

California Environmental Protection Agency



**FINAL AB 118 AIR QUALITY IMPROVEMENT PROGRAM  
FUNDING PLAN FOR FISCAL YEAR 2010-11**

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## LIST OF ACRONYMS

AB	Assembly Bill
AQIP	Air Quality Improvement Program
ARB	Air Resources Board
ARRA	American Recovery and Reinvestment Act
CCSE	California Center for Sustainable Energy
CVRP	Clean Vehicle Rebate Project
Energy Commission	California Energy Commission
EVI	Electric Vehicles International
FY	Fiscal Year
GVWR	Gross Vehicle Weight Rating
HVIP	Hybrid Truck and Bus Voucher Incentive Project
IRS	Internal Revenue Service
LBS	Pounds
LGER	Lawn and Garden Equipment Replacement Project
NEV	Neighborhood Electric Vehicle
PHEV	Plug-in Hybrid Electric Vehicle
PLACE	Providing Loan Assistance for California Equipment
PTO	Power Take Off
SIP	State Implementation Plan
SJVUAPCD	San Joaquin Valley Unified Air Pollution Control District
UTV	Utility Terrain Vehicle
ZEM	Zero-emission Motorcycle
ZEV	Zero-emission Vehicle

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## Executive Summary

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill (AB) 118, Statutes of 2007, Chapter 750) to fund clean vehicle and equipment projects as well as research on the air quality impacts of alternative fuels and workforce training. The AQIP focuses on reducing criteria pollutant emissions, with concurrent reductions in greenhouse gas emissions. The AQIP is funded through 2015.

The Governor's proposed State Budget for Fiscal Year (FY) 2010-11 provides \$40 million for AQIP projects. The *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2010-11* (FY 2010-11 Funding Plan) outlines the Air Resources Board's (ARB) plans for expending these funds. The plan establishes:

- ARB priorities for this year's funding cycle.
- Funding allocations for each project category.
- Program refinements based on public input and evaluation of last years' projects.
- Contingency provisions should mid-year refinements be necessary.

The AQIP expands ARB's portfolio of air quality incentives, providing the opportunity to fund projects outside the statutory framework of other incentive programs – the Carl Moyer Program, Goods Movement Emission Reduction Program, and Lower-Emission School Bus Program – which focus on near-term emission reductions from fully commercialized emission control technologies. With broader statutory flexibility, the AQIP funds are unique in providing ARB with a significant, ongoing funding source to help pay for technology advancing projects.

Incentives for early deployment of next generation technologies support ARB policy priorities and fill a critical niche not served by ARB's other incentive programs. By funding these next generation technologies with AQIP funds, ARB is:

- Accelerating turnover of the fleet to the zero- and near-zero emission technologies needed to meet California's longer-term, post-2020 State Implementation Plan (SIP) and climate change commitments.
- Accelerating the commercialization of technologies that will provide the next generation of products for ARB's other incentive programs such as the Carl Moyer Program.
- Raising consumer awareness and acceptance so that advanced technologies can become mainstream consumer choices.

- Enabling future ARB regulations.

The AQIP is also aiding the California economy and helping to position the state for green job growth over the next decade. Many of the vehicles or vehicle components funded under AQIP are manufactured in California and distributed through extensive local dealership networks.

In 2009 the Board adopted the Air Quality Improvement Program Guidelines which direct, by regulation, ARB's implementation of the AQIP and require ARB to obtain annual approval of the AQIP Funding Plan. The annual Funding Plan serves as each year's blueprint for expending the AQIP funds appropriated to ARB in the annual State Budget. ARB directed funds to support development and deployment of the advanced technologies needed to meet California's longer-term, post 2020 SIP and other air quality goals. Staff proposes that this overarching principle again guide ARB's AQIP investments for the upcoming year. Continued investments in the next generation of vehicles, equipment, and emission controls are essential if California hopes to meet its long-term air quality goals.

The Board approved the FY 2009-10 AQIP Funding Plan in April 2009. Last year's plan allocated about \$42 million to fund five major projects:

- Hybrid Truck and Bus Voucher Incentive Project (HVIP)
- Clean Vehicle Rebate Project (CVRP)
- Lawn and Garden Equipment Replacement Project
- Zero-emission Agricultural Utility Terrain Vehicle (UTV) Rebate Project
- Advanced Technology Demonstrations.

Nearly all of last year's funds have been encumbered and all projects are operating successfully.

#### Summary of FY 2010-11 Funding Proposal

This year's proposed Funding Plan builds upon the successes of projects in last year's plan, providing continued funding for the existing AQIP project categories at approximately the same percentages as last year. Staff is not proposing any major changes. A multi-year funding commitment was envisioned when the Board approved these categories in FY 2009-10, and continued funding will help advance these technologies to the point where they can be sustainable without incentives. In addition to the five existing categories, one new project category is proposed to pilot off-road hybrid equipment as shown in Table ES-1, and demonstration projects deferred from last year will be prioritized for funding. The existing AQIP projects are working as envisioned, so staff is proposing only minor refinements which are described in the

Funding Plan. The proposed project categories and funding targets are listed in Table ES-1.

<b>Table ES-1: Projects Proposed for AQIP Funding in FY 2010-11</b>		
<b>Project Category</b>	<b>Allocation<sup>1</sup> (in \$ millions)</b>	<b>% of Total AQIP Budget</b>
Hybrid Truck and Bus Voucher Incentive Project (HVIP)	Up to 25	62.5%
Clean Vehicle Rebate Project (CVRP)	Up to 5	12.5%
Lawn and Garden Equipment Replacement Project (LGER)	Up to 1	2.5%
Zero-Emission Agricultural Utility Terrain Vehicle (UTV) Rebate Project	Up to 0.5	1.2%
Off-Road Hybrid Technology Pilot <<NEW PROJECT>>	Up to 3	7.5%
Demonstration Projects	Up to 5.5	13.7%
<b>TOTAL</b>	<b>\$40 Million</b>	<b>100%</b>

<sup>1</sup>Funding based on the Governor's proposed FY 2010-11 Budget. Funding amounts will be adjusted if necessary based on the final State Budget and revenues into the Air Quality Improvement Fund.

The cornerstone of the AQIP for FY 2010-11 will remain the HVIP aimed at accelerating deployment of new hybrid medium- and heavy-duty vehicles in California. Staff is proposing up to \$25 million in new funding which supports purchase of about 1,000 new hybrid trucks and buses. This amount augments the \$20 million ARB has already invested in the HVIP. Hybrid technology can significantly reduce criteria pollutant, air toxic, and greenhouse gas emissions – particularly in refuse trucks, work trucks, delivery vans, urban buses, and other vehicles with high stop-and-go or idling duty cycles. ARB's funding will ultimately accelerate manufacturer investment in hybrid technology and contribute to the production economies of scale that will bring down vehicle costs and help these vehicles become established in the California marketplace.

The HVIP has shown early success with strong consumer demand. Since the program's public launch in February 2010, California fleets have requested about \$12 million in vouchers to purchase over 400 hybrid trucks. This expanded the entire national fleet of hybrid trucks by over 10 percent within just a few months, and shows the impact of ARB's investment in bringing this technology to California. Staff proposes to maintain the HVIP's basic structure, with modifications related to lessons learned from the first year of implementation.

The CVRP provides consumer rebates for new zero-emission vehicles (ZEVs) and plug-in hybrids (PHEVs). Staff is proposing up to \$5 million to continue the CVRP, augmenting the \$4 million directed to this project in FY 2009-10. Consumer acceptance of ZEVs and PHEVs is critical for widespread commercialization of advanced technology vehicles, which will ultimately transform the California light-duty vehicle population and lead to substantial future emission reductions.

Staff also proposes to continue the investments to augment local air districts' lawn and garden equipment replacement programs for zero-emission equipment, and rebates to California agricultural consumers for purchase of new zero-emission utility terrain vehicles.

A new project category is proposed which will provide up to \$3 million to pilot accelerated deployment of hybrid off-road equipment and evaluate the emission benefits of hybrid technology in off-road applications. This will lay the groundwork for considering a hybrid equipment voucher project in future years. Expanding the use of hybrid technology in off-road equipment is part of staff's multi-year vision for AQIP which was presented to the Board last April.

Up to \$5.5 million is proposed for demonstration projects that continue to accelerate the next generation of advanced technologies to reduce mobile source emissions. Projects not funded last year due to lower than expected revenues will be given priority in this year's plan. Funded projects must have the potential for commercialization within three years after demonstration and the ability to gain significant market penetration.

#### Contingency Provisions

As in last year's plan, the proposed Funding Plan includes contingency provisions in the event circumstances change between Board approval and the time solicitations are issued or funds awarded, providing the Executive Officer authority to make mid-course adjustments if necessary. The Funding Plan describes the specific conditions under which the contingency provisions could be triggered. As evidenced last year, these provisions are necessary in the event revenues are lower than the appropriation amount. The contingency provisions describe how funding targets for each project category would be adjusted if revenues are lower than the budget appropriation. Contingency provisions also address the inherent uncertainties in forecasting both the availability of new technologies just reaching the market and consumer demand. The Funding Plan includes provisions to address excess demand or insufficient demand in the various project categories.

#### Recommendation

Staff recommends that the Board approve the proposed FY 2010-11 Funding Plan, building on the success of the current funding.

## I. Introduction

The Governor's proposed budget provides \$40 million for the Air Quality Improvement Program (AQIP) projects in Fiscal Year (FY) 2010-11. AQIP is an incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (Assembly Bill [AB] 118, Statutes of 2007, Chapter 750)* through 2015. AQIP funds are unique in that they provide ARB with a significant, ongoing funding source to pay for technology advancing projects for the first time. The AQIP focuses primarily on reducing criteria pollutant emissions, with concurrent reductions in greenhouse gas emissions. The AQIP expands ARB's portfolio of air quality incentives, providing the opportunity to fund projects that do not fit within the statutory framework of existing incentive programs that focus on near-term reductions to criteria pollutants and toxics. The AQIP is one of three incentive programs created under AB 118, which authorizes roughly \$200 million annually for air quality and alternative or renewable fuels. The other two incentive programs are managed by the California Energy Commission (Energy Commission) and the Bureau of Automotive Repair.

The *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2010-11* (FY 2010-11 Funding Plan) provides a roadmap for expending AQIP funds appropriated to the ARB in the FY 2010-2011 State Budget. The plan establishes:

- ARB priorities for the funding cycle.
- Funding allocations by project category.
- Changes in program implementation based on public input and evaluation of subsequent years' projects.
- Contingency provisions should mid-year refinements be necessary.

The remainder of this section provides background on the AQIP. The next section contains a summary of the FY 2010-11 funding proposal and descriptions of the project categories and contingency provisions. Future actions will also be discussed.

### A. Implementation of the AQIP

#### Program Purpose

The AQIP provides funding through 2015 for California air quality improvement projects related to fuel and vehicle technologies. Similar to other ARB incentives, statute requires that emission benefits from the AQIP be surplus to what is already required by local, state and federal regulation. The AB 118 statute allows for a range of eligible AQIP project categories, which can be divided into three general project types:

1. *Commercial Deployment*. These projects include the next generation of advanced technology vehicles and equipment just reaching commercialization. Consumer incentives are needed because these products generally cost more

than their traditionally powered (e.g., gas or diesel) counterparts, which can be a significant deterrent to their purchase. Incentives will accelerate consumer acceptance and have the immediate benefit of reducing criteria pollutants and greenhouse gas emissions. Incentives may lead to an economy of scale by reducing production and sales costs as volume increases, and accelerating technology transfer to other sectors.

2. Advanced technology demonstration. ARB's goal in funding demonstration projects is to help demonstrate the viability of new technology. AQIP funds are used to accelerate advanced technology vehicles, equipment or emission controls which are on the cusp of commercialization. The demonstration projects funded now could become AQIP deployment projects several years from now if the technology proves successful.
3. Research and workforce training. Statute allows the AQIP to fund research on the air quality impacts of alternative fuels, research to increase biofuel production, and workforce training related to advanced technologies. These project types provide the information and training necessary to develop the advanced fuels and vehicles most effective in reducing air pollution.

Statute directs ARB to evaluate potential projects based on potential reduction of criteria or toxic air pollutants, cost-effectiveness, contribution to regional air quality improvement, and ability to promote the use of clean alternative fuels and vehicle technologies.

#### Guiding Regulations and Previous Board Actions

In 2008, the Board adopted the Air Quality Guidelines (Cal. Code Regs., tit. 13, § 2340 et. seq.), often termed the "anti-backsliding guidelines." This regulation is intended to ensure that ARB's and the Energy Commission's AB 118 programs maintain or improve upon emission benefits achieved through California's existing air quality programs. In 2009, the Board adopted the Air Quality Improvement Plan Guidelines (AQIP Guidelines), (Cal. Code Regs., tit. 13, § 2350-2359), a regulation that defines administrative requirements for the AQIP, and requires a Board approved Funding Plan on how AQIP funds will be spent each fiscal year, prior to releasing solicitations and awarding funds. Also in 2009, the Board approved the Fiscal Year 2009-10 AQIP Funding Plan.

#### Guiding Principles for AQIP

In 2009, the Board established overarching implementation priorities and guiding principles for AQIP funds as part of the FY 2009-10 Funding Plan. As was presented at AQIP public workshops in December 2009 and April 2010, staff believes these guiding principles continue to be appropriate and used them to identify projects for this funding year. Broad principles include:

- Supporting development and deployment of advanced technologies needed to meet California's longer-term, post 2020 State Implementation Plan (SIP) goals and climate change goals.

- Focusing program funds on areas underserved through other incentive programs.

For deployment projects, guiding principles also include:

- Accelerating deployment of proven advanced technologies to support significant penetration by the 2024 extreme ozone nonattainment area attainment date.
- Funding new, commercialized technologies that are on the cusp of widespread deployment.
- Modifying consumer choice to buy cleaner vehicles, which may not have occurred without a monetary incentive.

Demonstration project guiding principles focus on projects that:

- Demonstrate the potential to provide cost-effective emission reductions.
- Can be economically viable without subsidy.
- Will be ready for commercialization within three years following demonstration.
- Apply to the California marketplace.

## **B. Program Benefits**

California's air quality challenges require the development and widespread deployment of zero- and near-zero-emission technologies. Most of the AQIP emission benefits are associated with long-term impacts from accelerating technology deployment needed to meet California's longer-term, post 2020 SIP goals, and the greenhouse gas reduction goals called for in ARB's Climate Change Scoping Plan. AQIP supports these air quality goals through:

- Reducing production costs through increased sales and production volume.
- Accelerating technology transfer of zero-emission and hybrid technologies.
- Reducing barriers to new technology commercialization by accelerating consumer acceptance.

Some of the vehicles or vehicle components funded under AQIP are manufactured and assembled in California and distributed through extensive local dealership networks. For example, ISE and Enova Systems are California manufacturers that provide hybrid systems for vehicle models listed as eligible for the Hybrid Truck and Bus Voucher Incentive Program (HVIP). So far, 60 California-based hybrid truck dealers and 25

California-based fleets are participating HVIP. Electric Vehicles International (EVI), a commercial ZEV manufacturer in Stockton, has two vehicle models eligible for consumer rebate under the Clean Vehicle Rebate Project (CVRP). Tesla, a Palo Alto based company, manufactures the Roadster which is an eligible zero-emission vehicle (ZEV), while Vantage Vehicles International, Inc. manufactures and assembles its eligible neighborhood electric vehicle (NEV) in California. Zero Motorcycles is a California-based company that manufactures and assembles its eligible zero-emission motorcycle (ZEM) entirely within the state.

### **C. Coordination with the California Energy Commission**

The AB 118 statute also authorizes the Energy Commission to develop and deploy alternative and renewable fuels and advanced transportation technologies focused on greenhouse gas reductions to help attain the state's climate change policies through the Alternative and Renewable Fuel and Vehicle Technology Program. Potential overlap exists between our AB 118 programs because many technologies achieve both greenhouse gas and criteria pollutant reductions. Unlike the AQIP, however, the Energy Commission has authority to fund infrastructure projects (such as fueling and charging stations and storage facilities), and alternative fuel production projects such as hydrogen, ethanol, biomass-based diesel, natural gas and propane. In areas of overlap, ARB and the Energy Commission continue to complement each other. For example, ARB provides rebates for new zero-emission and plug-in hybrid passenger vehicles, while the Energy Commission funds passenger vehicle public charging stations. In the heavy-duty sector, the Energy Commission funds demonstration of advanced hybrid or zero-emission vehicles, while ARB provides vouchers and rebates to speed deployment of fully commercialized vehicles.

Both ARB and the Energy Commission can also fund workforce training projects. The Energy Commission has taken significant steps in workforce training and development, allocating \$15 million in the FY 2008-09 and 2009-10 Investment Plan to develop labor market information, regional sector workforce development plans, and training and education program development and delivery. Because of the Energy Commission's significant investments in workforce training, ARB staff does not propose funding for these project types in the FY 2010-11 Funding Plan. However, ARB will continue to assess needs and opportunities in this important area; for example, a training program focused on hybrid vehicles could complement project funding for hybrid vehicle deployment. Energy Commission staff will present the \$108 million FY 2010-2011 Investment Plan for approval by the Energy Commission in July 2010.

In future years, ARB and the Energy Commission may jointly fund projects in cases where demand exceeds each agency's available funds. At the policy level, ARB is represented on the Advisory Committee established to assist the Energy Commission in developing each year's Investment Plan. At the technical level, ongoing coordination occurs between the two agencies' program staff.

#### **D. Coordination with Other State and Federal Incentive Programs**

ARB is implementing AQIP in a coordinated manner with other state and federal air quality programs. In February 2009, the American Recovery and Reinvestment Act (ARRA) was signed into law, providing billions of dollars to stimulate the U.S. economy. While the ARB received over \$15 million in ARRA grants, no AQIP funds were ultimately used for match funding on federal grants because those projects were not selected. As new opportunities unfold, staff will evaluate ways to leverage AQIP funds – either as a match to obtain federal funds to augment California's air quality programs, or through opportunities to fold federal funding into the AQIP.

It is a priority of ARB to coordinate our entire portfolio of incentives programs. An Incentive Programs Advisory Group, led by Board Member Sandra Berg, provides an ongoing forum for discussing policy level issues relating to the development and implementation of California's air quality incentive programs. The group is composed of individuals from a range of interests that provide advice and guidance to ARB.

#### **E. Status of Air Quality Loan Program for Trucks**

The 2008-2009 FY State Budget included a one-time appropriation from the AQIP to implement a heavy-duty vehicle air quality loan program to assist smaller on-road fleets (fleets of 20 or fewer vehicles) affected by the ARB's In-Use Truck and Bus Regulation and the Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation. Available funding from this appropriation to implement the program, referred to as Providing Loan Assistance for California Equipment (PLACE), totals about \$35 million.

The program provides a stable financing structure that enables lenders to provide competitive-rate loans to small businesses that fall just outside of conventional underwriting standards. To enhance PLACE, ARB recently expanded the loan guarantee program to include truck manufacturers' financing divisions and also successfully tested a pilot lease-to-own program. ARB is also in the process of developing a direct loan program to expand our financing options to California businesses. As of March 2010, ARB's programs have provided over \$10.3 million in financing.

As part of developing this year's plan, staff evaluated whether additional AQIP funds were needed to sustain the PLACE. Staff concluded that existing funds are currently sufficient to continue the PLACE this year, so staff does not propose allocating any FY 2010-11 AQIP funds to this loan program. Staff will reevaluate the need for additional funding in next year's Funding Plan.

## F. Status of Fiscal Year 2009-10 AQIP Projects

In FY 2009-10, \$42.3 million was appropriated for AQIP in the State Budget, and the Funding Plan approved by the Board was based on this amount. However, available funding is contingent upon actual revenues in the Air Quality Improvement Fund which is funded primarily by motor vehicle fees. Revenues available to fund FY 2009-10 AQIP projects were approximately \$29 million, so ARB staff needed to revise AQIP project funding levels mid-year as discussed below. To date, ARB has encumbered nearly all of its available funds. Table I-1 presents a list of the current project categories, grantees selected to implement each project, funding levels, and dates the funding became available to consumers.

<b>Table I-1. Status of FY 2009-10 AQIP Projects</b>				
<b>Project</b>	<b>Grantee</b>	<b>Consumer Launch</b>	<b>FY09-10 Funding Plan Allocation</b>	<b>FY09-10 Awards <sup>1</sup></b>
<b>Deployment Projects</b>				
Hybrid Truck & Bus Voucher Incentive	CALSTART	2/3/2010	\$25M	\$20.4M
Clean Vehicle Rebate	CA Center for Sustainable Energy	3/15/2010	\$5M	\$4.1M
Agricultural UTV Rebate	SJVAPCD	April 2010	\$1.3M	\$1.1M
Lawn & Garden Equipment Replacement	8 air districts	March/April 2010	\$2M	\$1.6M
<b>Demonstration Projects</b>				
Locomotive After-treatment Technology Demonstration	March 2010 Solicitation; funds to be awarded in June		\$2M	\$0.8M
Hybrid Marine Vessel Demonstration	April 2010 Solicitation; funds to be awarded in June		\$1M	Up to \$1M
Other Demonstration Projects <sup>1</sup>	Deferred until FY 2010-11 due to lower than expected revenues		\$6M	N/A
<b>Total Funding</b>			<b>\$42.3M</b>	<b>\$29M</b>

<sup>1</sup> FY 2009-10 allocations were reduced from \$42.3 million to \$29 million based on available revenues.

AQIP revenues were lower than expected due to the economic downturn. In August 2009, staff adjusted AQIP funding targets from \$42.3 million to \$34.6 million based on an early revenue forecast. Allocations for each project category were reduced in equal proportion in accordance with the contingency provisions in the FY 2009-10 Funding Plan. Solicitations for all of the AQIP deployment projects were then issued, and grants awarded. AQIP revenue projections were subsequently revised to \$29 million based on a second mid-year assessment. Because the deployment project grants had been awarded, it was necessary to reduce funding for demonstration projects to about \$2 million to account for the shortfall. Staff released two demonstration project solicitations in the spring of 2010 and deferred the remaining projects.

## II. Proposed Funding Plan for FY 2010-2011

Staff proposes to continue funding the AQIP project categories established in the FY 2009-10 Funding Plan. The Board envisioned that many of these project categories would be funded for multiple years in order to maintain project continuity and provide a larger overall impact on the selected technologies. Continuing investments in the next generation of vehicles, equipment, and emission controls is critical to meeting California's long-term air quality goals. Each of the proposed projects is discussed in more detail in this chapter.

### A. Summary of Funding Proposal

This year's Funding Plan builds upon the successes of projects implemented in FY 2009-10. The HVIP remains the largest and most visible AQIP project. Based on strong early consumer demand since the project's launch, staff believes a continued investment will help hybrid technology penetrate the California marketplace. ARB staff also proposes to add a new project category in order to pilot accelerated deployment of hybrid off-road equipment and evaluate the emission benefits of this technology in off-road applications. Table II-1 presents staff's proposed FY 2010-11 project category allocations based on the \$40 million appropriation for AQIP projects in the Governor's proposed budget. A description of each project category follows.

<b>Project Category</b>	<b>Allocation<sup>1</sup> (in \$ millions)</b>	<b>% of Total AQIP Budget</b>
Hybrid Truck and Bus Voucher Incentive Project	Up to 25	62.5%
Clean Vehicle Rebate Project	Up to 5	12.5%
Lawn and Garden Equipment Replacement Project	Up to 1	2.5%
Zero-Emission Agricultural Utility Terrain Vehicle Rebate Project	Up to 0.5	1.2%
Off-Road Hybrid Technology Pilot <<NEW PROJECT>>	Up to 3	7.5%
Demonstration Projects	Up to 5.5	13.7%
<b>TOTAL</b>	<b>\$40 Million</b>	<b>100%</b>

<sup>1</sup>Funding based on the Governor's proposed FY 2010-11 Budget. Funding amounts will be adjusted if necessary based on the final State Budget and revenues into the Air Quality Improvement Fund.

### B. Description of Project Categories

This section describes each project category, including the benefits to air quality and technology innovation, FY 2009-10 project status, proposal for FY 2010-11, solicitation process and future trends in funding needs.

## Hybrid Truck and Bus Voucher Incentive Project (HVIP)



**Funding Target:** Up to \$25 million

**Synopsis:** Consumer vouchers for half the incremental cost of a new hybrid truck or bus.

**Project Benefits:**

- Spur early production volumes, lower long-term production cost
- Reduce criteria pollutants, advance technology needed for long-term SIP commitments.
- Reduce carbon dioxide (CO<sub>2</sub>) emissions, progress towards Climate Change Scoping Plan's truck hybridization measure.

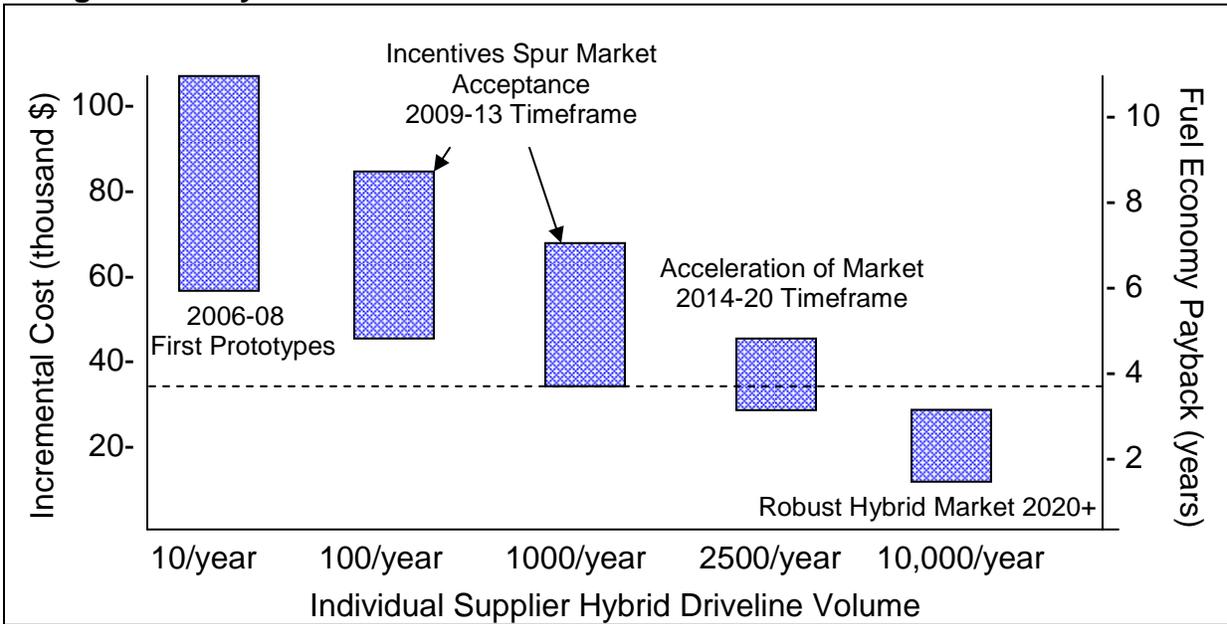
### Overview

Hybrid vehicle technology can significantly reduce criteria pollutant, air toxic, and greenhouse gas emissions – particularly in delivery vehicles, refuse trucks, work trucks, urban buses, and other vehicles with high stop-and-go or idling duty cycles. Hybrid vehicles can also provide significant fuel economy benefits and fuel cost savings to the fleet owner, and therefore have the opportunity to be self-sustaining with some cost reductions. Significant market penetration of hybrid trucks and buses by 2020 is critical to helping the state meet its long-term SIP and climate change goals.

The HVIP plays a critical role in accelerating early market penetration of hybrid technology. Production capacity has significant growth potential, but current low production volumes result in a \$30,000 to \$70,000 hybrid vehicle cost premium. Staff expects production costs to decline significantly as hybrid driveline production volumes reach 2,500 to 5,000 annually per manufacturer (see Figure II-1). When this occurs, the fuel economy payback period should shorten to the point where a hybrid truck purchase is economical without a voucher.

The HVIP is the nation's first program to directly reduce the up-front cost of a hybrid truck or bus, with fleets able to secure a voucher through their dealer as part of their vehicle purchase order. The HVIP enables the buyer of an eligible hybrid truck or bus to receive a set voucher amount based on the gross vehicle weight rating (GVWR) of the vehicle. This streamlined approach – with eligible vehicles and preset voucher amounts available on a first-come, first-served basis – has proven popular with vehicle dealers, manufacturers, and California fleets.

**Figure II-1: Hybrid Truck Incremental Cost as a Function of Annual Volume**



Source: Center on Globalization, Government and Competitiveness<sup>1</sup>; NESCAFF<sup>2</sup>; and CALSTART<sup>3</sup>.

ARB staff envisions the HVIP as a multi-year project to bridge the gap until hybrid vehicle incremental costs decline to the point where incentives are no longer needed. As such, staff proposes continued funding of up to \$25 million for FY 2010-11.

FY 2009-10 Project Status

In FY 2009-10, the HVIP had \$19.4 million for vouchers to accelerate introduction of new hybrid trucks and buses into California fleets. Since the program’s public launch in February 2010, California fleets have requested about \$12 million in vouchers to purchase over 400 hybrid trucks. This is equivalent to over ten percent of the hybrid trucks on the road nationwide. The high demand for vouchers thus far is likely due to willingness of California fleets to invest in this more fuel-efficient technology as the up-front cost declines, as well as the relative simplicity of the voucher funding model. Table II-2 shows the distribution of vehicle vouchers by California region.

<sup>1</sup> Center on Globalization, Governance and Competitiveness – Duke, *Manufacturing Climate Solutions: Carbon Reducing Technologies and U.S. Jobs*, November 2008, and *Hybrid Drivetrains for Medium and Heavy-Duty Trucks*, June 2009.

<sup>2</sup> Northeast States for Coordinated Air Use Management (NESCAFF) et al, *Reducing Heavy-Duty Long Haul Combination Truck Fuel Consumption and CO2 Emissions, Final Report*, October 2009.

<sup>3</sup> CALSTART, *Hybrid Technologies: A Ready Next Step to Kick-Start High Efficiency Trucks*, Presentation by Bill Van Amburg, August 14, 2008, and *Hybrid Medium and Heavy-Duty Vehicles: Status, Benefits and Next Steps to Speed Commercialization*, June 2009.

<b>Table II-2: Regional Voucher Distribution</b>	
<b>California Region</b>	<b>Number of Vouchers Issued<sup>1</sup></b>
South Coast	219
Bay Area	131
San Joaquin Valley	30
Sacramento	29
San Diego	22
Ventura	7
Other	3
<b>TOTAL</b>	<b>441</b>
<sup>1</sup> Total vouchers allotted as of May 15, 2010.	

HVIP vouchers are available for over forty hybrid truck and bus vehicle makes and models from multiple truck and bus manufacturers. The majority of vouchers committed thus far have been for purchase of urban package delivery and beverage delivery vehicles, with an average voucher amount of about \$28,000.

ARB partnered with CALSTART – selected via competitive solicitation – to implement the FY 2009-10 HVIP. CALSTART leads day-to-day project implementation, while ARB has overarching responsibility for project development and oversight. CALSTART’s duties include training of vehicle dealers and fleets, development of the HVIP website, processing of vouchers, and coordinating with and reporting to ARB. Over 95 percent of HVIP funds are for direct vehicle vouchers; with less than five percent going toward project administration. Additional information regarding HVIP implementation can be found at [www.californiahvip.org](http://www.californiahvip.org) and in the HVIP Implementation Manual.<sup>4</sup>

#### Staff Proposal for FY 2010-11

Staff proposes up to \$25 million in continued funding for the HVIP (subject to revenues). Demand for first-year funds suggests California fleets will invest in the 1,000 new hybrid trucks and buses this funding will support, and hybrid vehicle and component manufacturers have the capacity to fulfill this demand. AQIP funding will further accelerate manufacturer investment in hybrid technology and contribute to the production economies of scale that will bring down vehicle costs.

The HVIP is working as envisioned, so staff proposes only minor refinements to the basic structure of the project described in last year’s Funding Plan and the HVIP Implementation Manual. Key proposed updates are described below.

*Commercial Zero-Emission Vehicles:* Last year’s AQIP Funding Plan included consumer rebates for commercial zero-emission vehicles as part of the CVRP. Staff proposes moving zero-emission trucks and buses from the CVRP to the HVIP because the purchasing process for these vehicles – with vehicles ordered in advance for specific fleets and functions – more closely reflects that of hybrid trucks. Staff proposes

<sup>4</sup> Air Resources Board and CALSTART. Hybrid Truck and Bus Voucher Incentive Project Implementation Manual, January 2010. [www.arb.ca.gov/msprog/aqip/hvip.htm](http://www.arb.ca.gov/msprog/aqip/hvip.htm) .

these changes be implemented when FY 2010-11 HVIP funds become available for vehicle purchasers (which is anticipated to occur in December 2010).

*Vehicle Voucher Amounts:* Strong demand for HVIP vouchers thus far suggests existing voucher amounts are generating interest from California fleets to invest in hybrid trucks and buses. Staff’s proposed refinements to voucher amounts and weight categories are identified in Table II-3.

<b>Gross Vehicle Weight in Pounds (lbs)</b>		<b>Base Vehicle Incentive<sup>1</sup></b>	
		<b>FY 2009-10</b>	<b>Proposed FY 2010-11</b>
8,501 – 10,000 lbs <sup>2</sup>	Plug-in Hybrid	Not Eligible	\$10,000
	Zero-Emission		\$15,000
10,001 – 14,000 lbs		\$10,000	\$15,000 <sup>3</sup>
14,001 – 19,500 lbs		\$20,000	
19,501 – 26,000 lbs		\$25,000	\$20,000
26,001 – 33,000 lbs			\$25,000
33,001 – 38,000 lbs		\$35,000	\$25,000
> 38,000 lbs			\$30,000

<sup>1</sup>The first HVIP-eligible vehicle purchased by a fleet and ARB-certified hybrid vehicles above 14,000 lbs are each eligible for an additional \$5,000 voucher.

<sup>2</sup>This weight category includes plug-in hybrid and zero-emission vehicles only.

<sup>3</sup>Zero-emission commercial vehicles in this weight category are eligible for \$20,000, equivalent to their vehicle funding level in the FY 2009-10 CVRP.

The proposed modifications identified above are based upon lessons learned last year and are intended to improve HVIP effectiveness and increase the number of vehicles funded. These proposed modifications are described below:

- **Commercial Zero-Emission Vehicles:** Commercial zero-emission vehicles between 10,001 and 33,000 pounds (lbs) GVWR would be eligible for \$20,000, which is the same funding level they receive in the FY 2009-10 CVRP. Vouchers for zero-emission commercial vehicles above 33,000 lbs GVWR would match those for hybrid vehicles. Staff proposes that zero-emission vehicle voucher amounts generally match (rather than significantly exceed) those for hybrid vehicles, since the hybrid vehicle market has much greater near-term potential to become self-sustaining over a diversity of vehicle vocations.
- **New Eligible Weight Category:** An additional category for plug-in hybrid and zero-emission commercial vehicles weighing 8,501 to 10,000 lbs GVWR would be added to the program at funding levels of \$10,000 and \$15,000, respectively. This new eligible weight class would encourage manufacturers with plans for smaller, more efficient commercial electric or plug-in hybrid trucks and buses to target California for initial vehicle sales. This category would likely include shuttle buses, delivery vehicles, and vehicles with similar applications. Non-plug-in hybrid technology in this new weight range is similar to that of light-duty vehicles, so staff proposes only plug-in hybrids (and zero-emission vehicles) be eligible for vouchers. Vehicles

typically used for residential or personal use and not purchased by a public or commercial fleet would be ineligible. Other consumer and vehicle eligibility requirements will be made in consultation with the HVIP Work Group and included in the project Implementation Manual.

- Voucher Amount for 10,001 to 14,000 lbs Hybrid Vehicles: Staff proposes increasing the existing hybrid vehicle voucher amount for the 10,001 to 14,000 lbs GVWR category from \$10,000 to \$15,000. To date, manufacturers have not offered hybrid vehicles in this weight range as part of the HVIP. Hybrids of this size are required to be ARB-certified – a requirement not applicable to heavier classes. The increase in voucher incentive may help stimulate demand and will better reflect the costs associated with bringing these vehicles to market.
- Voucher Amounts for 14,001 to 33,000 lbs Hybrid Vehicles: Staff proposes reducing the existing voucher amount for hybrid vehicles between 14,001 and 26,000 lbs GVWR from \$20,000 to \$15,000 and the 26,001 to 33,000 lbs GVWR weight category from \$25,000 to \$20,000. Demand has been strong for vehicles in these weight ranges. Manufacturers are ramping up production of these vehicles, and staff believes demand will remain high even at this reduced voucher amount.
- Voucher Amounts for Vehicles Over 33,000 lbs: Staff proposes splitting the 33,001 lbs GVWR and above vehicle weight class. A hybrid or zero-emission vehicle between 33,001 to 38,000 lbs GVWR would be eligible for a \$25,000 voucher, while a 38,001 lbs and above GVWR vehicle would receive a \$30,000 voucher. HVIP demand has been highest for vehicles between 33,001 and 38,000 lbs GVWR, and staff anticipates fleets will continue to request vouchers at this modified funding level. Vehicles above 38,000 lbs GVWR would receive a relatively higher voucher amount to support deployment of hybrid refuse haulers and other heavier vehicles expected to hit the market soon.

At public workshops during development of this funding plan, staff indicated that proposed modifications to HVIP voucher amounts were based in part upon the extent and distribution of last year's voucher demand. Staff's proposal to reduce voucher amounts for most hybrid vehicles above 14,000 lbs GVWR by \$5,000 (described above) is in response to a recent surge in voucher demand and, since it reflects the latest information, was not described at public workshops. A public HVIP Work Group meeting will be held before the June 24, 2010 Board meeting to discuss this proposed modification with interested stakeholders.

*Public Fleets:* Demand for HVIP vouchers has been largely driven by private fleets, with public agencies responsible for less than five percent of vouchers requested thus far. Stakeholders from public agencies have indicated that budgetary challenges have deterred participation in HVIP. Others have indicated that public agencies may have difficulty accessing vouchers on a first-come, first-served basis given the procurement process requiring competitive bid, and the timing of when purchasing decision are made.

Staff proposes monitoring public fleet participation as FY 2009-10 HVIP funds are drawn down and, if needed, setting aside up to ten percent of FY 2010-11 HVIP funds specifically for public fleets. Staff would coordinate with the HVIP Work Group to determine the amount of set aside funding and the process for accessing the funds. Staff would also evaluate opportunities to leverage match funds from interested air districts or other entities to further buy-down these vehicle costs.

*Hybrid Vehicle Eligibility:* Hybrid truck and bus models currently have two avenues to becoming HVIP-eligible – being ARB-certified or listed as eligible for the Internal Revenue Service (IRS) Heavy-Duty Hybrid Vehicle Tax Credit. Staff proposes continuing these mechanisms for determining vehicle eligibility, with ARB-certified vehicles over 14,000 lbs still provided an additional \$5,000 voucher amount. Because the federal tax credit expired on January 1, 2010, and the IRS has stopped evaluating and adding hybrid vehicles to its list,<sup>5</sup> ARB staff is evaluating vehicles for HVIP-approval based on the criteria used by the IRS until the federal tax credit is renewed (federal legislation to renew this tax credit is currently under congressional review). If the tax credit is not renewed, ARB staff proposes working with the HVIP Work Group on a potential process to evaluate non-ARB certified hybrid truck and bus models for HVIP eligibility. As with last year's HVIP, only fully proven and commercialized vehicles are eligible for the HVIP. Manufacturers of vehicles in the demonstration or evaluation phase are encouraged to apply for Energy Commission AB 118 funds.

*Hybrid Vehicle Testing:* With the increasing diversity of vehicle vocations and configurations for which hybrid trucks are available, staff proposes allowing up to five percent of total HVIP funds be used for emissions testing and data collection. Voluntary testing would enable ARB to better understand the emission characteristics of hybrid trucks and buses as they operate over diverse duty cycles. This testing component would be described in the HVIP solicitation.

*Contingency Provisions:* The supply and demand for hybrid vehicles is expected to remain strong over the next several years. Because the HVIP represents such a large investment, however, staff believes it prudent to include two transparent milestones for evaluating project progress and ensuring project funds are spent effectively.

1. If less than eighty percent of the FY 2009-10 HVIP funds have been reserved by fleets at the time of the FY 2010-11 solicitation, staff will reassess the FY 2010-11 funding allocation. Staff proposes that the Executive Officer have authority to reallocate up to half of the FY 2010-11 HVIP funds to other AQIP projects with greater need. Any fund reallocation will be commensurate with project needs and will be conducted in consultation with the public work groups for the project categories affected.
2. If less than half of next year's HVIP funds are reserved by fleets by July 1, 2011, the Board could direct staff to divert up to half of the unallocated HVIP funding to

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<sup>5</sup> IRS Qualified Alternative Fuel Motor Vehicles (WAFMV) and Heavy Hybrid Vehicles can be found at: <http://www.irs.gov/businesses/article/0,,id=175456,00.html>).

other AQIP projects. This decision would be presented to the Board when it considers staff's proposed FY 2011-12 Funding Plan.

#### Project Solicitation

Staff proposes to issue this year's HVIP solicitation in September/October 2010. Similar to last year, the solicitation will be open to individuals, federal, state, and local government entities and agencies, and organizations with California heavy-duty vehicle, vehicle incentive, or air quality experience. Solicitations will be evaluated using scoring criteria similar to last fiscal year, and the grantee will be responsible for outreach and implementation of the HVIP statewide. Staff proposes retaining the flexibility to issue separate solicitations for vehicle testing or public fleet aspects of the HVIP. Staff also proposes retaining the maximum allowable costs for project administration and outreach at five percent of the project award.

#### Future Trends in Funding Needs

Staff anticipates the incremental cost between hybrid and non-hybrid trucks and buses will decrease as production volumes increase. According to manufacturers, hybrid trucks and buses should become cost-competitive with non-hybrids when production volumes reach 2,500 to 5,000 units per hybrid system supplier. This threshold should be reached in the hybrid truck and bus market between 2013 and 2016, allowing project funds to target other promising project categories.

## Clean Vehicle Rebate Project (CVRP)



**Funding Target:** Up to \$5 million

**Synopsis:** Consumer rebates for zero-emission and plug-in hybrid light-duty vehicles.

**Project Benefits:**

- Support transportation sector emission reductions needed in the post-2020 timeframe
- Spur commercialization of the cleanest vehicles available

### Overview

Zero-emission vehicles and near-zero-emission vehicles are a key element of California's plan for attaining health based air quality standards and meeting the state's greenhouse gas emission reduction goals. While manufacturers have made strides in advancing light-duty vehicle emissions technology, financial incentives for plug-in hybrid electric vehicle (PHEV) and ZEV technologies are still necessary in order to seed the market for widespread commercialization of the cleanest vehicle technologies. As such, last year the Board approved the CVRP, designed to facilitate the development and widespread commercialization of ZEVs and PHEVs by offsetting a portion of the higher cost of advanced automotive technologies. Staff proposes to continue the CVRP for 2010-2011 and add \$5 million to the current project.

### FY 2009-10 Project Status

In late 2009, ARB awarded the California Center for Sustainable Energy (CCSE) \$4.1 million through a competitive solicitation to implement the statewide CVRP. The CVRP launched on March 15, 2010 with the online application available at [www.cvrp.energycenter.org](http://www.cvrp.energycenter.org). CVRP offers vehicle rebates depending on vehicle type, issued on a first-come, first-served basis. As of May 1, 2010, 20 vehicle models including light-duty ZEVs, commercial ZEVs, ZEMs, and NEVs are currently eligible. Additional vehicle models will be added to the eligibility list as they become available. Project details are available in the CVRP Implementation Manual.<sup>6</sup> Due to the recent launch of the project, and the limited number of vehicles currently eligible, most of the funds remain from last year's allocation of \$4.1 million.

<sup>6</sup> Air Resources Board and CCSE. 2010. Implementation Manual for the Zero Emission and Plug-In Hybrid Light-Duty Vehicle (Clean Vehicle) Rebate Project; <http://www.arb.ca.gov/msprog/aqip/cvrp.htm> .

Staff Proposal for FY 2010-11

Staff proposes allocating up to \$5 million (subject to revenues) to continue the CVRP. Staff developed this funding target based on preliminary discussions with vehicle manufacturers and other stakeholders. Fiscal year 2010-11 funds will augment existing funds, bringing the two-year funding total to \$9.1 million. Taking into account administrative costs, this funding level is sufficient to incentivize approximately 1,600 full function ZEVs (at \$5,000 each). The rebate amounts will be equivalent to those approved last year. Table II-4 summarizes the maximum rebate amount per vehicle and the maximum project funding for each vehicle type.

<b>Vehicle Type</b>	<b>Maximum Rebate Amount</b>	<b>Maximum Project Funding</b>
Light-Duty Zero-Emission Vehicle		Up to \$5 million
Type II, III, IV, or V (range ≥ 100 miles)	\$5,000	
Type I.5 (range ≥ 75, < 100 miles)	\$4,000	
Type I (range ≥ 50, < 75 miles)	\$3,000	
Light-Duty Plug-in Hybrid Electric Vehicle	\$3,000	Up to \$1 million
Neighborhood Electric Vehicle	\$1,500	
Zero-Emission Motorcycle	\$1,500	

Table II-5 lists a number of automotive manufacturers that have made recent ZEV and PHEV product announcements. Based on these announcements, staff believes sufficient funds have been allocated to the CVRP this fiscal year. Staff continues to collaborate with stakeholders to evaluate the ZEV/PHEV market.

<b>Vehicle Manufacturer</b>	<b>Make</b>	<b>Roll Out Date</b>
BMW	ActiveE	July 2011
Coda	Coda	late 2010
Fisker	Karma	late 2010
Ford (Azure Dynamics)	Transit Connect	December 2010
General Motors	Chevrolet Volt	late 2010
Nissan	LEAF	December 2010
Th!nk	City	2011
Toyota	Plug-In Prius	2011

To address the uncertainty inherent in predicting the future roll out of new technology, staff proposes the following provisions to respond to insufficient or excess demand:

*Contingency Provision-Additional Demand:* If the project becomes oversubscribed, ARB will coordinate with the Energy Commission to assess whether Energy Commission funds could be used to augment ARB funds. This approach is consistent with the Energy Commission’s draft FY 2010-11 Investment Plan. If additional funds are not available, staff proposes that consumers be put on a waiting list in the order in which the rebate application was received. Rebates will be disbursed according to

waiting list order, although the ARB will not be able to guarantee funding until the Board approves next year's Funding Plan and the Legislature appropriates funding.

*Contingency Provision-Funding Reallocation:* If rebates have not been requested for at least half of the FY 2009-10 funds by the first quarter of 2011, staff will reassess the need for the full \$5 million prior to issuing the FY 2010-11 CVRP solicitation. Staff proposes that the Board delegate to the Executive Officer the authority to redirect a portion of the CVRP allocation to other project categories if less than half of the rebate funds have been requested and the reassessment indicates a lack of vehicle availability.

In addition to the contingency provisions, staff is proposing one other update to the CVRP:

*Commercial ZEVs:* Staff is proposing to shift the commercial ZEV category to the HVIP. As discussed in the previous section on HVIP, the process for purchasing commercial ZEVs is similar to that of hybrid trucks and buses, and will allow consumers to access funds at the time of vehicle order. Moving these vehicles will allow CVRP funds to be directed entirely to light-duty vehicles.

#### Project Solicitation

The solicitation process will remain unchanged with the same eligibility and administrative requirements as FY 2009-10. Entities with experience implementing a grant program and general knowledge of ARB's clean vehicle programs will be eligible to apply to administer the rebate project. No major changes to the scoring criteria are proposed. Administration and outreach costs are capped at ten percent. The current project Implementation Manual will be updated where necessary in collaboration with the CVRP Work Group and selected grantee.

#### Future Trends in Funding Needs

To achieve California's long term air quality and greenhouse gas emission reduction goals, ARB will continue to rely on advanced technology light-duty vehicles. State and federal consumer incentives in the near-term<sup>7</sup> will accelerate the deployment of these vehicles by reducing the incremental cost during the transition from vehicle introduction to profitable economy of scale production. During this period, incentives, both monetary and non-monetary, are necessary to make advanced technology vehicles attractive until the ZEV market reaches pre-commercial scale and consumer demand leads to increased production and reduced vehicle pricing. As manufacturers ramp up ZEV and PHEV production in the 2012-2014 timeframe, the CVRP will unlikely be able to keep pace. At that point, ARB will need to consider reducing rebate amounts and making changes in vehicle eligibility. ARB will continue to coordinate with the Energy Commission to identify opportunities to augment this effort with additional funds from their AB 118 program.

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<sup>7</sup> Air Resources Board. 2009. Summary of Staff's Preliminary Assessment of the Need for Revisions to the ZEV Regulation; <http://www.arb.ca.gov/msprog/zevprog/2009zevreview/zevwhitepaper.pdf>.

## Lawn and Garden Equipment Replacement Project (LGER)



**Funding Target:** Up to \$1 million

**Synopsis:** Augment non-attainment air districts' lawn and garden equipment replacement programs.

**Project Benefits:**

- Reduce criteria pollutant emissions by replacing residential gas-powered equipment with zero-emission equipment
- Accelerate development of zero-emission commercial equipment

### Overview

Lawn and garden equipment replacement is specifically identified in statute as one of the equipment categories to be eligible for funding under the AQIP. Last year, the Board approved funding for the Lawn and Garden Equipment Replacement Project (LGER) which is designed to replace internal combustion lawn and garden equipment with cordless zero-emission lawn and garden equipment and to encourage further development and deployment of this technology. These AQIP funds are used to augment local air districts' lawn and garden equipment replacement programs. These local programs have been successful in reducing criteria pollutant emissions cost-effectively, but have been limited in scope due in part to lack of funding. Staff believes that funding for this project continues to be a necessary step in also encouraging development of zero-emission technology in the commercial lawn and garden equipment. This project category was established in the AQIP FY 2009-10 Funding Plan, and based on the demand for rebates in FY 2009-10, staff proposes to continue funding for this category.

### FY 2009-10 Project Status

Last year, \$1.6 million was awarded via competitive solicitation to 8 local air districts designated as non-attainment for the federal 8-hour ozone standard to augment their existing exchange programs. Air district lawn mower exchange events began in March and will continue through August. Staff expects most of the funds granted in FY 2009-10 will be spent this summer; however, some districts plan to spend these funds over several years. Additional information on the LGER Project and air districts' lawn mower exchange programs is available at: <http://www.arb.ca.gov/msprog/aqip/lger.htm> .

### Staff Proposal for FY 2010-11

Staff proposes funding up to \$1 million (subject to revenues) to continue the LGER Project. The proposed allocation is reduced from last year's \$1.6 million allocation

because some air districts indicated plans to spend FY 2009-10 LGER Project funds over several years. Staff proposes only minor refinements to the basic structure of the project described in last year's Funding Plan and the air district's LGER Project Implementation Manuals. Key proposed updates are described below.

*Remaining FY 2009-10 LGER Project Funds:* Under the current LGER Project, districts are required to expend state funds by June 30, 2012. However, staff anticipates that many of the districts participating in this project will fully expend awarded state funds and have zero-emission equipment operating well before state funds in the new fiscal year become available. In order to reward those districts that successfully and expeditiously expend first year funds, staff proposes to add scoring criteria in the FY 2010-11 solicitation that provides additional points to air districts that have spent the majority of their FY 2009-10 funds at the time an application for new funds is submitted to ARB.

*Match Funding:* In the LGER Project, local air districts are required to match AQIP funds with an equal amount of local funding. This provision follows precedent for a match fund requirement set in many of ARB's existing incentive programs and ensures that AQIP funds are used to augment air districts' programs not replace the funding source. For FY 2009-10 only, ARB allowed air districts to use local funds from past exchange events to count toward its match fund requirement. To eliminate the possibility of double counting and ensure local air district financial commitment this year, staff proposes to require that district matching funds be new funds allocated for future exchange events.

*Additional Zero-Emission Equipment:* Staff is proposing an option for districts to use AQIP funds to replace other commercially available cordless zero-emission equipment, such as cordless electric hedge trimmers, in addition to lawn mowers. Equipment may be for residential or commercial use. Expanding the list of eligible equipment is consistent with the LGER Project's goal of encouraging consumer acceptance of zero-emission technologies and accelerating deployment in the commercial sector.

#### Project Solicitation

As approved by the Board last year, the LGER Project will continue to be open to all air districts designated as non-attainment for the federal 8-hour ozone standard, and will focus on districts with the worst air quality. More than one air district may be selected for LGER Project funding. Districts selected for the LGER Project may use up to ten percent of their award for administrative and outreach costs.

#### Future Trends in Funding Needs

While both commercial and residential cordless zero-emission lawn and garden equipment are eligible for the LGER project, staff expects only residential equipment to be available for purchase during the project's first few years. Staff will be evaluating electric commercial lawn and garden as a potential advanced technology demonstration project. Staff anticipates that the availability of incentive funding, combined with advances in battery technology will help bring zero-emission commercial equipment to the commercial market.

## Agricultural Utility Terrain Vehicle (UTV) Rebate Project



**Funding Target:** Up to \$500,000

**Synopsis:** Rebate for California growers that provides 15 percent of the MSRP for new zero-emission all terrain vehicles and utility vehicles.

**Project Benefits:**

- Reduce criteria pollutant emissions from fuel-powered utility terrain vehicles used in agriculture
- Accelerate consumer acceptance of zero-emission work vehicles

### Overview

The term utility terrain vehicle (UTV) collectively describes all-terrain vehicles and utility vehicles, both of which are extensively used in the agricultural industry. The population of internal combustion engine UTVs in the California agricultural industry is second only to that of agricultural tractors.<sup>8</sup> Immediate emission reductions of criteria pollutants as well as greenhouse gases can be achieved from these sources by switching to zero-emission technology. Additionally, much of the state's agricultural activities are centered in non-attainment areas that need additional emission reductions to meet air quality standards.

While electric UTVs are commercially available, the cost of these vehicles relative to a gasoline or diesel-powered counterpart can be a deterrent to purchase. The Agricultural UTV Rebate Project encourages and accelerates the purchase of zero-emission work vehicles for use in California agricultural operations by providing rebates of 15 percent of the manufacturer's suggested retail price (MSRP), up to a maximum of \$2,500. Recreational vehicles are not eligible for rebates. This project category was established in the AQIP FY 2009-10 Funding Plan and is proposed for continued funding in FY 2010-11.

### FY 2009-10 Project Status

Early in 2010, ARB awarded the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) \$1.1 million through a competitive selection process to implement the statewide UTV rebate project. This funding provides rebates for about 600 vehicles on a first-come, first-served basis. The project launched for consumers in April 2010. Rebate applications and project information is available through the project website at:

<sup>8</sup> Baker, R. 2008. Characterization of the off-road equipment population. Final report prepared for the California Air Resources Board and the California Environmental Protection Agency. Contract No. 04-315 (This study combined utility vehicles and ATVs in the general category of an ATV).

[http://www.valleyair.org/Grant\\_Programs/UTV/UTVWeb.htm](http://www.valleyair.org/Grant_Programs/UTV/UTVWeb.htm) or by contacting the SJVUAPCD. Additional project details are available in the project's Implementation Manual.<sup>9</sup>

#### Staff Proposal for FY 2010-11

Staff proposes new funding of up to \$500,000 to continue the Agricultural UTV Rebate Project. Given the project's recent launch, most of the funds remain from last year's allocation. The FY 2010-11 funds will serve to augment existing funds, bringing the two year funding total to \$1.6 million. Staff believes this funding level will sustain the project through the next year, but is proposing provisions to address excess or insufficient demand.

Some agricultural stakeholders have provided feedback that the rebate amount of 15 percent is not sufficient to incentivize purchase of an all-electric UTV. Staff researched the incremental costs between all-electric UTVs and their equivalent gas-powered counterparts and found the incremental cost to be between 4 and 15 percent in most cases. Staff believes the current rebate amount is sufficient on this basis, but acknowledges that additional considerations such as infrastructure requirements, battery range and recharge time may be deterrents to purchase. Staff will continue to meet with stakeholders, monitor rebate demand, and assess cost-effectiveness under the current project. Staff is proposing to monitor and adjust, if appropriate, the rebate amount during FY 2010-11. Rebates will continue to be disbursed on a first-come, first-served basis. A summary of proposed modifications is described below.

*Contingency Provision-Additional Demand:* In the event the project becomes oversubscribed, staff proposes that consumers be put on a waiting list in the order in which the rebate application was received. When additional funds become available, rebates will be disbursed according to waiting list order, although the ARB will not be able to guarantee funding until the Board approves next year's Funding Plan and the Legislature appropriates funding.

*Contingency Provisions-Funding Reallocation:* If rebates have not been requested for at least half of the FY 2009-10 funds by December 2010/January 2011, staff will reassess the need prior to issuing the FY 2010-11 solicitation for the full \$500,000. Staff proposes that the Board delegate to the Executive Officer the authority to redirect a portion of the Agricultural UTV Rebate Project allocation to other project categories if less than half of the rebate funds have been requested by this time.

#### Project Solicitation

Staff proposes that the solicitation process remain the same as last year. Air districts or other qualified non-profit or public entities will be eligible to apply through competitive solicitation to administer the rebate project. Up to ten percent of the project funding will be available for project administration and outreach. The existing project

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<sup>9</sup> ARB and SJVUAPCD. 2010. Agricultural Utility Terrain Vehicle Rebate Project Implementation Manual; [http://www.arb.ca.gov/msprog/aqip/ag\\_utv.htm](http://www.arb.ca.gov/msprog/aqip/ag_utv.htm) .

Implementation Manual will be updated as necessary in collaboration with the Agricultural UTV Rebate Project Work Group and selected grantee.

#### Future Trends in Funding Needs

The incremental cost between electric and internal combustion engine UTVs is expected to decrease with advances in battery technology, improvements in battery supply and distribution networks, and reduced production and sales costs as volumes increase. As battery performance and pricing evolves, some manufacturers of electric UTVs may change to more advanced battery types (e.g., lead-acid to lithium-ion). Incentives for deployment of zero-emission UTVs in the agricultural sector is expected to decrease to the point where rebates are unnecessary as consumers realize benefits associated with reduced fuel consumption and less maintenance, combined with equivalent or superior vehicle performance and reduced purchase price. Future funding for this category will be evaluated as part of developing the FY 2011-12 Funding Plan.

## Off-Road Hybrid Equipment Pilot Project (Off-Road Pilot Project)



**Funding Target:** Up to \$3 million

**Synopsis:** Accelerate early deployment and evaluate emission benefits of hybrid equipment.

**Project Benefits:**

- Accelerate transition of hybrid technology to the off-road sector
- Lay the groundwork for a potential hybrid off-road equipment voucher project in future AQIP funding years.

### Overview

Hybrid off-road excavators and dozers are now available for purchase by California fleets. This technology shows promise in providing criteria pollutant and greenhouse gas emission reductions, while also achieving significant fuel economy benefits and fuel cost savings. Two manufacturers – Caterpillar and Komatsu – offer hybrid equipment for sale in California, and other manufacturers are preparing to offer hybrid equipment over the next year. This technology offers an opportunity for lower emissions and fuel economy savings; however, purchases are expected to be slow in the near term due to the hybrid systems' 20 to 30 percent cost premium.

### Staff Proposal for FY 2010-11

Staff proposes up to \$3 million (subject to revenues) for a Hybrid Off-Road Equipment Pilot Project to encourage development and deployment of hybrid off-road equipment in California fleets. The project would fund approximately half of the incremental cost of hybrid off-road equipment, and include additional funding for in-use testing to quantify the emission benefits of the hybrid system over the equipment's typical duty cycle. Staff anticipates that the emissions data and information learned from this project could provide the foundation for a more comprehensive hybrid equipment voucher project in future AQIP funding years. Data from this project may also provide a mechanism for hybrid equipment purchasers to generate credit towards compliance with ARB's In-Use Off-Road Diesel Vehicle Regulation.

At the April 2009 Board meeting on the FY 2009-10 AQIP Funding Plan, staff presented the Board with its multi-year vision for the AQIP, which included future funding to encourage the use of hybrid technology in off-road equipment. This project is a first step in implementing that vision.

*Electric Power Take-Off.* The Off-Road Pilot Project could include funding for electric Power Take-Off (PTO) in on-road vehicles. Several commercially available trucks use electric PTO that reduces or eliminates the need for vehicle idling to operate lifts, cranes, refrigeration units, or other functions. Vehicles which use electric systems for PTO but not hybrid or electric vehicle propulsion are not eligible for funding under the HVIP project. Electric PTO is eligible for Energy Commission AB 118 funding, and as of May 15, 2010, the Energy Commission is evaluating applications for projects using this technology. ARB will coordinate with the Energy Commission to determine if additional funding is needed, and to ensure that any eventual AQIP project complements Energy Commission investments.

#### Project Solicitation

Staff proposes funds for this project be granted via a request for proposals (RFP), with air districts and other public agencies, in addition to vehicle manufacturers, fleets, non-profits and other private entities eligible to apply. Multiple entities could potentially be awarded partial project funding. Allowable costs for project administration and outreach will be capped at ten percent. Staff will work with the Hybrid Off-Road Equipment Pilot Project Work Group to determine project requirements, including project evaluation criteria, eligible equipment, and emission testing protocols.

#### Future Trends in Funding Needs

Hybrid technology has the potential to provide significant air quality and fuel economy benefits in the off-road equipment sector. This pilot project will help staff evaluate near-term viability for this technology in various off-road vocations, as well as potential future funding needs for this project category.

## Advanced Technology Demonstration Projects



**Funding Target:** Up to \$5.5 million

**Synopsis:** Demonstrate the viability of advanced technology vehicles, equipment or emission controls

**Project Benefits:**

- Accelerate commercialization and deployment of cleaner technologies in the California marketplace
- Support California's goals of criteria pollutant and toxic emission reductions and greenhouse gas emission reductions.

### Overview

ARB's goal in funding demonstration projects under the AQIP is to help accelerate the next generation of advanced technologies to reduce criteria pollutant emissions from mobile sources. AQIP funding will be used to demonstrate the viability of new technologies with a focus on the off-road sector and transit and school bus category. Viable projects must have the potential for commercialization within three years after demonstration, and the ability to gain significant market penetration in California.

### FY 2009-10 Project Status

Last year the Board approved allocating \$9 million toward advanced demonstration projects. However, lower than expected AQIP revenues over the fiscal year required subsequent adjustments to the project allocation, such that only about \$2 million in funds was ultimately available. ARB prioritized the locomotive and marine categories for funding in FY 2009-10, and deferred the remaining projects for funding in 2010-11. An \$800,000 solicitation was released in March 2010 for the demonstration of advanced aftertreatment technologies for medium-horsepower locomotives. This project is a high priority action identified in ARB's report entitled Technical Options to Achieve Additional Emissions and Risk Reductions from California Railroads.<sup>10</sup> In April 2010, a solicitation for up to \$1 million was released to demonstrate hybrid technology in marine vessels, which aligns with ARB's goal of hybrid technology demonstration and alternative compliance with the harbor craft rule. Grantees for both projects will be selected before the end of the fiscal year.

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<sup>10</sup> ARB, Technical Options to Achieve Additional Emissions and Risk Reductions from California Locomotives and Railyards. August 2009.

Staff Proposal for FY 2010-11

ARB staff proposes FY 2010-11 funding of up to \$5.5 million (subject to revenues) for advanced technology demonstration projects in the locomotive, marine, off-road and agriculture and transit and school bus categories. Funds will be used for demonstration projects deferred from the FY 2009-10 Funding Plan due to the decrease in last year's revenues, with the exceptions of the proposed changes discussed below. Table II-6 lists proposed project categories, project types and funding targets.

<b>Table II-6: FY 2010-11 Demonstration Projects Proposed Funding Targets</b>	
<b>Project Category</b>	<b>Proposed Funding Levels<sup>1</sup></b>
<b>Locomotive</b> <ul style="list-style-type: none"> <li>- Demonstration of new locomotive engines that meet or exceed the Low-Emitting Locomotive emission level</li> </ul>	Up to \$1 million
<b>Marine</b> <ul style="list-style-type: none"> <li>- Demonstration of hybridization or other advanced marine engines</li> <li>- Demonstration of technology to reduce main engine usage while maintaining vessel operational requirements.</li> </ul>	Up to \$1 million
<b>Agricultural and Off-Road Equipment</b> <ul style="list-style-type: none"> <li>- Tier IV off-road engines or their equivalent</li> <li>- Retrofits for existing agriculture and off-road engines that reduce NOx emissions by at least 55% and PM emissions by at least 85%</li> <li>- Retrofits that reduce PM emissions from Tier 0 off-road engines by at least 85%</li> <li>- Cordless zero-emission commercial lawn and garden equipment</li> </ul>	Up to \$2 million
<b>Transit and School Bus</b> <ul style="list-style-type: none"> <li>- Zero-emission transit buses</li> <li>- Zero-emission and advanced plug-in hybrid school buses</li> </ul>	Up to \$2 million
<sup>1</sup> Total available funding is up to \$5.5 million. Each category may not be funded at the full funding level.	

In addition to the projects listed in Table II-5, staff may consider additional projects in its grant solicitations as long as they meet the Board-approved guiding principles for AQIP demonstration projects and fit into one or more of the established demonstration categories.

*Off-Road Hybrid Equipment Pilot:* Off-Road equipment hybridization was a concept developed during demonstration project work group meetings leading up to the FY 2009-10 Funding Plan. Since that time, hybrid off-road equipment has become available for purchase from major manufacturers such as Caterpillar and Komatsu. However, vehicle testing is still warranted to document the emission benefits of the hybrid system over various duty cycles and to assess the equipment's performance under different operational scenarios. Staff proposes to move this project type out of the demonstration project category and introduce it as a pilot project under AQIP.

*School Bus Demonstration Projects:* In the FY 2009-10 Funding Plan, the Board approved three types of school bus projects for demonstration. After discussions with the California Highway Patrol and school bus stakeholders during a public work group

meeting in June 2009, it was determined that the high cost of school bus safety certification would be a barrier for two of the approved project types. Consequently, staff proposes eliminating hybrid retrofits and school bus engine efficiency retrofits on existing school buses due to the high cost of safety certification. If the economics of certification improves, staff will consider reevaluating these projects for funding in the future. The other Transit and School Bus project types from the FY 2009-10 Funding Plan (zero-emission transit buses and zero-emission and advanced plug-in hybrid school buses) remain as potential demonstration projects in FY 2010-11

*Combining the Off-Road and Agricultural Equipment Project Categories:* Staff proposes to combine the Off-Road and Agriculture Equipment demonstration project categories given the similarities in advanced emission control technologies between the categories.

#### Project Solicitation

Staff proposes that the project solicitation specifications approved by the Board last year remain unchanged. Local air districts and other public agencies would continue to be eligible to apply for demonstration project funding through a competitive solicitation process. Public entities are encouraged to partner with one or more technology demonstrators and end users in their regions. At least 50 percent of each demonstration project's funds must be provided from a non-AQIP source, and at least ten percent of this non-AQIP match must be in cash with the remainder allowed as in-kind contribution. The requirement of match funding leverages AQIP funds while encouraging grantees to be invested in successful completion of the projects. Staff proposes to continue that up to ten percent of the total project budget be available for project administration.

#### Future Trends in Funding Needs

ARB is committed to supporting the advancement of new, cleaner technologies with the potential for commercialization in the California marketplace; the AQIP provides ARB with a rare opportunity to fund such projects. Future funding for this category is anticipated as part of the FY 2011-12 Funding Plan.

### C. Funding Contingencies

The proposed Funding Plan incorporates contingency provisions establishing decision points for which the Board grants the Executive Officer authority to make mid course adjustments in the event circumstances change between Board approval of the Funding Plan and the time solicitations are issued or funds awarded. As evidenced last year, these provisions are necessary in the event revenues are lower than the appropriation amount. Contingencies are refined in this year's plan based on lessons learned from last year. The proposed Funding Plan is based on the \$40 million budget appropriation, but includes the following proposed contingencies:

- (1) Establish minimum allocations for each category based on approximately \$30 million in projected revenues (reflective of actual FY 2009-10 revenues). Establishing minimum targets for each category based on a conservative funding scenario reduces the risk of over-obligating funds beyond available revenues, and avoids disproportionately affecting projects that start later in the fiscal year if revenue projections are lowered. These allocations are presented in Table II-7 which presents the proposed minimum and maximum allocations for each project category under a conservative funding scenario and the full allocation. If revenues come in between the \$30 million minimum allocation and the \$40 million appropriated amount, funding for each project category would be scaled according to the targets in Table II-7.
- (2) Establish decision points for making funding allocation decisions for specific project categories (e.g., HVIP, CVRP and the Agricultural UTV Rebate Project). As discussed in each of these sections, project-specific contingencies address excess or insufficient demand and describe the conditions or circumstances which would trigger each contingency provision.

<b>Project Category</b>	<b>Minimum Allocation<sup>1</sup> (\$millions)</b>	<b>Increase in Allocation Based on \$40M AQIP Budget</b>
Hybrid Truck and Bus Voucher Incentive Project	19	Add up to \$6M
Clean Vehicle Rebate Project	5	No additional funds
Lawn and Garden Equipment Replacement Project	1	No additional funds
Zero-Emission Agricultural Utility Terrain Vehicle Rebate Project	0.5	No additional funds
Off-Road Hybrid Technology Pilot	2	Add up to \$1M
Demonstration Projects	3	Add up to \$2.5M

<sup>1</sup> Based on a \$30.5 million budget which approximates actual FY 2009-10 revenues for AQIP projects.

<sup>2</sup> Allocations will be finalized when the FY 2010-11 State Budget is final.

Staff proposes a transparent process in which minor changes to a project category will be publicly vetted through the work group process. Minor changes would be within the Funding Plan parameters approved by the Board. Any major allocation adjustments outside those specifically prescribed in the proposed Funding Plan would require Board approval.

### **III. Future Actions**

The proposed FY 2010-11 Funding Plan specifies all policy-related details regarding the proposed projects, including eligible applicants, the criteria ARB will use to evaluate applications, eligible vehicles/ equipment, maximum incentive amounts, and other grantee requirements. This chapter describes the next steps ARB will take to implement the AQIP upon Board approval of the proposed FY 2010-11 Funding Plan including project solicitations and development of next year's Funding Plan.

#### **A. FY 2010-11 Project Solicitations**

Following Board approval of the proposed FY 2010-11 Funding Plan and after the final State Budget is signed, staff will release solicitations for each of the project categories in order to select a grantee to implement the projects in FY 2010-11. The solicitations will include all the programmatic details potential grantees need to apply for funds, in addition to the criteria upon which the applications will be evaluated and scored.

In accordance with the AQIP Guidelines, ARB will begin issuing project solicitations no later than 90 days after the funds are appropriated in the State Budget. The stakeholder work groups established last year for each project category will continue to be the primary avenue for seeking input and feedback on solicitations and Implementation Manuals. Staff will monitor and evaluate AQIP projects over the course of the fiscal year and share project data with the work groups.

#### **B. Report to the Board and Legislation on AQIP Implementation**

The AB 118 enabling statute (HSC § 44274[d]) and AQIP Guidelines requires ARB staff to submit a report to the Board and California Legislature beginning in 2010, and at least biennially thereafter. One report will be used to fulfill both requirements. Staff plans to complete the first report to the Board and Legislature in December 2010. The report will include:

- A list of projects which were awarded funding pursuant to Funding Plans in the previous fiscal years.
- The expected benefits of the previous fiscal year's Funding Plan in promoting clean, alternative fuels and advanced vehicle technologies.
- Improvements in air quality and public health and greenhouse gas emission reductions.
- Documenting that all of the ARB projects funded under AB 118 comply with the Air Quality Guidelines.
- Recommendations for future actions.

### **C. FY 2011-12 Funding Plan**

The Funding Plan is updated and presented to the Board for its consideration each year. Public workshops will begin later this year to seek early input on development of the FY 2011-12 Funding Plan, which will be presented to the Board in the spring of 2011. As part of funding plan development, staff will evaluate existing projects and determine whether continued funding should be proposed and at what funding level. Staff will also evaluate how projects are being implemented and determine if modifications are necessary and new project categories should be considered. Opportunities to coordinate with the Energy Commission's AB 118 program and other incentives programs will continue to be examined.