



CALIFORNIA ENERGY COMMISSION

Medium- and Heavy-Duty Advanced Vehicle Technology Demonstrations

Pre-Solicitation Workshop

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Division of Fuels and Transportation

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Agenda

- Welcome and Introductions
- Workshop Objectives:
 - Summarize vehicle demonstration projects
 - Discuss funding, eligibility, and scoring criteria
 - Receive input on these topics
- Public Comment
- Wrap-Up



Alternative and Renewable Fuel and Vehicle Technology Program

Assembly Bill 8 (Perea, Chapter 401, Statutes of 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))



ARFVTP Funding: 2009-2014

Investment Areas	Funding Amount (millions)	Percent of Total (%)	Number of Awards
Biofuels	\$119.5	24	45
Electric Drive	\$152.7	31	120
Natural Gas/Propane	\$82.3	16	55
Hydrogen	\$92.6	19	26
Workforce Development	\$25.2	5	30
Market and Program Development	\$24.1	5	36
Total	\$496.4	100	312



ZEV/Near-ZEV MHD Vehicle Goals

- Facilitate technology development and commercialization of MHD vehicles for goods movement and freight transport
- Support multiple near-term and long-term technology pathways:
 - Natural gas
 - Hydrogen fuel cell
 - Electric drive
 - Hybrid and range extender combinations
- Policy goals
 - Reduce diesel fuel use
 - Enhance public health
 - Improve air quality
 - Reduce carbon emissions



MHD Vehicle Demonstration Solicitations

- **Federal Cost-Share for Emerging Technologies**
PON-13-604 issued October 2013
- **Used Medium-Duty Electric Vehicle Repower Demonstration**
PON-13-602 issued June 2013; \$4.1 M total
- **Advanced Medium- and Heavy-Duty Vehicle Technologies Pre-Commercial Demonstrations**
PON-10-603 issued August 2011; \$26M total
- **American Recovery and Reinvestment Act Transportation Electrification Cost-Share**
PON-08-010 issued April 2009



MHD Vehicle Demonstration Projects

Technology	Award (\$M)	Units
MD Electric Trucks / Shuttles		
Electric Vehicles International range-extended work truck	\$2.50	10
Electric Vehicles International range-extended electric shuttles	\$0.80	
Electric Vehicles International MD package delivery retrofit to electric drive	\$1.60	17
Electricore battery electric work trucks	\$2.30	14
Motiv Power Systems power control systems for Class 4 shuttle	\$1.30	1
Motiv Power Systems battery electric trucks	\$1.10	
Motiv Power Systems repower/retrofit package delivery vans	\$1.60	7
Odyne Systems plug-in hybrid work trucks	\$0.40	
South Coast AQMD Class 2 – 5 plug in work truck demos	\$5	107
Terex hybrid utility work trucks (boom ops, cab climate)	\$0.50	12
Total	\$17.10	168
HD Class 8 Electric and Hybrid Drive		
Artisan all electric and range extended class 8 drayage	\$0.90	2
EPRI-Odyne electric drive work truck retrofits	\$1.10	5
Kenworth hybrid electric with CNG microturbine	\$1.40	1
South Coast AQMD Class 8 electric tractors for catenary demonstration	\$1.60	5
TransPower Class 8 electric drayage truck	\$2.20	1
Volvo PHEV drayage	\$2.10	1
Total	\$9.30	15



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Electric Transit Bus		
National Strategies (TransPower) retrofit school buses to electric drive	\$1.40	6
Proterra fast charge	\$2.50	2
Total	\$3.90	8
Fuel Cell		
Ballard Power Systems fuel cell bus	\$2.40	1
CALSTART (BAE) – Sunline Transit battery dominant fuel cell bus	\$0.50	1
Center for Transportation and Environment repower fuel cell electric Class 6 package delivery vans	\$1.10	17
Total	\$4.00	19
Hybrids		
Parker Hannifin Class 6 hybrid hydraulic beverage delivery tractors	\$0.75	4
Total	\$0.75	4
Natural Gas Trucks		
GTI LNG Plug-in Class 8 drayage	\$1.60	1
GTI Cummins Westport demonstrate ISX 11.9 engine	\$1.70	1
Navistar MaxxForce 13 natural gas engine	\$2.70	1
South Coast AQMD Low NOx engine development	\$2.00	-
Total	\$8.00	3
Ethanol		
Cummins E85 optimized MD truck engine	\$2.70	1
Total	\$2.70	1
Off-Road		
Caterpillar hybrid 36-ton excavator	\$2.50	1
Volvo hybrid wheel loader	\$1.80	1
Total	\$4.30	2



MHD Demonstration Funding

Discussion:

1. Total Available Funding of \$24,873,512
2. Competitive grant process.
3. Minimum amount.
4. Maximum amount \$4.0M.
5. Level of match share amount.
6. Infrastructure support: suggestions on structuring funding.



Eligible Applicants

Discussion:

1. Team concept: Applicants may include technology provider or OEM, fleet operator/owner, non-profit entity, or air district.
2. Other eligible applicants?
3. Other critical project partners?



Eligible Projects

Discussion:

1. On- or off-road MHD alternative fuel vehicles and GVWR greater than 10,001 pounds.
2. Support for infrastructure tied to demonstration.
3. Suggestions on projects that should be or should not be considered
4. Emerging technologies.
5. Number of projects submitted by an applicant.



Scoring Criteria Basis

Sec. 44272(c)(1) Transition to Alternative Fuels	The project's ability to provide a measurable transition from the nearly exclusive use of petroleum fuels to a diverse portfolio of viable alternative fuels that meet petroleum reduction and alternative fuel use goals.	Sec. 44272(c)(7) Economic Benefits	The project provides economic benefits for California by promoting California-based technology firms, jobs, and businesses.
Sec. 44272(c)(2) Consistency with Climate Policy	The project's consistency with existing and future state climate change policy and low-carbon fuel standards.	Sec. 44272(c)(8) Use of Existing Infrastructure	The project uses existing or proposed fueling infrastructure to maximize the outcome of the project.
Sec. 44272(c)(3) Reduce Criteria Pollutants	The project's ability to reduce criteria air pollutants and air toxics and reduce or avoid multimedia environmental impacts.	Sec. 44272(c)(9) Reduce Lifecycle GHG Emissions	The project's ability to reduce on a life-cycle assessment greenhouse gas emissions by at least 10 percent, and higher percentages in the future...
Sec. 44272(c)(4) Decrease Water Pollutants and Others	The project's ability to decrease, on a life-cycle basis, the discharge of water pollutants or any other substances known to damage human health or the environment...	Sec. 44272(c)(10) Alternative Fuel Use	The project's use of alternative fuel blends of at least 20 percent, and higher blend ratios in the future, with a preference for projects with higher blends.
Sec. 44272(c)(5) Natural Resource Sustainability	The project does not adversely impact the sustainability of the state's natural resources, especially state and federal lands.	Sec. 44272(c)(11) Technology Advancement	The project drives new technology advancement for vehicles, vessels, engines, and other equipment, and promotes the deployment of that technology in the marketplace.
Sec. 44272(c)(6) Matching Funds	The project provides non-state matching funds. ...	Sec. 44272(d) Benefit-Cost Scores	The commission shall rank applications for projects proposed for funding awards based on solicitation criteria developed in accordance with subdivision (c), and shall give additional preference to funding those projects with higher benefit-cost scores.



Scoring Criteria

Qualifications of the Applicant

Discussion:

1. Team composition and qualifications, previous technology demonstration experience, specific roles in carrying out the project.
2. Important project partners.
3. Convey the pathway forward to advance the technology to full commercialization.



Scoring Criteria

Market Transformation and Viability

Discussion:

1. Impact on advancing technology in the market.
2. Estimate the full market potential of the technology and the projected benefits to the state.
3. Steps/timeframe to achieve commercialization.
4. How will project lead to new technology being adopted as a cost-competitive option compared to conventional technologies?



Scoring Criteria

Budget

Discussion:

1. Project budget and cost, match share requirement, financial mitigations (contingencies).
2. Why are state funds needed for project?
3. Cost-effectiveness of the proposed budget.



Scoring Criteria

Environmental Benefits

Discussion:

1. GHG reductions directly attributable to demonstration.
2. Projections for GHG reductions once commercial technology available.
3. Suggestions on other types of benefits or measures of success that are specific to demonstration projects.



Scoring Criteria

Economic Benefits

Discussion:

1. Direct job creation, tax impact.
2. Suggestions on other types of benefits or measures of success that are specific to demonstration projects.



Scoring Criteria

Other

Discussion:

1. Demonstration location for the demonstration and not the technology provider.
2. Disadvantaged communities accrue benefits during the demonstration.
3. Project readiness, demonstration duration, demonstration miles.



ARB FY 2014-15 AQIP Funding Plan

- **Zero Emission (ZE) Truck and Bus Pilot Projects in Disadvantaged Communities (\$20-\$25M)**
Transit Bus, School Bus, and Freight/Delivery Truck Hubs
- **Advanced Technology Freight Demonstration Projects (\$50M)**
ZE Drayage Trucks (\$20 - \$25M)
Multi-Source Facility Projects (\$20 - \$25M)
Other Freight Projects (<\$10M)



Wrap Up!

Comments to:

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Subject Line: MHD Vehicle Demonstration

Deadline for Comments **July 31, 2014 at 12:00 p.m.**

Staff will evaluate comments and develop solicitation

Thank You!