<table>
<thead>
<tr>
<th><strong>Docket Number:</strong></th>
<th>22-ALT-01</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Title:</strong></td>
<td>2022-2023 Investment Plan Update for the Clean Transportation Program</td>
</tr>
<tr>
<td><strong>TN #:</strong></td>
<td>242633</td>
</tr>
<tr>
<td><strong>Document Title:</strong></td>
<td>Presentation - Advisory Committee Meeting for the Clean Transportation Program</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>April 12, 2022</td>
</tr>
<tr>
<td><strong>Filer:</strong></td>
<td>Spencer Kelley</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>California Energy Commission</td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
<td>Commission Staff</td>
</tr>
<tr>
<td><strong>Submission Date:</strong></td>
<td>4/12/2022 8:05:40 AM</td>
</tr>
<tr>
<td><strong>Docketed Date:</strong></td>
<td>4/12/2022</td>
</tr>
</tbody>
</table>
Housekeeping

- This workshop is being recorded.
- Virtual participation will be possible Zoom through or telephone.
- Workshop event webpage is [https://www.energy.ca.gov/event/meeting/2022-04/clean-transportation-program-first-advisory-committee-meeting-2022-2023](https://www.energy.ca.gov/event/meeting/2022-04/clean-transportation-program-first-advisory-committee-meeting-2022-2023)
- Written comments should be submitted to Docket 22-ALT-01 [https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=22-ALT-01](https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=22-ALT-01)

**Deadline for comments is Friday, April 29, 2022, by 5:00 P.M.**
Meeting Agenda

• Welcome and Housekeeping.
• Opening remarks by Commissioner Monahan.
• Update on Advisory Committee Roles and Responsibilities document.
• Overview of the Clean Transportation Program.
• Overview of the staff draft report version of the 2022-2023 Investment Plan Update.
• Presentations by CEC staff on the Clean Transportation Program funding activities and related topics.
• Updates on ZEV and Policy Activities.
• Advisory Committee discussion on the 2022-2023 Investment Plan Update.
• Public comment.
• Closing remarks.
Welcome to the
April 12, 2022 Meeting of the
Clean Transportation Program
Advisory Committee
Overview of the Clean Transportation Program and 2022-2023 Investment Plan Update

April 12, 2022, Advisory Committee Meeting

Patrick Brecht – Project Manager for the Clean Transportation Program
Investment Plan
Fuels and Transportation Division
Clean Transportation Program Origins in Statute

- Established by Assembly Bill 118 (Nunez, 2007)
- Provides approximately $95.2 million per year
- Extended to January 1, 2024 by Assembly Bill 8 (Perea, 2013)
Highlights of Investments 2009-2021 (December)

- 15,000+ Installed or Planned Chargers
- Creation of Efficient Block Grants for both LD and MD/HD ZEV Infrastructure
- 80 New or Upgraded Publicly Available Hydrogen Refueling Stations
- 74 approved additional stations
- 27 ZEV or ZEV Infrastructure Manufacturing Projects
- Workforce Training for More than 22,000 Trainees and 277 Businesses
- 71 Low-Carbon, Sustainable Fuel Production Projects within California
- Leveraged over $700 Million in Private and Other Public Funds
Purpose of the Investment Plan

• Guides the Clean Transportation Program’s investments toward meeting the state’s clean transportation goals

• Takes into consideration state regulations and other funding programs to promote coordination across agencies

• Allocates funding for multiple fuel and vehicle technologies, transportation sectors, and supporting activities (e.g. workforce development)

• Since 2020, sets multi-year funding allocations for improved planning and visibility
Commitment to Inclusion, Diversity, Equity and Access

• Seek to provide more than 50% of Clean Transportation Program funds to projects that benefit low-income and disadvantaged communities.

• Investment Plan input from Disadvantaged Communities Advisory Group (DACAG), diverse interests from the CTP Advisory Committee, and other groups and individual stakeholders.

• Expand outreach to local community-based organizations
Program Community Benefits

• Planning a public process to define, measure, track, and target more program community benefits.
  o Outreach and engagement with DACAG, CTP Advisory Committee, coalitions, community groups, and individual stakeholders.
  o Public workshops
  o Website
  o Timeline

• Will explore community benefits beyond project location and GHG reductions such as health, mobility options, workforce, economic, and more.
Key California ZEV Policy Goals

**Climate**
- Reduce GHG emissions to 40 percent below 1990 levels by 2030
- Achieve carbon neutrality by 2045

**ZEV Infrastructure**
- 250,000 electric vehicle chargers, including 10,000 DC fast chargers, by 2025
- 200 hydrogen refueling stations by 2025

**ZEV Fleet**
- 1.5 million electric vehicles by 2025
- 5 million zero-emission vehicles by 2030
Executive Order N-79-20 Goals

✓ 100% in-state sales of new passenger cars and trucks be zero-emission by 2035

✓ 100% medium- and heavy-duty vehicles be zero-emission by 2045 for all operations where feasible and by 2035 for drayage trucks

✓ 100% zero-emission off-road vehicles and equipment by 2035 where feasible
Informing the Investment Plan

• AB 2127 Electric Vehicle Charging Infrastructure Assessment
• SB 1000 Electric Vehicle Charging Infrastructure Deployment Assessment
• Public meetings/workshops with the Advisory Committee
• Consultation with the Disadvantaged Communities Advisory Group, other stakeholders
• Experience with administration of past Investment Plans
• Adjusting for General Fund augmentations
Investment Plan Process & Schedule

Publish Staff Draft
April 5

1st Advisory Committee Meeting
April 12

Consult with DACAG

Publish Revised Staff Draft
June 29*

2nd Advisory Committee Meeting
July 19*

Consult with DACAG, other stakeholders

Publish Lead Commissioner Report
August 24*

Approval at CEC Business Meeting
September 14*
and Publish Commission Final Report
October*

*Tentative, based on timing of state budget
<table>
<thead>
<tr>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>$95.2 million/year as baseline funding, adjusted for General Funds from Budget Act of 2021.</td>
</tr>
<tr>
<td>Accelerate charging and hydrogen fueling station deployment and promote in-state ZEV and ZEV-related manufacturing.</td>
</tr>
<tr>
<td>Coordination across various state agencies through the Zero-Emission Vehicle Infrastructure Plan (ZIP) and other state-wide efforts</td>
</tr>
<tr>
<td>Ensuring investments benefit disadvantaged communities, low-income communities, rural communities, tribal communities, those living in multifamily housing, and others.</td>
</tr>
</tbody>
</table>
Future Investments

Key ZEV Clean Transportation Program Investments Planned for FYs 2022-2023 and 2023-2024

- **$50M** Light-Duty EV Charging Infrastructure and eMobility
- **$298M** Medium and Heavy-Duty ZEVs and Infrastructure (battery-electric and hydrogen fuel cell)
- **$30M** Hydrogen Refueling Infrastructure
- **$125M** ZEV Manufacturing
- **$10M** Workforce Development
## Combined Clean Transportation Program and General Fund Allocations in the Draft Staff Report (in millions)

### Clean Transportation Program + General Fund (Budget Act of 2021)

<table>
<thead>
<tr>
<th>Category</th>
<th>Funded Activity</th>
<th>FY 2021-2022 (for reference)</th>
<th>FY 2022-2023* (proposed)</th>
<th>FY 2023-2024* (proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Zero-Emission Vehicles and Infrastructure</strong></td>
<td>Light-Duty Electric Vehicle Charging Infrastructure and eMobility</td>
<td>$30.1 (CTP) $240.0 (GF)</td>
<td>$30.1 (CTP)</td>
<td>$13.8 (CTP)</td>
</tr>
<tr>
<td><strong>Zero-Emission Vehicles and Infrastructure</strong></td>
<td>Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure (battery-electric and hydrogen fuel cells)</td>
<td>$30.1 (CTP) $361.25 (GF)</td>
<td>$30.1 (CTP) $130.0 (GF)</td>
<td>$13.8 (CTP) $125.0 (GF)</td>
</tr>
<tr>
<td><strong>Zero-Emission Vehicles and Infrastructure</strong></td>
<td>Hydrogen Fueling Infrastructure</td>
<td>$20.0 (CTP) $27.0 (GF)</td>
<td>$20 (CTP)</td>
<td>$10 (CTP)</td>
</tr>
<tr>
<td><strong>Alternative Fuel Production and Supply</strong></td>
<td>Zero- and Near Zero-Carbon Fuel Production and Supply</td>
<td>$10.0 (CTP)</td>
<td>$10 (CTP)</td>
<td>$5 (CTP)</td>
</tr>
<tr>
<td><strong>Related Needs and Opportunities</strong></td>
<td>Manufacturing</td>
<td>$118.75 (GF)</td>
<td>$125 (GF)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Related Needs and Opportunities</strong></td>
<td>Workforce Training and Development</td>
<td>$5.0 (CTP)</td>
<td>$5 (CTP)</td>
<td>$5 (CTP)</td>
</tr>
<tr>
<td><strong>CTP Total</strong></td>
<td></td>
<td><strong>$95.2</strong></td>
<td><strong>$95.2</strong></td>
<td><strong>$47.6</strong></td>
</tr>
<tr>
<td><strong>General Fund Total</strong></td>
<td></td>
<td><strong>$747.0</strong></td>
<td><strong>$255.0</strong></td>
<td><strong>$125.0</strong></td>
</tr>
</tbody>
</table>

*Subject to appropriation by the Legislature*
Light-Duty Electric Vehicle Charging Infrastructure

Samridhi Soni | LDEV Infrastructure and Analysis Office
Fuels and Transportation Division
Light-Duty Electric Vehicle Infrastructure Goals

• Increase equitable access to charging, including for Tribes and low-income, disadvantaged, and rural communities
• Accelerate deployment and market development
• Strategic installation of charging infrastructure throughout California to enhance EV driver experience and support transition to electric vehicles
California Electric Vehicle Infrastructure Project (CALeVIP) & Second Block Grants

Samridhi Soni | LDEV Infrastructure and Analysis Office
Fuels and Transportation Division
Achievements of CALeVIP 1.0 (Light-Duty First Block Grant)

- Launched 13 projects:
  - 36 Counties
  - $229 million in incentives ($43 million from partners)
  - Installed:
    - 981 Level 2 connectors
    - 320 DC fast chargers
  - In progress: 4,646 Level 2 and 1,099 DC fast chargers
  - 57% in disadvantaged and/or low-income communities
- Southern CA Level 2 (P13) launched April 5, 2022, in Los Angeles, Orange, Riverside, San Bernardino counties
More Light-Duty Block Grants

Up to $250 million each, for both block grants
Two Implementers: CSE and CALSTART
Goal: Fund & Deploy EV chargers across state regions & use cases
Public workshops beginning Q2 2022
Project Launches – Q4 2022/Q2 2023
Expanding EV Infrastructure

Pilar Magaña | Light-Duty Electric Vehicle Infrastructure and Analysis Office
Fuels and Transportation Division
Expansion of Light-Duty EV Infrastructure & Encouraging EV Adoption

**REACH**: Multifamily Housing Charging Accessibility
$8.5 million

**CARTS**: On-demand Transportation Services
$16.6 million

**REV**: Rural Drivers Station Availability
$4.8 million
Light-Duty Electric Vehicle Infrastructure Funding Plans

Sharon Purewal | Light-Duty Electric Vehicle Infrastructure and Analysis Office
Fuels and Transportation Division
Workshop, December 2021

Concepts:
- Block Grants
- Vehicle-Grid Integration Pilots
- Local Government Fleets
- Corridor Charging
- BESTFIT 2
- High Density of Level 2 Charging
- Home Charging for Low-Income Households
- Increase Physical Signage for Charging Stations
- Community-Led EV Infrastructure Projects
## Next Steps

<table>
<thead>
<tr>
<th>Funding Opportunity</th>
<th>Available Funding</th>
<th>Development Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Block Grants</td>
<td>Up to $150 million</td>
<td>Q1 – Q4 2022</td>
</tr>
<tr>
<td>High Density Level 2 Charging</td>
<td>$24 million*</td>
<td>Q2 – Q4 2022</td>
</tr>
<tr>
<td>Signage</td>
<td>$1 million*</td>
<td>Q2 2022</td>
</tr>
<tr>
<td>Additional funding for On-Demand Transportation Services</td>
<td>$10.6 million</td>
<td>Q1 – Q2 2022</td>
</tr>
</tbody>
</table>
Supporting Charger Development and Interoperability

Jeffrey Lu
Fuels and Transportation Division
Improving Customer Experience and Unlocking Advanced Charging Features

- Bugs in charging communication result in poor interoperability and unsuccessful charging sessions → *Unreliable and bad experience!*

- Improvements can unlock easier-than-gas experience and advanced features such as managed and bidirectional charging

CTP is funding:

- **Vehicle-Grid Innovation Lab** (ViGIL; $1.97 million CTP funding): Charger communication and metering test lab operated by DEKRA.

- **Vehicle Interoperability Testing Symposium** (VOLTS; $910k CTP funding): Collaborative industry event where automakers and charging providers gather to test products for interoperability.
Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure

Esther Odufuwa, Energy Commission Specialist I
Fuels and Transportation Division
Medium- and Heavy-Duty Zero-Emission Vehicle and Infrastructure Goals

• Meet state GHG and air quality goals
• Reduce air pollution in communities that have historically faced higher levels of harmful diesel pollution, with a focus on disadvantaged communities
• Provide the infrastructure needs of MD/HD ZEVs equitably
• Include grid integration, integrated storage solutions, and charging management
• Help the markets for MD/HD ZEVs and infrastructure grow to scale
## Recent MD/HD ZEV Infrastructure Funding and Total Awards

<table>
<thead>
<tr>
<th>Grant Funding Opportunity Title</th>
<th>Total Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Block Grant for MD/HD Zero-Emission Refueling Infrastructure Incentive Projects</td>
<td>$50 million (authority up to $276 million)</td>
</tr>
<tr>
<td>Zero-Emission Transit Fleet Infrastructure Deployment</td>
<td>$36.2 million</td>
</tr>
<tr>
<td>Blueprints for Medium- and Heavy-Duty Zero-Emission Vehicle Infrastructure</td>
<td>$7.6 million</td>
</tr>
<tr>
<td>BESTFIT Innovative Charging Solutions (MD/HD projects)</td>
<td>$8.4 million</td>
</tr>
<tr>
<td>Hydrogen Fuel Cell Demonstrations in Rail and Marine Applications at Ports (H2RAM) (Joint project with ERDD)</td>
<td>$4 million</td>
</tr>
<tr>
<td>Zero-Emission Drayage Truck and Infrastructure Pilot Project (Joint solicitation with the CA Air Resources Board (CARB))</td>
<td>$44.3 million ($108.2 M total with CARB funds)</td>
</tr>
</tbody>
</table>
## Summary of Proposed Concepts

<table>
<thead>
<tr>
<th>Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Refueling</td>
</tr>
<tr>
<td>School District Vehicle Grid Integration</td>
</tr>
<tr>
<td>Truck Parking EV Charging and Hydrogen Refueling</td>
</tr>
<tr>
<td>Warehouse and Regional Trucking</td>
</tr>
<tr>
<td>Innovative EV Charging and Hydrogen Refueling Technologies</td>
</tr>
<tr>
<td>Mobility-as-a-Service Models</td>
</tr>
<tr>
<td>Rural Small Transit Fleet Infrastructure Deployment</td>
</tr>
<tr>
<td>Large Scale Ultra-Fast Charging Stations</td>
</tr>
<tr>
<td>MD/HD Blueprint Planning Documents</td>
</tr>
<tr>
<td>Infrastructure Concepts to Complement CARB Demonstration and Pilot Project Concepts</td>
</tr>
<tr>
<td>MD/HD Loan Pilot</td>
</tr>
</tbody>
</table>
Original Blueprint solicitation (GFO-20-601) released July 2020

• Up to $200,000 per award
• 40 awards across multiple counties
  ▪ ~$8,000,000M
• Proposing to continue funding
Next Steps

- Reviewing docket comments
- Drafting solicitations through end of the year
- Holding Pre-Solicitation Workshops
- Continue conversation with CARB
Energy Infrastructure Incentives for Zero-Emission Commercial Vehicles (EnergIIIZE)

Manuel Aguila – Energy Commission Specialist
Fuels and Transportation Division
EnergIIZE Commercial Vehicles provides financial incentives to increase the adoption of commercial zero emission medium- and heavy-duty (MHD) vehicles to promote healthy communities.

EnergIIZE helps commercial fleets keep pace with industry demands as they transition to zero-emission vehicles, and helps advance zero-emission infrastructure technology.

Up to $276m funding by the Clean Transportation Program (CTP)
EV Fast-Track
Applicants in this funding lane are ready to go and may already have prior experience applying for commercial MHD EV funding.

EV Jump Start
Applicants in this funding lane will need to meet specific eligibility criteria and will be allotted more time to submit required documents.

EV Public Charging Station
Applicants in this funding lane intend to develop publicly available charging stations for commercial MHD EVs.

Hydrogen
Applicants in this funding lane intend to develop a hydrogen infrastructure project for commercial MHD vehicles.
Hydrogen Fueling Infrastructure

Mark Johnson | Medium- and Heavy-Duty Zero Emission Technologies Office
Goals for Hydrogen Refueling Infrastructure

- California law requires CEC to allocate $20 million annually for public hydrogen refueling stations to reach 100 station milestone through January 1, 2024
- Target of 200 hydrogen refueling stations by 2025
- Current and planned investments:
  - Current investment of $166 million with plan to invest $279 million for public stations
  - $190 million match
  - California’s current and planned investments in public hydrogen infrastructure rank second only to Japan internationally
  - Additional investments in private infrastructure for HDV (e.g. transit)
Public and Privately Funded Light-Duty Station Locations

- 58 stations open retail
- 31 stations under construction
- 6 privately funded stations under construction
- Additional 82 stations planned through GFO-19-602
- Planned capacity can support about 240,000 FCEVs
- 61,100 FCEVs by 2027 projected by industry
- 12,700+ FCEVs in California as of March 2022

Source: Energy Commission Staff
Since 2010:
• Average new station capacity has grown over 500 percent, from supporting 250 to 1,700 cars
• Average station development time: 2 years

Source: Energy Commission Staff
Medium- and Heavy-Duty Hydrogen Stations

- 7 medium- and heavy-duty stations operating
- 4 medium- and heavy-duty stations planned
- Includes transit and heavy-duty truck fueling stations

Source: Energy Commission Staff
Renewable Hydrogen Production

- 5 projects funded (3 new facilities, 2 expansions) with $17M in CTP funding
- $66M in Match funding
- New production capacity of nearly 24,000 kg/day
- Technologies: 3 electrolysis, 1 gasification

Source: Energy Commission Staff
Next Steps

• Continue to develop the hydrogen refueling stations awarded under solicitation GFO-19-602

• Develop a new solicitation using $27 million in one-time funding
  • Workshop held on February 28, 2022 to solicit feedback

• The CEC expects to reach the 200-station goal with the new solicitation combined with recent private investment announcements
Zero- and Near Zero-Carbon Fuel Production and Supply

Hieu Nguyen | Transportation Integration and Production Office, Manufacturing and Production Unit
Fuels and Transportation Division
Goals for Zero- and Near Zero-Carbon Production and Supply

• In-state commercial-scale production of lowest carbon alternative fuels
• Increase in-state low-carbon fuel and blending capacity
• Cost-effective mitigation of greenhouse gas emissions
• Job creation in low-income communities
Funding Solicitation Overview

- Commercial-Scale
  - Fuel Production Facilities
    - New or Existing Facilities
  - Fuel Blending Facilities
    - Renewable diesel/biodiesel only

- Ultra-Low-Carbon Fuel: ≤ 30 gCO2e/MJ

- 1 million diesel gallon equivalents per year
# Fuel Production Project Results

<table>
<thead>
<tr>
<th>Recipient Name</th>
<th>Fuel Production Type</th>
<th>Fuel Production Capacity (DGE)</th>
<th>GHG Mitigation (MT CO2e per yr)</th>
<th>Jobs</th>
<th>Feedstock</th>
</tr>
</thead>
<tbody>
<tr>
<td>California Grinding</td>
<td>Biomethane</td>
<td>1.345 M</td>
<td>55,000</td>
<td>29</td>
<td>Green, dairy manure and food waste</td>
</tr>
<tr>
<td>Merced Pipeline</td>
<td>Biomethane</td>
<td>1.8 M</td>
<td>113,000</td>
<td>39</td>
<td>Dairy Manure</td>
</tr>
<tr>
<td>SoCal Biomethane</td>
<td>Biomethane</td>
<td>1.6 M</td>
<td>18,000</td>
<td>10</td>
<td>Food waste and wastewater</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td><strong>4.75 M</strong></td>
<td><strong>186,000</strong></td>
<td><strong>78</strong></td>
<td></td>
</tr>
</tbody>
</table>
# Fuel Blending Project Results

<table>
<thead>
<tr>
<th>Recipient Name</th>
<th>Fuel Blend Type</th>
<th>Fuel Blending Capacity (DGE)</th>
<th>Fuel Blending Throughput per year</th>
<th>GHG Mitigation (MT CO2e per yr)</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>AltAir Paramount</td>
<td>Renewable Diesel and Biodiesel</td>
<td>32.5 million</td>
<td>149 million (116.5 RD, est. 2024)</td>
<td>1,580,000</td>
<td>100+ short term</td>
</tr>
<tr>
<td>New Leaf Biofuel</td>
<td>Renewable Diesel and Biodiesel</td>
<td>78 million (BD 24m, RD 64m)</td>
<td>78 million (est. 2027)</td>
<td>700,000</td>
<td>12 (3-5 long term)</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>110.5 m</strong></td>
<td><strong>227 million</strong></td>
<td><strong>2.28 m MT</strong></td>
<td></td>
<td><strong>112</strong></td>
</tr>
</tbody>
</table>
ZEV and ZEV-Related Manufacturing
Jonathan Bobadilla
Transportation Integration and Production Office
Fuels and Transportation Division
Goals for ZEV Manufacturing

• Attract new and expand existing ZEV-related manufacturing in California
• Increase number and quality of jobs
• Bring positive economic impacts to the state
• Contribute to California’s goals of zero-emission transportation
California Zero-Emission Vehicle Industry

#1 ZEV Market in the US²

1,054,095 ZEVs Sold in CA Through Q4 2021¹

#1 in the US for ZEV manufacturing jobs³

References
3. Where are the EV jobs? – Atlas EV Hub
Senate Bill 129 (Skinner, 2021)

- $125 million for FY 2021-2022 ($118.75 million after admin costs)
  - Available for encumbrance until **June 30, 2024**.
  - Available for liquidation until **June 30, 2026**.
- $125 million for FY 2022-2023 (pending Legislative approval)

“...shall be used to support manufacturing grants to increase in-state manufacturing of zero-emission vehicles, zero-emission vehicle components, and zero-emission vehicle charging or refueling equipment.”
Manufacturing Solicitation GFO-21-605

- GFO-21-605 Zero Emission Transportation Manufacturing (ZETM)
  - Competitive grant funding opportunity
  - For ZEV, ZEV components, and ZEV Infrastructure manufacturing
  - $60 million total* available

*The CEC may allocate additional funding based on applications received, as well as additional funding appropriated for 2022-23.
Battery Manufacturing Block Grant Solicitation

- ZEV Battery Manufacturing Block Grant
  - Block grant implementer
  - Develop and implement grants to subrecipients for ZEV battery manufacturing
  - $25 million total* available

*The CEC may allocate additional funding based on GFO-21-605 applications received, as well as additional funding appropriated for 2022-23.
Goals for Workforce Training and Development

- Develop clean transportation career pathways
- Focus on job creation, quality, and quantity
- Align ZEV jobs with ZEV and ZEV infrastructure deployments
- Leverage workforce partnerships and investments
- Prioritize priority communities and priority populations
- Support small-, minority-, women-, disabled veteran-, LGBTE- owned business enterprises
Workforce Portfolio

- $36 million total investment
- 20,000 trainees and trainers
- State Partnerships: Employment Training Panel; CA Community Colleges, CA Workforce Development Board, CA Conservation Corps, CA Air Resources Board
  - Electric School Bus Training Project
  - ZEV Automotive and Truck College Training Project
  - ZEV High School Pilot Project
  - Transportation Electrification Training Project
  - IDEAL ZEV Workforce Pilot (GFO-21-602)
IDEAL ZEV Workforce Pilot

- Competitive solicitation
- Projects that provide clean transportation career pathways to ZEV and ZEV infrastructure industries
- Equity focused ZEV workforce training and development solutions
- Partnerships
- CARB as Solicitation Partner
- $6.5 million total investment

Priority Communities + ZEV Workforce Training and Development > Jobs
Solicitation Results

• 20 total applications received
• 14 proposed awardees
• Diversity of:
  o Applicants
  o Training Needs
  o Equity Communities
  o Geography
  o ZEV Sectors
  o Project Partners
# Estimated Baseline Metrics*

<table>
<thead>
<tr>
<th>CalEnviroScreen Score</th>
<th>Trainees</th>
<th>Trainers</th>
<th>Training Hours</th>
<th>Training Sessions</th>
<th>Full-Time Jobs**</th>
<th>Part-Time Jobs**</th>
<th>Outreach Events / Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>89</td>
<td>4,306</td>
<td>101</td>
<td>31,985</td>
<td>4,424</td>
<td>2,542</td>
<td>216 / 34,485</td>
</tr>
</tbody>
</table>

* Estimates and averages based on pre-project survey conducted in March 2022 of proposed awardees.
** Directly created, retained, and projected post-project.
Meeting of the Clean Transportation Program Advisory Committee

Break

Reconvening at X:XX
Updates on ZEV Planning and Analysis
Draft Zero-Emission Vehicle Infrastructure Plan (ZIP)

Thanh Lopez
Fuels and Transportation Division
ZIP Background

California Zero-Emission Vehicle Market Development Strategy

Goal
Large scale equitable market development

Outcomes
- GHG
- Air Quality
- Reduced Greenhouse Gases
- Access
- Economic Development & Jobs

Core Principles
- Equity in every decision
- Embrace all ZEV pathways
- Collective problem solving
- Public complements private
- Design for resilience & adaptation

Draft Zero-Emission Vehicle Infrastructure Plan (ZIP)

April 2021 | CEC-600-2022-054
Private Investments in Infrastructure


Source: GO-Biz EV Infrastructure Investment Model and CEC Staff Analysis
Funding for Infrastructure

• State Funding
  • ZEV Package 1.0 ($3.9 B)
  • ZEV Package 2.0 ($6.1 B)
    o Includes federal "formula" funding ($384 million)
• Federal "discretionary" (competitive) funding opportunities
• Utility Investments
• Private funding
ZEV Infrastructure Actions

Hydrogen for LD FCEV

DCFC for LDEV

Emerging technologies

L1 & L2 Charging for LDEV

Charging and hydrogen fueling for MDHD ZEVs
Parallel Efforts on Infrastructure

• Improving Building Codes
• Building Reliability of Charging and Hydrogen Fueling Networks
• Streamlining Permitting
• Improving Interconnection Times
• Standardization of Charging and Fueling Infrastructure
ZIP Process and Schedule

- Public Workshop Kickoff: January 2022
- Draft ZIP Published: April 2022
- Public Workshops: April/May 2022
- Publish Final ZIP: Summer 2022
Draft ZIP and Workshop

• Draft published April 1, 2022
• Staff workshop on April 14, 2022
  • Events Page: https://www.energy.ca.gov/event/workshop/2022-04/draft-zero-emission-vehicle-infrastructure-plan
• Public comment due: Friday, May 13, 2022
Update on Assembly Bill 2127 Work

Kiel Pratt, Supervisor, Vehicle-Grid Integration Unit
Fuels and Transportation Division / Transportation Integration and Production Office
Projecting California’s Needs for Charging Infrastructure

Cleaner transportation  Grid-friendly infrastructure  Convenience

Source: CEC, FreeWire Technologies, Beam Global
Assembly Bill 2127 (2019) and Executive Order N-79-20 (September 2020)

• Every 2 years, create report assessing:
  • Charging infrastructure needs for all vehicle types
  • Utility grid connection
  • Charger hardware and software
  • Programs accelerating EV adoption

• Update AB 2127 assessment to capture expanded targets under EO N-79-20
Zero-Emission Vehicle Targets

AB 2127: 5M ZEVs by 2030

EO N-79-20: 8M ZEVs by 2030

Source: FreeWire

Source: Volta Charging
Progress Toward Over 1M Light-Duty Chargers by 2030

Existing (2022)
- 78k chargers installed as of 2022

Anticipated (2025)
- 191k additional chargers installed through 2025, totaling 269k chargers statewide

Gap (2030)
- Net gap of 895k to projected 2030 need of 1,164k chargers
First AB 2127 Report Published in Summer 2021

• Focus on Equity
• Vehicle-grid integration
  • Bidirectional charging
• Standard connectors and communications
  • Convenience
  • Grid-friendly charging
• Local “best-fit” solutions
• Financing innovations and continued public support

• Quantified medium- and heavy-duty sector for 2030:
  • Modeling suggests 157k chargers needed for 180k vehicles

Source: Ford Motor Company
Planned Features for the Second AB 2127 Report

- Update models and assumptions; more detailed geographically
- Highlight potential for EVs as grid and reliability resource
- Discuss reliability of existing charging network, workforce updates, infrastructure costs
- Add additional charging options such as curbside charging

Anticipated Schedule:
- Fall 2022: Publish Staff Report draft and host workshop
- Anticipated early 2023: Publish Revised Staff Report and present at Energy Commission Business Meeting, publish Commission Report
SB 1000: California Electric Vehicle Deployment Assessment

Tiffany Hoang
Air Pollution Specialist
Light-Duty Electric Vehicle Infrastructure and Analysis Office
Measuring drive times to fast chargers
Drive times vary among disadvantaged communities
Rural communities are farther from public fast charging than urban communities
Low-income rural communities have the least access to public fast charging
SB 1000 Webpage

The SB 1000 webpage, [https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/electric-vehicle-infrastructure](https://www.energy.ca.gov/programs-and-topics/programs/clean-transportation-program/electric-vehicle-infrastructure), will provide downloadable drive time maps and spreadsheets with drive times by census tract.
2022-2023 Investment Plan
Update for the Clean Transportation Program

Patrick Brecht
Project Manager for the Clean Transportation Program
Investment Plan
**Investment Plan Process & Schedule**

1. **Publish Staff Draft**
   - April 5

2. **1st Advisory Committee Meeting**
   - April 12

3. **Consultation with DACAG**

4. **Publish Revised Staff Draft**
   - June 29*

5. **2nd Advisory Committee Meeting**
   - July 19*

6. **Consultation with DACAG, other stakeholders**

7. **Publish Lead Commissioner Report**
   - August 24*

8. **Approval at CEC Business Meeting**
   - September 14*
   - and Publish Commission Final Report
   - October*

*Tentative, based on timing of state budget*
Governor’s Proposed Budget

Governor’s 2022-23 Budget
New CEC Funding: ZEV Infrastructure

- $600 Million ZEV Infrastructure Grants
- $300 Million Equitable At-Home Charging
- $250 Million Drayage
- $140 Million Transit Buses & Infrastructure

- $500 Million Clean Trucks, Buses and Off-Road Equipment
- $150 Million Ports
- $100 Million Emerging Opportunities

$2 BILLION TOTAL
## Combined Clean Transportation Program and General Fund Allocations in the Draft Staff Report (in millions)

<table>
<thead>
<tr>
<th>Category</th>
<th>Funded Activity</th>
<th>FY 2021-2022 (for reference)</th>
<th>FY 2022-2023* (proposed)</th>
<th>FY 2023-2024* (proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero-Emission Vehicles and Infrastructure</td>
<td>Light-Duty Electric Vehicle Charging Infrastructure and eMobility</td>
<td>$30.1 (CTP) $240.0 (GF)</td>
<td>$30.1 (CTP)</td>
<td>$13.8 (CTP)</td>
</tr>
<tr>
<td>Zero-Emission Vehicles and Infrastructure</td>
<td>Medium- and Heavy-Duty Zero-Emission Vehicles and Infrastructure (battery-electric and hydrogen fuel cells)</td>
<td>$30.1 (CTP) $361.25 (GF)</td>
<td>$30.1 (CTP) $130.0 (GF)</td>
<td>$13.8 (CTP) $125.0 (GF)</td>
</tr>
<tr>
<td>Zero-Emission Vehicles and Infrastructure</td>
<td>Hydrogen Fueling Infrastructure</td>
<td>$20.0 (CTP) $27.0 (GF)</td>
<td>$20 (CTP)</td>
<td>$10 (CTP)</td>
</tr>
<tr>
<td>Alternative Fuel Production and Supply</td>
<td>Zero- and Near Zero-Carbon Fuel Production and Supply</td>
<td>$10.0 (CTP)</td>
<td>$10 (CTP)</td>
<td>$5 (CTP)</td>
</tr>
<tr>
<td>Related Needs and Opportunities</td>
<td>Manufacturing</td>
<td>$118.75 (GF)</td>
<td>$125 (GF)</td>
<td>-</td>
</tr>
<tr>
<td>Related Needs and Opportunities</td>
<td>Workforce Training and Development</td>
<td>$5.0 (CTP)</td>
<td>$5 (CTP)</td>
<td>$5 (CTP)</td>
</tr>
<tr>
<td><strong>CTP Total</strong></td>
<td></td>
<td><strong>$95.2</strong></td>
<td><strong>$95.2</strong></td>
<td><strong>$47.6</strong></td>
</tr>
<tr>
<td><strong>General Fund Total</strong></td>
<td></td>
<td><strong>$747.0</strong></td>
<td><strong>$255.0</strong></td>
<td><strong>$125.0</strong></td>
</tr>
</tbody>
</table>

*Subject to appropriation by the Legislature

Clean Transportation Program + General Fund (Budget Act of 2021)
Closing Links and Contact

More information:
https://www.energy.ca.gov/programs-and-topics/topics/transportation

Submit e-comments by April 29, 2022 at:
https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?docketnumber=22-ALT-01

Contact:
Patrick.Brecht@energy.ca.gov