DOCKETED	
Docket Number:	18-ALT-01
Project Title:	2019-2020 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program
TN #:	225896
Document Title:	Presentation - First Advisory Committee and Public Workshop for the 2019-2020 Investment Plan Update
Description:	N/A
Filer:	Jessica Martinez
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	11/14/2018 2:13:50 PM
Docketed Date:	11/14/2018

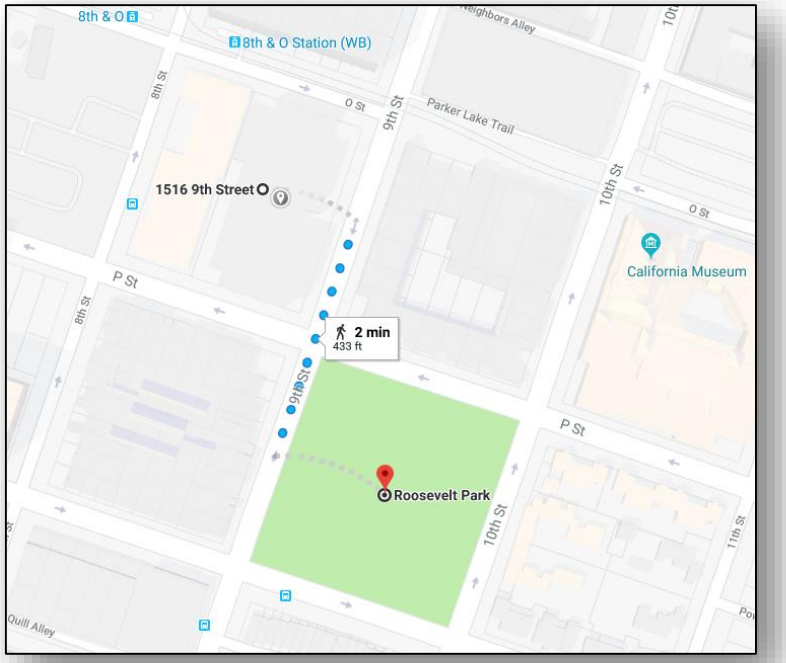
Advisory Committee Meeting and Public Workshop for the 2019-2020 Investment Plan Update

November 8, 2018

Fuels and Transportation Division Staff
California Energy Commission

Housekeeping

- Recording and Transcript
- 2nd Floor Snack Room
- Emergency Exit



Source: Google Maps

Meeting Agenda

10:00 am	Introductions and Opening Remarks
10:15 am	Presentation: School Bus Replacement Program
10:30 am	Presentation: Overview of the *2019-2020 Investment Plan Update for the ARFVTP*
11:15 am	Staff Presentations on ARFVTP Activities, Advisory Committee Discussion, Public Comment
12:00 pm	Lunch break
1:00 pm	Staff Presentations on ARFVTP Activities, Advisory Committee Discussion, Public Comment (continued)

Speakers

Presentation	Speaker
School Bus Replacement Program	Jennifer Masterson
Investment Plan Update Overview	Patrick Brecht
Low-Carbon Fuel Production and Supply	Taiying Zhang
Electric Vehicle Charging Infrastructure	Brian Fauble
Hydrogen Refueling Infrastructure	Phil Cazel
Manufacturing and Workforce Development	Larry Rillera
Advanced Freight and Fleet Technologies	Wendell Krell

School Bus Replacement Program

Jennifer Masterson
School Bus Unit
Fuels and Transportation Division
California Energy Commission
November 8, 2018

Senate Bill 110

- Funding: $75 million (Non ARFVTP Funding)
- Eligible applicants: school districts, county offices of education (COEs) and transportation joint power authorities (JPAs)
- Priority given to the oldest school buses, school buses operating in disadvantaged communities and to schools that have a majority of students eligible for free or reduced-price meals
- Any school bus replaced shall be scrapped

Program Design: First Component

School bus replacement (two phases):

- Phase 1- Solicit public school districts/COEs/JPAs *(Released May 2018, Closed September 2018)*
  - Electric school buses ($75 million SB 110 Funding)
  - CNG buses when electric is not feasible ($3.7 million ARFVTP Funding)
- Phase 2- Solicit manufacturers to design, construct, and deliver the replacement electric buses (Planned for release November/December 2018)

Program Design: Second Component

Provide EV & CNG fueling infrastructure to support awarded school buses (ARFVTP Funds)

Program Design:
Third Component

Provide workforce training & development opportunities and resources to support electric school bus maintenance, charging, and operations (ARFVTP Funds)

Distribution of SB 110 Funding

School Bus Funds

- $75 million (SB 110 Funds) for EV school buses.
- Funding distributed among four regions (Northern, Central, Southern, and Los Angeles County)
  - ➢ Average daily attendance of 1.5 million per region

ARFVTP Funding

Electric Infrastructure

- $26 million for EV infrastructure.
  - $60,000 per awarded school bus

CNG School Bus Component

- $3.7 million for CNG school buses
  - $165,000 per school bus.
- $2.4 million for CNG infrastructure.
  - Up to $500,000 per awardee

Workforce Training & Development

- Funding TBD for electric bus awardees

Key Dates

Activity	Date
Enter into Agreements with School Districts for CNG School Buses and Infrastructure	Q1 2019
Enter into Agreements with School Districts for Electric School Buses and Infrastructure	Q2 2019
Enter into Agreements with Bus Manufacturer(s) to Build and Deliver Electric School Buses	Q2 2019
Install Infrastructure	April - December 2019
Begin Delivering Electric School Buses	Q4 2019

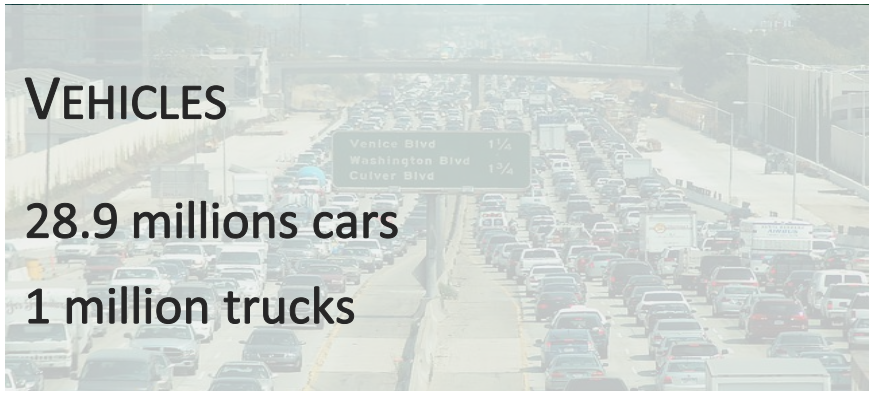
Electric School Bus Benefits

- ✓ Improves Children's Health
- ✓ Lowered Emissions
- ✓ Quieter Smoother Ride
- ✓ Lower Maintenance
- ✓ Lower Fuel Cost
- ✓ Potential Vehicle to Grid

Overview of the 2019-2020 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program

Patrick Brecht
November 8, 2018
Fuels and Transportation Division
California Energy Commission

California Transportation Statistics



Vehicles

28.9 millions cars

1 million trucks

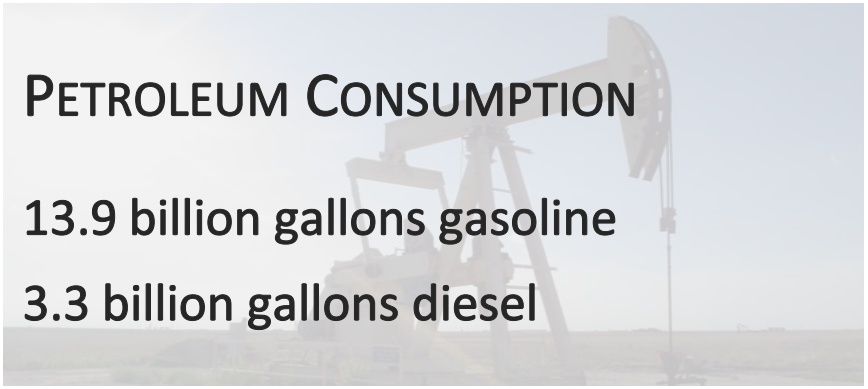
GHG Emissions

50% from transportation

Air Quality

Severe Non-Attainment for Ozone

San Joaquin Valley & South Coast



Petroleum Consumption

13.9 billion gallons gasoline

3.3 billion gallons diesel

Guiding Policies and Regulations

Policy Origin	Goals and Milestones
Executive Order S-3-05; Assembly Bill 32 (2006); Executive Order B-30-15; Senate Bill 32 (2016)	2020: Reduce greenhouse gas emissions to 1990 levels 2030: …40% below 1990 levels 2050: …80% below 1990 levels
Executive Order B-55-18	Achieving a carbon-neutral economy by 2045
Senate Bill 1383 (2011)	Reduce emissions of short-lived climate pollutants 40%-50% below 2013 levels by 2030
Low-Carbon Fuel Standard	Reduce carbon intensity of transportation fuels by 10% by 2020 and 20% by 2030
Clean Air Act	Reduce NOx by 80% by 2023
Executive Order B-16-2012; Executive Order B-48-18; Zero-emission Regulations	2020: 1 million zero-emission vehicles 2025: 1.5 million zero-emission vehicles; 250,000 chargers (including 10,000 fast chargers); 200 hydrogen refueling stations 2030: 5 million zero-emission vehicles
Executive Order B-32-15	Improve freight efficiency and transition freight movement to zero-emission technologies

Purpose of the ARFVTP

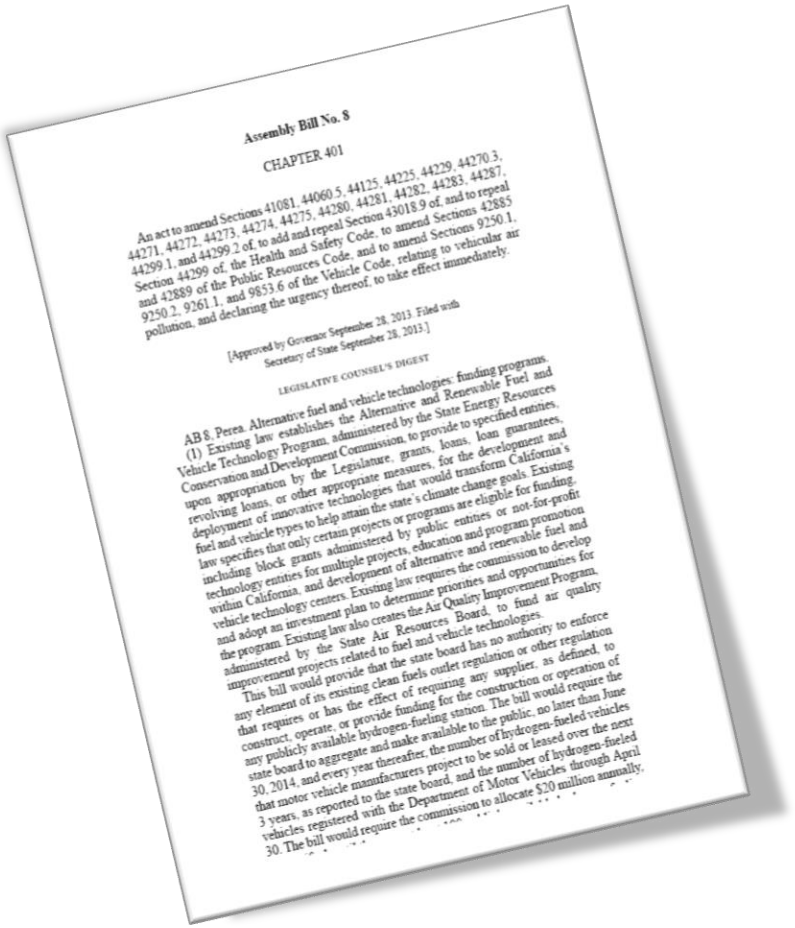
"…*to develop and deploy innovative technologies that transform California's fuel and vehicle types to help attain the state's climate change policies.*"

- California Health and Safety Code 44272(a)

Complementary goals:

- Improve air quality
- Increase alternative fuel use
- Reduce petroleum dependence
- Promote economic development

ARFVTP Origins in Statute



Assembly Bill No. 8

CHAPTER 401

An act to amend Sections 41081, 44060.5, 44125, 44225, 44229, 44270.3, 44271, 44272, 44273, 44274, 44275, 44280, 44281, 44282, 44283, 44287, 44299.1, and 44299.2 of, to add and repeal Section 43018.9 of, and to repeal Section 44299 of, the Health and Safety Code, to amend Sections 42885 and 42889 of the Public Resources Code, and to amend Sections 9250.1, 9250.2, 9261.1, and 9853.6 of the Vehicle Code, relating to vehicular air pollution, and declaring the urgency thereof, to take effect immediately.

[Approved by Governor September 28, 2013. Filed with Secretary of State September 28, 2013.]

LEGISLATIVE COUNSEL'S DIGEST

AB 8, Perea. Alternative fuel and vehicle technologies: funding programs.

(1) Existing law establishes the Alternative and Renewable Fuel and Vehicle Technology Program, administered by the State Energy Resources Conservation and Development Commission, to provide to specified entities, upon appropriation by the Legislature, grants, loans, loan guarantees, revolving loans, or other appropriate measures, for the development and deployment of innovative technologies that would transform California's fuel and vehicle types to help attain the state's climate change goals. Existing law specifies that only certain projects or programs are eligible for funding, including block grants administered by public entities or not-for-profit technology entities for multiple projects, education and program promotion within California, and development of alternative and renewable fuel and vehicle technology centers. Existing law requires the commission to develop and adopt an investment plan to determine priorities and opportunities for the program. Existing law also creates the Air Quality Improvement Program, administered by the State Air Resources Board, to fund air quality improvement projects related to fuel and vehicle technologies.

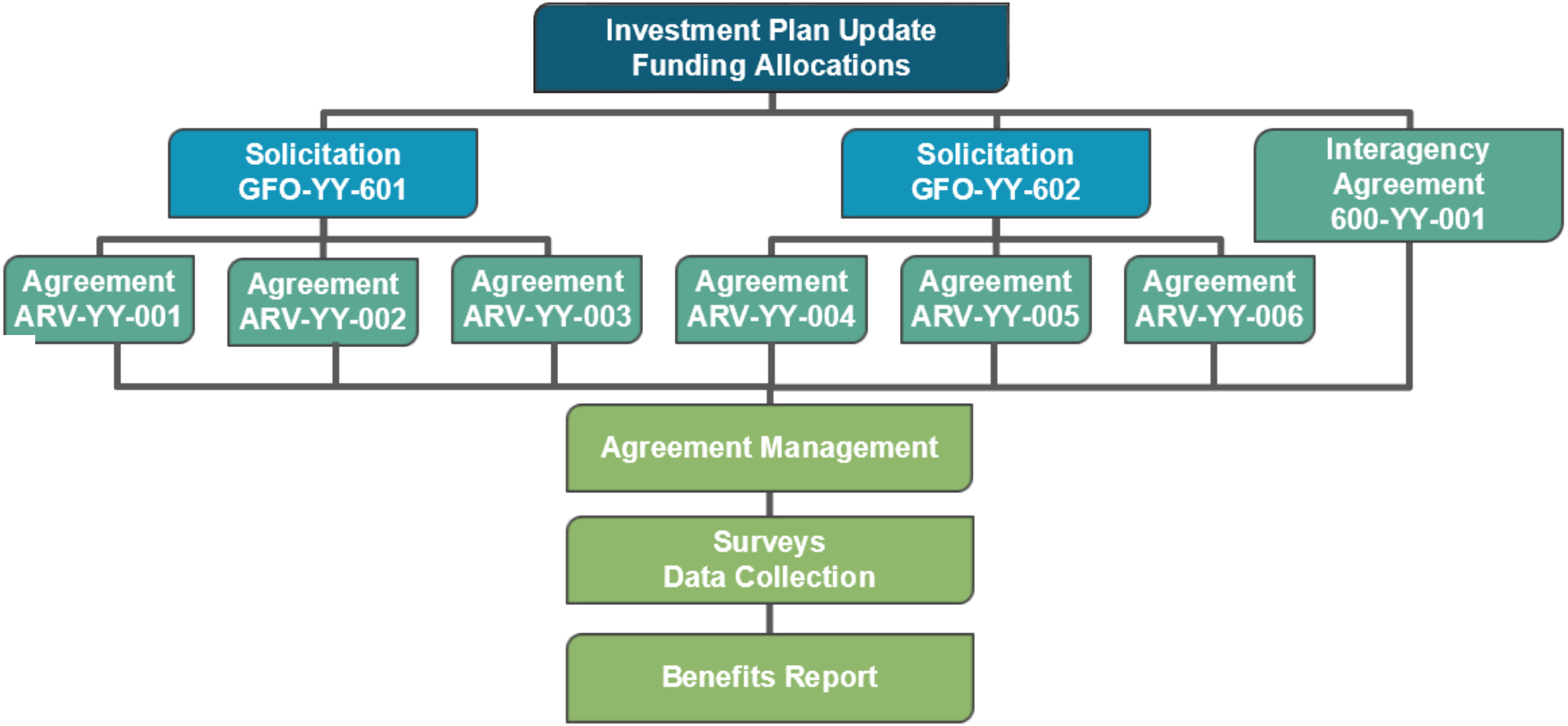
This bill would provide that the state board has no authority to enforce any element of its existing clean fuels outlet regulation or other regulation that requires or has the effect of requiring any supplier, as defined, to construct, operate, or provide funding for the construction or operation of any publicly available hydrogen-fueling station. The bill would require the state board to aggregate and make available to the public, no later than June 30, 2014, and every year thereafter, the number of hydrogen-fueled vehicles that motor vehicle manufacturers project to be sold or leased over the next 3 years, as reported to the state board, and the number of hydrogen-fueled vehicles registered with the Department of Motor Vehicles through April 30. The bill would require the commission to allocate $20 million annually,

- Established by Assembly Bill 118 (Nunez, 2007)
- Provides up to $100 million per year in funds
- Extended through January 1, 2024 by Assembly Bill 8 (Perea, 2013)

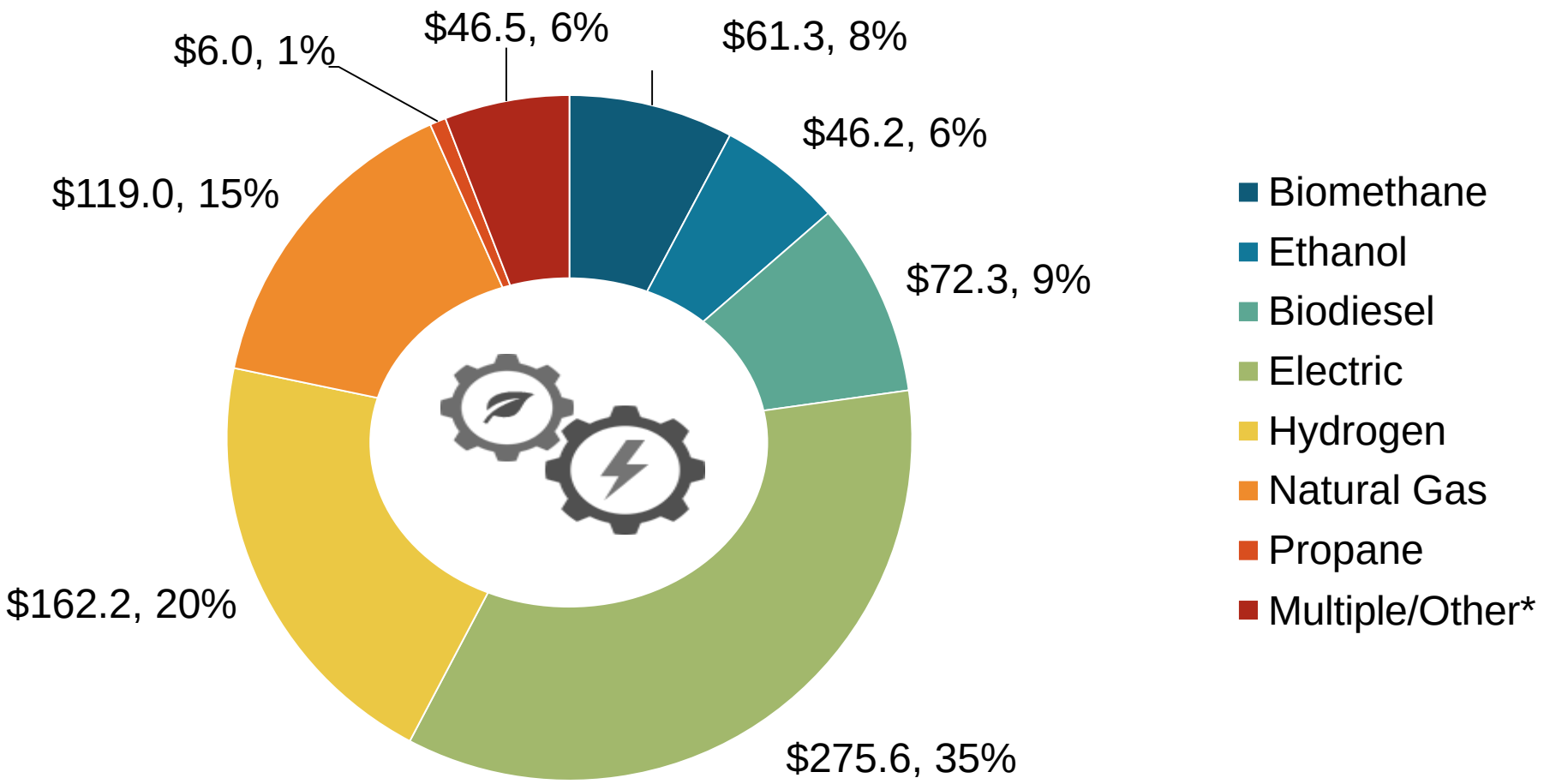
Investment Plan Purpose

- Basis for Fiscal Year 2019-2020 solicitations, agreements, and other funding opportunities
- $95.2 million funding allocation for a portfolio of fuels, technologies, and supporting elements
- Funding allocations for categories (not individual projects)

ARFVTP Implementation Process



ARFVTP Projects To-Date (In millions)



Note: As of September 1, 2018

Commitment to Diversity

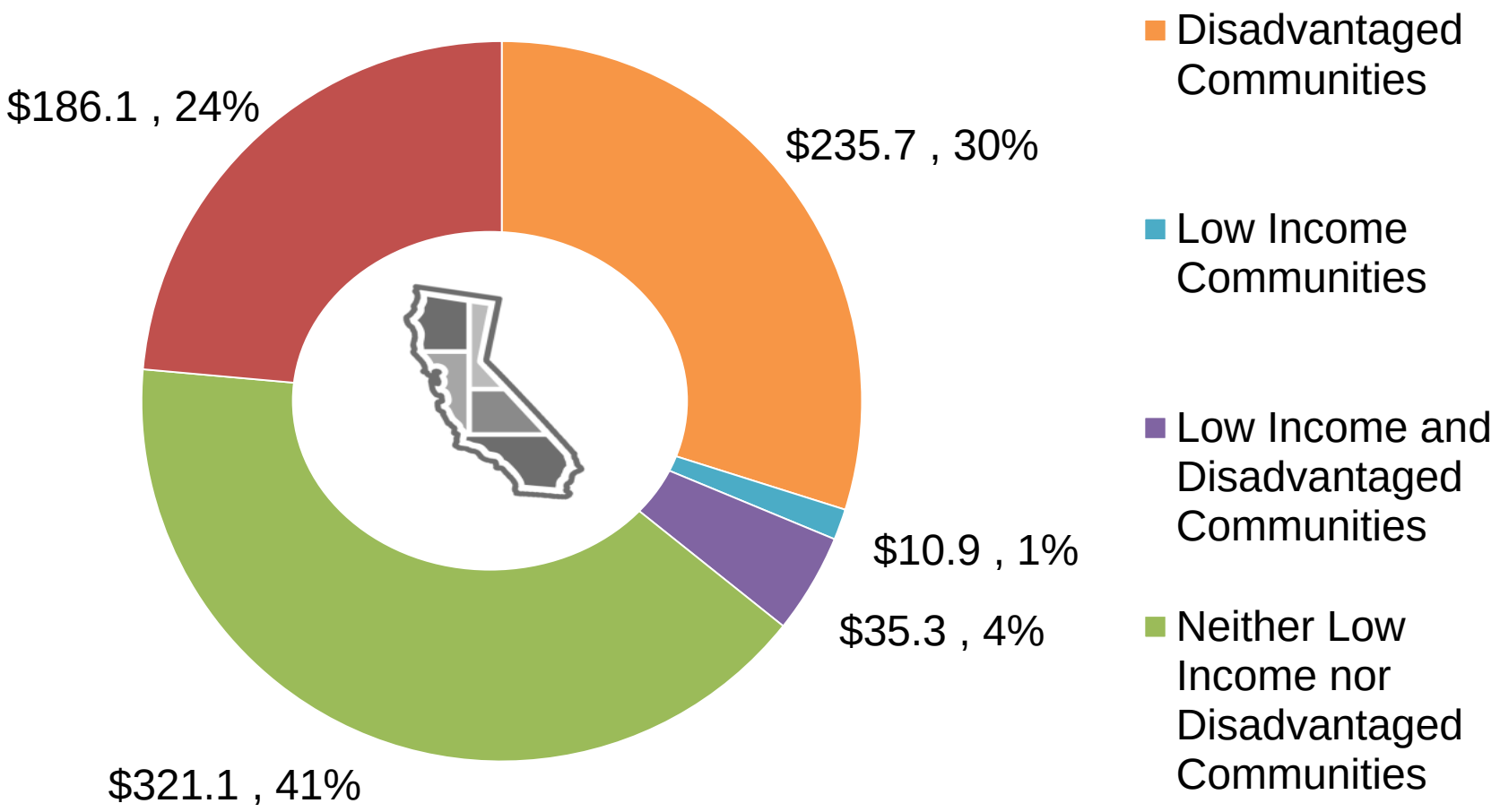
The Energy Commission adopted a resolution on April 8, 2015 to firmly commit to increasing:

- Participation of women, minority, disabled veteran and LGBT business enterprises in program funding opportunities
- Outreach to and participation by disadvantaged communities
- Diversity in participation at Energy Commission proceedings
- Diversity in employment and promotional opportunities

Commitment to Diversity

- **Fairness** – Increase funding accessibility to all Californians
- **Inclusion** – Small businesses make up a significant portion of the U.S. economy
- **Job Creation** – Projects can create jobs for residents of the under-served communities
- **Diversity of Ideas** – Great ideas occur in a variety of areas
- **Diversity in Communities' Needs** – Needs vary widely from one area to the next (air quality, socioeconomic, etc.)

ARFVTP Funding Toward Disadvantaged Communities (in millions)



Note: As of September 1, 2018

Investment Plan Update Schedule

2018-2019 Activities	Scheduled Date
Release Draft Staff Report	November 2, 2018
1st Advisory Committee Meeting	November 8, 2018
Release Revised Staff Report	January 2019
2nd Advisory Committee Meeting	February 2019
Release Lead Commissioner Report	March 2019
Business Meeting Approval	April 2019

2019-2020 Investment Plan Layout

- Context of the 2019-2020 Investment Plan
- Zero-Emission Vehicle Infrastructure
- Advanced Technology and Alternative Fuel Vehicle Support
- Alternative Fuel Production

Major Considerations for 2019-2020

Policy Origin	Goals and Milestones	Objective
Executive Order B-48-18	250,000 electric vehicle chargers, including 10,000 DC fast chargers, and 200 hydrogen refueling stations by 2025	Greenhouse gas reduction
Executive Order B-55-18	Achieving carbon neutrality by 2045	Greenhouse gas reduction
Senate Bill 1000 (2018)	Electric vehicle charging station proportionality	Equity
Low-Carbon Fuel Standard	Reduce carbon intensity of transportation fuels in California by 10% by 2020 and by 20% by 2030	Greenhouse gas reduction

Electric Vehicle Charging Infrastructure

$32.7 million
Proposed Allocation

ZEV Deployment Goals

- 1.5 million Zero-Emission Vehicles by 2025
- 5 million Zero-Emission Vehicles by 2030

Supporting Infrastructure Goals

- 250,000 EV chargers in California by 2025 (including 10,000 DC Fast Chargers)

Recent Legislation

- AB 2127 (2018) – Statewide assessment of charging stations
- SB 1000 (2018) – Charging station proportionality

Hydrogen Refueling Infrastructure

$20 million
Proposed Allocation

Assembly Bill 8 (2013)

- Assess need for additional publicly available stations
- Requires $20 million per year (up to 100 stations)

Supporting Infrastructure Goals

- 200 hydrogen refueling stations by 2025

Manufacturing and Workforce Development

$5 million
Proposed Allocation

Support for ZEV infrastructure supply chain and workforce needs

Supports clean transportation plans

- ZEV Action Plan
- Sustainable Freight Action Plan
- Low-Income Barriers Study

Prioritize investment into disadvantaged communities

Advanced Freight and Fleet

$17.5 million
Proposed Allocation

Medium- and Heavy-Duty Vehicles (≥10,000 pounds)

Supports California's Sustainable Freight Action Plan

Open to broad range of project, fuel, and technology types

- Sustainable freight and goods movement
- Dedicated charging and refueling infrastructure for fleets
- Enabling technologies and non-propulsion projects

Low-Carbon Fuel Production and Supply

$20 million
Proposed Allocation

Diesel and gasoline substitutes, biomethane, renewable hydrogen

Focus on waste-based & renewable feedstocks

Related Policies

- Senate Bill 1383 (2016) – Reduce short-lived climate pollutants
- Senate Bill 1505 (2006) – Requires 33.3% renewable hydrogen

Next Steps

- Seeking feedback from all stakeholders

  Comments requested no later than November 21, 2018
  E-commenting available at:

  http://energy.ca.gov/altfuels/2018-ALT-01/

- Release Revised Staff Report in January, 2019
- Second Advisory Committee meeting in Q1 2019

Proposed Funding Allocations

Category	Funding Activity	Funding Allocation (in millions)
Zero-Emission Vehicle Infrastructure	Electric Vehicle Charging Infrastructure	$32.7
	Hydrogen Refueling Infrastructure	$20
	Manufacturing and Workforce Development	$5
Advanced Technology and Alternative Fuel Production	Advanced Freight and Fleet Technologies	$17.5
Alternative Fuel Production	Low-Carbon Fuel Production and Supply	$20
Total		**$95.2**

Low-Carbon Fuel Production and Supply

Taiying Zhang
Advanced Fuel Production Technology and Planning Unit
Fuels and Transportation Division
California Energy Commission
November 8, 2018

Low-Carbon Fuel Project Funding (as of October 19, 2018)

Fuel Type	Awards Made	Funds Awarded (in millions)
Gasoline Substitutes	15	$32
Diesel Substitutes	23	$69
Biomethane	21	$62
Renewable Hydrogen	3	$12
Total	**62**	**$175**

Low-Carbon Fuel Project Benefits (as of October 19, 2018)

Production Capacity

- 133.1 million gallons per year funded capacity (in diesel gallon equivalents)
- 3.3 billion gallons diesel consumption in California

GHG Displaced

- 24.5 gCO2e/MJ volume weighted average carbon intensity
- 1.5 million Metric Tons CO2e/year (336,000 typical passenger vehicles)

Economic Benefits

- 525 permanent jobs
- 1,605 temporary jobs

Disadvantaged Communities

- Over $509 million public and private investment statewide
- $410 million (84.7%) in disadvantaged communities

Renewable Hydrogen Production

GFO-17-602: Renewable Hydrogen Transportation Fuel Production Facilities and Systems

- Solicitation released in December 2017
- 100 percent renewable hydrogen production of at least 1,000 kg/day capacity for public stations
- One facility funded in June 2018; two more facilities in October 2018

Recipient	Production Capacity (kg/day)	Renewable Source	County
StratosFuel	2,000 (+3,000)*	Wind Farm	Riverside
Shell-Equilon	1,000	On-Site Photovoltaic	Contra Costa
H2B2, USA	1,000	On-Site Photovoltaic	Kings

*Privately Financed

Community-Scale and Commercial-Scale

Community-Scale and Commercial-Scale Production Facilities

- Producing high volumes of low-carbon fuels
- Matching production with locally available feedstock supply
- Addressing complementary state goals (such as waste diversion and short lived climate pollutant reduction)

- **GFO-18-601:** Community-Scale and Commercial-Scale Advanced Biofuels Production Facilities
  - Up to $16.9 million in grant funds available
  - Project must produce at least 100,000 DGE of a gasoline substitute, diesel substitute, or biomethane fuel for transportation use

Demonstration-Scale

Transformative Technologies

- Innovative fuel demonstrations
- Advancements to increase yield, productivity, or cost effectiveness, and hurdle blend wall
- Sustainability and new feedstock utilization, such as woody biomass

- **GFO-18-602**: Demonstration-Scale Biofuels Production Facilities
  - Up to $6 million in grant funds available
  - Projects must prove a technology or process in the field, develop an eligible biofuel product, and develop a market for the technology

Future Low-Carbon Fuel Production Funding

- Approximately $12.5 million in FY 2018-2019 ARFVTP funding.
- Low-carbon fuel production program: $12.5 million from Greenhouse Gas Reduction Fund.
  - Expected timeframe – late 2019
  - Staff will conduct funding guideline workshop in January 2019

Proposed 2019-2020 Funding

$20 million allocation for low-carbon fuel production and supply.

Electric Vehicle Charging Infrastructure

Brian Fauble
Electric Technology and Planning Unit
Fuels and Transportation Division
California Energy Commission
November 8, 2018

History of Deployment

Partnering with the American Recovery and Reinvestment Act

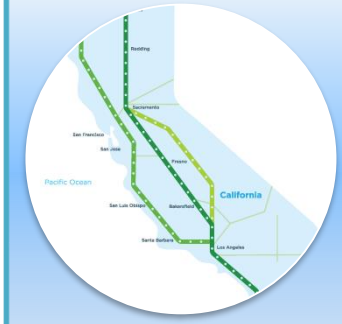
2010

Planning, Deploying EV Charging Infrastructure and Upgrades to Legacy Chargers

2012

Increasing the Numbers and Meeting Specific Needs for Charging

2014



DC Fast Charging along California's Interregional Corridors

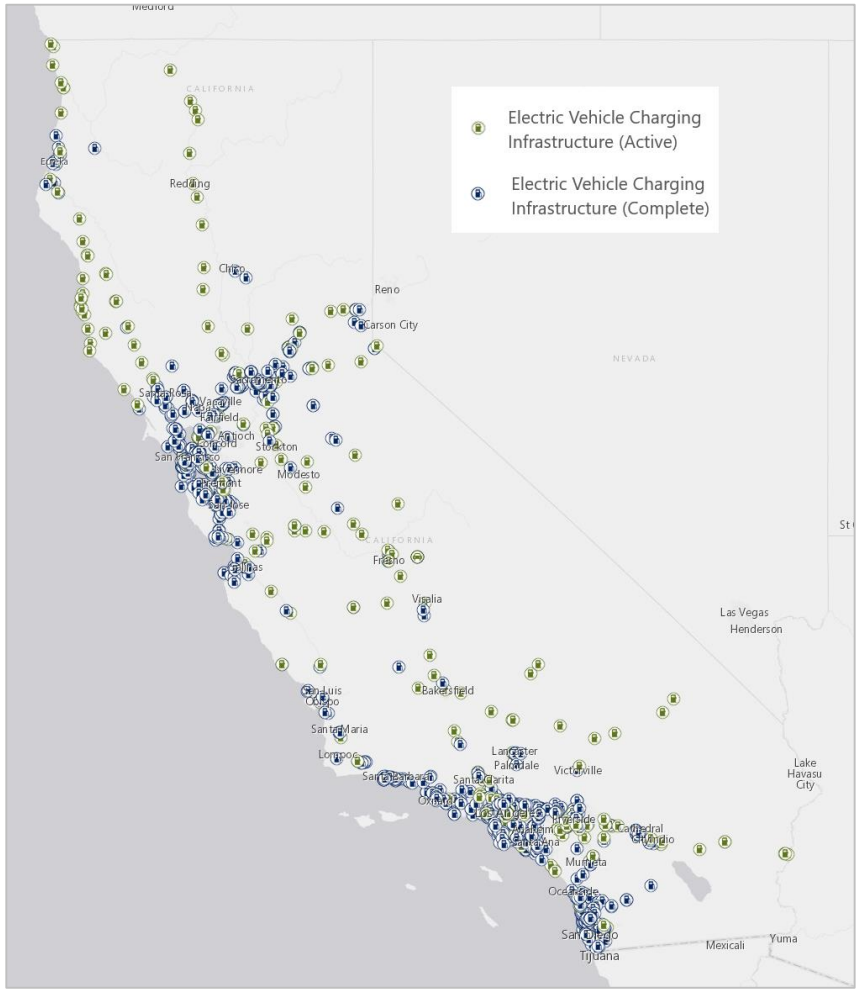
2015-2016

Center for Sustainable Energy

Block Grant for Targeted EV Charging Incentive Projects

+2017

EV Infrastructure Support



Source: http://energy.ca.gov/transportation/arfvtp/project_map.html

Total Awards: $94.9 million for charging infrastructure

Charging Outlets	Private	Public	Both
Installed	4,385	3,470	7,855
Planned	100	877	977
Total	4,485	4,347	8,832

California Electric Vehicle Infrastructure Project

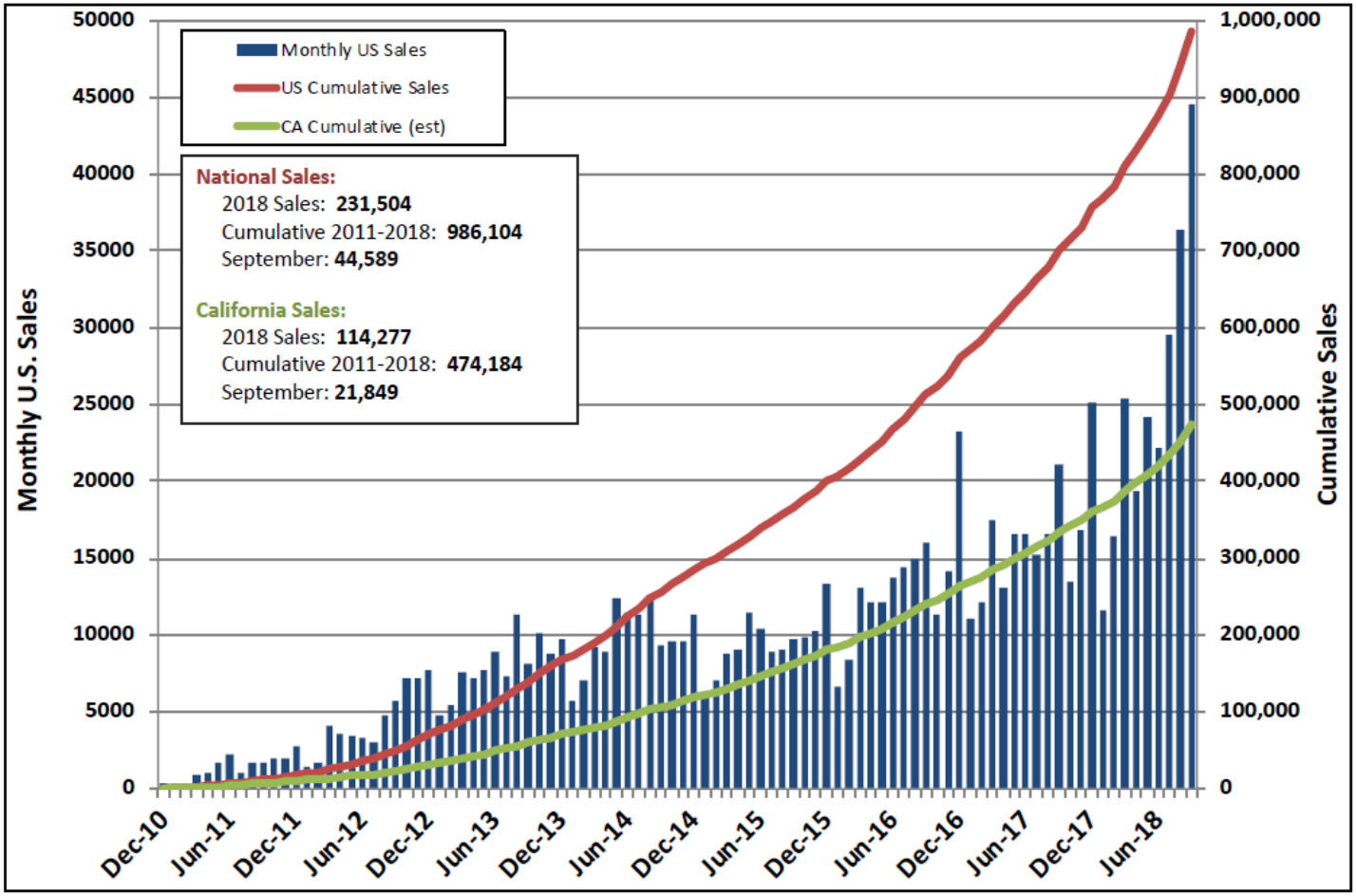
CAL eVIP
BUILDING EV INFRASTRUCTURE

Plug-in Electric Vehicle Sales

VELOZ

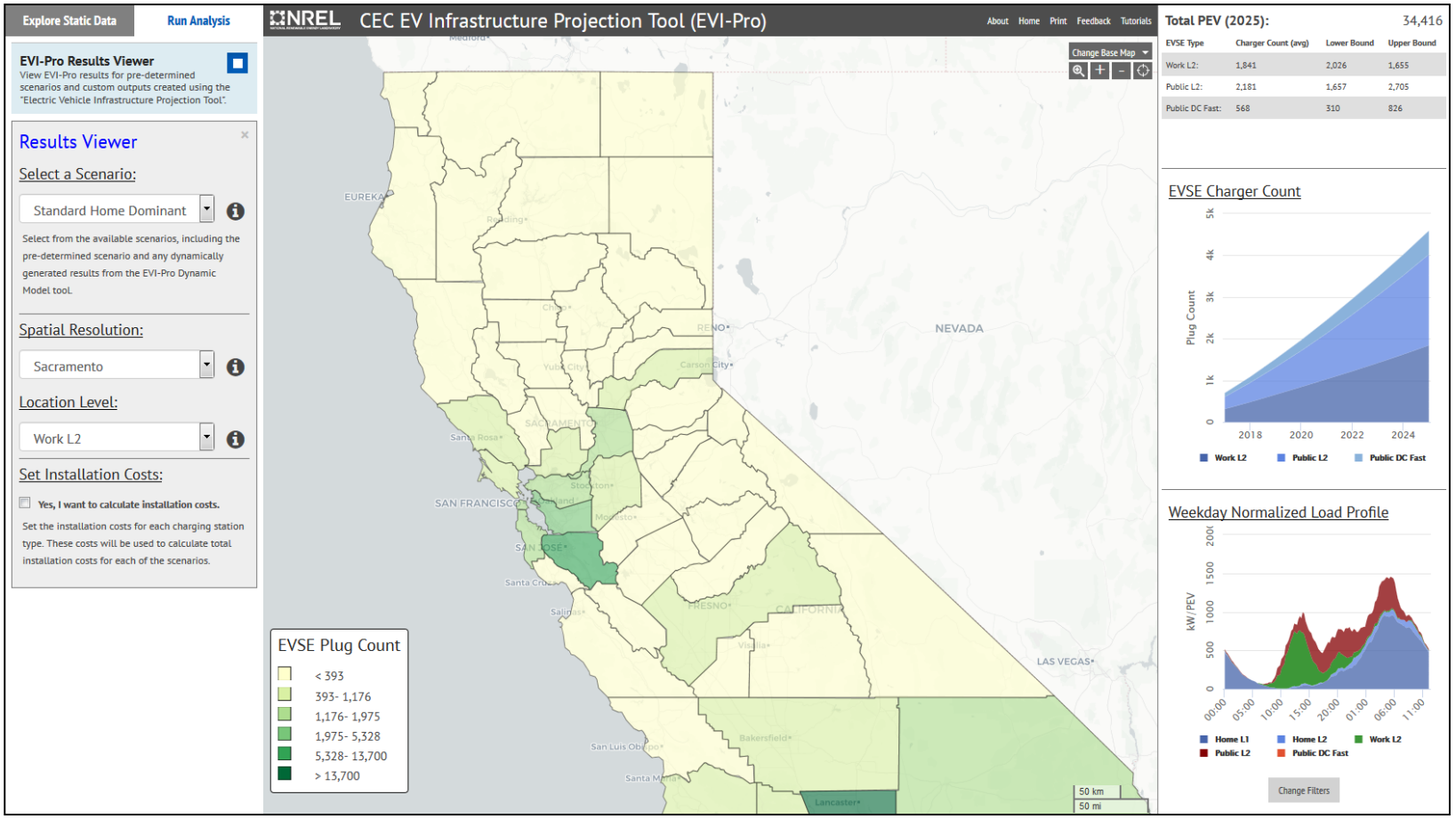
Note: Approximation assumes CA sales are 49% of national sales.

Reference: www.hybridcars.com



Source: Veloz: http://www.veloz.org/sales-dashboard/, Updated October 5, 2018

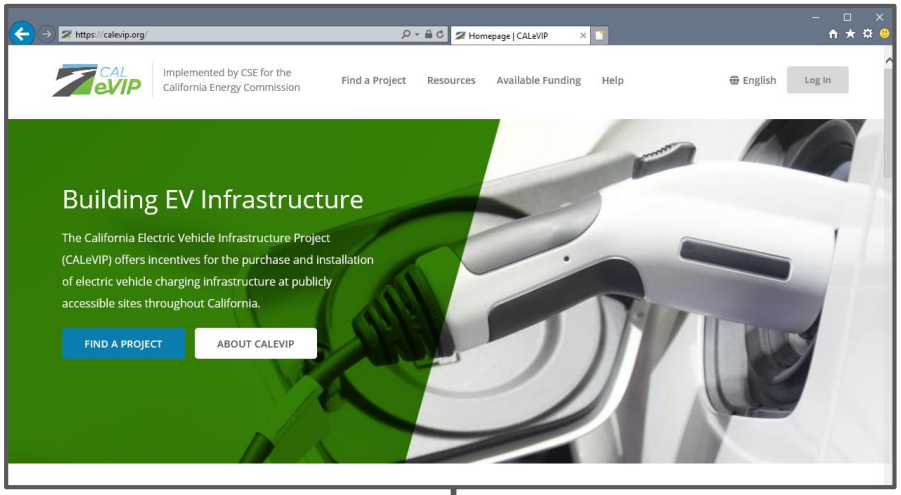
EV Infrastructure Projection (EVI-Pro)

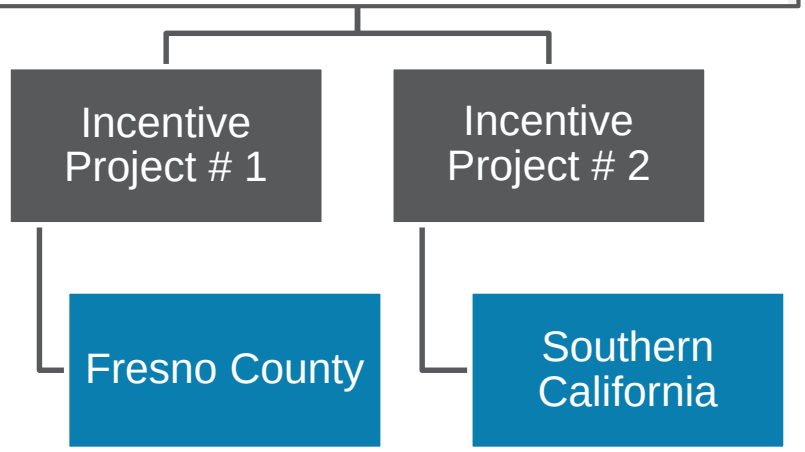


Report: California Energy Commission *Staff Report - California Plug-In Electric Vehicle Infrastructure Projections 2017-2025* publication March 2018 | CEC-600-2018-001

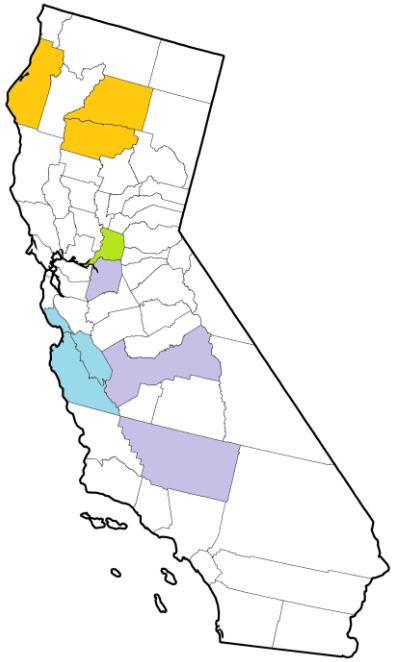
California Electric Vehicle Infrastructure Project (CALeVIP)

https://www.CALeVIP.org





2019 CALeVIP Roadmap



- Four incentive projects in 2019
- All projects will have the same requirements and eligibility
- Projects will include both Level 2 and DC Fast Charging
- Funding per Incentive Project will vary

Q1 2019	Q2 2019	Q3 2019	Q4 2019
Sacramento County	Northern California	Central Coast	San Joaquin Valley

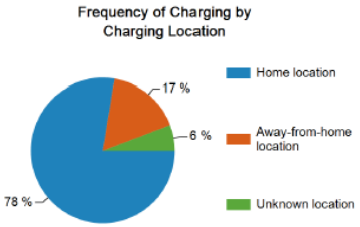
Continued Infrastructure Support

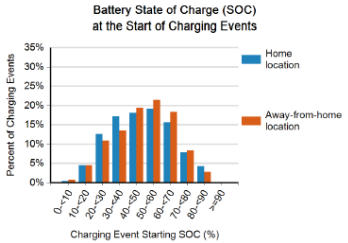
Innovative Projects

Photo Credit: ChargedEVs.com

Credit: Mayor Eric Garcetti via Flickr, BlueLA Car Sharing

Data Collection





Working Cooperatively

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

UTILITIES

electrify america

NREL NATIONAL RENEWABLE ENERGY LABORATORY

Proposed 2019-2020 Funding

$32.7 million allocation for electric vehicle charging infrastructure.

Hydrogen Refueling Infrastructure

Phil Cazel
Hydrogen Technology and Planning Unit
Fuels and Transportation Division
California Energy Commission
November 8, 2018

Hydrogen Refueling Infrastructure (Overview)

The 2018 Executive Order B-48-18 set a new goal of 200 hydrogen refueling stations by the year 2025.

- 64 hydrogen refueling stations have been funded to date:
  - 24,000 FCEVs will be supported upon completion
  - 34 hydrogen stations are currently in operation and can support up to 9,500 FCEVs
  - 12 hydrogen stations are located in disadvantaged communities

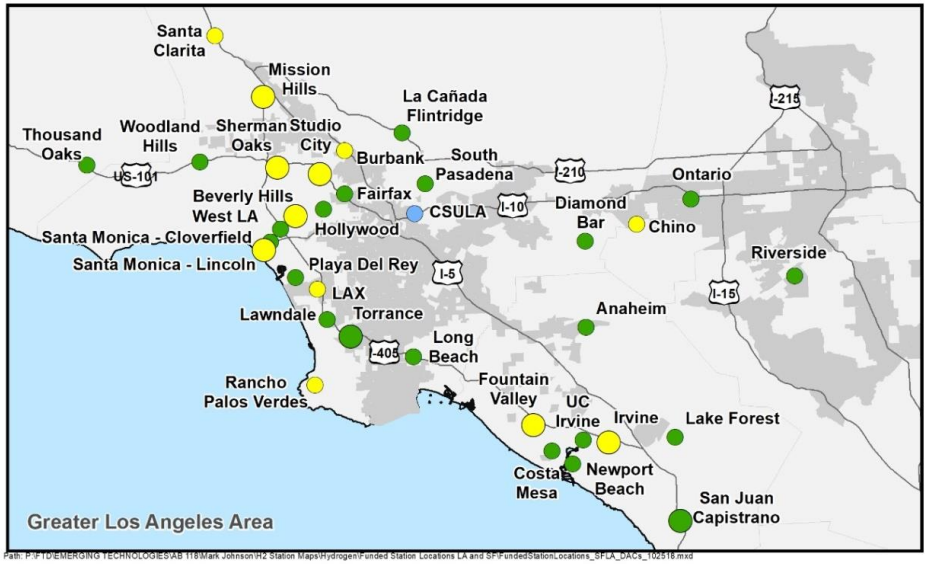
Hydrogen Infrastructure Components

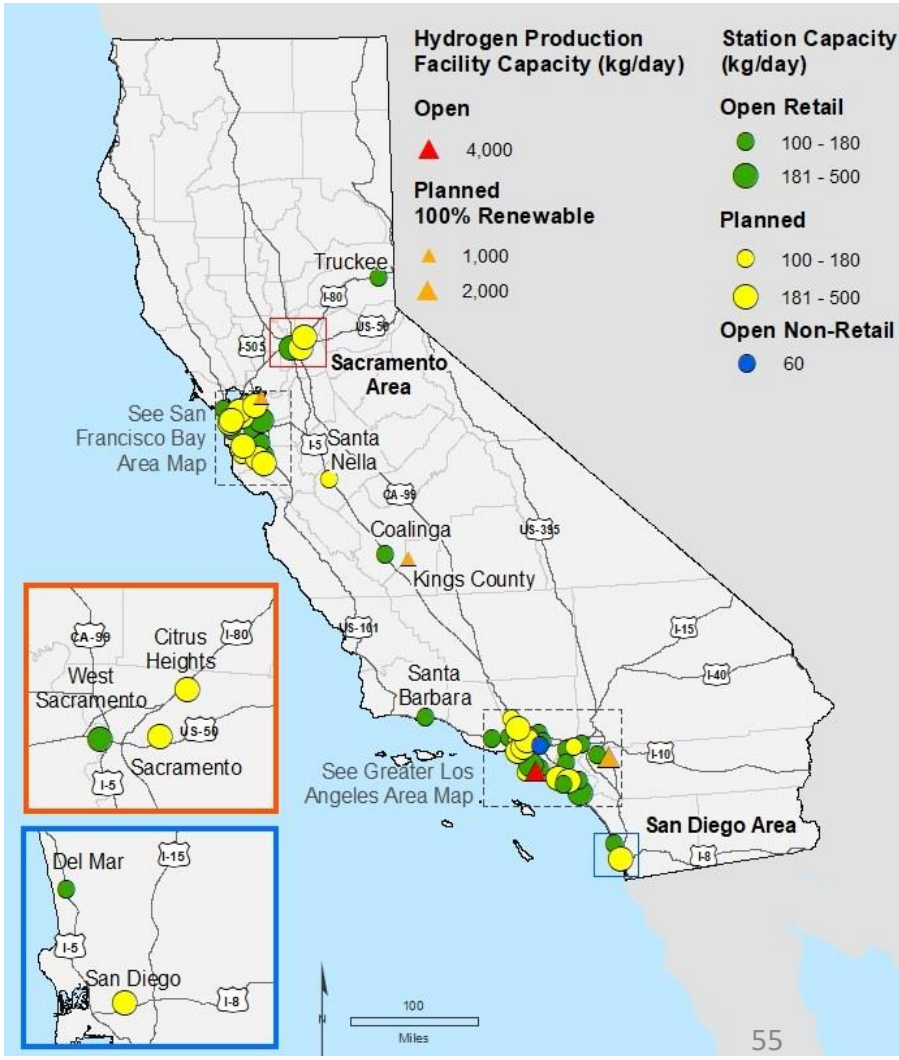
- High pressure storage tubes
- Compressors
- Dispensers with point of sale
- Piping, valves, and wiring

Funded Station Locations

- 34 Stations Open Retail
- 30 Stations Under Construction

Stations in Disadvantaged Communities





FCEV Makes and Models

Zero tailpipe emissions, 300+ mile range, refuels in 5 minutes

Current Activities

Activities for 2018-2019:

- Joint Agency Staff Report on Assembly Bill 8: 2018 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California

- Development of next light duty hydrogen refueling station solicitation

Proposed 2019-2020 Funding

$20 million allocation for hydrogen refueling infrastructure.

Manufacturing and Workforce Development

Larry Rillera
Program Integration Unit
Fuels and Transportation Division
California Energy Commission
November 8, 2018

Manufacturing Investments

Product Type	Funding (in millions)	Match Funding (in millions)
Battery Systems	$9.6	$13.2
Charging Equipment	$1.1	$1.1
Electric Motorcycles	$4.2	$6.9
Electric Powertrains and Platforms	$12.5	$30.3
Electric Trucks / Buses	$16.2	$23.1
Total	**$43.6**	**$74.6**

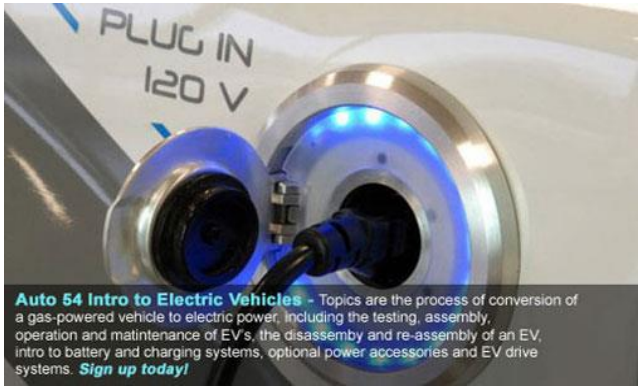
Workforce Partnerships

Entity	Funding (in millions)	Match Funding (in millions)
Employment Development Department	$8.2	$7.5
Employment Training Panel	$11.8	$11.3
California Workforce Development Board	$0.3	$0.5
California Community Colleges Chancellor's Office	$5.8	$0.5
Advanced Transportation and Logistics Initiative (formerly CETI/ATRE)	$3.0	-
Cerritos Community College District	$1.0	-
California State University, Long Beach	$0.2	-
Total	**$30.2**	**$19.8**

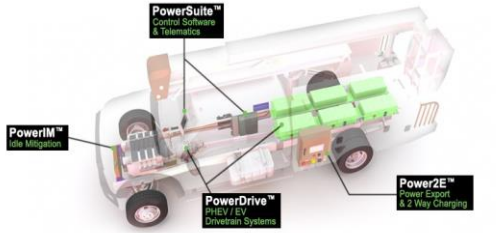
Manufacturing and Workforce

PROTERRA

Cerritos College



EFFICIENT DRIVETRAINS
Zero Emissions, Full Power



Outreach and Engagement

- Meeting of the Minds: Hunting Genius Conference

  (California Workforce Association)
- Advanced Transportation Supplier and Workforce Network

  (Los Angeles County Economic Development Corporation)
- Education Services Committee Meeting

  (Southern California Regional Transit Training Consortium)
- Merit Review Workshop: Manufacturing and Workforce Development

  (Energy Commission)

Merit Review Workshop

- "Bringing Zero-Emission Infrastructure Technology Manufacturing to California"
  - May 2018 Advanced Clean Trucks Expo
- Over 100 attendees from manufacturers, policy, workforce entities, investors, and NGOs.

- Discussion Topics:
  - Quantified Opportunities for Establishment and Growth
  - Lessons Learned from Successful Manufacturing in CA
  - Challenges Impeding Growth Potential
  - Recommended Actions/Remedies
  - Target Areas to Deploy Incentive Funding

Planning

- ZEV Infrastructure Manufacturing Solicitation
  - Focused on EV Charging Equipment and Hydrogen Refueling Station Equipment Manufacturing
  - Webinar on Pre-Solicitation Concepts
  - Solicitation Release Q4 2018

- Workforce Training and Development
  - School Bus Replacement Support
  - Eligible as Cost in ZEV Infrastructure Manufacturing Solicitation
  - Potential Opportunities with Workforce Partners

Proposed 2019-2020 Funding

$5 million allocation for Manufacturing and Workforce Development

Advanced Freight and Fleet Technologies

Wendell Krell
Advanced Freight Technologies & Planning Unit
Fuels and Transportation Division
California Energy Commission
November 8, 2018

Advanced Freight and Fleet Technologies Activities

- Continued to meet relevant Executive Orders
  - Executive Order B-32-15 for the California Sustainable Freight Action Plan
  - Executive Order B-48-18 for ZEV adoption targets
- Continued managing previous budget year projects
- Released new solicitations

Project Summaries (Ongoing projects)

Recipient	Project Summary	Funding (in millions)
City of Los Angeles Harbor Department (Port of Los Angeles)	Advanced Cargo Handling Demonstration Project	$4.5
City of Long Beach Harbor Department (Port of Long Beach)	Zero-Emissions Terminal Equipment Transition Project	$9.8
SCAQMD	Southern California Advanced Sustainable Freight Demonstration	$10.0
GFO-16-604 Award Total		**$24.3**

Natural Gas Vehicle Incentive Project

- Administered by UC Irvine.
- Initiated in October 2015.
- Offered incentives for the purchase of light-, medium-, and heavy-duty vehicles.
- Approximately 980 natural gas vehicles

Recent Solicitations

GFO-17-603 *Advanced Freight Vehicle Infrastructure Deployment*, released in December 2017.

- Targeted California seaports, regional warehouses, and distribution centers that directly support freight movement.
  - Awarded nearly $24 million to three projects.
  - New installations or upgrades to charging or refueling infrastructure for battery-electric or hydrogen fuel cell freight vehicles.

Project Summaries
(Recent Projects)

Recipient	Project Summary	Funding (in millions)
Equilon Enterprises LLC (dba Shell Oil Products US)	Renewable Hydrogen Fueling at Scale for Freight	$8.0
City of Long Beach Harbor Department (Port of Long Beach)	The Port Advanced Vehicle Electrification Project	$8.0
City of Los Angeles Harbor Department (Port of Los Angeles)	Zero Emission Freight Vehicle Advanced Infrastructure Demonstration	$7.8
GFO-17-603 Award Total		**$23.8**

Recent Solicitations

GFO-17-605: Fund existing or planned incentive programs for compressed natural gas (CNG) vehicles

- Awarded $16 million to two air districts.
  - ➢San Joaquin Valley Unified Air Pollution Control District
    - ✓80 low-NOx trucks
  - ➢South Coast Air Quality Management District
    - ✓140 low-NOx Trucks

Current Activities

- Continue efforts to transition the freight industry to commercialization of zero-emission equipment.

- Development of the next Advanced Freight and Fleet Technologies grant funding opportunity.
  - Release date estimate Q2 of 2019

Proposed 2019-2020 Funding

$17.5 million allocation for Advanced Freight and Vehicle Fleet Technologies

Proposed Funding Allocations

Category	Funding Activity	Funding Allocation (in millions)
Zero-Emission Vehicle Infrastructure	Electric Vehicle Charging Infrastructure	$32.7
	Hydrogen Refueling Infrastructure	$20
	Manufacturing and Workforce Development	$5
Advanced Technology and Alternative Fuel Production	Advanced Freight and Fleet Technologies	$17.5
Alternative Fuel Production	Low-Carbon Fuel Production and Supply	$20
Total		**$95.2**

Thank You

Questions or Comments?

https://www.energy.ca.gov/transportation/arfvtp/

E-commenting due by Novembers 21, 2018 to:

http://energy.ca.gov/altfuels/2018-ALT-01