



## Central Valley Summit on Alternatives to Open Burning of Agriculture Waste

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**John Kato**

**Deputy Director**

California Energy Commission

**What sources of funding are available for alternative practices and technologies, and how can we increase available funding to support these alternatives?**

November 8, 2017

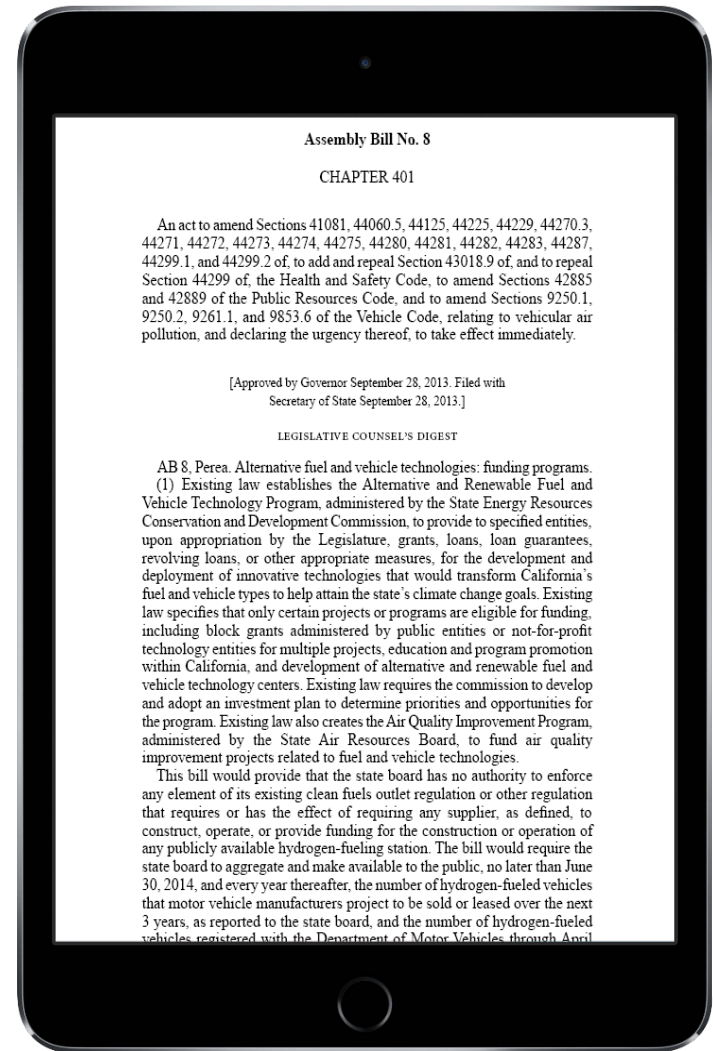
# Alternative and Renewable Fuel and Vehicle Technology Program

“...to 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 44272(a)

## Complementary state goals

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



# Investment Plan Allocation



**Table ES-2: Most Recent and Current Investment Plan Allocations (in Millions)**

Category	Funded Activity	2015-2016	2016-2017	2017-2018
Alternative Fuel Production	Biofuel Production and Supply	\$20	\$20	\$19.4
Alternative Fuel Infrastructure	Electric Charging Infrastructure	\$17	\$17	\$16.6
	Hydrogen Refueling Infrastructure	\$20	\$20	\$19.4
	Natural Gas Fueling Infrastructure	\$5	\$2.5	\$2.4
Alternative Fuel and Advanced Technology Vehicles	Natural Gas Vehicle Incentives	\$10	\$10	\$9.7
	Advanced Freight and Fleet Technologies	\$20*	\$23*	\$17.5
Related Needs and Opportunities	Manufacturing			\$4.9
	Emerging Opportunities	\$3	\$3	\$3.9
	Workforce Training and Development Agreements	\$3	\$2.5	\$3.4
	Regional Alternative Fuel Readiness and Planning	\$2	\$2	-
<b>Total</b>		<b>\$100</b>	<b>\$100</b>	<b>\$97.2</b>

Source: California Energy Commission. \*For FY 2015-2016 and 2016-2017, funding for manufacturing and medium- and heavy-duty vehicle demonstrations was combined into the Medium- and Heavy-Duty Vehicle Technology Demonstration and Scale-Up category.



# Biofuels Production and Supply



Edeniq, Inc.

ARFVTP Biofuels Production Awards (as of 10/13/2017)			
Fuel Type	Awards Made	Funds Awarded (in millions)	Fuel Capacity Funded (in millions GGE)
Gasoline Substitutes	15	\$32	23.9
Diesel Substitutes	25	\$75	117.5
Biomethane	20	\$61	12.8
<b>Total</b>	<b>60</b>	<b>\$168</b>	<b>154.2</b>

## Share of Liquid Biofuels Produced In-State by Volume 2016

Year	2011	2012	2013	2014	2015	2016
% Produced in CA	10.99%	12.45%	11.72%	14.61%	13.27%	13.21%
Total CA Volumes (GGE)	120 million	138 million	142 million	176 million	183 million	211 million

Source: California Air Resources Board, <https://www.arb.ca.gov/fuels/lcfs/dashboard/dashboard.htm>



# San Joaquin Valley Funding

(as of 10/31/2017)



Crimson Renewable Energy LP



Tracy Renewable Energy.



Pixley Biogas

## ARFVTP Biofuels Production Awards in San Joaquin Valley

Fuel Type	Awards Made	Funds Awarded (in millions)
Gasoline Substitutes	11	\$27
Diesel Substitutes	7	\$33
Biomethane	5	\$18
<b>Total</b>	<b>23</b>	<b>\$78</b>





**\$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





## Biofuels Funding Activities

Reduce dependence on petroleum in transportation energy

Reduce GHG transportation emissions to further State climate goals

Build capacity of California firms producing biofuels using advanced technologies and waste-based / alternative feedstocks

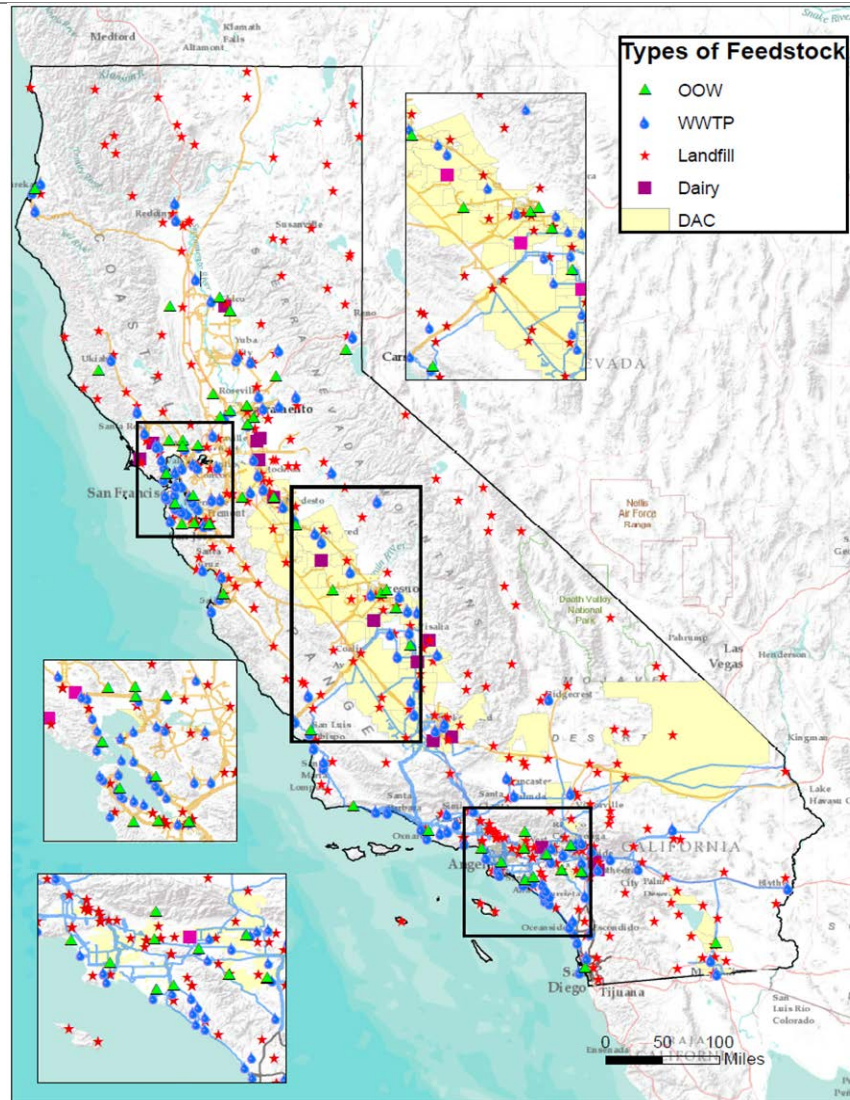
Balance investments among competing needs across different stages of development, fuel types, project scales, and feedstocks

Improve air and environmental quality and create economic benefits for disadvantaged communities

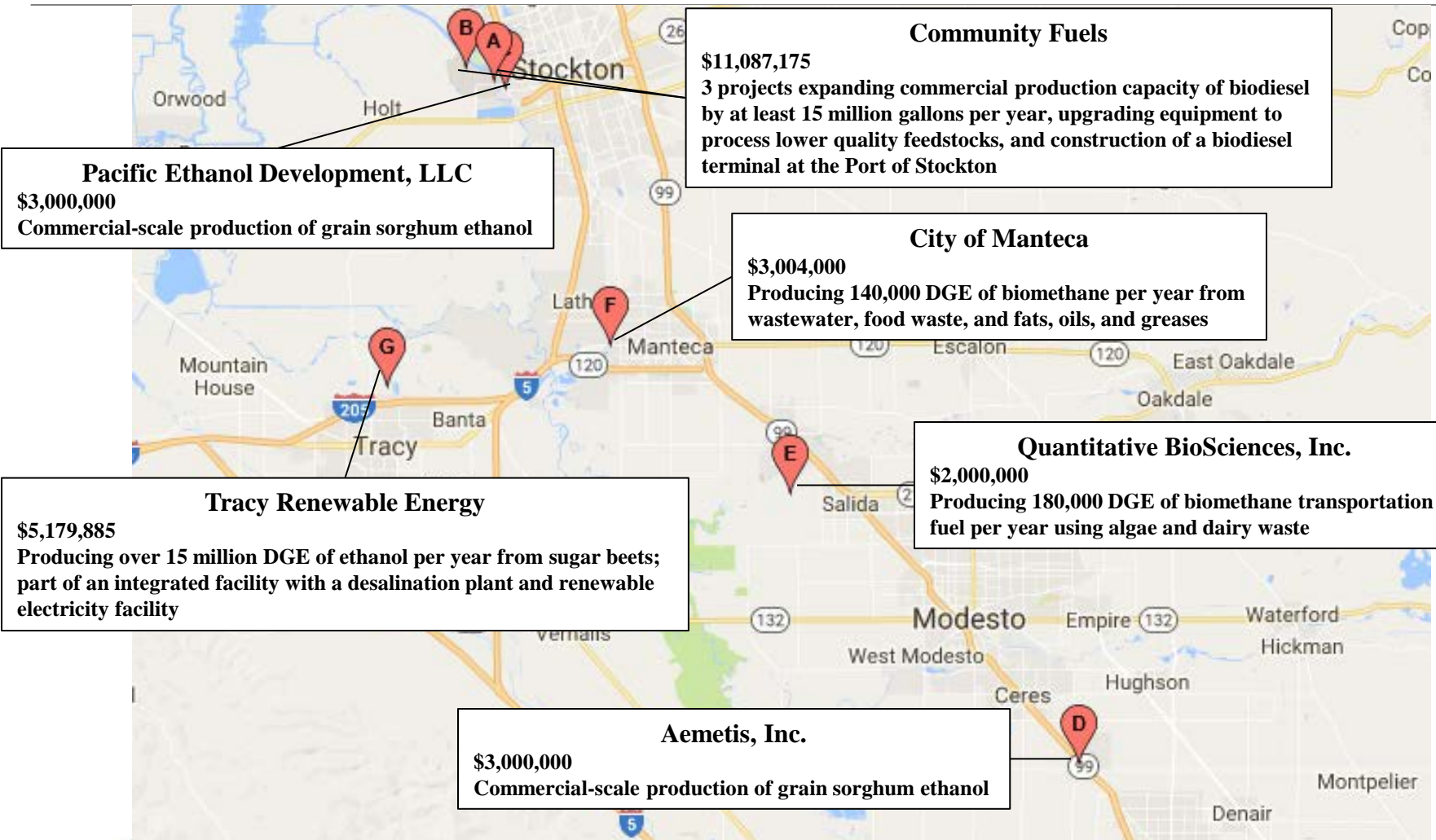
Provide technical expertise and education to help remove barriers for adoption of fuels



# Waste Resources and Disadvantaged Communities



# Biofuel Production Facilities in the Northern San Joaquin Valley



# Biofuel Production Facilities in the Southern San Joaquin Valley

**Pacific Ethanol Development, LLC**  
**\$3,000,000**  
Commercial-scale production of grain sorghum ethanol

**Eslinger Biodiesel, Inc.**  
**\$6,000,000**  
Commercial-scale biodiesel facility of 5 million DGE per year

**EdeniQ, Inc.**  
**\$3,900,000**  
Development of conversion technology for cellulosic biomass to ethanol

**Colony Energy Partners Tulare**  
**\$5,000,000**  
Commercial-scale anaerobic digestion to produce 2.87 million DGE of biomethane for transportation use

**Pixley Biogas LLC**  
**\$4,672,798**  
Anaerobic digestion of dairy waste to produce biogas used to lower Calgren's ethanol fuel

**SJV Biodiesel, LLC**  
**\$3,600,000**  
Commercial-scale production of biodiesel

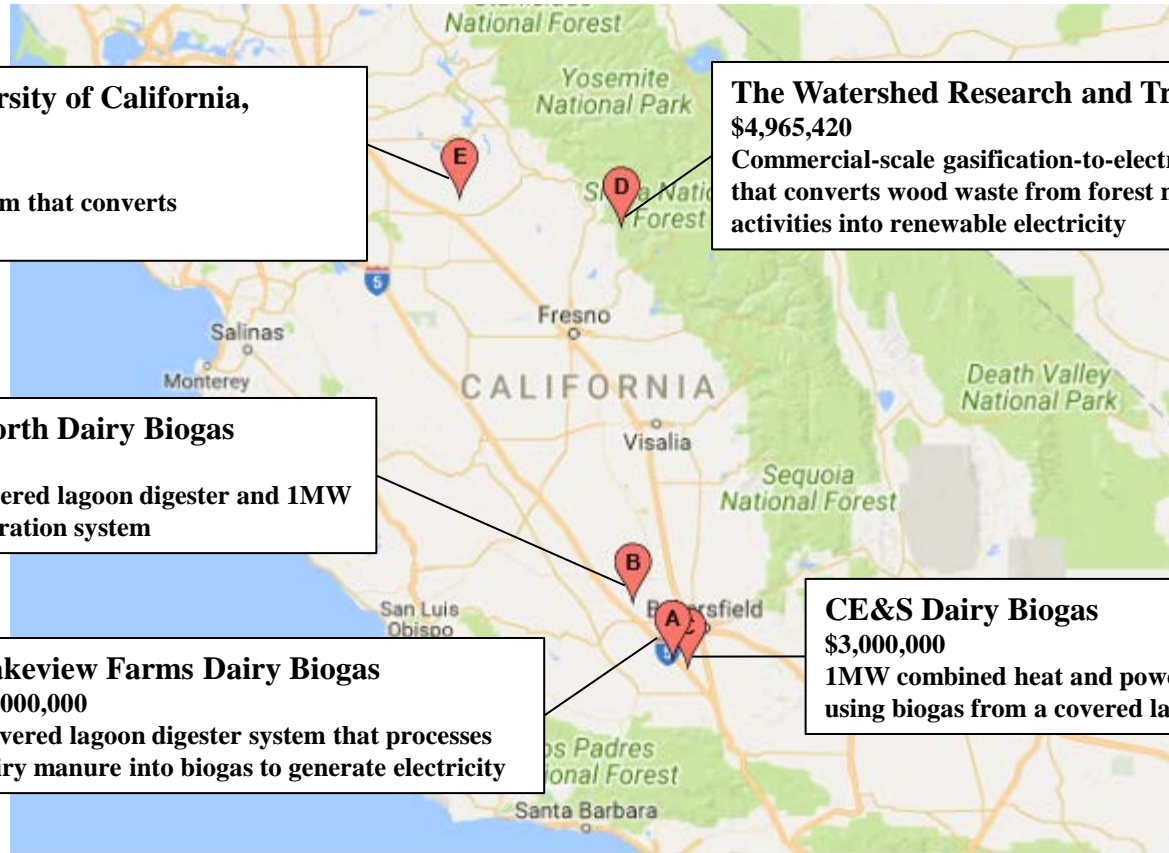
**Calgren Renewable Fuels**  
**\$3,000,000**  
Commercial-scale production of grain Sorghum ethanol

**Crimson Renewable Energy LP**  
**\$14,463,246**  
3 projects to increase biodiesel production by 24 million gallons per year and upgrade equipment to handle lower quality feedstocks

**California Bioenergy LLC**  
**\$3,050,000**  
Dairy cluster production of 500,000 DGE of biomethane for transportation use



# EPIC Projects in the San Joaquin Valley



# G4 Insights





# Thank You

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Questions:

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