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# Alternative and Renewable Fuel and Vehicle Technology Program Overview

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**Alternative and Renewable Fuel and Vehicle Technology Program**



## California Transportation: Nation-State Statistics

- Population: 37.7 million
- GDP: \$1.9 trillion - 9<sup>th</sup> largest global economy
- GHG Emissions: 440 MMT (2004)
  - 7.2% of U.S. Emissions (Pew Center)
  - 10<sup>th</sup> largest emitter on global scale
  - **Transportation accounts for 42 % of all GHG emissions**
- Vehicles: 26.5 million cars + 0.92 million trucks
- Annual Fuel Consumption: 18.8 billion gallons
  - 15 billion gallons gasoline
    - Includes about 1.5 billion ethanol as E10 blendstock
  - 3.3 billion gallons diesel



# Alternative and Renewable Fuel and Vehicle Technology Program (AB118 and AB 8)

## Purpose

To transform California's transportation market into a diverse collection of alternative fuels and technologies and reduce California's dependence on petroleum.

*“...develop and deploy innovative technologies that transform California’s fuel and vehicle types to help attain the state’s climate change policies.”* (Health and Safety Code Section 44272(a))

## Up to \$140 Million in Annual State Funding through 2023

The Energy Commission will receive **\$100 million/year through 2023** to implement the ARFVT Program: Fuel production, Infrastructure, Trucks

California Air Resources Board will receive up to **\$40 million/year through 2023** years for *Enhanced Fleet Modernization* and *Air Quality Improvement*: Light Duty Vehicles, Buses and Trucks.



## AB 118 Funding and Objectives

- Invest in a **portfolio** of alternative low-carbon and renewable fuels and advanced vehicle technologies in California to help meet our energy, environmental, and economic goals.
- **Alternative fuel production, distribution and dispensing**
- Alternative technology vehicle development and manufacturing for trucks and light duty vehicles
  - (EVs, CNG/LNG, Fuel Cell, Flex Fuel)
- Workforce training
- Environmental, market and technology assessments
- Leveraging Private Sector Investments



# ARFVTP Funding Summary: 2009-13

*As of June 30, 2013*

<b>2009 – 2013 Alternative Vehicle, Fuel &amp; Infrastructure Investments</b>			
Investment Areas	Funding Amount (\$ millions)	Percent of Total (%)	Number of Awards
Electric Drive	135.4	33	80
Biofuels	127.6	31	47
Natural Gas	62.8	15	51
Hydrogen	43.3	11	10
Workforce Development	23.3	6	30
Market and Program Development	17.3	4	15
Total	409.6	100	233



# Status Report – Biofuels Production



## BIOFUELS PRODUCTION--PROPOSALS SUBMITTED

Solicitation ID	Proposals	Awards	No Award	Passing	Failing	Fuel Type	Passing
<b>PON-09-003</b>	<b>27</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>17</b>		<b>37%</b>
Biomethane						100%	
<b>PON-09-604</b>	<b>44</b>	<b>14</b>	<b>9</b>	<b>23</b>	<b>21</b>		<b>52%</b>
Gas Sub	11	3	3	6	5	25%	
Diesel Sub	19	5	3	8	11	43%	
Biomethane	14	6	3	9	5	32%	
<b>PON-11-601</b>	<b>61</b>	<b>14</b>	<b>27</b>	<b>41</b>	<b>20</b>		<b>67%</b>
Gas Sub	17	4	6	10	7	28%	
Diesel Sub	31	6	15	21	10	51%	
Biomethane	13	4	6	10	3	21%	
<b>Totals</b>	<b>132</b>	<b>33</b>	<b>41</b>	<b>74</b>	<b>58</b>		<b>56%</b>





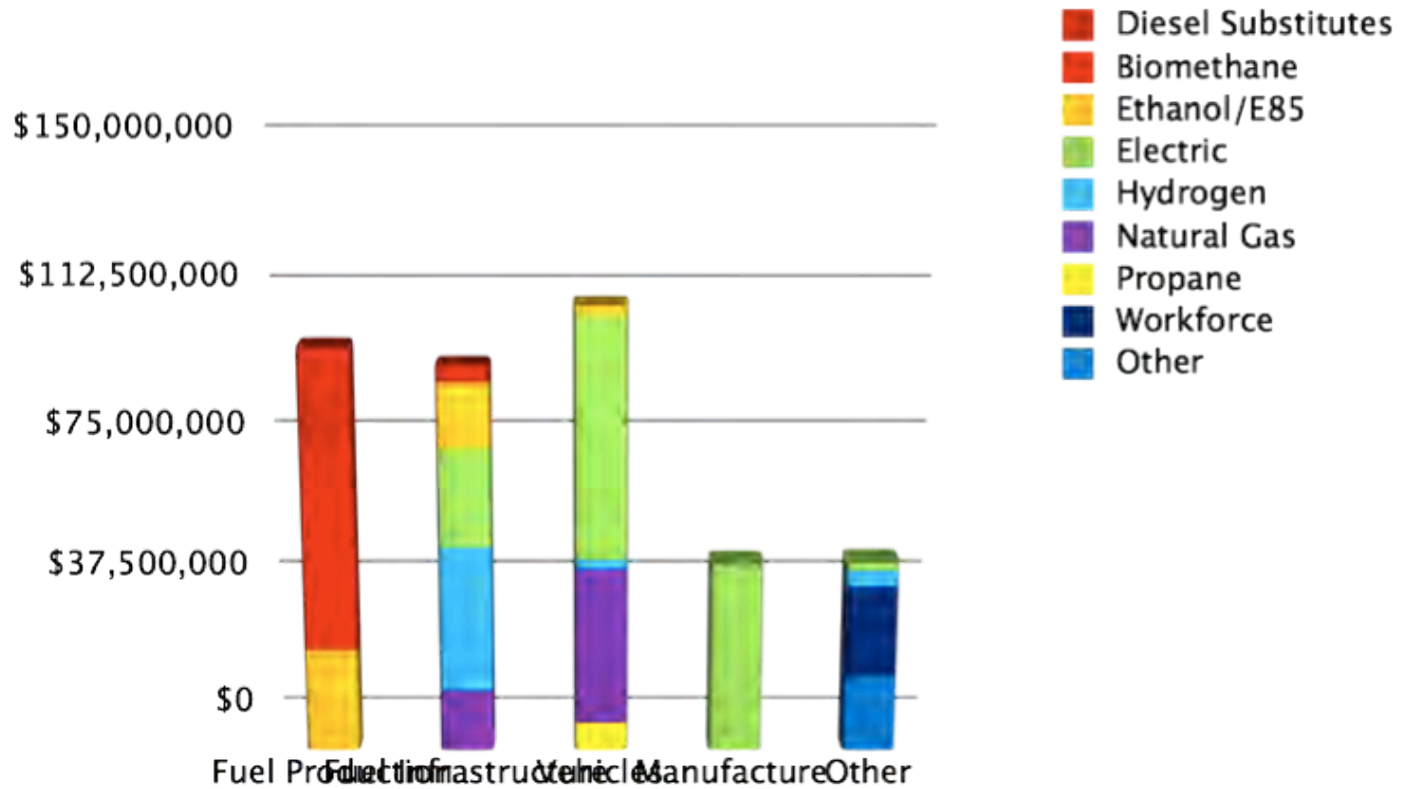
**BIOFUELS PRODUCTION AWARDS--BY FUEL TYPE**

Solicitation ID	# Awards	Fuel	Totals	Fuel Type	Cumulative	Fuel Type
PON-09-003	5	5	\$26,000,000			Biogas
PON-09-604	14		\$19,000,000			
		3		\$5,363,538		Gas Subs
		5		\$4,267,673		Diesel Subs
		6		\$9,368,789		Biogas
						<u>Totals</u>
PON-11-601	14		\$46,423,263			
		4		\$16,772,187	\$22,135,725	Gas Subs
		6		\$15,061,083	\$19,328,756	Dies Subs
		4		\$14,589,993	\$49,958,782	Biogas
						<u>Totals</u> 8
<b>Totals</b>	<b>33</b>		<b>\$91,423,263</b>			



# Agreements in Progress

2009-13 Cumulative Funding through NOPA Phase - \$410 million





## Factors Affecting Biogas Production – Challenges and Opportunities

- Decreasing cost of natural gas
- Capital costs per gallon of fuel displaced
- Future value of LCFS and RIN credits?
- Market opportunities – trucks and Hydrogen
- Access to high volume CNG/LNG customers
  - Most EFTO projects serve producer's own fleet
  - Feedstock location relative to large users



# Additional CEC Information

## **DRIVE Website**

<http://www.energy.ca.gov/drive/>

## **Alternative and Renewable Fuel and Vehicle Technologies Program:**

### **FY 2013-14 Investment Plan**

<http://www.energy.ca.gov/2011-ALT-1/documents/index.html>



# Questions?

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# 2013-14 Final Investment Plan

**Project/Activity** **Approved Funding  
FY 2013-2014  
(Millions)**

<b>Alternative Fuel Production</b>	Biofuel Production and Supply	\$23
<b>Alternative Fuel Infrastructure</b>	Electric Charging Infrastructure	\$7
	Hydrogen Fueling Infrastructure	\$20
	Natural Gas Fueling Infrastructure	\$1.5
<b>Alternative Fuel and Advanced Technology Vehicles</b>	Natural Gas Vehicle Incentives	\$12
	Light-Duty PEV Incentives	\$5
	Medium- and Heavy-Duty Advanced Vehicle Technology Demonstration	\$15
<b>Emerging Opportunities</b>	Emerging Opportunities	\$4
<b>Manufacturing</b>	Manufacturing Facilities, Equipment and Working Capital	\$5
<b>Workforce Development and Training</b>	Workforce Development and Training Agreements	\$2
<b>Market and Program Development</b>	Regional Alternative Fuel Readiness and Planning	\$3.5
	Centers for Alternative Fuels and Advanced Vehicles	\$2
<b>Total Available</b>		<b>\$100</b>



## Biofuels Funding – by Stage of Development

Solicitation ID	# Awards	Fuel	Totals	By Fuel Type	S1	S2	S3	Fuel Type
PON-09-003	5	5	\$26,000,000		1	2	2	Biogas
PON-09-604	14		\$19,000,000					
		3	\$5,363,538		2	1	0	Gas Subs
		5	\$4,267,673		1	4	0	Diesel Subs
		6	\$9,368,789		1	4	1	Biogas
					4	9	1	Totals
PON-11-601	14		\$46,423,263					
		4	\$16,772,187		1	3	0	Gas Subs
		6	\$15,061,083		0	1	5	Diesel Subs
		4	\$14,589,993		0	1	3	Biogas
					1	5	8	Totals
<b>Totals</b>	<b>33</b>		<b>\$91,423,263</b>					14