



Investments in Alternative Fuels and Vehicles: Update on the Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)

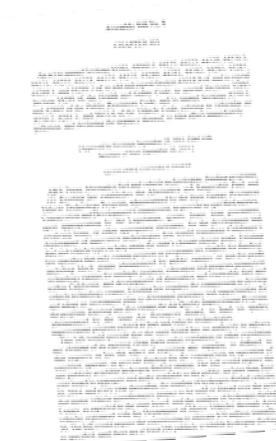
**Joint Oversight Hearing of the Senate Transportation
Housing and Environmental Quality and Committees**

March 17, 2015

Commissioner Janea A. Scott
California Energy Commission



Origins in Statute



Established by Assembly Bill 118
(Nunez, 2007)

✓ \$100 million per year

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

***“...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))



Investing in a Portfolio of Fuels and Technologies that have the Potential to be Transformative ARFVTP Funding Summary: 2009-2014

Investment Areas	Funding Amount (in millions)	Percent of Total (%)	Number of Awards
Biofuels	\$158	29	56
Electric Drive	\$163	30	134
Natural Gas	\$95	17	182
Hydrogen	\$94	17	28
Workforce Development	\$25	5	55
Market & Program Develop.	\$12	2	15
Total	\$547	100	470



Deploying EV Charging Infrastructure

Total EVSE Funding: \$38.3 million

Total Funded = 9,369 chargers

Commercial = 3,373

Residential = 5,127

Workplace = 756

DC Fast = 113

Plus 21 Regional Readiness Planning Grants = \$5.1 M

Total CVRP Support: = \$49 million

- Over 21,000 vouchers





Incubating Innovation in Medium and Heavy-Duty Advanced Technology Vehicles

EVI-UPS 100 Truck Deployment Project



Electric Vehicles International:
Stockton, CA

EVI Capacities:

- Electric Drivetrains on new and retrofit chassis



5



Advancing Low Carbon Biofuels

Fuel Type	Funding (\$ millions)	No. of Projects	Production (MGY)
Biomethane	50.9	15	9.6
Ethanol	23.5	11	8.9
Cellulosic Ethanol	3.9	1	0.021
Biodiesel	36.1	12	78.8
Renewable Diesel	17.1	5	47.9
Total	131.5	44	145.2

E85 Infrastructure: \$14.6M for 161 Stations
 Biodiesel Tank Storage: \$4M for 4 projects

6



Crimson Renewable Fuels Biorefinery Expansion

**Bakersfield
Biorefinery
Expansion to
17 MGY**

Waste-Based
Biodiesel

\$5million grant

14 gCO₂e/MJ



7



Building a Foundation for Hydrogen Fueling Stations

Funding to Date = \$94 million

Public Station Funding

- 43 New Stations = \$72.7 million
- 5 Station Upgrades = \$6.7 million
- 4 Station O&M Grants = \$1.2 million
- 1 Mobile Refueler = \$0.9 million



Other Funding Activities

- AC Transit Fuel Cell Bus Station = \$3 million
- CDFR Div of Weights and Measures = \$4 million
- Retail Dispensing Fuel Standards
- UC Irvine STREET Model = \$1.5 million
- GoBiz Ombudsman Support



8



Linde's West Sacramento Station Opening December 2014

Commissioner Janea Scott



Accelerating Fleet Turnover with Vehicle Incentives and Infrastructure

Technology	Funding (\$ Millions)	No. of Vehicles, Fueling Stations or Projects
Commercial Natural Gas Trucks	54.3	2,735 Trucks
Natural Gas Infrastructure	16.7	60 Stations
Commercial Propane Trucks	6.4	514 Trucks
Commercial ZEV Trucks (Class 6 package delivery)	4.0	160 Trucks
Advanced Technology Truck Demonstration or Manufacturing	74.6	38 Projects
Total Funding	156.0	10



Aligning Clean Technology Investments with Economic Development

Workforce Development and Training

Partner Agency	Funded Training (in Millions)	Match Contributions (in Millions)	Trainees	Businesses Assisted	Municipalities Assisted
ETP	\$7	\$9.9	12,675	92+	14+
EDD	\$7.25	\$7.5	999	36+	-
CCCO	\$5.5	N/A	NA	480+	-
Total	\$19.75	\$17.4	13,674	608+	14+

ETP: California Employment Training Panel
 EDD: Employment Development Department
 CCCO: California Community Colleges



Workforce Training Examples

California – Nevada Labor Trust: \$749,708

- Retrain 1,124 journeymen electricians for EVSE installation and maintenance.

Foothill-DeAnza Community College: \$363,636

- Training for 378 public and private fleet operators for alternative fueling infrastructure use and maintenance.

Tesla Motors: \$756,000

- Training in advanced manufacturing techniques at Tesla’s Fremont factory.

Electric Vehicles International: \$494,000

- Training for 100 employees at EVI electric truck assembly plant in Stockton.



Projected Carbon Reduction Benefits from ARFVTP Investments

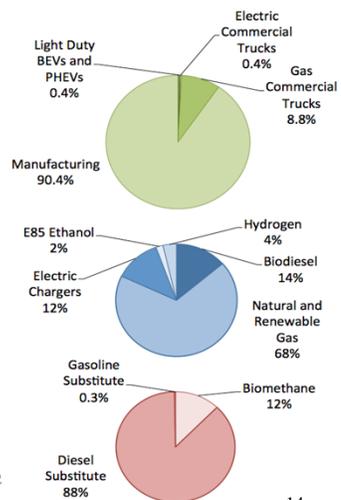
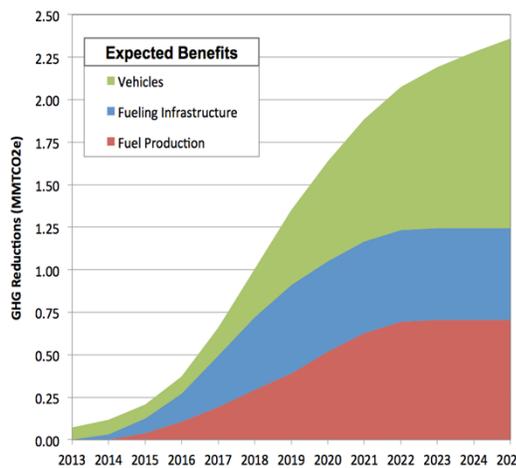
Results from NREL's 2014 Analysis of Expected and Market Transformation Benefits

http://www.energy.ca.gov/2014_energypolicy/documents/#06122014

Dr. Marc Melaina, Principal Investigator
– Analyzed 207 projects totaling \$426.1 million

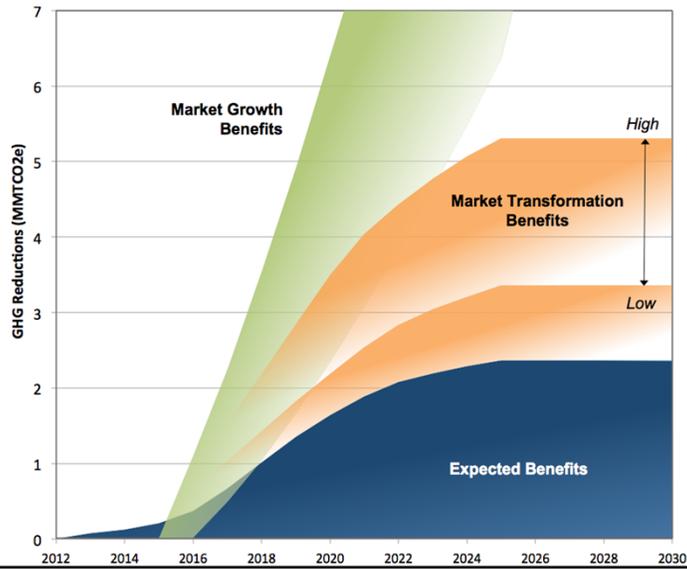


Expected GHG Reductions of Projects Funded to Date

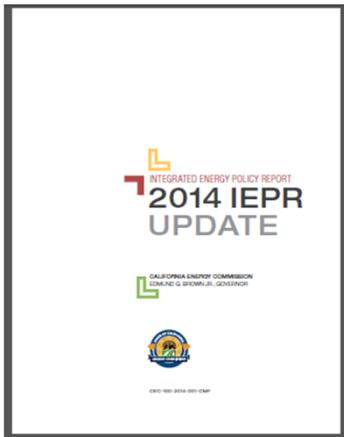




Cumulative Carbon Reduction Benefits



Generating Measurable Benefits



- Created nearly 6,400 direct jobs
- Provided training opportunities for more than 13,600 individuals at more than 600 California businesses
- Reduce between 3.4 and 5.3 million tonnes of CO2 equivalent emissions annually
- Reduce PM 2.5 by 2 to 5 tons annually by 2025
- Decrease between 441 and 693 million gallons of petroleum fuel by 2025

http://www.energy.ca.gov/2014_energypolicy/



Engaging A Broad Set of Successful ARFVTP Applicants

- Program oversubscribed, but we continually strive to reach broader audiences
- Pre-application workshops to answer questions and help applicants submit successful proposals
- Post-solicitation debriefing available for all applicants
- Investment Plan meetings open to public
- Workshops for solicitation design
- Apply lessons learned from previous solicitations into new solicitations—continually improving



Thank You

Janea A. Scott, Commissioner
California Energy Commission

Janea.Scott@energy.ca.gov

(916) 654-4930