



# Alternative and Renewable Fuel and Vehicle Technology Program

## Advisory Committee Meeting

December 4, 2012

California Energy Commission  
Hearing Room A



# Meeting Agenda

- 10:00 Introductions and Opening Remarks
- 10:15 Program Status Update
- 10:45 2013-2014 Investment Plan Update
- 11:15 Advisory Committee Discussion
- 12:00 Lunch
- 1:00 Advisory Committee Discussion, cont.
- 2:00 Public Comment



# Program Status Update

**Jim McKinney**  
**Program Manager**



## Program Status Update

- Now in 5<sup>th</sup> year of 7.5-year duration
- To date, Energy Commission has allocated more than \$450 million to funding categories, and awarded more than \$300 million among 150 projects
- Current emphases:
  - Overseeing invoices from previous awards
  - Developing agreements based on recent solicitations
  - Developing next set of solicitations



## Summary of Major Award Types

- Alternative Fuel Production (\$70.5 million)
  - Biomethane production: 9 projects (\$41.3 million)
  - Diesel substitutes production: 9 projects (\$12.4 million)
  - Gasoline substitutes production: 8 projects (\$16.8 million)
- Alternative Fuel Infrastructure (\$66.8 million)
  - E85: 205 stations (\$15.1 million)
  - Biodiesel infrastructure: 5 sites (\$4.5 million)
  - Electric vehicles: 5,211 charging points (\$20.6 million)
  - Hydrogen: 11 stations (\$18.7 million)
  - Natural gas: 30 stations (\$7.9 million)



## Summary of Major Award Types, cont.

- Alternative Fuel Vehicles (\$77.4 million)
  - Advanced medium- and heavy-duty vehicle technology demonstrations: 22 individual projects (\$39.3 million)
  - Light-duty electric vehicles: 430 vehicles (\$2.6 million)
  - Medium- and heavy-duty electric vehicles: 155 vehicles (\$4 million)
  - Natural gas vehicles: 1,214 vehicles (\$29.9 million)
  - Propane vehicles: 167 vehicles (\$1.5 million)
- Manufacturing (\$39.9 million)
  - Vehicles and components: 15 projects



## Summary of Major Award Types, cont.

- Emerging Opportunities (\$6 million)
  - Federal cost sharing: 2 projects
- Workforce Training (\$18.5 million)
  - Interagency agreements: 5,746 trainees (so far)
- Market and Program Support (\$24.9 million)
  - Electric vehicle readiness: 9 communities (\$2.0 million)
  - Fuel standards (\$4 million)
  - Biofuel sustainability studies (\$1.9 million)
  - Other technical assistance (\$17.0 million)



## Summary of Major Award Types, cont.

- 3 major technical support contracts executed
- NREL Technical Support
  - Technology and market assessments
  - PEV planning support
  - Benefits Report support
- UC Davis NEXT Steps
  - PEV consumer behavior
  - Biofuels investment strategies and California case studies
  - Natural gas fuel for goods movement sector
- RAND Corporation
  - Comprehensive ARFVTP assessment





## ARFVT Progress - UPDATE

(Funded through September 2012)

	Fuel Area	Existing 2009-2010 Baseline Levels	Additions from ARFVT Program Funding	Percent Increase
<b>Alternative Fueling Infrastructure</b>	Electric	1,270 charging stations	5,211 charging stations	310%
	E85	39 fueling stations	205 fueling stations	425%
	Natural Gas	443 fueling stations	30 stations	7%
	Hydrogen	6 public fueling stations <i>(plus 5 more under construction)</i>	11 fueling stations <i>(in development)</i>	100%
<b>Alternative Fuel Vehicles</b>	Electric Cars	13,268	379	3%
	Electric Trucks	1,409	155	11%
	Natural Gas Trucks	13,995	1,214	9%



## Recent Events

- PON-10-603
  - Advanced Medium- and Heavy-Duty Vehicle Technologies
  - Most recently revised NOPA released November 1
  - Three additional projects funded (all drayage trucks)
  - All proposals with passing scores are now funded
- PON-12-606
  - Hydrogen fuel Infrastructure
  - Released November 19, with proposals due January 17
  - \$28.6 million available, with up to \$1.5 million per station
  - 25 approved regions are reflective of anticipated early markets
  - Special consideration for renewable hydrogen and co-location with non-road applications



# Future Funding Opportunities

<b>Description</b>	<b>\$ Available</b>	<b>Release</b>
Hydrogen Fueling Infrastructure	\$28.6 Million	(Due January 17)
Natural Gas Infrastructure	\$3.9 Million	December
Electric Truck Retrofit Demonstration	~\$2.4 Million	January/February
Charging Infrastructure	\$6.6 Million	January/February
Commercial Scale Biofuels Production	\$9.3 Million	Spring
Regional Planning	\$2.7 Million	Spring
Centers for Alternative Fuels	\$2.7 Million	Spring
Natural Gas and Propane Vehicle Deployment	\$12.6 Million	Ongoing/Spring



## Other Important Updates

- Vision for Clean Air
  - Initial draft released in June
  - Joint effort between CARB, SCAQMD, San Joaquin APCD
  - Potential scenario for meeting air quality goals for 2023 and 2032 as well as greenhouse gas emission goal for 2050
- ZEV Action Plan
  - Draft released in September
  - Coordinated by Governor's Office of Planning and Research
  - Targets: 1 million PEVs by 2020, 1.5 million PEVs by 2025
  - Identifies strategies and actions to support these targets



## Other Important Updates, cont.

- LCFS Credit Discounting
  - Rulemaking proceeding approved on November 14
  - Commission will review Section 3103 (Title 20), related to funding prohibitions and credit discounting requirements
  - Workshops to begin early 2013
- Biofuels Workshop
  - Anticipated January 2013
  - Collect information for next biofuel production PON



## Other Important Updates, cont.

- Natural Gas and ZEV Truck Workshop
  - Date TBD (Winter/Spring 2013)
  - What is the technological and market status of new vehicle technologies?
  - How can the ARFVTP maximize its impact on the medium- and heavy-duty sector?
- Preparation for Benefits Report
  - Still in initial phases
  - Must be included as part of 2013 IEPR in Fall 2013



# Questions on Program Status?



# Staff Draft 2013-14 Investment Plan

**Charles Smith**  
**Project Manager**





## Role and Purpose

- First draft of Investment Plan Update, covering FY 2013-2014
- Basis for FY 2013-2014 solicitations, agreements and other funding opportunities
- \$100 million funding allocation for a portfolio of fuels, technologies, and supporting elements



## Schedule

- Post Staff Draft: November 20
- First Advisory Committee Meeting: December 4  
[Comments requested by December 11](#)
- Post and Submit Revised Draft: January 10
- Second Advisory Committee Meeting: February
- Post Lead Commissioner Report: March
- Adoption by Energy Commission: April/May



# Foundations for Funding Recommendations

- Analyses from previous Investment Plans
- Results from recent solicitations
- September Advisory Committee meeting
- Input from industry stakeholders
- Other federal, state, and private investments in this sector
- New analysis and strategy documents
  - Vision for Clean Air
  - Governor's ZEV Action Plan



# Biofuel Production and Supply

- \$23 million allocation
  - Large market potential, but production is still far from LCFS and other policy targets
  - Broad supplier interest
- Priorities
  - Open to variety of fuel types
  - Utilize existing infrastructure and vehicle stock
  - Waste-based feedstocks; not edible corn feedstocks (AB 523, Valadao)
  - Low lifecycle carbon emissions
- Questions for consideration
  - Mix of focus on commercial production and pre-commercial projects?
  - How to ensure market viability?



# PEV Charging Infrastructure

- \$7 million allocation
  - Reflects need for new infrastructure to keep pace with increase PEV sales
- Priorities
  - Avoid duplication with NRG settlement
  - Expand charging opportunities in workplaces, multi-unit dwellings, and fleet applications
  - Resolve other charging infrastructure issues, such as interoperability
  - Identify and develop new opportunities, in coordination with state and federal research programs



# Hydrogen Fueling Infrastructure

- \$20 million allocation
  - Reflects need for new stations to keep pace with automakers' FCV deployment schedules
- Priorities
  - Continue development of stations in early adopter locations
  - Support continued operation and maintenance of new stations
  - Support higher station capacity



# Natural Gas Infrastructure

- \$1.5 million allocation
  - Focus of natural gas funding is in vehicle deployment and engine demonstration
  - Private market stepping in to develop private CNG/LNG fueling infrastructure
- Priorities
  - Support natural gas infrastructure for entities that may have difficulty obtaining other financing, such as school districts and public transit entities



# Infrastructure Not Proposed for Funding

- Propane fueling infrastructure
- E85 fueling infrastructure
- Biodiesel infrastructure
- Continue to track and evaluate these areas





# Natural Gas Vehicles

- \$12 million allocation
  - Continuing demand for incentives is visible via buydown program
  - Strong interest in natural gas trucks due to substantial fuel cost savings
- Priorities
  - Expand fleets' interest in natural gas trucks
  - Avoid providing vehicle incentives if/when they are not needed
  - Link natural gas vehicles' expansion with biomethane development
- Questions for consideration
  - Whether/how to adjust incentive levels and type eligibility?
  - Continue buydown program, or develop a new approach?



# Light-Duty Plug-in Electric Vehicles

- \$5 million allocation
- Priorities
  - Backup funding for Clean Vehicle Rebate Project in the event of oversubscription
  - Expand consumer interest beyond the “early adopters”
  - Support early market introduction of multiple PEV models



# Medium- and Heavy-Duty Demonstration

- \$15 million allocation
  - Technology costs still too high for widespread commercial deployment
  - Vision for Clean Air identifies aggressive 2050 scenarios for hybrid, battery electric and fuel cell technologies in this sector
  - Low and near-zero NOx natural gas engines may play a larger role in freight trucks, and can leverage low natural gas prices
- Priorities
  - Demonstrate vehicle technologies that can contribute to long-term GHG emission reductions, air quality improvements, and petroleum displacement
  - Open to multiple fuels and technologies



# Vehicles Not Proposed for Funding

- Propane vehicles
  - Funds remain from previous fiscal years
- Electric trucks
  - Previously, the Energy Commission provided added funding as a supplement to HVIP
  - HVIP now includes its own higher incentive for all-electric trucks
- Continue to track and evaluate these areas



# Emerging Opportunities (Federal Cost-Sharing)

- \$3 million allocation
- Priorities
  - Prioritize funding to federal cost-sharing opportunities
  - Leverage federal investments
  - Projects that do not fall into any of the other funding allocations



# Manufacturing

- \$10 million allocation
  - Continuing need to translate California's venture capital and patent development into sustained economic growth
- Priorities
  - Support in-state economic development, in conjunction with other program goals
  - Open to assembly of vehicles, manufacture of vehicle components, and manufacture of related components



# Workforce Training and Development

- \$2.5 million allocation
- Priorities
  - Continue training programs through Employment Training Panel and Employment Development Department
  - Assess need for additional programs (e.g. workforce analysis, apprenticeship programs, career pathways programs)
  - Identify new opportunities to benefit military veterans
- Questions for consideration
  - How to address needs and opportunities of veterans?



# Regional Readiness and Planning

- \$1 million allocation
- Priorities
  - Build on and expand PEV regional readiness grants
  - Support statewide PEV regional readiness
  - Expand regional planning into additional alternative fuels





# Market and Program Development

- Centers for Alternative Fuels
  - Funded by \$2.7 million in FY 2012-2013
  - Several projects have expressed interest
  - How to objectively solicit and select proposals?
  - No additional funding proposed at this time
- Sustainability Studies
  - On-going area of interest, but no specific needs for the coming year have been identified
  - If needed, funding for sustainability studies may be pulled from the most relevant allocation (e.g. biofuels, manufacturing)



# CALIFORNIA ENERGY COMMISSION

	<b>Project/Activity</b>	<b>Proposed Funding Allocation for FY 2013-2014</b>
<b>Alternative Fuel Production</b>	Biofuel Production and Supply	\$23 Million
<b>Alternative Fuel Infrastructure</b>	Electric Charging Infrastructure	\$7 Million
	Hydrogen Fueling Infrastructure	\$20 Million
	Natural Gas Fueling Infrastructure	\$1.5 Million
<b>Alternative Fuel and Advanced Technology Vehicles</b>	Natural Gas Vehicle Incentives	\$12 Million
	Light-Duty Plug-in Electric Vehicles	\$5 Million
	Medium- and Heavy-Duty Advanced Vehicle Technology Demonstration	\$15 Million
<b>Emerging Opportunities</b>	Emerging Opportunities (Federal Cost Sharing)	\$3 Million
<b>Manufacturing</b>	Manufacturing Facilities, Equipment and Working Capital	\$10 Million
<b>Workforce Training and Development</b>	Workforce Training and Development	\$2.5 Million
<b>Market and Program Development</b>	Regional Alternative Fuel Readiness and Planning	\$1 Million
	<b>Total Available</b>	<b>\$100 Million</b>