DOCKETED				
Docket Number:	17-ALT-01			
Project Title:	2018-2019 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program			
TN #:	221699			
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			
Organization:	California Energy Commission			
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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





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 gasoline3.3 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



Assembly Bill No. 8

CHAPTER 401

An act to amend Sections 41081, 44060.5, 44125, 44225, 44229, 44270.3, ALI dC (10 dIII:EIN3 35CLIOIIS 41.091, 44000, 3, 44123, 44223, 44203, 44210, 44211, 44272, 44273, 44274, 44275, 44280, 44281, 44282, 44283, 44287, 442/1, 442/12, 442/13, 442/13, 44200, 44201, 44200, 44207, and 42889 of the Public Resources Code, and to amend Sections 9250.1, and 42889 of the Public Resources Code, and to amenia sections 52.00.1, 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 program (1) Existing law establishes the Alternative and Renewable Fuel and (1) CANNING HAW COMPUTATION IN CONTINUES AND RECEIVERY FOR ANY CONTINUES (1) CANNING FOR THE CONTINUES OF TH Conservation and Development Commission, to provide to specified entities, Conservation and Development Commission, to provide a spectra current current of a propriation by the Legislature, grants, loans, loan guarantees, upon appropriation by the Legislature, grants, ioanis, ioan gualances, revolving loans, or other appropriate measures, for the development and deployment of innovative technologies that would transform California's acpuying on massaure recurring a massion controlling s fuel and vehicle types to help attain the state's chimate change goals. Existing her and venicle types to neuronation and state s cannot change goals. Eastward 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 and adopt an investment plan to occate the Air Quality Improvement Program. the program. Existing inv and creates the Au Quanty angeovenesis regulation 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 any element of its existing creat rates orace regulation of other regulation that requires or has the effect of requiring any supplier, as defined, to uas requires of nas are energy or requiring any support, as centred, to construct, operate, or provide funding for the construction or operation of any publicly available hydrogen-fueling station. The bill would require the say provide a subsect and make available to the public, no later than lune 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 uan motor venice manufacturers project to be sold or reased 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 20 75-13 30. The bill would require the commission to allocate \$20 million annually. 30. LIE OIL NUMBER OF COMMENSION OF ADVANCE OF MILLOR ADDRESS, as specified, until there are at least 100 publicly available hydrogen-fueling Established by Assembly Bill 118 (Nunez, 2007)

Up to \$100 million per year

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



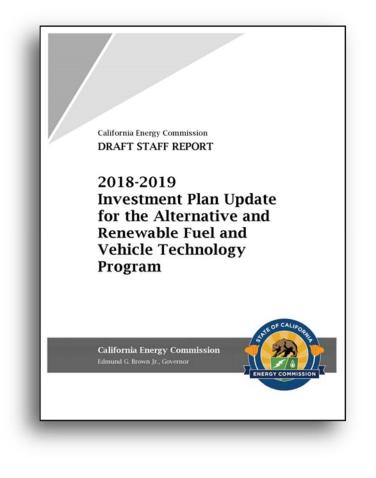
Investment Plan Purpose

F

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



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





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 underserved 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:

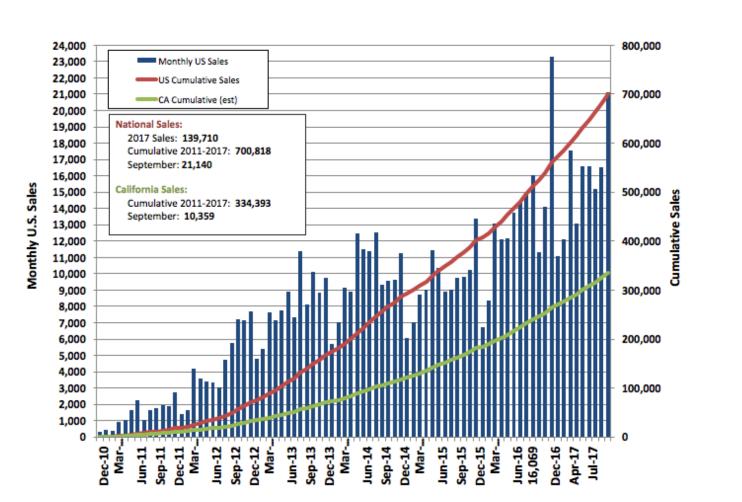
- GHG Reduction
- Petroleum Reduction

- 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) Investor-owned utilities

> PG&E SDG&E SCE

Policy Goals Supported:

- GHG Reduction
- Petroleum Reduction
- Low Carbon Fuel Standard

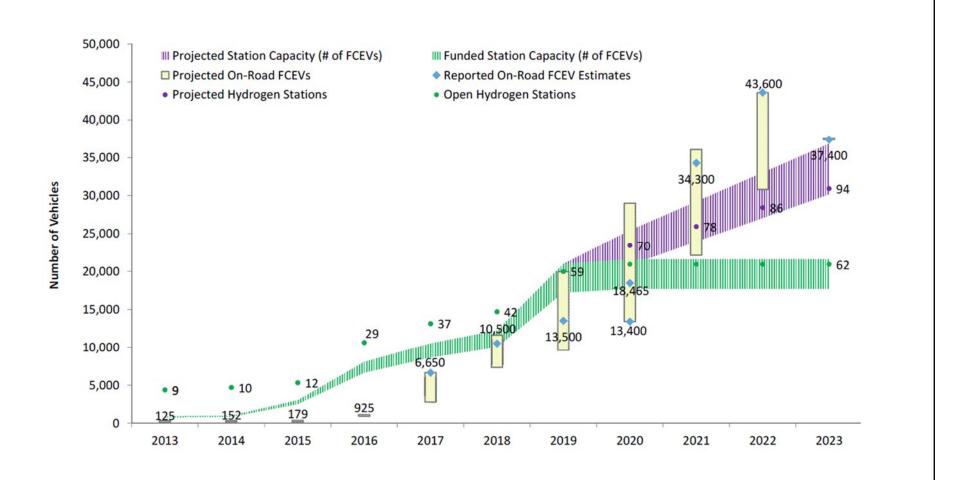
\$48 million per year

\$43.3 million per year\$15 million per year\$8 million per year

- Air Quality
- ZEV Regulations



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

