

DOCKETED

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Project Title:	2018-2019 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program
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Document Title:	Presentation - Overview of the 2018-2019 Investment Plan Update for the ARFVTP
Description:	Presentation overviewing the draft staff report of the 2018-2019 Investment Plan Update for the ARFVTP, from the November 7, 2017 ARFVTP Advisory Committee meeting and public workshop by Jacob Orenberg.
Filer:	Jacob Orenberg
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Overview of the 2018-2019 Investment Plan Update for the ARFVTP

Jacob Orenberg

Fuels and Transportation Division
California Energy Commission

November 7, 2017

Meeting Agenda

- 10:00 am Introductions and Opening Remarks
- 10:15 am Presentation: Overview of the *2018-2019 Investment Plan Update for the ARFVTP*
- 10:45 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)



California Transportation Statistics



VEHICLES

28.9 millions cars
1 million trucks

GHG EMISSIONS

440.4 MMT CO₂e (2015)
39% 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 Objective

Goals

AB 32
SB 32; E.O. B-30-15
E.O. S-3-05

Reduce GHG Emissions to 1990 levels by 2020,
40% below 1990 levels by 2030, and
80% below 1990 levels by 2050

SB 1383

Reduce emissions of short-lived climate pollutants to
40% to 50% below 2013 levels by 2030

Low-Carbon Fuel Standard

Reduce carbon intensity of transportation fuels by
10% by 2020

Clean Air Act

Reduce NOx by 80% by 2023

E.O. B-16-2012;
ZEV Regulations

1 million EVs by 2020 and 1.5 million EVs by 2025;
Infrastructure to accommodate ZEVs

E.O. B-32-15
Sustainable Freight

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.”

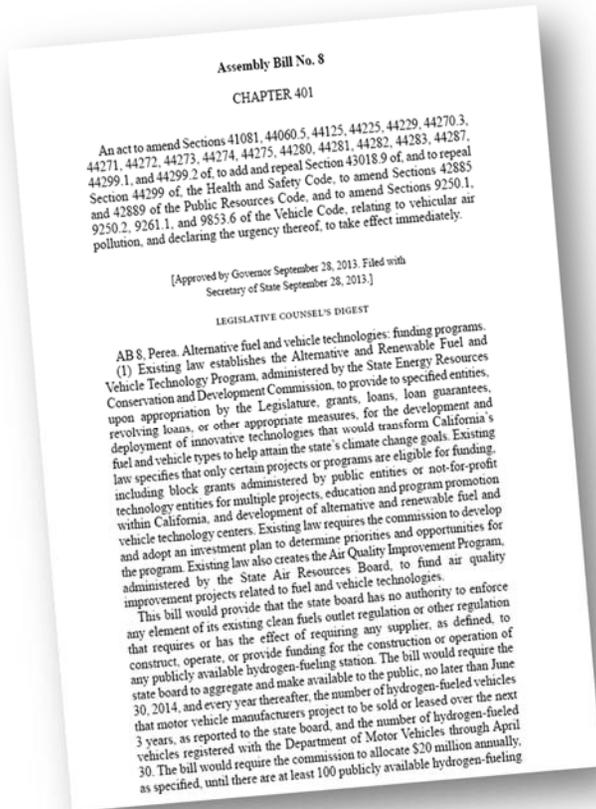
California Health and Safety Code 44272(a)

Complementary goals:

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



ARFVTP Origins In Statute



Established by Assembly Bill 118
(Nunez, 2007)

Up to \$100 million per year

Extended through January 1, 2024 by
Assembly Bill 8 (Perea, 2013)



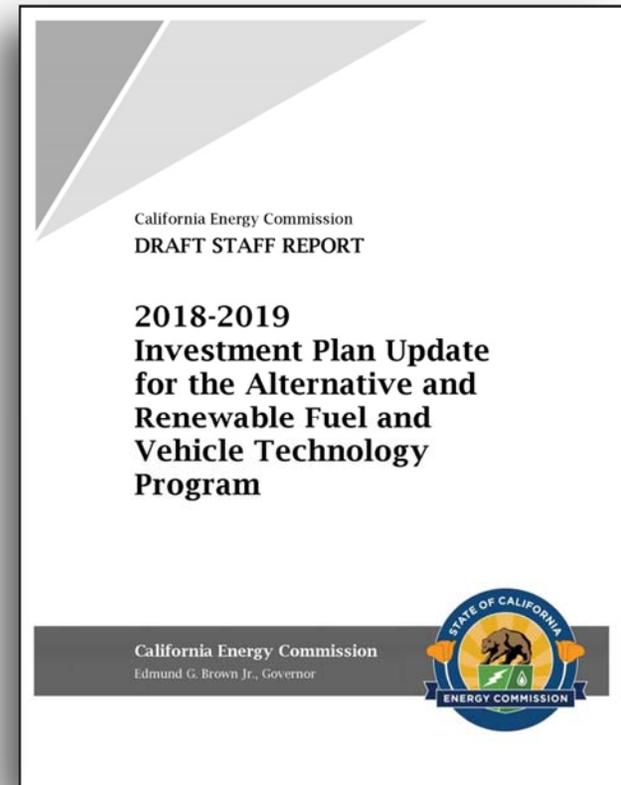
Investment Plan Purpose



Basis for FY 2018-2019 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 Funding To-Date



Fuel Type	Cumulative Awards (in millions)	Percent of Funding	Cumulative Number of Agreements
Biomethane	\$60.9	8%	20
Ethanol	\$48.5	6%	20
Biodiesel	\$51.2	7%	21
Renewable Diesel	\$27.8	4%	8
Electricity	\$266.5	36%	179
Hydrogen	\$139.2	19%	74
Natural Gas	\$99.0	13%	151
Propane	\$6.0	1%	31
Multiple/Other	\$46.8	6%	88
Total	\$745.9		592

As of September 1, 2017



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 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.)



Investment Plan Update Schedule



Activity	Date
Release Draft Staff Report	November 2, 2017
1 st Advisory Committee Meeting	November 7, 2017
Release Revised Staff Report	By January 10, 2018
2 nd Advisory Committee Meeting	Early February 2018
Release Lead Commissioner Report	March 2018
Business Meeting Approval	April 2018



Major Considerations for 2018-2019



CARB Low Carbon Transportation Investments

(Greenhouse Gas Reduction Funds)

Other EV charging infrastructure funding

(Volkswagen settlement, investor-owned utilities)

SB 1383 – Short-lived Climate Pollutants



2018-2019 Investment Plan Layout



Context of the Investment Plan Update



Alternative Fuel Production and Supply



Alternative Fuel Infrastructure



Alternative Fuel and Advanced Technology Vehicles



Related Needs and Opportunities



Low-Carbon Fuel Production and Supply



\$25 million

Proposed Allocation

Liquid and gaseous fuels (non-petroleum)

Diesel & gasoline substitutes; biomethane; renewable hydrogen

Focus on waste-based feedstocks

i.e. woody biomass, wastewater, municipal solid waste

Pilot, demonstration, and commercial scale



Low-Carbon Fuel Production and Supply



Renewable hydrogen production

Biomass and renewable electricity feedstocks

Integrated renewable natural gas facilities

One funding agreement

Production and distribution infrastructure

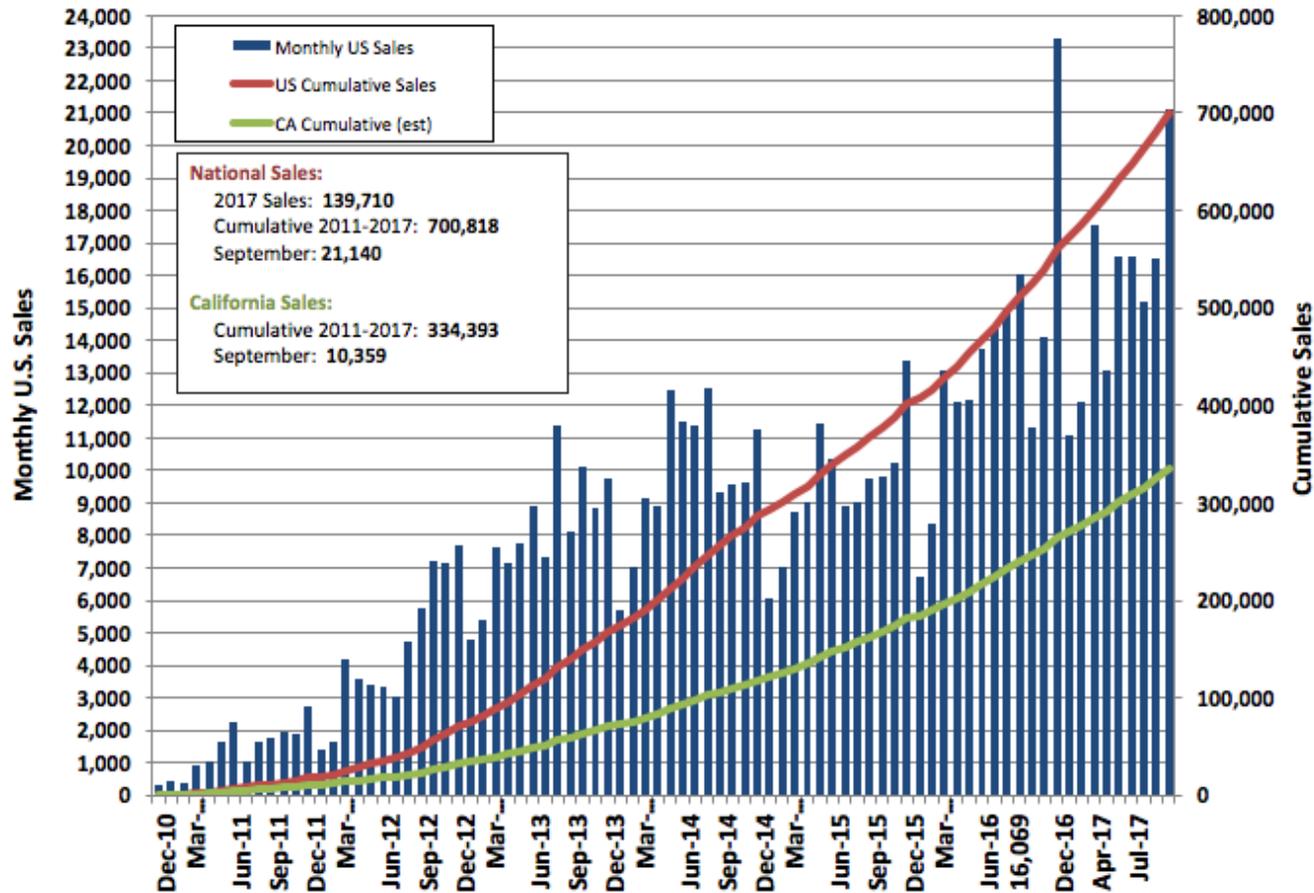
May also include natural gas vehicles

Policy Goals Supported:

- GHG Reduction
- Petroleum Reduction
- In-State Biofuels Production
- Low Carbon Fuel Standard



Electric Charging Infrastructure



Source: Veloz. October 5, 2017.



Electric Charging Infrastructure



\$20 million

Proposed Allocation

Infrastructure for electric vehicles (primarily light-duty)

1.5 million Zero-Emission Vehicles by 2025

Majority expected to be plug-in electric vehicles

500,000 chargers required to meet state goals

\$2 billion estimated cost



Electric Charging Infrastructure



Other significant funding sources

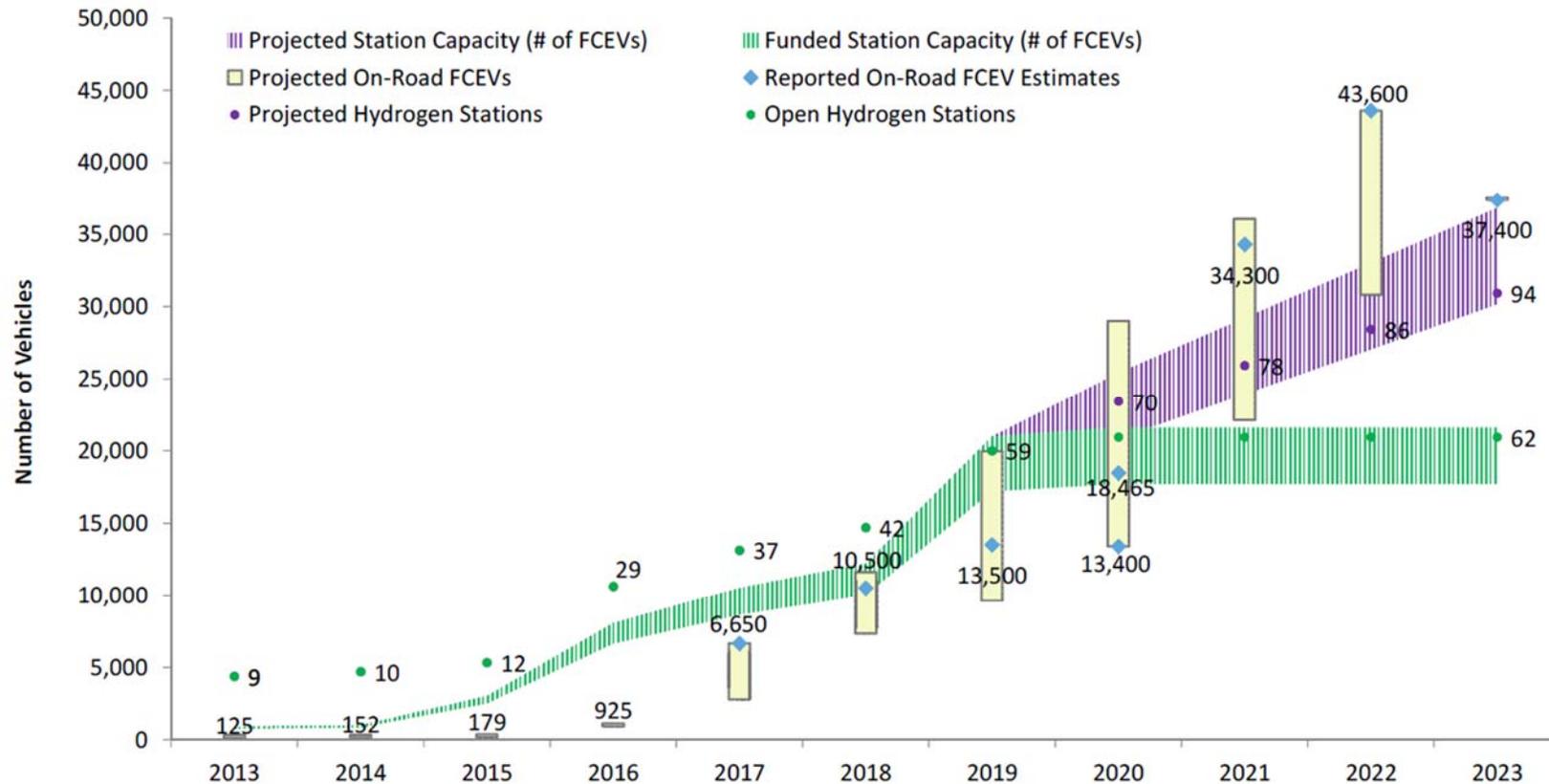
Electrify America (VW Settlement)	\$48 million per year
Investor-owned utilities	
PG&E	\$43.3 million per year
SDG&E	\$15 million per year
SCE	\$8 million per year

Policy Goals Supported:

- GHG Reduction
- Air Quality
- Petroleum Reduction
- ZEV Regulations
- Low Carbon Fuel Standard



Hydrogen Refueling Infrastructure



Source: California Air Resources Board.



Hydrogen Refueling Infrastructure



\$20 million
Proposed Allocation

Assembly Bill 8 specifies a
\$20 million allocation for
hydrogen refueling infrastructure

Estimated to be sufficient for up to 10 stations

Continued funding for Operations & Maintenance support

Policy Goals Supported:

- GHG Reduction
- Petroleum Reduction
- Low Carbon Fuel Standard
- Air Quality
- ZEV Regulations



Natural Gas Infrastructure & Vehicles



Merged into
*Advanced Freight and
Fleet Technologies*

GFO-16-602 undersubscribed by 60%

Natural Gas Vehicle Incentive funding is underutilized

Only \$5.0 million per year provided through NGVIP

High level of unencumbered funding

\$4.4 million for natural gas fueling infrastructure

\$19.7 million for natural gas vehicle incentives



Advanced Freight and Fleet Technologies



\$17.5 million

Proposed Allocation

Medium- and Heavy-Duty Vehicles (10,000 lbs & up)

Alternative fuel and advanced technology powertrains

Dedicated fueling infrastructure for fleets

Vehicle incentives: CARB Clean Truck and Bus Vouchers

\$188 million budget for FY 17-18

Incentives cover up to 100% of incremental cost



Advanced Freight and Fleet Technologies



Freight transportation & goods movement

Sustainable Freight Action Plan; Ports Collaborative

Zero- and near zero-emission school buses

Natural gas vehicle & infrastructure projects

Policy Goals:

- Petroleum Reduction
- Air Quality
- Low Carbon Fuel Standard
- GHG Reduction



Manufacturing



\$5 million
Proposed Allocation

Encourage new or expanded in-state manufacturing facilities

Light-, medium-, and heavy-duty alternative vehicles

Vehicle components

Refueling infrastructure

Policy Goals Supported:

- Petroleum Reduction
- Air Quality
- GHG Reduction



Related Needs and Opportunities



\$4.2 million
Proposed Allocation

Emerging Opportunities

- Federal cost share projects
- Air District cost share projects
- Other unanticipated projects

\$3.5 million
Proposed Allocation

Workforce Training & Development

- Continued statewide support



Next Steps



Seeking feedback from all stakeholders

Comments requested no later than November 17, 2017

E-commenting available at:

<http://energy.ca.gov/altfuels/2017-ALT-01/>

Release Revised Staff Report by January 10, 2018

Second Advisory Committee meeting in Q1 2018



Proposed Funding Allocations



Funded Activity	Proposed Allocation
Low-Carbon Fuel Production and Supply	\$25 million
Electric Charging Infrastructure	\$20 million
Hydrogen Refueling Infrastructure	\$20 million
Advanced Freight and Fleet Technologies	\$17.5 million
Manufacturing	\$5 million
Emerging Opportunities	\$4.2 million
Workforce Training and Development	\$3.5 million
Total	\$95.2 million

