2022, propose an In-Use Locomotive Regulation that requires payment for locomotive emissions emitted in California (CA). Funds would be used to mitigate emissions through use and development of cleaner technologies, including zero-emissions equipment and infrastructure. Additionally, starting in 2030, the regulation would require new Switch, Industrial and Passenger locomotives to be zero emission in order to operate in CA and starting in 2035, new Line Haul locomotives would need to be zero emission in order to operate in CA.

Website: https://ww2.arb.ca.gov/our-work/programs/reducing-rail-emissions-california

Key Collaborators
Locomotive, Battery, Fuel Cell Manufacturers; Railroads; Grid Operators, Electricity and Hydrogen Providers; Local and Regional Government; Federal and Tribal Governments; CEC; Caltrans; CalSTA; CTC; Organized Labor; Communities

Key Actions and Expected Results:

1. Outreach via stakeholder meetings leading up to the Board hearing
2. Proposal for Board consideration by the end of 2022
3. The proposed concepts would result in emission reductions from locomotives operating across the state, including those operating in lower-income and disadvantaged communities

2.11 Transport Refrigeration Units

In 2022, propose amendments to existing TRU rule for all truck TRUs to be zero emissions by 2030. By end of 2022, release a draft technology assessment on zero-emission technology for non-truck TRUs. By end of 2024, develop new rule to transition non-truck TRUs to zero emissions.

Website: https://ww2.arb.ca.gov/resources/fact-sheets/proposed-amendments-tru-atcm

Key Collaborators TRU, Engine, Battery, Fuel Cell Manufacturers; Infrastructure Providers; Fleets; Grid Operators, Electricity and Fuel Providers; CEC; Organized Labor; Freight Facilities; Communities

Key Actions and Expected Results:

1. Outreach via stakeholder meetings leading up to Board hearing
2. Final proposal for Board consideration in early 2022
3. The proposed amendments would result in emission reductions from TRUs across the state, including those operating in lower-income and disadvantaged communities
4. Release of a draft zero-emission technology assessment in 2022

2.12 Commercial Harbor Craft

In 2022, amendments to the existing CHC regulation are expected to be finalized that staff anticipates may result in up to 100 vessels in California being zero-emissions capable by 2035 (short-run ferries, tugs, pilot vessels, workboats, and new excursion vessels); and cleaner combustion requirements for vessels where zero emissions is not feasible.

Website: https://ww2.arb.ca.gov/our-work/programs/commercial-harbor-craft

Key Collaborators
Vessel Owners and Operators, Vessel Builders, Engine Manufacturers; Grid Operators, Electricity and Fuel Providers; CPUC; CDFW; Local and Regional Government; US Coast Guard; Communities

Key Actions and Expected Results:

1. Outreach via stakeholder meetings leading up to Board hearing
2. Final proposal for Board consideration in early 2022
3. Proposal will achieve emission reductions in all communities statewide and provide compliance extensions for business owners meeting financial need criteria with additional stringency for vessels operating in disadvantaged communities

2.13 Cargo Handling Equipment

In 2022, staff will start development on a regulatory concept that will transition cargo handling equipment (CHC) to zero-emission by 2038.

Website: https://ww2.arb.ca.gov/resources/documents/cargo-handling-equipment-regulation-transition-zero-emissions

Key Collaborators
Engine, Battery, Fuel Cell Manufacturers; Infrastructure Providers; CHE Owners and Operators; Grid Operators, Electricity and Fuel Providers; CEC; Organized Labor; Freight Facilities; CMA, CITT, Communities; Local and Regional Government

Key Actions and Expected Results:

1. Initiate development of new CHE regulation – Late-2022

2.14 Small Off-Road Engines

By the end of 2022, finalize measure to transition production of small off-road engines (SORE) to zero-emission equipment (ZEE). Begin implementation of the measure.

Website: https://ww2.arb.ca.gov/our-work/programs/small-off-road-engines-sore

Key Collaborators SORE Manufacturers and Trade Associations; State and Local Government; Neighborhood Coalitions; Environmental Organizations; Landscapers; Air Districts

Key Actions and Expected Results:

1. Develop and release modified regulatory text for 15-day public comment period, respond to public comments and finalize amendments to the regulations. Expect to release text in Spring 2022 and receive Office of Administrative Law approval of regulations in Fall 2022, with updated regulations becoming effective January 1, 2023
2. Form a workgroup with landscapers to discuss the updated rules, the availability of incentives for purchasing ZEE, and landscapers' questions. Expect to invite interested parties to join the workgroup Spring 2022 and hold the first meeting in Early Summer 2022, hope to get help from small engine dealers to get the word out
3. Conduct outreach to residents and businesses who are likely to be impacted by the updated rules. Develop fact sheets when rules are finalized, collaborate with air districts, communities, and others to ensure users are aware of incentives and know how to take advantage of them; continue demonstration projects including the ZEE Roadshow

3. Incentives

The Administration proposed $6.1 billion in new zero-emission transportation investments over the next four years to increase access to clean transportation, reduce air pollution, and support disadvantaged and low-income communities, including tribal communities. Of these investments, $2.2 billion will go to the California Air Resources Board to support the expansion of our zero-emission vehicle incentive programs targeted for heavy-duty zero-emission technology advancement, to

expand investments in passenger vehicle incentives and infrastructure, and, ultimately, to amplify the key priorities identified in the 2021Budget Act: delivering both equity and scale.

Building on the $3.9 billion approved in the 2021 Budget Act and combined with $383 million Federal Funds through the California State Transportation Agency and $1.5 billion Proposition 98 General Fund through the California Department of Education, these investments deliver a combined $10 billion in the critical window between 2021 and 2026 to accelerate the equitable transition to zero-emission transportation opportunities for all Californians.

3.1 Clean Vehicle Rebate Project

The Clean Vehicle Rebate Project supports increasing the number of ZEVs on California's roadways to meet deployment goals and achieve large-scale transformation of the fleet while also providing support to increase ZEV uptake in priority communities. CVRP provides consumers with vehicle rebates on a first-come, first-served basis for new battery-electric, fuel cell electric and plug-in hybrid vehicles, and zero-emission motorcycles. CARB tracks the number of consumers who participate, their income level and residency location, costs and types of vehicles purchased, and rebate essentiality (consumer surveys).

Website: https://cleanvehiclerebate.org/eng

Key Collaborators
Local and Regional Government; Federal and Tribal Governments; DOF; Treasurer's Office; Non-Governmental Organizations; Vehicle Manufacturers and Supply Chain; Fleets, Grid Operators, Electricity and Hydrogen Providers

Key Actions and Expected Results:

1. Outreach and education, particularly to priority communities; due to the ongoing health and economic crisis, in-person outreach will continue to be very limited. A majority of outreach will be through virtual meetings and various multimedia efforts. A majority of in-person outreach will be accomplished through CVRP's Community Partner Network, a statewide coalition of a growing number of community-based organizations (CBOs) that have a common goal of ensuring clean air for all Californians. CVRP works with CBOs and their respective communities by breaking down barriers to ZEV ownership and providing information on available incentives.
2. Ongoing: track and collect metrics on program use
3. Updated program information regarding rebate statistics, various analyses, survey data, and outreach statistics will continue to be provided on the CVRP website, https://cleanvehiclerebate.org/eng.
4. In line with the requirements of the Budget Act of 2021, program changes for CVRP will be implemented over the course of the next three fiscal years in order to ramp down the incentive while still offering critical support to the ZEV market.

The first phase of changes will be implemented no earlier than February 2022 and will include, a decrease in the income cap for standard rebates, a reduction in the MSRP cap, and base the MSRP cap on EPA vehicle class (e.g., cars and large vehicles). More information can be found in the FY 2021-22 Funding Plan for Clean Transportation Incentives.

3.2. Electric Bicycle Incentive Project

The Electric Bicycle Incentive Project is a new project that aims to provide "on-the-saddle" rebates to reduce the purchase price for electric bicycles (e-bikes) to income qualified consumers. The pilot will be designed to help Californians reduce their VMT by lowering barriers to e-bike ownership, as well as learn about bicycle safety and support local businesses. The Electric Bicycle Incentives Project will pilot an approach that aims to 1) help people replace car trips with e-bike trips, 2) increase access to electric bicycles, and 3) reduce GHG emissions.

Key Collaborators
Local and Regional Government; Non-Governmental Organizations; Fleets; Academia; Bicycle manufacturers; Bicycle coalitions; Bicycle retailers

Key Actions and Expected Results:
The Electric Bicycle Incentives Project is currently under development. Staff anticipates having a project administrator in place by mid-to-late 2022. Solicitation, policy, and implementation public work groups will be held and will continue throughout 2022.

3.3. Financing Assistance for Lower-income Consumers Pilot

The Financing Assistance for Lower-Income Consumers Pilot (includes the Clean Vehicle Assistance Program and Driving Clean Assistance Program) is designed to increase access to clean transportation for lower-income Californians by providing low interest loans and vehicle price buy-downs at the point-of-sale. In addition, buyers of plug-in hybrid and battery-electric vehicles are also eligible for home charging equipment. One unique provision of this program provides financial literacy and advanced vehicle technology training to ensure consumer protection, increase the rate of successful loan repayments, and ensure that the vehicles chosen by participants adequately meet their transportation needs. This pilot is meant to complement CVRP and Clean Cars 4 All by providing low-interest loans to participants in those programs.

Website: https://cleanvehiclegrants.org/, https://communityhdc.org/dcap/

Key Collaborators Local and Regional Government; Federal and Tribal Governments; DOF; Treasurer's Office; Non-Governmental Organizations; California Infrastructure and Economic Development Bank

Key Actions and Expected Results:

1. Refine applicant processing and other implementation and policy factors that support the continued growth and evolution of this pilot. CARB anticipates implementing changes that include shifting away from a first-come-first-serve program to a needs-based program focused on income eligibility, transportation and geographic needs, and other factors that help to identify consumers that truly need the incentive to purchase an electric vehicle in mid-2022. Additional changes include adjustments to loan rates and terms within the financing components of the program, and purchase price limitations on vehicles supported by the program.
2. Ongoing: track number of consumers who participate, their income level and residency location, costs and types of vehicles purchased, and loan repayment status.
3. The program continues to refine program parameters, broaden financial institution support, and eventually expand the case management approach developed by the Driving Clean Assistance Program into the statewide Clean Vehicle Assistance Program
4. Increase priority community access through Access Clean California and related outreach efforts.

3.4 Clean Mobility Options

Clean Mobility Options provides funding for various community clean transportation projects (other than vehicle ownership), including zero-emission and plug-in hybrid car sharing, vanpools, electric and regular bicycle sharing, scooter sharing, innovative transit, micro-and on-demand services.

Website: https://www.cleanmobilityoptions.org/

Key Collaborators
Local and Regional Government; CEC; Federal and Tribal Governments; Non-Governmental Organizations; Fleets; Academia

Key Actions and Expected Results:

1. Transportation needs assessment projects; Ongoing implementation, Planning and construction phase: End of 2022.
2. Mobility projects: Launch end of 2022 to mid-2023
3. Metrics: numbers and types of clean vehicles, chargers, and clean mobility options introduced into priority communities; number of residents participating as drivers or riders; zero-emission vehicle miles traveled, and number of trips taken; and improvements in access to mobility experienced by participants; Ongoing.
4. Expand access to clean transportation and mobility options in priority communities through additional training, technical assistance, learning tools and information-sharing opportunities, and ensuring that awarded projects are responsive to community needs and preferences.

5. Provide additional funding for community transportation needs assessments and mobility projects in mid-2022 and through further training, technical assistance, learning tools and information sharing opportunities.

3.5 Clean Cars 4 All

Clean Cars 4 All provides incentives for lower-income consumers living in and near disadvantaged communities who scrap their old light-duty vehicles and purchase new or used hybrid, plug-in hybrid, or ZEV replacement vehicles. Furthermore, participants can choose an alternative mobility option such as an electric bike and accessories, a voucher for public transit, or a combination of clean transportation options allowed under the program in lieu of purchasing a replacement vehicle. In addition, buyers of plug-in hybrid-electric vehicles (PHEVs) and batter-electric vehicles are also eligible for home charger incentives or prepaid cards for public charging facilities. This program is currently available in the South Coast Air Quality Management District, San Joaquin Valley Unified Air Pollution Control District, Bay Area Air Quality Management District, Sacramento Metropolitan Air Quality Management District, and San Diego Air Pollution Control District (coming soon).

Website: https://ww2.arb.ca.gov/our-work/programs/clean-cars-4-all

Key Collaborators
Air districts; Local and Regional Governments; Federal and Tribal Governments; California Dept. of Consumer Affairs, Bureau of Automotive Repair; DOF; Treasurer's Office; Non-Governmental Organizations; California Infrastructure and Economic Development Bank

Key Actions and Expected Results:
1. Annual reporting: reporting period varies annually.
2. Ongoing: track and collect metrics on program use including details of program performance relative to established goals, funding and expenditure status, program analysis, program modifications, and goals for the upcoming year 2.

Increase priority community access through Access Clean California and related outreach efforts. Prepaid cards were included in program guidelines through the FY 2020-2021 Low Carbon Transportation Funding Plan. Sacramento Metropolitan Air Quality Management District began offering the option this year and has issued 92 charge cards so far with another 167 pending. An update the program guidelines will allow for statewide expansion of the program and improve flexibilities so that the program can be more responsive to market conditions and the needs of the participants. The process to update the guidelines began in 2021 with a workshop on August 24th, 2021 and will continue into 2022 with more workgroups and a solicitation for a statewide administrator.

3.6 The Sustainable Transportation Equity Project (STEP)

STEP is a transportation equity pilot that addresses community residents' transportation needs, increases access to key destinations, and reduces greenhouse gas emissions in disadvantaged and low-income communities throughout California. STEP has two grant types: Planning and Capacity Building Grants and Implementation Grants. Examples of STEP projects funded: new electric shuttle and bike-sharing services, public transit and shared mobility subsidies, urban forestry, new bike paths, community transportation needs assessments, and active transportation education and outreach events. All projects incorporate significant community engagement during all phases of project planning, development and implementation.

Website: ww2.arb.ca.gov/our-work/programs/low-carbon-transportation-investments-and-air-quality-improvement-program-1

Key Collaborators Local and regional government; Community groups; NGOs; Fleets; Academia

Key Actions and Expected Results:

1. Execute 3 Implementation Grants (totaling $25M). Grant implementation may extend through spring 2026 and will include draft and final reports.

Begin development of the next STEP solicitation, which will include review of lessons learned from the first STEP solicitation and STEP's technical assistance final report.

3.7 Hybrid and Zero-emission Truck and Bus Voucher Incentive Program (HVIP)

HVIP provides incentives for long-term transition to ZEVs in the heavy-duty market and supporting investments in other emerging technology areas to achieve greenhouse gas emission reductions and ambient air quality standards. HVIP provides point-of-sale discounts at participating dealerships for dozens of eligible vehicles, making the cleanest technologies affordable for California fleets. Larger incentives are available to public transit and school districts, as well as small fleets with vehicles domiciled in a disadvantaged community. HVIP will continue to support the overall transition to ZEVs in the heavy-duty sector and deployment of clean heavy-duty technologies in priority communities.

Website: https://californiahvip.org/

Key Collaborators
Local and Regional Government; CEC; Federal and Tribal Governments; Fleets; Non-Governmental Organizations; DOF; Treasurer's Office; California Infrastructure and Economic Development Bank; Vehicle Manufacturers and Supply Chain; Insurance regulators

Key Actions and Expected Results:

1. Reopen HVIP in spring 2022 and track its implementation and metrics.
2. Support the deployment of 1,000 zero-emission drayage trucks, 1,000 zero-emission transit buses, and 1,000 zero-emission school buses by administering set-asides within HVIP beginning in spring 2022.
3. Release new project implementation manual by March 2022 to establish all project policies and protocol for FY 2021-22.
4. Launch new a new pilot within HVIP, Innovative Small e-Fleets, by summer 2022 to implement innovative funding mechanisms geared towards supporting small fleets transition to zero-emission trucks.
5. Outreach to priority communities where appropriate.
6. To monitor progress, CARB will continue to track the number of clean trucks and buses supported, tons of air pollution reduced, growth in the number of eligible clean technology manufacturer and vehicle types, number of purchasers and fleets that have participated, clean miles driven, and percent of vouchers supporting vehicles deployed in priority communities.

3.8 Volkswagen Appendix D, the Environmental Mitigation Trust

The Environmental Mitigation Trust is intended to fully mitigate all past and future excess NOx emissions from the vehicles subject to the diesel emissions settlement by requiring VW to pay about $2.7 billion into a national mitigation trust fund. California's allocation of the trust is about $423 million. The types of projects being funded fall into these five categories: zero-emission transit, school and shuttle buses; zero-emission Class 8 trucks; zero-emission freight and marine; combustion freight and marine; and light-duty ZEV infrastructure. Investments in ZEV technologies will help accelerate the deployment of zero-emission buses, trucks and freight equipment.

Website: https://ww2.arb.ca.gov/our-work/programs/volkswagen-environmental-mitigation-trust-california

Key Collaborators
CEC; CPUC; South Coast and Bay Area Air Quality Management Districts, San Joaquin Valley Air Pollution Control District; Local and Regional Government; Federal and Tribal Governments; Non-Governmental Organizations.

Key Actions and Expected Results:

1. Vehicles purchased with VW trust money to be on the road include zero-emission transit, school, and shuttle buses; zero-emission Class 7 and 8 heavy-duty freight and drayage trucks, and zero-emission port cargo handling equipment, airport grand support equipment, shore power; as well as public light-duty ZEV infrastructure.
2. Release funding in 2 installments for each category except light-duty ZEV infrastructure; the first installment for each was released starting in Fall 2019. The

three collaborating air districts listed above are administering VW funds statewide.
3. Continue to execute contracts for hundreds of trucks, buses and equipment approved for funding.
4. Evaluate emissions benefits from vehicles funded in the first installment and make adjustments to the funding categories if necessary.

3.9 Funding Agricultural Replacement Measures for Emission Reductions (FARMER)

FARMER provides incentive funding for farmers to replace older diesel vehicles and equipment with the cleanest available commercial technology. CARB sets guidelines for the program and air districts implement the program according to the guidelines. These guidelines include the ability to fund commercially available ZEV technology and support local demonstrations of pre-commercial ZEV technologies.

Website: https://ww2.arb.ca.gov/our-work/programs/farmer-program

Key Collaborators
Local and Regional Government; Federal and Tribal Governments; Non-Governmental Organizations; Farmers; Treasurer's Office; CDFA

Key Actions and Expected Results:
1. Continue implementing FARMER-eligible projects through local air districts, including zero-emission vehicle and equipment replacement projects where feasible.
2. Continue tracking and supporting program administration done through local air districts, including the number of zero-emission equipment (e.g., electric utility terrain vehicles) deployed and new zero-emission agricultural demonstration projects.
3. In 2022, CARB plans to expand funding opportunities for zero-emission agricultural equipment (e.g., electric agricultural tractors and forklifts) in FARMER through the addition of a dedicated zero-emission agricultural equipment project category.

3.10 Advanced Technology Demonstration and Pilot Projects: Advanced Technology Demonstration and Pilot Projects

This program accelerates development and deployment of the most advanced — primarily zero-emission — precommercial and early commercial heavy-duty on- and off-road technologies. In the coming year, three new large scale zero-emission drayage truck projects will start, representing 150 additional zero-emission heavy-duty trucks in drayage and regional haul service, with two of those projects being located in AB 617 communities. The public process to help develop the next round of demonstration and pilot projects will start for the five project categories approved by

the Board in November, 2021. Up to six projects will compete this year, including the first wave of large-scale freight facility demonstrations from the Zero and Near Zero-Emission Freight Facilities projects (ZANZEFF) with two large scale deployments of zero-emission heavy-duty vehicles and equipment for on and off-road applications, including supporting infrastructure with solar installations.

Website: https://ww2.arb.ca.gov/sites/default/files/movingca/projectheavyduty.html

Key Collaborators
Vehicle and Engine Manufacturers; Fleets; Local and Regional Government; Federal and Tribal Governments; Non-Governmental Organizations; Grid Operators, Electricity and Hydrogen Providers; Academia; CEC; Treasurer's Office; CalSTA; CalTrans

Key Actions and Expected Results:

1. Three additional Zero-Emission Drayage Truck and Infrastructure Pilot Projects will be getting underway representing 150 additional zero-emission trucks to the 130 already funded, representing a significant deployment of commercially available heavy-duty trucks that will see service in California for years to come and act as a catalyst for other fleets to adopt similar technology.
2. This year, implement the new demonstration and pilot projects, which are primarily focused on the off-road sector and execute grant agreements for the large-scale drayage truck projects in coordination with CEC that were approved as part of the FY 2021-22 Funding Plan.
3. Up to six additional projects will end this cycle, including completion of the state's first large scale zero-emission drayage truck demonstration, some advanced zero-emission cargo handling equipment demonstrations at the San Pedro Ports and the Port of Stockton, as well as others.
4. On-going: 20 additional demonstrations and pilots of technologies ranging from zero-emission drayage trucks to a fuel cell operated passenger ferry actively deployed on the San Francisco Bay this year, to facility-wide shifts from toward zero emission demonstrating many types of heavy-duty on- and off-road vehicles and equipment with supporting infrastructure with some including solar installations.
5. Ongoing: annually update the Long-Term Heavy-duty Investment Strategy to track progress on key technology commercialization, analyze project efficacy, and identify future investment priorities and recommended funding levels to maintain critical momentum.
6. On-going: identify additional demonstration and pilot areas via the annual funding plan public process; if adequate funding is available, implement recommendations in the annual funding plan.
7. On-going: evaluate metrics including successful commercialization of advanced technologies in the heavy-duty sector; number of deployed vehicle and equipment types; percent of funded projects in or near priority communities; and emission reductions.
8. On-going: prioritize deployments in or near priority communities.

3.11 Clean Off-Road Equipment Voucher Incentive Project (CORE)

CORE provides point-of-sale discounts for off-road equipment, that targets commercialized products that have yet to achieve a significant market foothold. It accelerates deployment of cleaner technologies by providing a streamlined process for fleets ready to purchase specific zero-emission equipment to receive funding to offset the higher cost of such technologies.

Website: https://ww2.arb.ca.gov/our-work/programs/clean-off-road-equipment-voucher-incentive-project and https://californiacore.org/

Key Collaborators
Vehicle Manufacturers and Supply Chains; Fleets; Local and Regional Government; Non-Governmental Organizations; DOF; Treasurer's Office

Key Actions and Expected Results:

1. CORE received funding in 2021, but not in 2020, so will be reopened in summer of 2022 1 and will track its implementation and metrics.
2. In addition to freight movement equipment, CORE will expand into other heavy-duty off-road equipment like construction, agricultural, and material handling. Additionally, there is $30 million specifically for zero-emission small off-road equipment for small business and sole proprietor professional landscapers.
3. Release new project implementation manual by June to establish all project policies and protocol for FY 2021-2022. To monitor progress, CARB will continue to track the number of zero-emission off-road vehicles/equipment supported, tons of air pollution reduced, growth in the number of eligible clean technology manufacturer and vehicle/equipment types, number of purchasers and fleets that have participated, hours operated, and percent of vouchers supporting vehicles deployed in priority communities.
4. The 2021 Budget provided opportunity for CORE to expand beyond freight off-road equipment to include non-freight off-road equipment like those used in construction and agriculture. It also provided an additional $30M for commercial grade landscaping equipment for small businesses and sole proprietors (SB 170) and this funding will be implemented to the CORE program.

3.12 Carl Moyer Program/Community Air Protection Program

The Carl Moyer Memorial Air Quality Standards Attainment Program (Moyer) is a grant program that funds the incremental cost of cleaner-than-required engines, equipment, and other sources of air pollution. The Moyer Program complements California's regulatory program by providing incentives to obtain early or extra

emission reductions, especially from emission sources in minority and low-income communities and areas disproportionately impacted by air pollution.

Carl Moyer Program Website: https://ww2.arb.ca.gov/our-work/programs/carl-moyer-memorial-air-quality-standards-attainment-program

Community Air Protection Incentives Website: https://ww2.arb.ca.gov/our-work/programs/community-air-protection-incentives

Key Collaborators
Local and Regional Government (Air Districts); AB 617 Communities; Federal and Tribal Governments; Fleets; Non-Governmental Organizations; DOF; Treasurer's Office; California Infrastructure and Economic Development Bank

Key Actions and Expected Results:

1. FY 2020-Present, State Reserve (10% of the annual Moyer funding) has been prioritized to ZEV deployment.
2. Since 2017- Present, the CAP Program, where feasible and supported by communities, focus funding zero-emission technologies, including zero-emission charging infrastructure that supports medium- and heavy-duty vehicles.
3. Senate Bill 129 allocated $45M to air districts in severe or extreme nonattainment (South Coast and San Joaquin Valley air districts) through Moyer for the purchase of non-diesel MHD/HHD vehicles emitting no more than 0.02g/bhp-hr NOx or lower that replace diesel vehicles. Remaining monies after fiscal year 2022/23 exclusively dedicated to Zero emission vehicles.
4. Recent amendments to cost-effective limits and funding amounts in the on-road chapter will provide increased opportunities for applicants to transition to zero emission technologies.
5. Because Moyer receives annual allocations, CARB will continue to emphasize funding for zero-emission equipment in 2022 and after; for CAP incentives, a new allocation is provided annually through budget appropriation Focus incentives on projects with direct impact on priority communities.
6. To monitor progress, CARB will continue to track the number of clean trucks and buses supported, tons of air pollution reduced, where funds are spent as well as several other supporting factors. Additional ZEV statistics can be found at: https://ww2.arb.ca.gov/carl-moyer-program-statistics-and-reports

3.13 Community Air Protection (CAP) Incentives

The legislature has appropriated GGRF moneys annually since 2017 for incentives supporting the CAP Program, established through Assembly Bill (AB) 617 (C. Garcia, Chapter 136, Statutes of 2017). The Legislature has appropriated $964 million in CAP incentives since 2017, with an additional appropriation in the Governor's proposed FY 2022-23 budget. The initial appropriation of CAP incentives included legislative

direction to fund projects pursuant to the Carl Moyer Program (see above) and the Proposition 1B Goods Movement Emission Reduction program, with a broad focus on zero-emission technologies and priority populations. Legislative direction in subsequent appropriations expanded funding options to include zero-emission medium- and heavy-duty vehicle charging infrastructure (also handled through the Carl Moyer Program), new incentives to address stationary sources of pollution, and new incentives created by air districts to address strategies identified in Community Emissions Reduction Programs they create pursuant to AB 617.

Community Air Protection Incentives Website: https://ww2.arb.ca.gov/our-work/programs/community-air-protection-incentives

Key Collaborators
Local and Regional Government (Air Districts); AB 617 Communities; Federal and Tribal Governments; Fleets; Non-Governmental Organizations; DOF; Treasurer's Office; California Infrastructure and Economic Development Bank

Key Actions and Expected Results:

1. From 2017- Present, CAP incentives, where feasible and supported by communities, is focused on zero-emission technologies, including zero-emission charging infrastructure that supports medium- and heavy-duty vehicles.
2. Local air districts must report CAP incentives expenditure progress to CARB semi-annually as part of GGRF statutory requirements; results will help identify project benefits (emission reductions, job outcomes and outreach events, etc.)
3. Recent amendments to the Carl Moyer Program (see above) will likewise increase opportunities in CAP incentives for applicants to transition to zero-emission technologies.
4. Members of the Board require staff to provide regular reports on CAP incentives expenditure progress; the latest report was published late in December 2021, and was published on CARB's CAP incentives

Website: https://ww2.arb.ca.gov/resources/documents/december-2021-report-ab-617-community-air-protection-incentives

3.14 Clean Mobility in Schools Pilot Project

The Clean Mobility in Schools Pilot Project is a holistic approach for California school districts located in disadvantaged communities to fund zero-emissions fleet turnover for school buses and other district vehicles; implement ZEV car and van pooling for staff, active transportation projects, and lawn and garden equipment and maintenance vehicles. Three grants launched in 2020 to three school districts. One new project will be launched by Fall 2022.

Website: https://www.caclimateinvestments.ca.gov/clean-mobility-in-schools-pilot-1

Key Collaborators
Local and Regional Government; Fleets; Non-Governmental Organizations; Vehicle and Engine Manufacturers; Grid Operators, Electricity and Hydrogen Providers; DGS; CEC; Caltrans; DMV; CPUC; Academia; Communities; School Districts

Key Actions and Expected Results:

1. Large charging infrastructure projects for the three zero-emissions fleets were completed in 2021. One new project is expected to launch in late 2022.
2. 20 battery-electric school buses were delivered in 2021, 10 battery-electric school buses expect to be delivered in January 2022, and 8 additional school buses shall be ordered in 2022. In addition, 19 non-school-bus ZEVs were delivered in 2021 and 37 more are to be ordered in 2022.
3. An E-bike Pilot Project will be launched in 2022 at one grantee school location.
4. A student-developed and produced animated video titled "The Story of a Sunbeam" will be released in Spring 2022. The theme depicts how the sun drives electric school buses.
5. Curriculum development and facility clean energy strategy plans will be finalized in 2022.

3.15 Rural School Bus Pilot

The Rural School Bus Pilot provides funding for zero-emission school buses (battery-electric) and charging infrastructure to replace the oldest conventionally-fueled school buses in California. May also fund new conventionally-fueled school buses.

Website: https://www.caclimateinvestments.ca.gov/rural-school-bus-pilot-project

Key Collaborators Vehicle and Engine Manufacturers; Fleets; Local and Regional Government; Non-Governmental Organizations; Grid Operators, Electricity and Hydrogen Providers; CEC; DMV; School Districts

Key Actions and Expected Results:

1. An additional 60 new school buses will be deployed in 2022.
2. $130 million was allocated for approximately 300 zero-emission school buses in rural communities and will be implemented through HVIP beginning in Spring 2022.
3. A data collection and analysis project will be the focus for 2022 to report on a variety of end-user experiences.

3.16 Truck Loan Assistance Program

This program helps small business truck owners that fall below conventional lending criteria and are unable to qualify for traditional financing attain financing for cleaner trucks.

Website: https://ww2.arb.ca.gov/our-work/programs/truck-loan-assistance-program

Key Collaborators: Vehicle and Engine Manufacturers; Fleets; Local and Regional Government; Federal and Tribal Governments; Non-Governmental Organizations; DOF; Treasurer's Office; CalCAP Lenders; California Infrastructure and Economic Development Bank; CDFA

Key Actions and Expected Results:

1. Work with CPCFA and participating lenders to increase the number of zero-emission heavy-duty trucks financed by small fleets
2. Develop strategies in support of the new Innovative Small e-Fleets set-aside in HVIP and borrowers seeking zero-emission vehicle loans

3.17 Senate Bill 372 Medium- and Heavy-duty Zero-Emission Fleet Purchasing Assistance Program

This program is within the Air Quality Improvement Program to make financing tools and non-financial supports available to operators of medium- and heavy-duty vehicle fleets to enable those operators to transition their fleets to zero-emission vehicles.

Website:
https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB372

Key Collaborators
California Pollution Control Financing Authority (CPCFA), the Public Utilities Commission, State Energy Resources Conservation and Development Commission, environmental justice organizations, medium- and heavy-duty vehicle fleets of diverse sizes and types, financiers, truck equipment manufacturers, transportation, logistics, and fleet management companies, nongovernmental organizations, and other relevant stakeholders.

Key Actions and Expected Results:

1. Consult with various stakeholders and relevant state agencies regarding specified program components, and the development and design of financing tools and nonfinancial supports that are most appropriate for different sizes and sectors of medium- and heavy-duty vehicle fleets.
2. Ensure that the financial tools and nonfinancial supports required pursuant to the program are available to operators of medium- and heavy-duty fleets by January 1, 2023.
3. Develop a data collection and dissemination strategy for the program, and track project implementation.
4. Provide a website with information regarding the potential financing and grant options, and other technical assistance available through the program.

4. Community Engagement

4.1 Engage community representatives and stakeholders

CARB will solicit input on lessons learned and potential project changes as part of the annual Funding Plan for Clean Transportation Incentives, including Clean Transportation Equity Projects and Access Clean California and Technical Assistance/Capacity Building, Access Clean CA: Outreach Partner Network and Ongoing SB 350 Low-Income Barriers Report recommendations implementation (community transportation needs assessments)

Website: Low Carbon Transportation Investments and Air Quality Improvement Program | California Air Resources Board

Key Collaborators
Community advocates, project administrators, SGC, CEC, Caltrans, CAPCOA, Air Districts, fleet owners/operators, tribal communities, market segments such as last mile delivery and drayage

Key Actions and Expected Results:

1. Conduct workgroup meetings from January through July to identify project needs and potential changes and develop a proposed Funding Plan, including:
2. Outreach through Access Clean California to outreach partners and project administrators on Determining community-identified needs (funding, awareness-building, broader access to incentives).
3. Incorporating community ideas and addressing unique needs to develop an equitable path forward for investments and consider longer-range planning of funding needs.

4.2 Engage with communities participating in the Community Air Protection Program (CAP)

CARB will engage with communities participating in CAP to identify community needs and develop funding projects that meet those needs

Website: Carl Moyer Memorial Air Quality Standards Attainment Program | California Air Resources Board

Key Collaborators
Community steering committee members, Air Districts

Key Actions and Expected Results:

1. Hold steering committee meetings and continue engagement with impacted residents to inform ongoing implementation of the CAP
2. Determine community-identified needs (funding, awareness-building, broader access to incentives).
3. Incorporate community ideas on path forward for investments, including longer-range planning of funding needs.
4. Determine how to minimize burdens (or potential burdens) of heavy-duty regulations, especially on small fleets and owner operators.
5. Provide support for DACs/LICs that have yet to be selected for participation in AB 617, but that do continue to suffer from disproportionate levels of air pollution.

4.3 Conduct outreach and hold listening sessions with communities

CARB will conduct outreach and hold listening sessions with communities to inform the development and implementation of clean transportation regulations, including:
Advanced Clean Fleets (medium and heavy-duty);
Heavy-duty Inspection and Maintenance; and
Zero emission Forklifts

Website: https://ww2.arb.ca.gov/our-work/programs/advanced-clean-fleets

Key Collaborators
Community advocates, CAPCOA, Air Districts, fleet owners/operators, market segments such as last mile delivery and drayage

Key Actions and Expected Results:

1. Hold listening sessions to engage communities on regulatory efforts and identify potential concerns related to regulations and their impacts on communities.
2. Determine how to minimize burdens (or potential burdens) of heavy-duty regulations, especially on small fleets and owner operators.

5. CA ZEV Market Development

5.1 CALGreen Building Codes:

CARB will work with Department of Housing and Community Development and Building Standards Commission to advance infrastructure requirements at multi-dwelling units and non-residential buildings to support light-duty [medium- and heavy-duty] ZEV charging in the CALGreen building code.

In December of 2021 CBSC approved proposed updates to the CALGreen building

code. Starting January 1, 2023, the approved code changes will increase the number of EV capable spaces and require EV charging stations be installed. For multi-unit dwellings and hotels and motels, the updated code will require 10% of parking spaces to be EV capable (conduit and panel capacity for future charging station installations), 25% of spaces to be EV Ready (a level 2 cord-set compatible electrical receptacle) and an additional 5% of parking spaces have EV chargers installed for developments of 20 units or more. Additionally, for medium- and heavy-duty vehicles there will be a mandatory requirement to install charging infrastructure to support later additions of EV chargers up to 400 kW refueling in new warehouses, grocery stores and retail buildings that have off-street loading spaces.

Website: www.dgs.ca.gov/BSC/CALGreen#codes

Key Collaborators
BSC; HCD; CEC; CPUC; GO-Biz; CaFCP; Local and Regional Government; Grid Operators, Electricity and Hydrogen Providers; Non- Governmental Organizations; Vehicle Manufacturers and Supply Chain

Key Actions and Expected Results:

1. CARB will provide support for the intervening cycle

5.2 Assembly Bill 8 Annual Evaluation of and Report on Hydrogen Station Network:

Annual evaluation of fuel cell electric vehicle deployment and hydrogen station network development (AB 8).

Website: ww2.arb.ca.gov/resources/documents/annual-hydrogen-evaluation

Key Collaborators
CEC; GO-Biz; CDFA; DMV; Vehicle Manufacturers and Supply Chain; Grid Operators, Electricity and Hydrogen Providers

Key Actions and Expected Results:

1. Complete and transmit Annual Evaluation to CEC for final review by June 30 every year; public release follows, typically in the third quarter of each year
2. CEC publishes Joint Agency Staff Report on AB 8 by December 31each year

5.3 Hydrogen Station Network Self-Sufficiency Analysis Per AB 8.

Assessment of State of California support amount and timing for the hydrogen fueling station network to achieve financial self-sufficiency.

A final report was published in October 2021, finding that self-sufficiency can be achieved by 2030 with continued growth of the hydrogen network alongside growth of the in-state fuel cell electric vehicle fleet. Several scenarios also point to the ability for hydrogen fuel to reach price parity with gasoline in this time alongside expansion of renewable and low-carbon hydrogen fuel sources.

Website: www2.arb.ca.gov/resources/documents/self-sufficiency-report

Key Collaborators
CEC; GO-Biz; Vehicle Manufacturers and Supply Chain;
Grid Operators, Electricity and Hydrogen Providers

Key Actions and Expected Results:

1. CARB will evaluate the need for updated analysis going forward.

5.4 Interagency agreements:

CARB/CEC ZEV workforce training and development in priority communities: Support workforce training and development and career pathway development projects, including curriculum, ZEV manufacturing and pre-apprenticeship training, train-the-trainer, tuition reimbursement, and other ZEV and infrastructure training in 2022.

Key Collaborators
CEC; GO-Biz; Labor and Workforce Development; Employment Training Panel; Local and Regional Government; Non-Governmental Organizations

Key Actions and Expected Results:

1. Implement agreement activities (above) in 2022
2. Explore interagency agreement with CEC on new pre-apprenticeship project
3. Identify existing and/or potential new interagency agreements and/or partnerships for dealership training and adult/vocational curriculum development

5.5 Technical assistance/capacity-building funding to community-based organizations for outreach, community transportation needs assessments, and clean mobility project development.

Conduct pilot funding for outreach capacity-building, including fellowship opportunities, for community-based organizations in 2022. Additionally, continue funding for community transportation needs assessments, as outlined below, to increase clean mobility access for priority communities.

Key Collaborators

CEC; SGC; Caltrans; Local and Regional Government; Federal and Tribal Governments; Non-Government Organizations; Communities

Key Actions and Expected Results:

1. Evaluate overall framework for providing technical assistance and capacity-building and modify as needed, based on lessons learned
2. Support outreach pilots for community-based organizations in 2022
3. Continue to implement community transportation needs assessments projects in 2022
4. Ongoing: continue third-party evaluation and funding for future community transportation needs assessments
5. Develop best practices guidance and recommendations for project improvement in 2023

5.6 Hydrogen Station Network Development Support

CARB's hydrogen fueling station validation program provides station confirmation testing services for California Energy Commission (CEC) funded (AB8) and privately funded stations, including light-duty and medium and heavy-duty (if applicable). Applicants of CEC funded stations are required to have stations tested to ensure that fuelings are fast, safe, and consistent prior to opening. Likewise, hydrogen fuel cell electric vehicle (FCEV) manufacturers require testing of both publicly and privately funded stations prior to opening. The program's primarily goal is to accelerate the development and proliferation of a self-sufficient, safe, and reliable hydrogen fueling station network for a growing fleet of FCEVs, a key component of CARB's ZEV goals.

Key Collaborators
CEC; GO-Biz; CDFA/DMS, Vehicle Manufacturers, hydrogen stations operators, technology providers, SAE, CSA, and NREL

Key Actions and Expected Results:

1. On-going: Conduct hydrogen fueling station confirmation testing using the hydrogen station testing equipment performance (HyStEP) device on light-duty stations as well as provide preliminary testing results for medium and heavy-duty stations. Anticipate testing a minimum of 16 light-duty stations and support preliminary testing of 2 medium and heavy-duty hydrogen stations in 2022.
2. On-going: Hydrogen fueling standard protocol and test method development. Continue involvement in the SAE and CSA/ANSI standard protocols and test methods developments for light-duty fuel cell vehicles, and preliminary work on the medium and heavy-duty fueling standard protocol development.
3. On-going: Potential regulation development for light-duty hydrogen fueling stations. CARB and CDFA DMS continue collaborative efforts on potential hydrogen fueling station regulations for light-duty vehicles. Additionally, CARB has conducted numerous discussions with stakeholders, including authority having jurisdiction (AHJ) on proposed aspects of the regulation and

infrastructure needs. There is a consensus by all stakeholders that such a regulation would be beneficial.

4. On-going: CARB/CEC interagency agreement to build the next generation HyStEP 2.0 device. CARB and CEC have an interagency agreement, approved by CEC in June of 2021, to fund the building the next generation testing device, HyStEP 2.0. CEC, CARB, and other stakeholders will work with NREL on the HyStEP 2.0 design, which is expected to be completed in early 2022. CARB will hire a contractor in late 2022, through the request for proposal (RFP) process, to build HyStEP 2,0. which is primarily designed to support the advancement of light-duty hydrogen fueling stations but may have applications for medium and heavy-duty hydrogen fueling stations.

6. Mobility and Technology Advancement

6.1 California Integrated Travel Project:

Building off the interagency agreement and published Market Sounding Report, CARB and Caltrans will continue their partnership to strengthen an integrated payment system for various transportation networks.

Website:
www.calitp.org/assets/Mobility.Accounts.Market.Sounding.Summary.Report.pdf

Key Collaborators CalSTA; CalTrans; Technology and Mobility Service Providers; Transit Agencies; Communities

Key Actions and Expected Results:

1. Implement Market Sounding Report findings and next steps: by providing information and policy signals on how mobility accounts can be created to deliver benefits such as multimodal trip planning, simplified access to discounts and subsidies, and seamless payment from customers
2. Explore ways to align Cal-ITP standards with climate investment programs such as Low Carbon Transit Operation Program (LCTOP) and regulations such as Electric Vehicle Supply Equipment (EVSE) Standards Regulation.
3. Investigate opportunities to build off Cal-ITP streamlined eligibility verifications for CARB incentive programs such as for CARB's Low Carbon Transportation Equity Projects.
4. Cal-ITP will provide a payment solution that serves all customer groups across mobility services, including public transit, rail, bike share, scooter share, car share and transportation network companies (TNCs); the goal is to introduce a new payment option to both new and established services with minimal barriers to entry; this system will act as an intermediary in the open payment system, connecting unbanked customers to the payment networks

6.2 Clean Mobility Evaluation:

Contracts with academia and clean mobility equity partners to evaluate clean mobility (carshare, etc.) and community transportation needs assessment projects in priority communities.

Key Collaborators
CEC; Caltrans; CalSTA; Local and Regional Government; Non-Governmental Organizations; Academia

Key Actions and Expected Results:

1. Clean Mobility Evaluation: develop evaluation methodology, including hypotheses, metrics, and data needs, and initiate evaluations of selected clean mobility and community transportation needs assessment projects in 2022; Ongoing: monitor contract progress; report due May 2022
2. Community Transportation Needs Assessments Evaluation: develop metrics and evaluate up to 32 community transportation needs assessments, conduct relevant discovery activities to identify best practices, and provide guidance to grantees on needs assessment implementation; monitor contract progress through 2022

7. External Market Development

8.1 International ZEV Alliance

Comprised of 18 jurisdictions, the International ZEV Alliance members seek to collaborate with other governments to expand the globalZEV market and enhance government cooperation on ZEV policies, in order to strengthen and coordinate efforts to combat air pollution, limit global climate change, reduce oil dependence and increase ZEV deployment. Focus area reports in 2021 will include the used ZEV market; supporting jurisdictions with 100% ZEV market ambitions; and the charging ecosystem. CARB is a founding member organization.

Website: www.zevalliance.org

Key Collaborators
CEC; CPUC; GO-Biz; CalEPA; Other States

Key Actions and Expected Results:

1. The three focus areas for 2022: Charging solutions for medium- and heavy-duty zero-emission vehicles; promoting ZEV battery reuse, recycling, and sustainability; quantifying the environmental justice benefits of ZEVs
2. Deep-dive working sessions: These are optional 90-minute virtual meetings to facilitate knowledge sharing and collaborative problem solving on a

specific ZEV policy challenge, led by member governments and supported by the Secretariat. The topics would be nominated by members and then voted upon through a survey process. The Secretariat will also produce an internal summary memo following each session. 3 deep dive working sessions are planned for 2022.

3. ZEV Community: The Secretariat will continue to coordinate activities with the ZEV Community. CARB is part of the ZEV Community group of governments with zero-emissions targets which is co-hosted by the Under2 Coalition in partnership with C40 Cities and the US Climate Alliance. Activities include webinars, the ZEV Forum series, and publishing blogs and case studies.
4. In-person annual assembly: Building on monthly meetings, the ZEV Alliance members convene an annual Assembly meeting to discuss member priorities, see ZEV progress at site visits, and advance long-term planning. For 2022, assuming members can travel safely, the 2022 Assembly will be hosted in Germany in May.
5. COP 27: The 27th Conference of Parties (COP 27) will be held in Sharm El-Sheikh, Egypt in November 2022. As at previous COP meetings, the Secretariat, ZEV Alliance members, and key partners will discuss opportunities to organize side events to disseminate findings from focus areas research.

7.2 Multi-State ZEV Task Force

Along with 15 other states and the District of Columbia, California is a member of the Multi-State ZEV Task Force, which serves as a unique forum to catalyze, guide, and support state action to advance electrification of light-, medium-, and heavy-duty vehicles. The Task Force is led by the Northeast States for Coordinated Air Use Management (NESCAUM). CARB will continue dialogue and collaboration with member states, especially around development of the next version of the ZEV regulations.

Website: www.nescaum.org/topics/zero-emission-vehicles

Key Collaborators
CEC; CPUC; GO-Biz; Vehicle Manufacturers, Vehicle/Equipment Manufacturers and Supply Chain, Non-Governmental Organizations

Key Actions and Expected Results:

1. Finalize Medium, Heavy-Duty ZEV Action Plan
2. Coordinate multi-state public education campaign
3. Coordinate and collaborate on the buildout of publicly accessible charging infrastructure (permit streamlining, interoperability, equipment standards, data collection, etc.)

7.3 Veloz

The California-based nonprofit works with its unique and diverse membership to support consumer awareness and accelerate uptake of ZEVs. Veloz's *Electric For All* campaign and the associated EV consumer shopping tool www.electricforall.org that launched in 2018 has had significant impact and has plans to launch again in 2022. CARB is a founding member organization. (Also see entry for Veloz under Consumer Awareness section below.)

Website: www.Veloz.org

Key Collaborators
CEC; CPUC; GO-Biz; Caltrans; OPR; CalSTA; CalEPA; Legislature and Governor's Office; CaFCP; Local and Regional Government; Vehicle and Engine Manufacturers; Grid Operators, Electricity and Hydrogen Providers; Non- Governmental Organizations; Academia; International Relationships; Fleets

Key Actions and Expected Results:

1. Veloz will hold 3 summits in 2022, gathering ZEV industry and related stakeholders to discuss the run up to 2035; March, July, and November
2. Veloz will hold 6 webinars (approx. every other month) to discuss timely policy and technical solutions to reach 2035 EO and bring the industry together.
3. Veloz plans to launch its next statewide EV Electric For All public awareness campaign in mid-2022. If the appropriate funding is received, Veloz aims to create a 2-year campaign, focus on priority populations, and increase funded partnerships to drive Electric For All and ElectricForAll.org as a top consumer EV shopping and education tool.
4. Veloz aims to launch a ZEV Messaging Research Project in the spring of 2022 to better understand which messages will help convince Californians to go EV.
5. Veloz is looking to leverage its programs beyond CA in the coming years through strategic partnerships.

7.4 California Fuel Cell Partnership

The partnership is focused on growing the market for fuel cell electric vehicles and hydrogen fuel. Members collaborate on ideas and actions that will create a sustainable future for zero-emission cars, trucks and buses. CARB is a founding member organization.

Website: https://cafcp.org
Key Collaborators
CDFA Weights and Measures; GOBiz; Vehicle and Engine Manufacturers; Hydrogen Providers and Retail Station Developers; Local and Regional Government; Fleets; Academia; Federal Government Agencies

Key Actions and Expected Results:

1. Initiate, develop and publish a heavy-duty roadmap strategy based on the 2035 FCET Vision.
2. Establish the organization as a national nonprofit.
3. Communicate the benefits of fuel cell vehicles and hydrogen through outreach materials, webinars, events, social media and media relations.
4. Provide education and outreach to state and local governments, priority communities, NGOs, and other stakeholders, securing greater awareness and support.
5. Ensure outreach to light and heavy-duty applications, including expanding awareness and education among fleet and transit agencies on new Advanced Clean Trucks and Innovative Clean Transit regulations.
6. Continue development of CaFCP's station map and network progress reports.
7. Integrate all new public hydrogen stations into Station Operational Status System (SOSS) and expand visualization and other capabilities to increase stakeholder and consumer value.

7.5 Transport Decarbonization Alliance

In November of 2021, California assumed the Presidency of the Transport Decarbonization Alliance (TDA). Comprised of 30 members, the TDA is a unique collaboration fostering cooperation between countries, cities or regions and companies to accelerate toward carbon-free transport.

Website: https://tda-mobility.org/

Key Collaborators
GO; GO-Biz; CalEPA; CARB

Key Actions and Expected Results:

1. This year the TDA focus will be: Urban freight, infrastructure, and active mobility.
2. We are working with the TDA Steering Committee to develop a workplan for 2022.
3. We are identifying events where there is synergy between other California interests and those of the TDA – potential examples include the International Transport Forum in May, the Clean Energy Ministerial Annual event and Climate Week in September, and COP 27 in November.

8. Consumer Awareness

8.1 Veloz

Veloz is a California nonprofit focused on accelerating the electric vehicle market. Its *Electric For All* consumer awareness campaign—the largest electric vehicle marketing campaign in the state—is in its fourth phase in 2022, launching in mid-2022.

The organization further advances vehicle electrification through its sales dashboard, online shopping tool, webinars, public summits, media outreach, monthly blog and support of partnerships within the ZEV community. CARB is a founding member of Veloz.

Website: www.Electricforall.org

Key Collaborators
CEC; CPUC; GO-Biz; Caltrans; OPR; CalSTA; CalEPA; Legislature and Governor's Office; Local and Regional Government; Vehicle and Engine Manufacturers; Grid Operators, Electricity and Hydrogen Providers; Non- Governmental Organizations; Academia; International Relationships; Fleets

Key Actions and Expected Results:
1. Track Electric For All phase four campaign reach and engagement
2. Track and report 2022 webinar engagement
3. Track and report 2022 summit engagement
4. Veloz is adding used EV content and resources to the ElectricForAll.org website to bridge the information gap and encourage the adoption of used EVs.

8.2 DriveClean.ca.gov

DriveClean.ca.gov is a consumer clean car buying guide with a focus on ZEVs that provides all vehicle models sold in California since model year 2000, ranks them by smog and GHG score, and allows sorting by fuel economy, electric range and incentives. DriveClean delivers information on ZEV benefits, functionality, charging and fueling, and provides an extensive clean car incentives database that is searchable by zip code.

Website: www.DriveClean.ca.gov

Key Collaborators
Non- Governmental Organizations, State and Local Government

Key Actions and Expected Results
1. Refine information to best meet audience needs, incorporating resources to serve car buyers at all income levels.
2. Explore opportunities with partners to share and leverage DriveClean's vehicle and incentives data for other consumer-facing ZEV web platforms.

Collaborate with Veloz and the Electric For All campaign to deliver car buyers the most useful information and tools in their ZEV journey.

8.3 Access Clean California (formerly known as One Stop Shop)

Additional support for outreach to priority communities to increase awareness of clean vehicle ownership incentives and other clean mobility options and ensure equity in all ZEV-related programs and regulations.

Website: https://accesscleanca.org/

Key Collaborators
CEC; CPUC; SGC; GOBiz; Caltrans; Local and Regional Government; Federal and Tribal Governments; Non-Governmental Organizations and communities

Key Actions and Expected Results:
1. Launch Benefits Finder: Conduct full scale public launch of Benefits Finder web tool and continue expanded outreach through community-based organizations and other outreach partners in 2022.
2. Continue efforts to expand web tool to include other state and local low-income consumer-focused programs, in addition to all of CARB's clean vehicle ownership projects.
3. Continue publication, streamlining and ongoing improvement of incentive and accessibility information, outreach resources, consumer tools and buying guides
4. Strengthen and expand outreach partnerships in 2022

9. Worker Awareness

9.1 Educational Events

Conduct events for heavy-duty ZEV fleet owners to support increased vehicle uptake (e.g., infrastructure requirements, maintenance, etc.). CARB monitors the number of attendees at these events and seeks stakeholder input, including surveys of event effectiveness.

Website: www.arb.ca.gov/truckstop

Key Collaborators
Non-Governmental Organizations; Air Districts; Vehicle Manufacturers and Supply Chain, Local and Regional Government; Fleets; Financing Institutions

Key Actions and Expected Results:
1. Provide assistance and information for 200-300 participants per event
2. Event curriculum currently under development for MHD ZEV forums

3. Ensure that the curriculum for these events is designed for all operators including smaller fleets, many of which are owned and operated in underserved communities
4. As communities begin to electrify CARB will monitor the number of attendees at these events and seeks stakeholder input, including surveys of event effectiveness

9.2 Educational Material

CARB will provide outreach materials to support medium- and heavy-duty ZEV regulations. This material includes the newly introduced MHD ZEV informational website.

Website: www.arb.ca.gov/truckstop

Key Collaborators
Air Districts; Vehicle Manufacturers and Supply Chain; Local and Regional Government; Fleets; Financing Institutions

Key Actions and Expected Results:
1. Provide materials requested by medium- and heavy-duty CARB programs
2. Send mailers to the regulated community
3. Update digital assistance such as the TruckStop webpage
4. Target smaller fleets, many of which are owned and operated in underserved communities.
5. Continue to provide outreach material development to support medium- and heavy-duty ZEV regulations, including ongoing updates to the MHD ZEV website.