California Environmental Protection Agency

Air Resources Board

PROPOSED

FISCAL YEAR 2016-17 FUNDING PLAN FOR LOW CARBON TRANSPORTATION AND FUELS INVESTMENTS AND THE AIR QUALITY IMPROVEMENT PROGRAM

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EXECUTIVE SUMMARY

The Governor's proposed Fiscal Year (FY) 2016-17 State Budget includes $500 million for Low Carbon Transportation and Fuels investments administered by the Air Resources Board (ARB or Board) from Cap-and-Trade auction proceeds deposited into the Greenhouse Gas Reduction Fund (GGRF). This funding would reduce greenhouse gas (GHG) emissions and further the purposes of Assembly Bill 32 (AB 32) (Núñez, Chapter 488, Statutes of 2006) with a priority on benefiting disadvantaged communities. At least half these funds would be invested to benefit disadvantaged communities, and at least 10 percent would be invested directly in disadvantaged communities. This proposal includes $40 million to support the production of very low carbon fuels, a new addition to ARB's incentive programs. The Governor's proposed State Budget includes $28.6 million for the Air Quality Improvement Program (AQIP) which provides mobile source incentives to reduce emissions of criteria pollutants, toxic air contaminants, and GHGs.

The proposed *Fiscal Year 2016-17 Funding Plan for Low Carbon Transportation and Fuels Investments and AQIP* (FY 2016-17 Funding Plan) describes how these combined funds will be spent. The plan describes ARB's policy drivers and vision for advanced technology mobile source investments, eligible project categories and criteria, project funding allocations, and program implementation details. ARB staff has developed a joint plan for both the auction proceeds and AQIP funding sources, as it did for previous budget cycles, to ensure continued synergistic investments between the programs while also ensuring that statutory requirements applicable to each are met. The investments proposed in the FY 2016-17 Funding Plan are contingent on the approval of the proposed FY 2016-17 State Budget.

California faces ambitious goals to reduce GHG emissions, improve air quality, deploy zero-emission vehicles (ZEVs), and reduce petroleum dependency. ARB's 2014 *First Update to the Climate Change Scoping Plan* and 2016 *Mobile Source Strategy* conclude that many of the same actions are needed to meet GHG, smog forming, and toxic pollutant emission reduction goals – specifically, a transition to zero-emission and near zero-emission technologies and use of the cleanest, lowest carbon fuels and energy across all vehicle and equipment categories. The *California Sustainable Freight Action Plan*, May 2016 draft, reiterates the need for this transition as it relates to the freight sector. To support this transition, the Administration's first two Cap-and-Trade Auction Proceeds Investment Plans both identify zero-emission passenger transportation and low carbon freight transport as investment priorities.

The investments identified in the proposed FY 2016-17 Funding Plan are pivotal to meeting these goals by accelerating the development and deployment of advanced mobile source technologies and very low carbon fuels. These proposed investments build on previous ARB Low Carbon Transportation and AQIP investments and continue the focus on providing benefits to disadvantaged communities.

Background

Cap-and-Trade auction proceeds provide funding for ARB's advanced technology, clean transportation incentive programs, expanding the types of projects ARB has funded through AQIP. Over the last 3 budget cycles, the Legislature has appropriated $325 million to ARB for Low Carbon Transportation investments to reduce GHG emissions with an emphasis on investments that benefit disadvantaged communities. These investments are being used to provide consumer rebates for zero-emission and plug-in hybrid passenger vehicles through the Clean Vehicle Rebate Project (CVRP) and vouchers for fleets to purchase clean trucks and buses through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). Investments also include new light-duty pilot projects to benefit disadvantaged communities, zero-emission truck and bus pilot deployment projects, and advanced technology demonstration projects for the freight sector.

AQIP is a mobile source incentive program focusing on reducing criteria pollutant and diesel particulate emissions with concurrent reductions in GHG emissions. AQIP was created in 2007 by AB 118 (Núñez, Chapter 750, Statutes of 2007) and reauthorized by AB 8 (Perea, Chapter 401, Statutes of 2013). AQIP has provided funding for CVRP, HVIP, and demonstrations for advanced emission reduction vehicle technologies since 2009. In recent years, these projects have been primarily funded from the Low Carbon Transportation appropriations because demand has exceeded AQIP's budget, and the majority of AQIP funds have been directed to the Truck Loan Assistance Program which helps small business truckers to secure financing for newer trucks and diesel exhaust retrofits to meet compliance deadlines for ARB's In-Use Truck and Bus Regulation.

Summary of Staff's Investment Proposal

Staff's investment proposal builds upon the investments made in previous funding cycles. In FY 2015-16, ARB implemented a scaled back version of its Funding Plan because the Legislature only appropriated $95 million for Low Carbon Transportation investments compared to the $350 million that the Governor had proposed. As a result, many of the projects the Board endorsed when it approved the FY 2015-16 Funding Plan could not be implemented. Light-duty equity projects and heavy-duty vehicle projects bore the brunt of this downsizing. Staff still believes there is a strong need and demand for these unfunded projects, so it made carrying forward these project categories a priority for the FY 2016-17 Funding Plan. This will help regain critical momentum in supporting the transition of the heavy-duty fleet as called for in the draft *California Sustainable Freight Action Plan* and increasing disadvantaged communities' and lower-income Californians' access to clean transportation. Stakeholders noted throughout the FY 2016-17 Funding Plan development process a need for incentive funding beyond that in the proposed State Budget. Staff's proposal attempts to balance available funding with the funding needs across all categories.

Tables ES-1 and ES-2 show the proposed project allocations for the Low Carbon Transportation and Fuels program and AQIP, respectively. These investments would:

- Meet expected demand for consumer driven, first-come, first-served projects including: CVRP consumer rebates for ZEVs; Enhanced Fleet Modernization Program (EFMP) car scrap and replace incentives; HVIP clean truck and bus vouchers; the Truck Loan Assistance Program; and new incentives for low NOx engines just coming to market. The proposal includes funding to meet the remaining CVRP and HVIP consumer demand from the FY 2015-16 cycle.

- Increase funding for the light-duty vehicle projects designed to improve access to clean transportation for lower income Californians and disadvantaged communities, a key element of ARB's light-duty vehicle incentive strategy.

- Carry forward the unfunded heavy-duty vehicle and equipment project categories from the FY 2015-16 Funding Plan, refining them where necessary based on information learned over the past year. These include: advanced technology demonstration projects; zero-emission truck and bus commercial pilots; freight equipment deployment; and a new rural school bus pilot project.

- Provide funding for a new very low carbon fuel production incentive project. This is the first time fuels are included in ARB's Low Carbon Transportation program.

Table ES-1: Proposed Low Carbon Transportation and Fuels Project Allocations

Low Carbon Transportation and Fuels Project Category	**Project Allocation** (millions)
Light-Duty Vehicles Investments (SB 1275)	
CVRP Remaining 2015-16 Demand (Through Sept 2016) - $55M 2016-17 Demand (Oct 2016-Sept 2017) - $175M	$230
Light-Duty Pilot Projects to Benefit Disadvantaged Communities Enhanced Fleet Modernization Program (EFMP) Plus-Up - $30M Car Sharing and Mobility Options - $8M Increased Public Fleet Incentives for CVRP-Eligible Vehicles - $3M Agricultural Worker Vanpools in San Joaquin Valley - $3M	$44
Financing Assistance for Lower-Income Consumers	$6
Light-Duty Vehicle Investment Total	**$280**
Heavy-Duty Vehicles and Off-Road Equipment Investments (SB 1204)	
Advanced Technology Demonstration Projects	$59
Zero-Emission Freight Equipment Pilot Commercial Deployment Project	$5
Zero-Emission Truck Pilot Commercial Deployment Project	$18
Zero-Emission Bus Pilot Commercial Deployment Project	$42
Rural School Bus Pilot Project	$10
Low NOx Engine Incentives with Renewable Fuel	$23
HVIP Remaining 2015-16 Demand (Through Sept 2016) - $5M 2016-17 Demand (Oct 2016-Sept 2017) - $13M	$18
Heavy-Duty Vehicle and Off-Road Equipment Investment Total	**$175**
Fuels	
Very Low Carbon Fuels Production Incentive Project	$40
State Operations	$5
TOTAL	**$500**

Table ES-2: Proposed AQIP Project Allocations

AQIP Project Category	Project Allocation (millions)
Truck Loan Assistance Program	$22
Agricultural Equipment Trade-Up Pilot in the San Joaquin Valley	$3
Reserve for Revenue Uncertainty	$3.6
TOTAL	**$28.6**

ARB is targeting at least 50 percent of the Low Carbon Transportation and Fuels funds to benefit disadvantaged communities and at least 10 percent of these funds to be invested in disadvantaged communities. Staff considers these investment targets to be a floor. Investments made over the past three funding cycles are delivering benefits that exceed these targets, and ARB staff is confident that it will again surpass the minimum targets with the FY 2016-17 investments.

In order to meet these investment targets, staff proposes to limit some funding opportunities exclusively to those projects that are located in or benefit disadvantaged communities. In other cases, staff proposes placing conditions in the solicitations and/or grant agreements to ensure a minimum percentage of funding for a project category will benefit disadvantaged communities. In the case of the statewide, first-come, first-served projects, staff used historical data to estimate potential disadvantaged community benefits. Details are described further in Chapter 2 of this Funding Plan and in each project category proposal in Chapters 3, 4, and 5.

Long-Term Plan for CVRP and Light-Duty Vehicle Incentives

In addition to the proposed investments for the FY 2016-17 funding cycle, the second part of the Funding Plan presents staff's long-term plan for CVRP and light-duty vehicle incentives. ARB has directed significant funding (over $300 million to date) toward light-duty vehicle incentives, primarily through CVRP. Because of this, policy makers continue to inquire about the cost-effectiveness, equity, financial sustainability, and structure of these incentive programs. Specifically, the Legislature and the Board have expressed interest in understanding when a self-sustaining ZEV market is expected and what steps can be taken to ensure incentives are phased out appropriately.

Senate Bill 1275 (SB 1275) (De León, Chapter 530, Statutes of 2014), one of the laws guiding ARB's light-duty vehicle investments, requires ARB to include a long-term plan for CVRP and related programs in the FY 2016-17 Funding Plan. The plan must include: a three-year forecast of funding needs to support the goals of technology advancement, market readiness, and consumer acceptance of advanced vehicle technologies; a market and technology assessment; and an assessment of when a self-sustaining market is expected.

Staff's three-year forecast indicates a potential funding need for light-duty vehicle incentives in the range of $210-240 million for FY 2016-17 growing to about $300-400 million or more by FY 2018-19. Staff acknowledges a high degree of

uncertainty with these projections due to the early state of the ZEV market. However, the light-duty vehicle incentive funding proposed in this Funding Plan would meet staff's estimated FY 2016-17 need.

Findings from staff's market and technology assessment indicate positive signs regarding the state of the ZEV market. The assessment shows that vehicle technology costs are declining quicker than originally expected in most cases. Staff's assessment also shows growth in vehicle diversity, number of manufacturers selling vehicles, and consumer demand. CVRP-eligible vehicles now account for about 3 percent of annual passenger car sales in California. A more comprehensive technology assessment is being jointly conducted by ARB, U.S. Environmental Protection Agency, and National Highway Traffic and Safety Administration in support of ARB and federal motor vehicle regulations and is slated for release in June 2016. It will provide the most up-to-date technical information regarding the state of ZEV technology. This additional information will help inform future light-duty vehicle incentives planning.

Staff also proposes to use ZEV market penetration as a measure of ZEV market sustainability based on a well-established theory of technology adoption. Once annual sales reach about 16 percent of the light-duty vehicle market, staff believes that is an indicator that the market has penetrated the most difficult group of adopters for ensuring success of a technology and has reached sustainability. This equates to annual sales of about 200,000 vehicles in today's vehicle market. Given that sales of ZEVs and plug-in hybrids combined only reached around 60,000 in 2015, staff believes it will take at least another 5 to 10 years before this level of adoption is achieved. This provides a starting point for assessing when the ZEV market will be sustainable. Staff will re-assess this evaluation and adjust accordingly in future long-term plans as the market grows over time and new data become available.

As part of the long-term plan, staff recommends a number of metrics that could be used to measure progress toward this target. Staff also identifies mechanisms that could be used to ramp down incentives as the market matures as well as possible alternative incentive structures that could be considered in future years. However, staff believes it is premature to begin a ramp down this year because the market is still in its infancy. Accordingly, staff is not proposing any changes that would scale down CVRP in the FY 2016-17 funding cycle.

<u>California Environmental Quality Act (CEQA) Requirements</u>

ARB has determined that the proposed FY 2016-17 Funding Plan is exempt from the requirements of CEQA. ARB's certified regulatory program, which applies to the adoption, approval, amendment, or repeal of standards, rules, regulations, or plans for the protection and enhancement of the State's ambient air quality, has been certified by the California Secretary for Natural Resources under Public Resources Code section 21080.5 of CEQA (14 California Code of Regulations (CCR) 15251(d)). Public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative

declarations, and initial studies. For activities that constitute project approvals, as those terms are used in CEQA, ARB, as a lead agency, prepares a substitute environmental document (referred to as an “Environmental Analysis” or “EA”) as part of the Staff Report prepared for a proposed action to comply with CEQA (17 CCR 60000-60008).

The proposed FY 2016-17 Funding Plan is a governmental funding mechanism which does not involve any commitment to any specific projects which may result in potentially significant impacts on the environment. Therefore, ARB has determined that the proposed FY 2016-2017 Funding Plan is not a project under CEQA (14 CCR 15378 (b)(4)) and is exempt from CEQA. If the FY 2016-17 Funding Plan is finalized, a Notice of Exemption will be filed with the State Clearinghouse for public inspection.

PART I: PROPOSED INVESTMENTS

CHAPTER 1: INTRODUCTION AND BACKGROUND

The Governor's proposed Fiscal Year (FY) 2016-17 State Budget includes $500 million for Low Carbon Transportation and Fuels investments administered by the Air Resources Board (ARB or Board) from Cap-and-Trade auction proceeds deposited into the Greenhouse Gas Reduction Fund (GGRF). This funding would reduce greenhouse gas (GHG) emissions and further the purposes of Assembly Bill 32 (AB 32) (Núñez, Chapter 488, Statutes of 2006) with a priority on benefiting disadvantaged communities. At least half these funds would be invested to benefit disadvantaged communities, and at least 10 percent would be invested directly in disadvantaged communities. This proposal includes $40 million to support the production of very low carbon fuels, a new addition to ARB's incentive programs. The Governor's proposed State Budget also includes $28.6 million for the Air Quality Improvement Program (AQIP) which provides mobile source incentives to reduce emissions of criteria pollutants, toxic air contaminants, and GHGs. These funding proposals would build on the technology advancing projects ARB has funded in previous funding cycles.

The proposed *Fiscal Year 2016-17 Funding Plan for Low Carbon Transportation and Fuels Investments and AQIP* (FY 2016-17 Funding Plan) describes how these combined funds will be spent. The plan describes ARB's policy drivers and vision for advanced technology mobile source investments, eligible project categories and criteria, project funding allocations, and program implementation details. The plan also addresses the requirements of legislation signed in 2014 that refines ARB's implementation of these incentive programs.

ARB is using these incentives to accelerate development and deployment of the cleanest feasible vehicle technologies for all vehicle and equipment sectors, from light-duty passenger cars to heavy-duty trucks and off-road equipment to meet California's multiple climate change, air quality, and petroleum reduction goals including:

- Reducing GHG emissions to 1990 levels by 2020 as required by AB 32 and to 40 percent below 1990 levels by 2030 as directed in Governor Brown's Executive Order B-30-2015.[1]

- Reducing petroleum use in vehicles by 50 percent by 2030, one of the pillars of the State's climate change strategy for reducing GHG emissions identified by Governor Brown in his 2015 inaugural address.[2]

[1]Governor Brown's Executive Order B-30-2015: http://gov.ca.gov/news.php?id=18938
[2]Governor Brown's January 15, 2015 inaugural address: http://www.gov.ca.gov/news.php?id=18828

- Reducing GHG emissions from the transportation sector to 80 percent below 1990 levels by 2050 as directed in Governor Brown's Executive Order B-16-2012.[3]

- Meeting the federal health-based ambient air quality standards for ozone by 2023 and 2031 as well as the fine particulate matter (PM2.5) air quality standards.

- Meeting the goals of deploying 1 million zero-emission vehicles (ZEV) and near zero-emission vehicles by the start of 2023 as codified in Health and Safety Code Section 44258.4(b) and 1.5 million ZEVs by 2025 as directed in Executive Order B-16-2012.

- Reducing the carbon intensity of California's transportation fuels by 10 percent by 2020 as required by the Low Carbon Fuel Standard (LCFS).

- Continuing to reduce health risks from exposure to toxic air contaminants such as diesel particulate matter, particularly in disadvantaged communities where exposures can be substantial.

ARB's 2014 *First Update to the Climate Change Scoping Plan*[4] and 2016 *Mobile Source Strategy*[5] conclude that many of the same actions are needed to meet GHG, smog forming, and toxic pollutant emission reduction goals – specifically, a transition to zero-emission and near zero-emission technologies and use of the cleanest, lowest carbon fuels and energy across all vehicle and equipment categories. The *California Sustainable Freight Action Plan*, May 2016 draft, reiterates the need for this transition as it relates to the freight sector.[6] To support this transition, the Administration's first two Cap-and-Trade Auction Proceeds Investment Plans both identify zero-emission passenger transportation and low carbon freight transport as investment priorities.[7]

ARB is developing its Low Carbon Transportation and Fuels and AQIP investment strategy in a coordinated manner. The Low Carbon Transportation and Fuels investments build upon and greatly expand many of the types of projects that ARB has funded through AQIP since 2009. The investment strategy is also coordinated with other State agencies that are administering auction proceeds funding. ARB staff has developed this joint proposed FY 2016-17 Funding Plan for both funding sources as it did in previous budget cycles to ensure continued synergistic investments between the

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[3]Governor Brown's Executive Order B-16-2012: http://gov.ca.gov/news.php?id=17472
[4]*First Update to the Climate Change Scoping Plan: Building on the Framework Pursuant to AB 32 The California Global Warming Solutions Act of 2006,* May 2014. http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf
[5]*Mobile Source Strategy*, May 2016. http://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.htm
[6]*California Sustainable Freight Action Plan*, Discussion Draft, May 2016. http://www.casustainablefreight.org/app_pages/view/154
[7]Cap-and-Trade Auction Proceeds Second Investment Plan: Fiscal Years 2016-17 through 2018-19. http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/16-17-final-second-investment-planii.pdf
Cap-and-Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14 through 2015-16. http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/final_investment_plan.pdf

programs while also ensuring that statutory requirements applicable to each are met. The Low Carbon Transportation and Fuels investments account for about 95 percent of the funds covered in the FY 2016-17 Funding Plan.

The remainder of this introductory chapter provides background on Low Carbon Transportation and AQIP including a summary of projects funded to date. This is followed by chapters covering proposed FY 2016-17 funding allocations, light-duty vehicle investments, heavy-duty vehicle investments, very low carbon fuels investments, approaches to maximize disadvantaged community benefits for Low Carbon Transportation and Fuels investments, and contingency provisions. The second part of the Funding Plan covers the long-term plan for the Clean Vehicle Rebate Project (CVRP) and light-duty incentives required by Senate Bill 1275 (SB 1275) (De León, Chapter 530, Statutes of 2014).

CAP-AND-TRADE AUCTION PROCEEDS AND LOW CARBON TRANSPORTATION BACKGROUND

Cap-and-Trade auction proceeds provide an opportunity for the State to invest in projects that help California achieve its climate change goals and provide benefits to disadvantaged communities. These investments are collectively known as California Climate Investments. These provide funding for ARB's advanced technology, clean transportation incentive programs that reduce GHG emissions, expanding the types of projects ARB has funded through AQIP since 2009 and providing funding for very low carbon fuels for the first time in the FY 2016-17 cycle.

In 2012, the Legislature passed and Governor Brown signed into law 3 auction proceeds related bills – AB 1532 (Pérez, Chapter 807), SB 535 (de León, Chapter 830), and SB 1018 (Budget and Fiscal Review Committee, Chapter 39). These bills establish GGRF to receive the State's portion of auction proceeds and provide the framework for how California Climate Investments will be administered to further the purposes of AB 32. The use of auction proceeds must also comply with the requirements of SB 862 (Committee on Budget and Fiscal Review, Chapter 36, Statutes of 2014).

The primary purpose of auction proceeds funded programs is achieving GHG emission reductions. The implementing legislation specifies broad categories of GHG emission reducing projects that may be funded with these proceeds, including investments in: clean and efficient energy; low carbon transportation; natural resource conservation and management and solid waste diversion; and sustainable infrastructure and strategic planning. This legislation also establishes complementary goals for auction proceeds investments in addition to the goal of reducing GHG emissions in California including maximizing economic, environmental, and public health benefits, among others.

Disadvantaged Community Investment Requirements and Program Guidance: SB 535 directs that at least 25 percent of auction proceeds funding be allocated toward projects that benefit California's most disadvantaged communities and at least 10 percent be allocated toward projects located in these disadvantaged communities in order to provide economic benefits as well as health benefits through additional emission

reductions. The California Environmental Protection Agency (Cal/EPA) identified disadvantaged communities for the purposes of SB 535 using the California Communities Environmental Health Screening Tool (CalEnviroScreen2.0). More information on the CalEnviroScreen model and the identification of disadvantaged communities is available on Cal/EPA's website.[8]

In 2015, ARB approved the *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies that Administer California Climate Investments* (California Climate Investments Guidelines) establishing the requirements that State agencies receiving Cap-and-Trade auction proceeds must follow as they implement their programs.[9] These guidelines define the criteria for determining whether projects qualify as being located in or benefiting a disadvantaged community. The guidelines also identify approaches for implementing State agencies to maximize benefits to disadvantaged communities, while recognizing additional priorities identified by disadvantaged communities (in addition to reducing GHG emissions) that State agencies should strive to achieve with their investments. These include reducing health harms and exposure to toxic air contaminants among other needs. Chapter 6 of this Funding Plan includes a discussion of the steps ARB is taking to maximize disadvantaged community benefits for the proposed FY 2016-17 Low Carbon Transportation and Fuels appropriation.

Auction Proceeds Allocation Process: The implementing statute establishes a two-step process for allocating funding to State agencies to invest in GHG reducing projects. Department of Finance, in consultation with ARB, is required to submit to the Legislature a three-year investment plan identifying proposed investments of auction proceeds. To date, the administration has prepared two investment plans. The first, submitted to the Legislature in 2013, covered FY 2013-14 through 2015-16. The second, submitted to the Legislature in January 2016, covers FY 2016-17 through 2018-19. Both investment plans identified low carbon transportation, including zero-emission passenger transportation and zero-emission and near zero-emission freight transport, as investment priorities. Funding is appropriated to State agencies by the Legislature through the annual Budget Act, consistent with the investment plan.

ARB Low Carbon Transportation Appropriations: The Legislature has appropriated a total of $325 million to ARB for Low Carbon Transportation investments to date:

- FY 2013-14: The Legislature appropriated $30 million to ARB in SB 862 (Chapter 36, Statutes of 2014), specifying that $20 million be allocated to CVRP and $10 million be allocated to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP).

- FY 2014-15: The Legislature appropriated $200 million to ARB for Low Carbon Transportation in SB 852 (Leno, Chapter 25, Statutes of 2014). Projects include:

[8] http://www.calepa.ca.gov/EnvJustice/GHGInvest/

[9] *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies that Administer California Climate Investment*, December 21, 2015. http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/arb-funding-guidelines-for-ca-climate-investments.pdf

rebates and vouchers for low carbon cars, trucks, and buses through CVRP and HVIP; zero-emission truck and bus pilots; pilots designed to increase access to the cleanest vehicles in lower-income households and benefit disadvantaged communities; and advanced technology demonstrations of freight equipment. In the FY 2014-15 Funding Plan, ARB committed to invest at least half these funds to benefit disadvantaged communities.[10]

- FY 2015-16: The Governor proposed $350 million in Low Carbon Transportation funding for ARB to continue and expand on the projects funded in FY 2014-15. In June 2015, the Board approved the FY 2015-16 Funding Plan allocating these proposed funds to a suite of 12 light-duty vehicle and heavy-duty vehicle and equipment projects.[11] At the time of the Board meeting, the Legislature had not yet acted on the Governor's Cap-and-Trade auction proceeds proposal, so the Funding Plan remained contingent upon appropriation of funds.

  The Legislature ultimately appropriated $95 million to ARB for Low Carbon Transportation in SB 101 (Chapter 321, Statutes of 2015) signed into law in September 2015. This appropriation included $90 million for projects and $5 million for State operations. In October 2015, the Board approved a modification to the FY 2015-16 Funding Plan allocating the $90 million in project funds to continue 3 ongoing projects in order to avoid implementation disruptions: $75 million for CVRP; $10 million for Enhanced Fleet Modernization Program (EFMP) Plus-up Pilot Project (car scrap and replacement); and $5 million for HVIP.[12] ARB has committed to invest at least 40 percent of FY 2015-16 funds to benefit disadvantaged communities and at least 10 percent directly in disadvantaged communities.

Table 1 provides a summary of the projects ARB is funding with these Low Carbon Transportation appropriations. ARB staff has estimated the percentage of funds benefiting disadvantaged communities. These estimates are based on data reported in the March 2016 *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds* and the terms of each project solicitation and/or grant agreement projected forward to full expenditure of funds.[13] More than 50 percent of the funds are providing benefits in disadvantaged communities, and more than 10 percent of the funds are being invested in these communities.

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[10] *Fiscal Year 2014-15 Funding Plan for the Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments*, approved June 26, 2014. http://www.arb.ca.gov/msprog/aqip/fundplan/final_fy1415_aqip_ggrf_fundingplan.pdf

[11] *Fiscal Year 2015-16 Funding Plan for Low Carbon Transportation Investments and the Air Quality Improvement Program,* approved June 25, 2015. http://www.arb.ca.gov/msprog/aqip/fundplan/proposed_fy15-16_funding_plan.pdf

[12] *Notice of Public Meeting to Consider a Modification to the Fiscal Year 2015-16 Funding Plan for Low Carbon Transportation Investments and the Air Quality Improvement Program*, October 9, 2015. http://www.arb.ca.gov/msprog/aqip/fundplan/final_meeting_notice_october15.pdf

[13] *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds*, March 2016. http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/annualreport.htm

Table 1: Low Carbon Transportation Project Allocations to Date (FY 2013-14, 2014-15, and 2015-16)

Project	Allocation (millions)	% In Disadvantaged Communities	% Benefiting Disadvantaged Communities	Project Outcomes[1]
Light-Duty Vehicle Investments (SB 1275)				
CVRP	$204	6%[2]	37%[2]	93,000 rebates for battery electric, plug-in hybrid, and fuel cell electric vehicles
Light-Duty Pilot Projects to Benefit Disadvantaged Communities				
EFMP Plus-up	$12	70%[2]	100%[3]	2,900 vehicles scrapped and replaced
Car Sharing and Mobility Options	$3	100%[3]	100%[3]	Establish 2 new car sharing projects to serve about 8,000 disadvantaged community residents in Los Angeles and Sacramento
Increased Public Fleet Incentives for CVRP-Eligible Vehicles	$3	38%[2]	100%[3]	400 rebates for public fleets operating in and near disadvantaged communities to buy battery electric, plug-in hybrid, and fuel cell electric vehicles
Financing Assistance	$1	Too early to estimate[4]	100%[3]	Establish program to help lower-income consumers in and near disadvantaged communities in Bay Area obtain financing to purchase advanced technology vehicles, supporting about 100 purchases
Heavy-Duty Vehicle and Off-Road Equipment Investments (SB 1204)				
HVIP	$20	45%[2]	65%[2]	560 vouchers for hybrid and zero-emission trucks and buses
Zero-Emission Truck and Bus Pilot Commercial Deployment	$25	Too early to estimate[4]	100%[3]	Funding for 20 zero-emission trucks and buses and supporting infrastructure and work force training
Advanced Technology Freight Demonstrations • Multi-source freight facilities • Zero-emission drayage trucks	$49	50%[3]	100%[3]	• Demonstrate about 40 pieces of zero-emission equipment with associated infrastructure at a terminal at Port of Los Angeles and 3 freight facilities in San Bernardino County • Demonstrate about 40 zero-emission drayage trucks with associated infrastructure serving ports and freight facilities in South Coast, Bay Area, San Joaquin Valley, and Sacramento
State Operations	$8	-	-	
Total	**$325**	**18%**	**56%**	

All project allocations rounded to nearest $million.
[1]Projected outcomes are estimated based on full expenditure of funds.
[2]Estimate based on rebates/vouchers issued to date as reported in the March 2016 *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds* projected forward to full expenditure of funds. Will be updated after all funds expended.
[3]Based on terms of project solicitation and/or grant agreement.
[4]Insufficient data yet to determine. Will be calculated based on project implementation and reported in future Annual Reports to the Legislature.

AQIP BACKGROUND

AQIP is a mobile source incentive program that focuses on reducing criteria pollutant and diesel particulate emissions with concurrent reductions in GHG emissions. ARB investments initiated under AQIP provide the foundation for the Low Carbon Transportation investments that now make up the vast majority of the proposed Funding Plan. AQIP was created in 2007 by AB 118 (Núñez, Chapter 750, Statutes of 2007). AB 8 (Perea, Chapter 401, Statutes of 2013) reauthorized the fees that support AQIP through 2023. AB 8 also requires ARB to provide preference to projects with higher benefit-cost scores when considering projects for AQIP funding. A detailed discussion of the benefit-cost analysis and selection process for AQIP projects is provided in Appendix A of this Funding Plan.

Funding for AQIP comes primarily from the smog abatement fee assessed annually by the Department of Motor Vehicles (DMV) during a vehicle's first six registration years in lieu of a biennial smog inspection. A small portion of AQIP funding comes from two additional sources: an initial registration fee for new watercraft and a special equipment identification plate fee for certain types of equipment. AQIP has an annual budget of about $25-30 million. For FY 2016-17, the Governor's proposed Budget includes $28.6 million for AQIP projects.

ARB adopted regulations in 2008 and 2009 that establish the administrative procedures for implementing AQIP in order to ensure that the program is run efficiently, with transparency and public input, and complements California's existing air quality and climate change programs. Central to these program guidelines is the requirement for a Board-approved annual funding plan developed with public input. AQIP guidelines also establish the rules and requirements for soliciting projects and awarding funds.

AQIP has provided funding for CVRP, HVIP, and demonstrations for advanced emission reduction vehicle technologies since 2009. In recent years, these projects have been primarily funded from the Low Carbon Transportation appropriations because demand has exceeded AQIP's budget, and the majority of AQIP funds have been directed to the Truck Loan Assistance Program which helps small business truckers to secure financing for newer trucks and diesel exhaust retrofits to meet compliance deadlines for ARB's In-Use Truck and Bus Regulation.

Table 2 provides a summary of AQIP investments to date including one-time funding provided in various years to help meet demand. Note that in FY 2013-14, FY 2014-15, and FY 2015-16, CVRP and HVIP received funding from both AQIP and Low Carbon Transportation.

Table 2: AQIP Project Allocations by Year[1]

AQIP Project	Project Allocations by Fiscal Year (million)								
	2008 -09	**2009 -10**	**2010 -11**	**2011 -12**	**2012 -13**	**2013 -14**	**2014 -15**	**2015 -16**	**Total**
Truck Loan Assistance	$30				$4	$20	$10	$18	**$82**
CVRP[2]		$4	$7	$16	$36	$40	$10	$3	**$116**[2]
HVIP[2]		$20	$23	$11		$5	$5		**$64**[2]
Low NOx Engine Incentives								$2	**$2**
Agricultural Equipment Trade Up in the San Joaquin Valley								$0.5	**$0.5**
Advanced Technology Demonstration/Vehicle Testing		$1.9	$1.7	$1.6	$1				**$6**
Lawn and Garden Equipment Replacement		$1.6	$1						**$3**
Off-Road Hybrid Equipment Pilot			$2						**$2**
Zero-Emission Agricultural Utility Equipment		$0.1							**$0.1**
TOTAL	**$30**	**$28**	**$35**	**$29**	**$42**	**$65**	**$25**	**$23**	**$276**
Air Quality Improvement Fund	$30	$28	$29	$29	$29	$25	$20	$23	$213
Other funding sources[1]	-	-	$6	-	$13	$40	$5	-	$63

All project allocations rounded to nearest $ million, except for projects allocated less than $2 million. Rows and columns may not sum to totals due to rounding.

[1]Includes a total of $63 million from other funding sources: $53 million from the California Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program or Fund to support CVRP and HVIP in various fiscal years and $10 million appropriated to Truck Loan Assistance Program in FY 2013-14 as a loan from the Vehicle Inspection and Repair Fund per SB 359 (Corbett, Chapter 415, Statutes of 2013).

[2]CVRP and HVIP also received Low Carbon Transportation funds in FY 2013-14, 2014-15, 2015-16 as shown in Table 1.

The California Energy Commission (Energy Commission) has augmented the funds directly appropriated to ARB by previously providing $53 million from its Alternative and Renewable Fuel and Vehicle Technology Program and Fund for CVRP and HVIP to meet consumer demand as shown in Table 2. In addition to these direct investments, the Energy Commission's investments in fueling infrastructure for both electric vehicle charging stations and hydrogen fueling stations, vehicle manufacturing, and advanced technology vehicle demonstrations as part of the Alternative and Renewable Fuel and Vehicle Technology Program provide critical support to the deployment of these zero-emission vehicles. Furthermore, the Alternative and Renewable Fuel and Vehicle Technology Program also provides key investments in low carbon biofuel production and infrastructure, natural gas vehicle deployment, and workforce training and development which furthers progress towards California's climate change, air quality, and petroleum reduction goals.

ADDITIONAL LEGISLATION GUIDING FUNDING PLAN DEVELOPMENT AND PROGRAM IMPLEMENTATION

Two bills signed into law in 2014 provide additional guidance in ARB's implementation of these programs and specify requirements for the Funding Plan.

SB 1275 (De León, Chapter 530, Statutes of 2014) establishes the Charge Ahead California Initiative with the goals of placing one million zero-emission and near zero-emission vehicles in California by 2023 and increasing access to these vehicles for lower-income consumers and consumers in disadvantaged communities. It also identifies the Cap-and-Trade auction proceeds as a funding source that could be utilized to meet the provisions established in the Charge Ahead California Initiative.

- SB 1275 directs ARB to make a number of changes to CVRP including limiting consumer eligibility based on income and considering incorporating pre-qualification and point-of-sale mechanisms in CVRP. The Board approved an income cap and higher CVRP rebate amounts for lower-income consumers as part of the FY 2015-16 Funding Plan, and these changes went into effect in spring 2016. Staff is continuing to work through issues related to incorporating a pre-qualification/point-of-sale mechanism into CVRP but proposes that a pre-qualification element be implemented during the FY 2016-17 funding cycle as discussed in Chapter 3 of this Funding Plan.

- SB 1275 also directs ARB to establish programs to increase access to electric transportation for disadvantaged, low-income, and moderate-income communities and consumers. ARB has funded these types of projects since FY 2014-15 and is proposing increased funding for the FY 2016-17 funding cycle as discussed in Chapter 3 of this Funding Plan.

- Finally, SB 1275 requires ARB to include a long-term plan for CVRP and related programs as part of the FY 2016-17 Funding Plan. Staff's proposed long-term plan is presented in Part II of this Funding Plan.

SB 1204 (Lara, Chapter 524, Statutes of 2014) creates the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program, funded with Cap-and-Trade auction proceeds, intended to help accelerate the introduction of the next generation of cleaner heavy-duty vehicles and engines with a priority on projects that benefit disadvantaged communities. SB 1204 establishes specific requirements related to how ARB prioritizes project categories and selects projects which ARB addressed in the FY 2015-16 Funding Plan. SB 1204 also directs ARB to develop an annual framework and plan to guide these investments. ARB's actions to address the requirements of SB 1204 are discussed in greater detail in Chapter 4 and Appendix B of this Funding Plan.

CHAPTER 2: PROPOSED FUNDING ALLOCATIONS FOR FY 2016-17

The Governor's FY 2016-17 State Budget proposals for Low Carbon Transportation and Fuels investments and AQIP along with ARB staff's proposed funding allocations for these programs are summarized in this chapter.

LOW CARBON TRANSPORTATION AND FUELS PROJECT ALLOCATIONS

The Governor's proposed 2016-17 State Budget would appropriate $500 million in Cap-and-Trade auction proceeds to ARB for Low Carbon Transportation and Fuels investments. At least 50 percent of these funds would be invested to benefit disadvantaged communities and at least 10 percent would be invested directly in disadvantaged communities. This proposal includes $40 million for very low carbon fuel production incentives, a new element to ARB's Low Carbon Transportation and Fuels incentive program. As described in the Governor's January 2016 Budget Summary, these funds are to: "provide incentives for low carbon freight and passenger transportation, including rebates for zero-emission cars, vouchers for hybrid trucks and zero-emission trucks and buses." State operations funding accounts for $5 million of the $500 million proposed appropriation, so $495 million would be available to allocate to projects.

ARB staff proposes the project category allocations shown in Tables 3 and 4 building on previous years' investments. These proposed investments would:

- Meet expected demand for consumer driven, first-come, first-served projects including CVRP, EFMP Plus-up scrap and replace incentives, HVIP, and the new incentives for low NOx truck and bus engines just coming to market. The proposal includes funding to meet the remaining CVRP and HVIP consumer demand from the FY 2015-16 cycle.

- Increase funding for the light-duty vehicle projects designed to increase access to clean transportation for lower-income Californians and disadvantaged communities consistent with the goals for SB 1275.

- Carry forward the unfunded heavy-duty vehicle and equipment project categories from the FY 2015-16 Funding Plan, refining them where necessary based on information learned over the past year. These include advanced technology demonstration projects, zero-emission truck and bus commercial pilots, and a new rural school bus pilot project. Because of the smaller than anticipated Low Carbon Transportation appropriation for the FY 2015-16 cycle, ARB only allocated $5 million of the $148 million proposed for heavy-duty projects.

- Provide funding for a new very low carbon fuel production incentive project. This is the first time fuels are included in ARB's Low Carbon Transportation program.

- Exceed the minimum targets to invest 10 percent of the funds in disadvantaged communities and 50 percent to benefit disadvantaged communities.

Table 3: Proposed Low Carbon Transportation and Fuels Project Allocations

Low Carbon Transportation and Fuels Project Category	**Project Allocation** (millions)	**Minimum Disadvantaged Community Benefit**
Light-Duty Vehicles Investments (SB 1275)[1]		
CVRP Remaining 2015-16 Demand (Through Sept 2016) - $55M 2016-17 Demand (Oct 2016-Sept 2017) - $175M	$230	≥33%
Light-Duty Pilot Projects to Benefit Disadvantaged Communities Enhanced Fleet Modernization Program (EFMP) Plus-Up - $30M Car Sharing and Mobility Options - $8M Increased Public Fleet Incentives for CVRP-Eligible Vehicles - $3M Agricultural Worker Vanpools in San Joaquin Valley - $3M	$44	100%
Financing Assistance for Lower-Income Consumers	$6	≥50%
Light-Duty Vehicle Investment Total	**$280**	
Heavy-Duty Vehicles and Off-Road Equipment Investments (SB 1204)[1]		
Advanced Technology Demonstration Projects	$59	100%
Zero-Emission Freight Equipment Pilot Commercial Deployment Project	$5	≥50%
Zero-Emission Truck Pilot Commercial Deployment Project	$18	≥75%
Zero-Emission Bus Pilot Commercial Deployment Project	$42	≥75%
Rural School Bus Pilot Project	$10	to be determined
Low NOx Engine Incentives with Renewable Fuel	$23	≥50%
HVIP Remaining 2015-16 Demand (Through Sept 2016) - $5M 2016-17 Demand (Oct 2016-Sept 2017) - $13M	$18	≥60%
Heavy-Duty Vehicle and Off-Road Equipment Investment Total	**$280**	
Fuels		
Very Low Carbon Fuels Production Incentive Project	$40	to be determined
State Operations	$5	
TOTAL	**$500**	**≥50%**

[1]SB 1275 (de León) guides these light-duty vehicle investments, so they are known to some stakeholders as the "SB 1275 program." SB 1204 (Lara) guides these heavy-duty investments, so they are known to some stakeholders as the "SB 1204 program."

Disadvantaged Community Investment Targets: As shown in Table 3, these proposed allocations would direct at least 50 percent of the $500 million appropriation to projects that benefit disadvantaged communities. Staff considers the 50 percent target a floor and expects that some of these projects will deliver more benefits to disadvantaged communities.

Table 4 shows how the Funding Plan would ensure that at least 10 percent of the $500 million appropriation is invested in disadvantaged communities. Staff proposes placing conditions in the solicitations and/or grant agreements for the projects listed in Table 4 to ensure that at least 10 percent of the total funds (at least $50 million) are invested directly in disadvantaged communities.

Table 4: Targets for Low Carbon Transportation and Fuels Investments in Disadvantaged Communities

Low Carbon Transportation and Fuels Project Category	**Minimum Investment in Disadvantaged Communities** (millions)
Light-Duty Pilot Projects to Benefit Disadvantaged Communities	≥$25
Advanced Technology Demonstration Projects	≥$10
Zero-Emission Bus Pilot Commercial Project	≥$20
TOTAL	**≥$55**

Staff considers the 10 percent target a floor and expects to exceed it. Staff expects that at least a portion of the funding for every project will be invested in disadvantaged communities. These will be calculated and reported in annual reports to the Legislature after funds are awarded and spent. When those investments are added to the commitments shown in Table 4, the Low Carbon Transportation and Fuels funding spent in disadvantaged communities will exceed the 10 percent target.

AQIP Project Allocations

The Governor's proposed 2016-17 State Budget would appropriate $28.6 million to ARB for AQIP projects. This funding level is based on motor vehicle fee revenues. ARB staff proposes allocating $25 million to AQIP projects, and setting aside $3.6 million as a prudent reserve for revenue uncertainty consistent with previous budget cycles. Staff proposes directing AQIP funding to projects that primarily provide criteria pollutant and toxics benefits. Table 5 shows the proposed AQIP project allocations.

Table 5: Proposed AQIP Project Allocations

AQIP Project Category	**Project Allocation** (millions)
Truck Loan Assistance Program	$22
Agricultural Equipment Trade-Up Pilot in the San Joaquin Valley	$3
Reserve for Revenue Uncertainty	$3.6
TOTAL	**$28.6**

Most AQIP funds would be directed to the Truck Loan Assistance Program as has been the case in recent budget cycles to meet expected increased consumer demand. This program helps small business truckers to secure financing for newer trucks and diesel exhaust retrofits to meet compliance deadlines for ARB's In-Use Truck and Bus Regulation. Staff also recommends funding to scale up the Agricultural Equipment Trade-Up Pilot Project in the San Joaquin Valley started in FY 2015-16.

Staff proposes the following contingency provisions specifying how the $3.6 million in reserve funds would be allocated if revenues are sufficient. If the Executive Officer determines that AQIP funds in excess of $25 million are available to allocate, he could direct that funding to either of the two projects listed in Table 5 if there is demonstrated demand as a first priority. As a second priority, he could direct a portion of that funding to research related to the mobile source emission categories covered in the Funding Plan consistent with the provisions of Health and Safety Code Section 44274(c) if there are still remaining funds available.

FUNDING PLAN DEVELOPMENT PROCESS

To develop the recommendations presented in the proposed FY 2016-17 Funding Plan, staff held 3 public workshops, 15 public work group meetings, and numerous individual meetings with interested stakeholders. Table 6 summarizes these public meetings. Staff released a discussion document on March 25, 2016 summarizing its draft funding recommendations to help guide discussions at the April 4, 2016 public workshop.

Table 6: Public Meetings on Development of FY 2016-17 Funding Plan

Date	Meeting
12/08/2015	Public Workshop on the Long-Term Plan for CVRP and Light-Duty Vehicle Incentives Required by SB 1275
1/27/2016	Public Workshop on Development of the FY 2016-17 Funding Plan
2/5/2016	Public Work Group Meeting: CVRP Long-Term Plan – 3 Year Forecast
2/5/2016	Public Work Group Meeting: Light-Duty Pilot Projects to Benefit Disadvantaged Communities and Lower-Income Consumers
2/11/2016	Public Work Group Meeting: Heavy-Duty and Off-Road Projects
2/11/2016	Public Work Group Meeting: Very Low Carbon Fuels
2/12/2016	Public Work Group Meeting: CVRP Long-Term Plan – Technology/Market Assessment
2/18/2016	Public Work Group Meeting: HVIP
2/19/2016	Public Work Group Meeting: CVRP Long-Term Plan – Market Sustainability
2/23/2016	Public Work Group Meeting: CVRP Project Structure
2/25/2016	Public Work Group Meeting: Light-Duty Pilot Projects to Benefit Disadvantaged Communities and Lower-Income Consumers
3/3/2016	Public Work Group Meeting: Very Low Carbon Fuels
3/9/2016	Public Work Group Meeting: CVRP Project Structure
3/10/2016	Public Work Group Meeting: Light-Duty Vehicle Financing Assistance
3/11/2016	Public Work Group Meeting: EFMP Plus-up
3/18/2016	Public Work Group Meeting: CVRP Project Structure
4/4/16	Public Workshop on Development of the FY 2016-17 Funding Plan
4/19/16	Public Work Group Meeting: Very Low Carbon Fuels

Staff also continues to coordinate with the California Air Pollution Control Officers Association, local air districts, and other State agencies that implement related incentive programs including the Energy Commission, Calrecycle, and the California Department of Food and Agriculture (CDFA).

CHAPTER 3: LIGHT-DUTY VEHICLE INVESTMENTS (SB 1275)

This chapter presents staff's proposal for light-duty vehicle investments utilizing Low Carbon Transportation and Fuels funding, including continued funding for CVRP, Light-Duty Pilot Projects to Benefit Disadvantaged Communities, and Financing Assistance for Lower-Income Consumers.

Policy and Statutory Drivers

The light-duty fleet will need to become largely zero-emission by 2050 (and fueled by low carbon, renewable energy sources) with a mix of battery electric and fuel cell vehicles in order to meet California's climate change and air quality emission reduction goals. The need for this transformation is highlighted in ARB's *First Update to the Climate Change Scoping Plan* and *Mobile Source Strategy*. There are a number of regulatory, policy, and statutory drivers that set interim milestones along the path to this transformation of the light-duty vehicle fleet.

ARB's ZEV Regulation: The introduction and deployment of ZEVs in California was first driven by, and continues to be driven by, ARB's ZEV regulation which requires auto manufacturers to produce increasing numbers of ZEVs for sale in California.

Governor's Executive Order for ZEV Deployment: In Executive Order B-16-2012, Governor Brown set a goal of deploying 1.5 million ZEVs in California by 2025, complementing and building upon ARB's ZEV regulation.

SB 1275: As noted earlier in the Funding Plan, the Legislature created the Charge Ahead California Initiative as part of SB 1275 codifying in statute the goals of:

- Deploying 1 million ZEVs and near zero-emission vehicles in California by the start of 2023.
- Establishing a self-sustaining California market where these vehicles are a mainstream option.
- Increasing access for disadvantaged, low-income, and moderate-income communities and consumers to these vehicles.

ARB's light-duty vehicle investments are aimed at supporting the long-term transformation of the fleet and meeting each of these policy, statutory, and regulatory goals and requirements. There are two distinct, but complementary elements to ARB's advanced technology light-duty vehicle investments:

- CVRP supports increasing the number of ZEVs on California's roadways to meet these deployment goals and achieve the large scale transformation of the fleet.

- Light-Duty Pilot Projects are designed to increase access to these clean vehicles in disadvantaged communities and lower-income households. These pilot projects provide opportunities for ownership through vehicle retirement and replacement incentives and financing assistance as well as access to clean vehicles in disadvantaged communities through car sharing and other mobility option improvement programs. SB 1275 directs ARB to fund these types of projects.

ARB's light-duty vehicle deployment investments are complemented by parallel Energy Commission investments in the necessary ZEV charging and fueling infrastructure. The Energy Commission has invested over $40 million in electric vehicle charging infrastructure for 7,500 charging stations and $96 million for 449 hydrogen fueling stations through the Alternative and Renewable Fuel and Vehicle Technology Program. For FY 2016-17, the Energy Commission allocated an additional $17 million for electric vehicle charging infrastructure and $20 million for hydrogen fueling infrastructure.[14] The Energy Commission also provides funding to support the development of regional readiness plans to help regions prepare for and expedite deployment of ZEVs and in-state production of zero- and near zero-emission vehicles and components.

In addition to staff's proposed investments for the FY 2016-17 funding cycle, Part II of this Funding Plan presents staff's proposed long-term plan for CVRP and related programs. SB 1275 requires ARB to include a long-term plan for light-duty vehicle incentives in this year's Funding Plan. The plan must include: a three-year forecast of funding needs to support the goals of technology advancement, market readiness, and consumer acceptance of advanced vehicle technologies; a market and technology assessment; and an assessment of when a self-sustaining market is expected.

Staff's assessment shows that ZEV technology costs are declining quicker than originally expected, in most cases. The assessment also shows growth in vehicle diversity, number of manufacturers selling vehicles, and consumer demand. CVRP-eligible vehicles now account for about 3 percent of annual passenger car sales in California. These are all positive signs regarding the state of the ZEV market and technology development. As part of the long-term plan, staff recommends a number of metrics that could be used to measure progress toward market sustainability. Staff also identifies mechanisms that could be used to ramp down incentives as the market matures as well as possible alternative incentive structures that could be considered in future years. However, staff believes it is premature to begin a ramp down at this time because the market is still in its infancy. Accordingly, staff is not proposing any changes that would scale down CVRP in FY 2016-17.

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[14]California Energy Commission, *2016-17 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program*, Commission Report, May 2016. http://www.energy.ca.gov/2015publications/CEC-600-2015-014/CEC-600-2015-014-CMF.pdf

CVRP

Proposed Low Carbon Transportation Allocation – $230 million
Remaining FY 2015-16 Demand (through September 2016) – $55 million FY 2016-17 (October 2016-September 2017) – $175 million

PROJECT OVERVIEW

CVRP offers vehicle rebates on a first-come, first-served basis for light-duty ZEVs, plug-in hybrid electric vehicles (PHEVs), zero-emission motorcycles, and neighborhood electric vehicles. CVRP helps get the cleanest vehicles on the road in California by providing consumer rebates to partially offset the higher initial cost of these advanced technologies. The objective of CVRP is to support the widespread commercialization of the cleanest vehicles by helping to motivate consumer purchase decisions. To this end, consumer outreach and education is a key part of CVRP.

Currently, the base CVRP rebate amounts are $5,000 for fuel cell electric vehicles, $2,500 for battery electric vehicles (BEVs), $1,500 for PHEVs, and $900 for zero-emission motorcycles and neighborhood electric vehicles. In March 2016, rebate amounts increased for lower-income consumers (with household incomes of less than or equal to 300 percent of the federal poverty level) by $1,500 to $6,500 for fuel cell electric vehicles, $4,000 for BEVs, and $3,000 for PHEVs. An income cap was also instituted to exclude higher-income consumers in March 2016 as required by SB 1275. The income cap excludes individuals with gross annual incomes greater than $250,000, head-of-household filers with gross incomes greater than $340,000, and joint filers with gross incomes greater than $500,000.

CURRENT PROJECT STATUS

As of March 31, 2016, CVRP has provided rebates for about 147,000 vehicles totaling over $325 million since the project's launch in 2010. About 60 percent of rebates have been issued for BEVs and 40 percent for PHEVs to date, and only a small number of rebates have been issued for fuel cell electric vehicle, neighborhood electric vehicles, and zero-emission motorcycles. Since the beginning of the program, CVRP has helped support the growth of a diverse advanced technology light-duty vehicle market. During the first two years of the project, only four passenger vehicle models were eligible. That has grown to more than 35 models of eligible vehicles now available to consumers, with more vehicle introductions planned in the current and upcoming years. CVRP-eligible vehicles now account for about 3 percent of California passenger car sales annually.

Consumer demand has also grown, and in December 2015, CVRP reached a new record of 5,400 rebates issued/reserved totaling approximately $12 million in one month. Moreover, staff expects that the clean vehicle market will continue to grow as consumer choices in vehicle price and range options expand. Table 7 provides a summary of rebates issued by vehicle type and model.

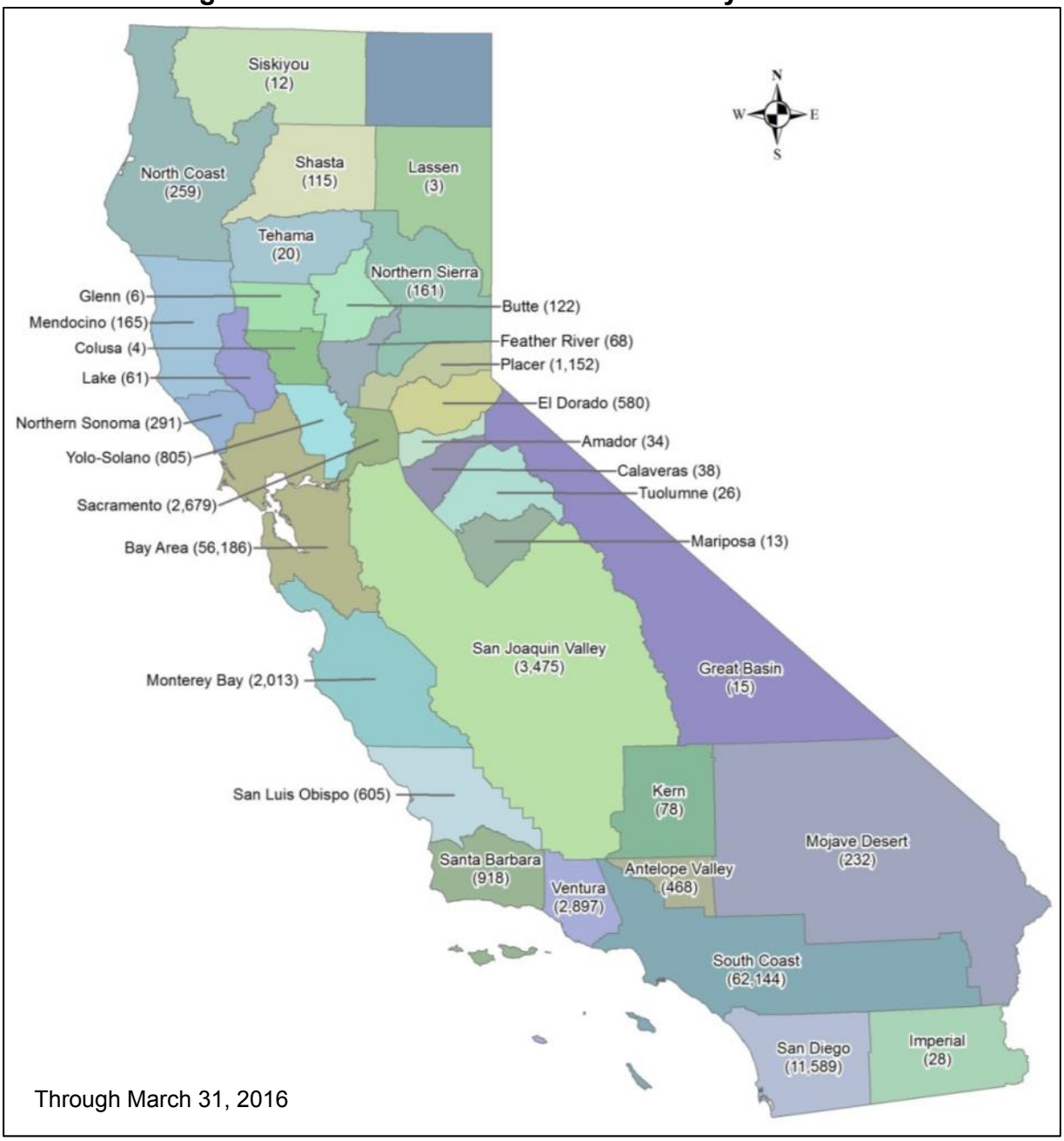
Table 7: Rebates by Vehicle Types and Model

Vehicle Type and Model	Rebates	Total Dollars	% of Rebates	% of Funding
Battery Electric Vehicles	**87,270**	**$221,918,000**	**59%**	**71%**
BMW 1 Series Active E	70	$52,000	0.0%	0.0%
BMW i3	1,260	$3,142,000	0.9%	1.0%
BMW i3 REx	3,200	$8,000,000	2.2%	2.6%
Chevrolet Spark EV	3,410	$8,530,000	2.3%	2.7%
CODA	50	$122,000	0%	0%
FIAT 500e	12,850	$32,112,000	8.7%	10.3%
Ford Focus Electric	2,870	$7,154,000	1.9%	2.3%
Honda Fit EV	440	$1,104,000	0%	0%
Kia Soul EV	860	$2,140,000	0.6%	0.7%
Mercedes-Benz B250e	1,760	$4,394,000	1.2%	1.4%
Mitsubishi i-MiEV	230	$509,000	0%	0%
Nissan LEAF	28,290	$74,733,000	19%	24%
smart Electric Fortwo	2,490	$6,030,000	1.7%	1.9%
Tesla Model S	23,130	$57,729,000	16%	18%
Tesla Model X	680	$1,695,000	0.5%	0.5%
Tesla Roadster	160	$670,000	0.1%	0.2%
Th!nk City	50	$126,000	0.0%	0.0%
Toyota RAV4 EV	1,780	$4,444,000	1.2%	1.4%
Volkswagen e-Golf	3,690	$9,226,000	2.5%	2.9%
Wheego LiFe	2	$4,000	0.0%	0.0%
Plug-In Hybrid Electric Vehicles	**59,180**	**$88,688,080**	**40%**	**28%**
Audi A3 e-tron	210	$309,000	0.1%	0.1%
Cadillac ELR	260	$386,000	0.2%	0.1%
Chevrolet Volt	27,620	$41,407,000	19%	13%
Ford C-MAX Energi	6,280	$9,411,000	4.3%	3.0%
Ford Fusion Energi	8,100	$12,142,000	5.5%	3.9%
Honda Accord Plug-In	380	$561,000	0.3%	0.2%
Hyundai Sonata Plug-in Hybrid	130	$192,000	0.1%	0.1%
Mercedes-Benz S-Class 550e	40	$60,000	0.0%	0.0%
Toyota Prius Plug-in Hybrid	16,140	$24,165,000	11%	8%
Volvo XC90 T8	40	$54,000	0.0%	0.0%
Fuel Cell Electric Vehicles	**190**	**$878,000**	**0.1%**	**0.3%**
Honda FCX Clarity	20	$68,000	0.0%	0.0%
Hyundai Tucson Fuel Cell	80	$380,000	0.1%	0.1%
Mercedes-Benz F-CELL	20	$60,000	0.0%	0.0%
Toyota Mirai Fuel Cell Vehicle	70	$370,000	0.0%	0.1%
Other[1]	**630**	**$1,544,000**	**0.43%**	**0.49%**
Total	**147,300**	**$313,000,000**[2]	**100%**	**100%**

[1]Includes 430 zero-emission motorcycles, 50 neighborhood electric vehicles, and 50 commercial electric vehicles.
[2]Does not include project administrative costs.

Figure 1 shows the statewide distribution of rebates by air district. Historically, the majority of rebates have been issued to consumers in the South Coast, Bay Area, and San Diego air districts. These urbanized areas are naturally suited to early ZEV adoption due to population density and driving patterns.

Figure 1: Distribution of CVRP Rebates by Air District



Growth in CVRP rebate demand, growth in number of eligible vehicles and participating manufacturers, and ZEV sales rates exceeding those required under ARB's ZEV regulation are all positive early signs for the ZEV market in California and measures of CVRP's success. However, the ZEV market is still in the early stages with deployment

totals not yet at one tenth of the Governor's goal of 1.5 million ZEVs by 2025, so continued investment in CVRP remains key in supporting ZEV market growth until the market becomes self-sustaining without incentives. Part II of this Funding Plan includes a long-term plan for CVRP and related light-duty incentives as required by SB 1275 which will help guide future evolution of CVRP.

Outreach and Education: Outreach and public education play a key role in helping to expand the clean vehicle market in California. The CVRP administrator, the Center for Sustainable Energy (CSE), implements a comprehensive outreach plan it developed in coordination with ARB to raise consumers' awareness of these vehicles and associated incentives with an increasing focus in disadvantaged communities. CSE focuses outreach efforts on three target audiences – new car buyers in general, new car dealers, and consumers in disadvantaged communities.

As a statewide program, CVRP is intended to support wide-spread adoption of ZEV deployment and as such, the primary target audience is new car buyers. Outreach efforts for CVRP focuses on events surrounding new car buyers which include National Drive Electric Week, Bay Area Experience Electric campaign, Earth Day fairs, and original equipment manufacturer (OEM)-sponsored test drive events. CVRP staff also coordinates with regional, state, and national plug-in electric vehicle (PEV) awareness campaigns and programs such as South Coast Air Quality Management District's (AQMD) Replace Your Ride, San Joaquin Valley Air Pollution Control District's (APCD) Drive Clean!, Drive California, and the multi-state North East States for Coordinated Air Use Management.

In addition to consumer awareness, OEM and new car dealer education is also critical in ensuring CVRP's success. Dealer education primarily focuses on providing dealers current information on the availability of consumer incentives as well as information on how to overcome adoption barriers which prevent most consumers from adopting a ZEV. To build awareness with dealers, CSE conducts quarterly, dealer specific webinars to provide information on current funding levels, eligibility, application process, and general project information. CSE also participates in OEM-specific training events and distributes OEM-specific CVRP outreach materials to dealers for new car buyers, which includes information on local incentives.

In conjunction with new car buyer and dealer education activities, CSE has launched a separate CVRP outreach effort tailored to consumers in disadvantaged communities. As part of this effort, CSE has developed community partnerships with the Charge Ahead Coalition, Strategic Growth Council, Greenlining and other community-based organizations, legislative offices, and labor unions. CSE has also developed region-specific outreach material to promote awareness of increased CVRP rebate levels and other local incentives. The CVRP website and outreach materials are now available in Spanish and will be translated into more languages in the future. These efforts are coordinated with the State's overall disadvantaged community outreach for the California Climate Investments.

ARB staff continues to seek new or expanded outreach strategies to further increase participation, and staff is proposing expanded outreach as part of the CVRP changes for FY 2016-17 as discussed further below.

Status of FY 2015-16 Appropriation: For FY 2015-16, ARB allocated $75 million in Low Carbon Transportation funds to CVRP. The Budget Act of 2015 includes a restriction that agencies cannot spend more than 75 percent of their auction proceeds appropriations prior to the fourth Cap-and-Trade auction of the fiscal year. Consequently, only $56.25 million is currently available to spend. This funding ran out on April 4, 2016, approximately one week after income eligibility limits were launched which has complicated the roll out of this new element of CVRP.

CVRP is continuing to accept applications; however, there may be delays in issuing rebates if forthcoming funding isn't available in a timely fashion. Staff anticipates the remaining $18.75 million will be available in late May or June 2016. Rebate demand in excess of this amount will be fulfilled from the FY 2016-17 appropriation. Staff is proposing a provision below to help expedite repayment of these rebates once the FY 2016-17 State Budget is signed, so it expects all consumers will receive rebates within 90 calendar days.

STAFF PROPOSAL FOR FY 2016-17

ARB staff has estimated the three year funding need for CVRP as part of its long-term plan for CVRP and related light-duty incentives. In that forecast, staff estimated CVRP demand for the remainder of the FY 2015-16 cycle (through September 2016) and the demand for the FY 2016-17 cycle (October 2016 through September 2017). These projections are shown in Figure 2, and a full discussion of the forecasting methodology is presented in Part II of this Funding Plan. Staff designs CVRP allocations so that each fiscal year's appropriation meets consumer demand from October of the fiscal year to September of the following year in order to ensure a seamless transition from one budget cycle to the next and avoid funding disruptions. This allows time to incorporate project changes directed by the Board in the annual Funding Plan and solicit for a project administrator as necessary between funding cycles.

Figure 2: Projected CVRP Funding Demand

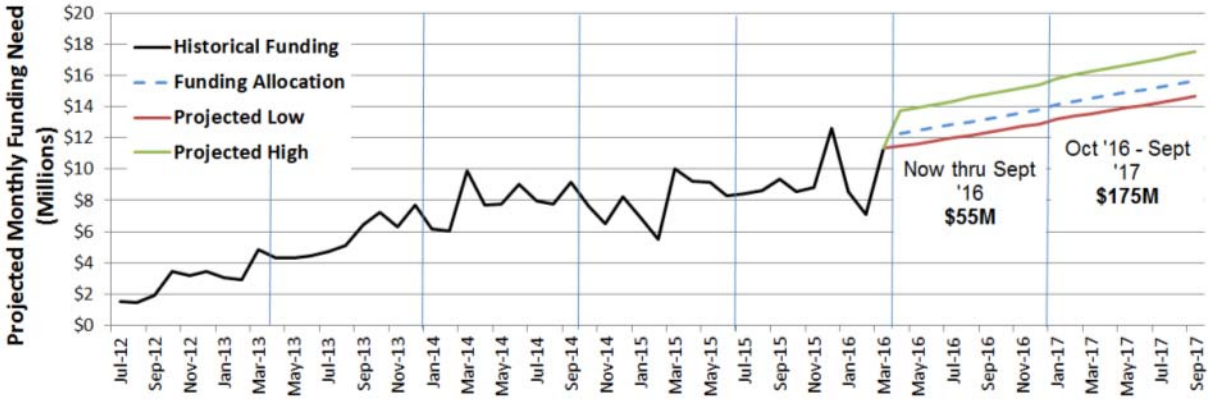


Figure 2 shows that $55 million is needed to meet demand through September 2016 (which staff characterizes as the remaining FY 2015-16 demand), and an additional $175 million is needed for the 12 month period starting in October 2016 (FY 2016-17 demand) for a total funding need of $230 million. This is represented by the dashed line between the high and low projected funding need as described further in Part II. Staff proposes that the $55 million to meet demand through September 2016 be incorporated into the FY 2015-16 CVRP grant agreement via a grant amendment. This would ensure more timely payment of rebates while ARB conducts a competitive solicitation for a grantee to administer CVRP for FY 2016-17. Staff proposes the remaining $175 million be awarded via competitive solicitation for FY 2016-17. Staff expects a grant will be in place and this new funding would launch by October 2016.

Outreach and Public Education Expansion: Building on existing CVRP outreach and public education efforts, staff proposes further increasing public outreach and education efforts to improve consumer and dealer awareness including efforts in disadvantaged communities. This recommendation received strong support at the April 4, 2016 public workshop. As part of the solicitation for a CVRP administrator for FY 2016-17, ARB will require applicants to submit outreach plans that include: how they would focus outreach in disadvantaged communities including closer coordination with the light-duty vehicle pilot projects and partnerung with community based organizations to help increase participation; what additional educational materials may be necessary for educating consumers about vehicles and incentives; and ideas for the development of other multimedia tools such as educational videos or mobile applications. Staff also plans to include flexibility for the CVRP administrator to use a portion of the outreach budget to participate and support local or regional, state, and/or national media campaigns to help support ZEV education and awareness efforts.

To ensure increased outreach, staff proposes to require that at least half of the administrator's allowable rebate processing fee be used to support outreach and public education. To date, there has not been a minimum outreach requirement expressed as a percent of the administrator's budget, but CSE has devoted about a third of its budget to outreach and public education in recent funding cycles.

Opportunities for increased outreach and public education may include: developing additional disadvantaged community focused outreach materials to provide information on the total cost of ownership and vehicle technology comparisons; designing a CVRP webpage to specifically for lower-income consumers; collaborating with organizations within the automotive industry (such as Edmunds, AAA affiliates, Kelley Blue Book) and outside the industry (such as air districts, local governments, and utilities) to develop cooperative marketing and outreach material; and coordinating ZEV test drives. These efforts will be coordinated with ARB's own outreach efforts, including those focused on disadvantaged communities.

Prioritize Rebate Payment for Lower-Income Consumers: ARB staff has proposed a CVRP allocation that it believes will meet demand through September 2017. However, there are inherent uncertainties in forecasting demand, so staff proposes to incorporate

prioritization provisions in the event funding runs out prior to the end of the fiscal year. Staff proposes to evaluate funding on a continual basis, and if needed, set aside an appropriate amount of funding to prioritize payment of rebates for lower-income consumers at the beginning of the fourth quarter of the fiscal year. Rebates would still be accepted and processed on a first-come first-served basis, but priority for payment would be given to lower-income consumers should this occur.

Remove Neighborhood Electric Vehicles from CVRP: Neighborhood electric vehicles have been a part of CVRP since its inception. However, no current models are available in the California market that meet the CVRP eligibility requirements, so staff proposes to remove these vehicles from the CVRP list of eligible vehicles to avoid consumer confusion. In the event that neighborhood electric vehicles meeting the enhanced warranty provisions required for CVRP-eligibility are offered for sale in California in the future, staff would revisit this decision.

Fuel Cell Electric Vehicle Rebate Levels: The rebate amount for fuel cell electric vehicles is currently $5,000 and $6,500 for qualifying lower-income consumers, and these vehicles are temporarily exempt from the income cap because these vehicles are in a much earlier stage of commercialization than BEVs or PHEVs. Staff has committed to re-evaluate these provisions annually. Through March 2016, CVRP has only issued rebates for about 165 fuel cell vehicles. Accordingly, staff believes the higher rebate level and temporary delay of the income cap for these vehicles should remain in place and proposes no changes to these provisions for FY 2016-17.

Point-of-Sale and Pre-Qualification Mechanisms: Staff proposes to incorporate a pre-qualification mechanism into CVRP in the FY 2016-17 cycle. However, there are still implementation details that need to be resolved before launching this change as discussed further below. Staff anticipates a spring 2017 launch.

SB 1275 requires ARB to consider converting CVRP to a point-of-sale incentive or include a pre-qualification mechanism. ARB staff has previously considered transitioning the rebate to a point-of-sale incentive, but did not recommend the change in prior fiscal years in part due to the need for stable and continuous funding to ensure such a mechanism will work effectively. Additionally, direct point-of-sale purchase incentives may provide incentives to consumers who would have purchased or leased an eligible advanced technology vehicle without the incentive, making the program less cost-effective and increasing the funding demand. Currently, only about 70 percent of BEV and PHEV purchasers are taking advantage of the rebate.[15]

ARB staff held multiple public workgroup meetings to discuss several long-term program considerations for CVRP, including transitioning the incentive to the point-of-sale and offering a pre-qualification mechanism. During the workgroups, staff posed several key considerations that may impact the ability to offer a purchase incentive directly at the time of purchase or may influence the effectiveness of this type of incentive:

[15]See CVRP website: https://cleanvehiclerebate.org/eng/content/cvrp-participation-thru-2015-03.

- *Historically, CVRP's funding source is an annual appropriation that varies from fiscal year to fiscal year. A point-of-sale incentive may be challenging to implement without a continuous appropriation.* While staff recognizes that funding uncertainty currently exists, this factor is compounded when the incentive is moved closer to the point of purchase because of the amount of time it takes to notify dealers and the public when funding is running low. Stakeholders agree that using a pre-qualification approach, in conjunction with the current rebate amounts, would be feasible with continued annual appropriations.

- *Verification and enforcement of key CVRP program requirements (e.g. income eligibility, ownership requirements, etc.) will be challenging.* Staff believes there needs to be a pre-qualification element to any point-of-sale redesign of CVRP in order to allow for verification of income-based participation requirements (both higher rebates for lower-income consumers and the income cap) prior to issuing rebates. Lack of such safeguards would encourage fraud. Stakeholders agreed that maintaining the key program requirements is important and that a pre-qualification approach would enable the project to operate in such a fashion.

- *The introduction of income eligibility requirements required by SB 1275 already adds a significant change to CVRP. Modifying the project further could add complexities, confuse consumers, and ultimately add to dealer responsibilities.* Staff believes, however, that the addition of a pre-qualification process in addition to maintaining the option to apply for a rebate will help to minimize consumer confusion about eligibility.

Stakeholders have advocated for including these mechanisms in FY 2016-17, noting that the incentive would be more powerful if available at the time of purchase, especially for lower-income consumers. Staff believes that such an incentive should be consistent for all participants to minimize consumer confusion and frustration with varied forms of project implementation. Hence, staff proposes to continue to work through implementation challenges over the next several months to better define a pre-qualification mechanism. Once a CVRP administrator for FY 2016-17 is selected, staff believes it will take about 4-6 months to implement such changes, and targets spring 2017 for implementation. Staff will hold public work group meetings after the CVRP administrator is selected to develop the more detailed implementation provisions with input from stakeholders.

<u>*Waiting List Provision*</u>: In past years, the CVRP waiting list provision has been an important feature for consumers and manufacturers alike because it provides a degree of funding certainty during gaps between funding cycles. Staff believes the proposed $175 million budget will meet rebate demand for the full funding cycle, but acknowledges the uncertainties in its forecasts. Staff proposes that the Board provide the Executive Officer discretion to establish a waiting list to bridge the gap between budget years in the event that CVRP runs short of funding prior to the end of FY 2016-17.

Increased Public Fleet Incentives: Staff proposes to continue the pilot project that provides increased incentives for public fleets operating in and near disadvantaged communities (Public Fleet Pilot). This pilot has operated as a set-aside within CVRP since February 2015, with a proposed $3 million allocation for FY 2016-17. This pilot is discussed further in the Light-Duty Pilot Projects to Benefit Disadvantaged Communities section of the Funding Plan.

Disadvantaged Community Benefits: CVRP will continue to be implemented on a first-come, first-served, statewide basis, so it is not possible to estimate in advance exactly how much funding will benefit disadvantaged communities. About 37 percent of Low Carbon Transportation funding for CVRP to date has provided benefits to disadvantaged communities, and about 6 percent of the funding has been spent in disadvantaged communities as reported in the March 2016 *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds*. To determine whether investments are in or benefiting disadvantaged communities, ARB uses the criteria to evaluate projects specified in the 2015 *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies that Administer California Climate Investments*.

Staff expects that a similar percentage of future CVRP rebates will benefit these communities and perhaps the fraction will increase with the higher rebates available for lower-income consumers. As part of the reporting requirements associated with Cap-and-Trade auction proceeds funding, ARB will track where these funds are spent, so it can calculate the portion that benefits disadvantaged communities. In Table 5 (Chapter 2), staff included a conservative estimate that at least a third of the FY 2016-17 CVRP funding will benefit disadvantaged communities in order to demonstrate how ARB will meet its overall disadvantaged communities investment commitment.

Terms and Conditions: When CVRP was established, ARB and the project administrator developed Terms and Conditions to highlight the policies set forth by the Board in more detail for consumers, and ensure a fair, equitable, and responsible project. More specifically, the CVRP Terms and Conditions are intended to notify consumers of the core requirements of the program prior to submitting an application. Additionally, ARB and the project administrator developed an Implementation Manual to further define these rules and explain roles and responsibilities. In an effort to ensure that the Board is updated on the status of these items, staff has included a copy of the current Terms and Conditions and Implementation Manual as an Appendix C to the Funding Plan. These documents are updated periodically throughout the year to reflect project changes after the Board adopts each funding plan and as other changes are necessary to provide further clarity.

Project Solicitation: ARB will conduct a competitive solicitation to select one grantee to administer both CVRP and the Public Fleet Pilot. Currently, ARB solicits for a grantee every two years. ARB staff proposes extending this time frame to allow ARB to conduct a three-year solicitation. While the solicitation would encompass up to three fiscal

years, the grant agreement would initially cover one fiscal year with the option to renew for each of the following two fiscal years. The solicitation would be released after the Board approves the FY 2016-17 Funding Plan and the State Budget is signed. It would be open for at least 30 days. Staff anticipates having a grant in place for the FY 2016-17 funds by the end of September 2016.

OUTCOMES

Staff expects the proposed allocation of $230 million would fund approximately 98,000 rebates meeting expected demand from June 2016 through September 2017 and provide 3,800,000 metric tons of CO_2 equivalent GHG emission reductions. However, recently launched income eligibility changes may affect these estimates, and staff will continue to monitor CVRP over the course of the year. After the funding is expended, ARB will report on the number of rebates issued, emission reductions achieved, and disadvantaged community benefits as part of future Annual Reports to the Legislature on California Climate Investments.

The ZEV market is continuing to grow dynamically and there is a clear need to evaluate the effectiveness of investments toward CVRP and other light-duty vehicle incentives. As discussed further in Part II of the Funding Plan, staff has developed a long-term strategy for CVRP and light-duty vehicle incentives to address SB 1275 requirements. These requirements include a forecast of the projected funding needs for CVRP and related programs for the immediate fiscal year and two subsequent fiscal years, a preliminary market and technology assessment to inform funding decisions, and an assessment of when a self-sustaining market is expected.

Light-Duty Pilot Projects to Benefit Disadvantaged Communities

Proposed Low Carbon Transportation Allocation – $44 million

Since the FY 2014-15 funding cycle, ARB has allocated Low Carbon Transportation funding to a suite of light-duty pilot projects designed to increase access to zero-emission and near zero-emission vehicles in disadvantaged communities and lower-income households and to reduce GHG, criteria pollutant, and toxic air contaminant emissions. ARB staff refers to these as "pilot projects" because they are designed to employ new clean vehicle transportation strategies on an exploratory basis in order to learn which strategies are successful and represent the best opportunities for expanding access throughout California. ARB staff seeks to both encourage new project opportunities and build on successful pilot projects to scale them up in future years for broader implementation. SB 1275 directs ARB to fund these types of disadvantaged community and lower-income consumer focused projects.[16]

In addition to providing increased access, these pilot projects also seek to increase the awareness and acceptance of the advanced technology vehicles in disadvantaged communities and by lower-income consumers. To do so, these pilot projects must overcome barriers other than just providing incentives to bridge the cost differences between clean and conventional vehicles in the marketplace. For example, the primary language for many potential pilot project participants may not be English. Project participants may also need information about clean vehicle technologies, including what is available, how it works, and the advantages they can offer. Availability of affordable financing, lack of experience with or access to credit and banking, and other challenges may also exist in these neighborhoods.

For some projects, a multilingual, person-to person approach may best serve residents' needs and may need to include financial counseling and training on vehicle use. Partnerships with community-based organizations to help design or implement projects may be appropriate and can be very effective with outreach to disadvantaged communities and lower-income consumers. These types of focused, targeted strategies require higher administration costs in pilot projects as compared to other ARB incentive projects, at least initially, but staff believes they are necessary to truly benefit the disadvantaged communities and lower-income consumers they aim to serve in the longer term.

Table 8 shows the pilot projects funded with Low Carbon Transportation appropriations to date along with staff's proposed project allocations for the FY 2016-17 funding cycle. ARB allocated $9 million to these projects in FY 2014-15 and had intended to increase

[16]SB 1275 (De León, Chapter 530, Statutes of 2014). See Health and Safety Code Section 44258.4(c)(4) for direction to establish these types of projects: http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_1251-1300/sb_1275_bill_20140921_chaptered.pdf

funding fourfold to $37 million as outlined in the Board-approved FY 2015-16 Funding Plan. However, with a smaller than anticipated budget appropriation, ARB was only allocated $10 million to this category as shown in Table 8.

Table 8: Light-Duty Pilot Projects to Benefit Disadvantaged Communities

Pilot Projects	**FY 2014-15 Allocation** (millions)	**FY 2015-16 Allocation** (millions)	**Recommended FY 2016-17 Allocation** (millions)
EFMP Plus-up	$2	$10	$30
Car Sharing and Mobility Options[1]	$3.1	-	$8
Increased Public Fleet Incentives for CVRP-Eligible Vehicles	$3	-	$3
Agricultural Worker Vanpools in San Joaquin Valley *(new for FY 2016-17)*			$3
Financing Assistance for Lower-Income Consumers[1,2] *(expand statewide for FY 2016-17)*	$0.9	-	$6 (not included in total)[2]
Total	**$9**	**$10**	**$44**

[1]The FY 2014-15 Funding Plan allocated $2.5 million for car sharing and $1.5 million for financing assistance. Because the car sharing solicitation was over-subscribed and the financing assistance was under-subscribed, ARB reallocated funding between the two pilot projects consistent with the contingency provisions in the FY 2014-15 Funding Plan.

[2]Financing Assistance is not included in the total for this table because ARB staff proposes expanding the project statewide for FY 2016-17 as discussed later in the Funding Plan.

For FY 2016-17, ARB staff proposes allocating $44 million to Light-Duty Pilot Projects to Benefit Disadvantaged Communities to build upon and increase prior years' investments. In addition, staff proposes that Financing Assistance, one of the previously established pilot projects, receive an increased allocation of $6 million and the project be expanded to allow participation for lower-income consumers statewide in addition to those in or near disadvantaged communities. To reflect this expansion, staff has moved this project into a separate category, Financing Assistance for Lower-Income Consumers, which is discussed in the next section of the Funding Plan.

Many of these pilot projects have recently launched in 2015 or in early 2016, or are still in developmental stages, making it a challenge to estimate funding needs. Staff based its proposal for funding this year on experience with previous project solicitations through these beginning stages as well as stakeholder input.

Stakeholders have consistently maintained that all of these projects serve an important equity function for disadvantaged communities due to the health, economic, and social benefits they offer and that ARB should provide increased funding support. Stakeholders also suggest that ARB should increase coordination with CVRP and similar programs administered by other State agencies, including the Energy Commission, Strategic Growth Council, and California Department of Transportation (Caltrans). ARB staff meets routinely with these and other State, federal, and local agencies, and will continue to explore ways to coordinate investments of public funding.

Stakeholders have pointed out the need for effective, coordinated outreach and education to the disadvantaged communities that these pilot projects aim to benefit. They also urge coordination between pilot projects and coordination with other State and local projects serving these disadvantaged communities. ARB staff agrees, seeing outreach and education as key components of project development, design, and implementation, especially so that projects meet community needs and circumstances. Towards those ends, ARB staff has placed a priority on working to align and link pilot projects with other State and local assistance so that consumers who participate in one program are made aware and can be offered other opportunities, such as easily combining Financing Assistance with EFMP Plus-up and/or CVRP.

The remainder of this section provides an overview of each of the four light-duty vehicle pilot projects, their current project status, staff proposals for funding levels, proposed project design changes, and projected outcomes for each pilot project. As previously mentioned, the Financing Assistance for Lower-Income Consumers is discussed in more detail in the following section.

EFMP Plus-up

Proposed Low Carbon Transportation Allocation – $30 million

PROJECT OVERVIEW

The goal of the EFMP Plus-up pilot project is to support advanced technology vehicle replacements for lower-income consumers living in or near disadvantaged communities by augmenting EFMP incentives to partially offset the higher costs of these advanced technologies. EFMP is a vehicle retirement (scrap) and replacement program authorized by AB 118 (Nunez, Chapter 750, Statutes of 2007) that is funded by a surcharge on motor vehicle registrations. EFMP has two components: retirement-only and retire-and-replace. The retirement-only component is run by the Bureau of Automotive Repair following guidelines set by ARB. It provides compensation to lower-income vehicle owners to retire their older, high polluting vehicles. The retire-and-replace component provides higher incentives to lower-income vehicle owners who retire vehicles and purchase replacement vehicle that meets certain fuel economy requirements. The retire-and-replace component of EFMP is administered by the San Joaquin Valley APCD and the South Coast AQMD in partnership with ARB. It has a tiered incentive structure, with the highest amounts allotted to the lowest income participants and the cleanest replacement vehicles.

ARB is using Low Carbon Transportation funding for EFMP Plus-up to focus the retire-and-replace component on benefiting disadvantaged communities in addition to and complementing the lower-income consumer focus of EFMP. Under EFMP Plus-up, lower-income vehicle owners living in or near disadvantaged communities in the South Coast or San Joaquin Valley regions get increased funding if they purchase a new or used hybrid, plug-in hybrid, or zero-emission vehicle. For example, a qualifying participant who wants to purchase a plug-in hybrid electric or battery electric replacement vehicle would receive $4,500 from EFMP and an additional $5,000 from EFMP Plus-up, for a total incentive of $9,500. When coupled with a CVRP rebate, an eligible consumer purchasing a new battery electric vehicle could receive as much as $13,500.

CURRENT PROJECT STATUS

Over the last two budget cycles, ARB awarded $12 million in funding for EFMP Plus-up to the San Joaquin Valley APCD and South Coast AQMD ($6 million to each air district). As a requirement of these grant agreements, participants must have incomes less than 400 percent of the federal poverty level and live in ZIP codes containing disadvantaged community census tracts. Through January 1, 2016, nearly 95 percent of all recipients have annual incomes below 225 percent of the federal poverty level.

As of January 1, 2016, the San Joaquin Valley APCD has spent about $1.3 million of its EFMP Plus-up funds to replace 217 vehicles. About 17 percent are battery electric

vehicles, 23 percent are plug-in hybrid electric vehicles, and 60 percent are hybrids. Public events are held bi-weekly throughout the San Joaquin Valley where participants can have their older vehicles assessed for retirement and begin shopping for a cleaner replacement. Based on projections of current information, this funding may be fully expended in 2016 and result in about 700 vehicles being replaced. More information is available at: www.valleycan.org/tune_in_tune_up.php.html.

The South Coast AQMD has spent about $1.3 million in EFMP Plus-up funding through the end of 2015, replacing 222 vehicles. About 23 percent are battery electric vehicles, 25 percent are plug-in hybrid electric vehicles, and 52 percent are hybrids. Based on projections of current information, this funding may be fully expended in 2016 and result in about 700 vehicles being replaced. Interested participants can apply to the program online or through a bilingual dedicated call center. More information is available at: www.replaceyourride.com.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes a $30 million allocation for FY 2016-17. $20 million would be allocated to the San Joaquin Valley APCD and South Coast AQMD ($10 million to each air district) to support the anticipated growth of these two existing programs. ARB staff estimates this funding level would contribute to replacing up to 1,400 vehicles in each air district, which would bring significant emission reductions and health benefits to disadvantaged communities in both air districts.

$10 million would be allocated to expand EFMP Plus-up to other air districts that implement a vehicle retirement and replacement program that meets minimum requirements established in the EFMP Guidelines and additional requirements included in EFMP Plus-up grant agreements. The Bay Area, Sacramento, and Santa Barbara air districts have expressed interest in starting EFMP Plus-up programs in their regions. As with the San Joaquin Valley and South Coast EFMP Plus-up programs, Low Carbon Transportation funding would be limited to advanced technology vehicle replacements that benefit disadvantaged communities. ARB staff proposes maintaining the FY 2015-16 project parameters with no significant changes.

Looking more broadly at the emphasis on incentive programs in ARB's *Mobile Source Strategy* and recognizing the upward trajectory of the existing programs as well as the expected expansion of EFMP Plus-up to additional districts eager to implement their own programs, ARB staff projects a sharply increasing funding need of up to $150 million over the next three years, with up to $50 million in FY 2017-18 and up to $70 million in FY 2018-19. ARB recognizes that this funding projection requires each district's program to grow in scale considerably in a three-year period and may experience challenges associated with growing their programs so quickly. As such, staff will be closely monitoring and assessing each district's ability to achieve the growth necessary to meet the funding targets. In addition, future funding needs and the amount available to each district will depend on how many new districts adopt EFMP Plus-Up in the coming years.

Grant Award Process: ARB would award EFMP Plus-up funding non-competitively through grant agreements with the San Joaquin Valley APCD, South Coast AQMD, and other air districts that choose to start an EFMP Plus-up program. This project will continue to require outreach, education, and consumer protections for lower-income consumer recipients living in or near disadvantaged communities.

Flexibility to Redirect Unused Funds: Uncertainties exist regarding how quickly current EFMP Plus-up programs in the San Joaquin Valley and South Coast regions will expend funds, how many new air districts will request funds to start new programs, when those new air districts will start their programs, and how quickly these new programs will ramp up. Stakeholders have requested that ARB incorporate flexibility provisions that would ensure sufficient funds are available to support the expansion of EFMP Plus-up to air districts that choose to start a qualifying program, but would also provide ARB the ability to redirect funds as the funding cycle progresses in the event that a portion of the $10 million allocated for new district programs is unused.

ARB staff agrees that flexibility provisions should be included to ensure funds are directed where they will be utilized most effectively. Accordingly, staff proposes a flexible award schedule that will reserve the $10 million portion for EFMP Plus-up for new air district programs for at least the first 6 months of FY 2016-17. This will provide air districts that are contemplating developing new programs the assurance of funding availability while they formulate their EFMP plans in collaboration with ARB. At that point, ARB staff will evaluate the interest expressed and the funding needs proposed for new air district programs, as well as the demand being experienced by the existing San Joaquin Valley and South Coast programs. ARB staff will work with the air districts in determining whether funding should be shifted from the new program allocation to existing programs that show demand. If there is not initial demand for the full $10 million proposed for new air district programs, ARB staff proposes that a minimum amount of approximately $5 million remain available for potential new air district programs through the end of FY 2016-17.

OUTCOMES

Staff estimates the proposed FY 2016-17 allocation for the existing programs in the South Coast and San Joaquin Valley will support replacing approximately 1,000 to 1,400 vehicles in each air district. In addition, ARB staff expects that the remaining funds will support the establishment of new programs in two or three air districts. Depending on how quickly the new programs are developed and administered, ARB staff expects at least 300 cars per air district could be replaced through FY 2016-17. Staff estimates the proposed $30 million allocation for EFMP Plus-up would achieve around 25,000 metric tons of CO_2 equivalent GHG reductions.

ARB staff's analysis shows that the vast majority of the on-road fleet must be zero- and near zero-emission vehicles by 2050 to meet the State's GHG targets. ARB's *Mobile Source Strategy* indicates that incentive programs such as EFMP and EFMP Plus-up

will be essential in facilitating the light-duty fleet transition to zero-emission and near zero-emission technologies, and calls for further deployment of cleaner light-duty vehicle technology through the expansion and enhancement of retire-and-replace incentive projects to accelerate the turnover of the fleet to meet an overall LEV III or better emissions level. The increase in funding over the next three years proposed above will play an important part in meeting these demands.

Air districts that are participating in EFMP Plus-up must report project information on a quarterly basis based on project administration and consumer surveys. With this information, and through continued interaction with stakeholders and analysis of the state of the light-duty vehicle market, ARB will be able to determine the participation rate and advancement of clean vehicles for disadvantaged communities and lower-income consumers, assess future funding needs, and evaluate other opportunities for making program enhancements.

Car Sharing and Mobility Options

Proposed Low Carbon Transportation Allocation – $8 million

PROJECT OVERVIEW

The Car Sharing and Mobility Options pilot project is designed to help individuals in disadvantaged communities benefit from the use of a zero-emission or near zero-emission vehicle without the responsibility of car ownership costs, and to offer alternate modes of clean transportation that encourage the shared use of zero-emission and near zero-emission transit, vanpools, and other mobility options. This project provides GHG, criteria pollutant, and toxic air contaminant emission reductions and will be used to gather data to help support larger scale advanced technology car share programs in the future. This pilot project also supports SB 1275 requirements to fund disadvantaged community focused programs such as car sharing pilot projects and support for the installation of electric vehicle charging infrastructure, including installations in multiunit dwellings in disadvantaged communities.

CURRENT PROJECT STATUS

In FY 2014-15, a competitive solicitation process with $2.5 million in available funding resulted in 13 applications requesting more than $16 million for car sharing projects targeting disadvantaged communities throughout California. A transfer of approximately $600,000 from the Financing Assistance pilot project resulted in total available funding of nearly $3.1 million, which ARB awarded to:

- City of Los Angeles ($1.7 million in Low Carbon Transportation funds, with over $6 million in match funding) to start a new car share service in Los Angeles with 100 advanced technology vehicles and installation of over 100 chargers. It will serve up to 7,000 residents of Westlake, Pico-Union, neighborhoods north of the University of Southern California, and portions of the Downtown, Hollywood, and Koreatown disadvantaged communities currently unserved by car sharing.

- Sacramento Metropolitan Air Quality Management District ($1.4 million in Low Carbon Transportation funds with almost in $500,000 match funding) to start a new car share service for up to 2,000 residents at three disadvantaged community multiunit subsidized housing projects in Sacramento. This scalable project will provide an eight-vehicle all-electric fleet with chargers installed at the housing locations and a DC fast charger at a light-rail intermodal passenger hub.

- SANDAG ($300,000 in Low Carbon Transportation funds with approximately $100,000 in match funding) to expand an existing zero-emission car share service to serve the Barrio Logan and Logan Heights neighborhood disadvantaged communities. This project was terminated in April 2016 because the car sharing company that SANDAG partnered with decided to no longer offer

zero-emission vehicles as part of their car sharing operations, leaving an unused balance of approximately $290,000. Subsequently, ARB reallocated $265,000 of the unused balance to fully fund the Sacramento Metropolitan AQMD car share project, with the remainder $25,000 available for future awards.

These Car Sharing and Mobility Options pilot projects feature strong support from local and regional government agencies, private sector operators, and community-based organizations that together will help to ensure that the health, economic, and social benefits of advanced technology car sharing reach disadvantaged neighborhoods. Plans for these projects include extensive targeted bilingual outreach and education, mechanisms to include residents who do not have bank accounts, and installation of charging infrastructure to serve multiunit housing in disadvantaged communities. Initial project launches for both the City of Los Angeles and the Sacramento Metropolitan AQMD projects are anticipated in summer 2016.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes an $8 million allocation for FY 2016-17 for Car Sharing and Mobility Options. This includes $6 million to be awarded through a competitive solicitation process. $2 million would be reserved to expand existing projects based on an evaluation of the existing projects' success in meeting their project goals with a requirement that grantees provide additional match funding. ARB staff proposes flexibility to adjust these allocations to maximize the overall use of funding pending the outcome of the competitive scoring process for new project applications and evaluation by ARB staff of any specific proposals for the possible expansion of existing projects.

ARB staff proposes the following changes, with solicitation details to be developed through a public work group process:

- Add electric bike sharing as an eligible first-mile/last-mile mobility options component of a car sharing project, including eligibility for the purchase of electric bicycles and bike-share infrastructure.

- Introduce a goal for regional balance of awarded projects, subject to availability, within the group of the highest ranked proposed projects received.

- Include in the project solicitation an increased focus on outreach and public education as an element of the car share projects to be funded.

OUTCOMES

ARB will begin to collect data and estimate emission reductions once the initial pilot projects launch to disadvantaged community residents beginning in summer 2016. Grantees will provide pre-project information on participant uses of transportation and their unmet transportation needs, and once the projects are running, they will provide information on usage of the car sharing system. ARB staff will evaluate these data and

determine where opportunities exist to expand successful programs. ARB staff will report in the annual reports to the Legislature and future Funding Plans the progress that has been made, emissions reduced, and the co-benefits that car sharing pilot projects bring to disadvantaged communities.

ARB staff sees great promise for car sharing projects to grow and expand to more regions of California. ARB staff proposes $8 million of funding for this project in FY 2016-17, with $6 million for new projects and $2 million for expansion of existing projects. This proposal is a large increase from the $2.5 million in FY 2014-15 for car sharing pilot projects, but is based on the strong solicitation response that saw project proposals requesting over $16 million, over 6 times the available funding. If more funds had been available, staff would have recommended selecting another $5 million of the top-ranked projects for funding. Accordingly, ARB staff proposed $5 million for car sharing pilot projects in the FY 2015-16 Funding Plan, but that funding was ultimately not allocated.

Going forward, stakeholders have identified opportunities for adding as many as 40 to 50 additional car sharing projects to serve disadvantaged communities over the next three years. Based on the average project proposal from the FY 2014-15 solicitation, this would translate to a projected funding need of up to $25 million in FY 2017-18 and up to $30 million in FY 2018-19.

In Appendix A, staff has provided an illustration of emission reductions that could result from a car sharing pilot project scenario. As these projects begin to be implemented and usage information is collected, ARB staff will have a better basis to calculate the associated emission reductions.

Increased Public Fleet Incentives for CVRP-Eligible Vehicles

Proposed Low Carbon Transportation Allocation – $3 million

PROJECT OVERVIEW

The Public Fleet Pilot Project offers higher rebates for public fleets operating in and near disadvantaged communities for the purchase of CVRP-eligible vehicles. The goal for this pilot project is to deliver the emission reductions and associated health benefits that clean vehicles can offer by helping transform the public fleets that operate in disadvantaged communities. These communities and residents will also gain awareness and experience with the vehicles and technologies they employ.

Higher rebate amounts are needed for these fleets to help purchase more expensive clean vehicles, especially because public fleets are not eligible to receive the federal tax credit for clean vehicle purchases. Further, this project allows public fleet operators to place clean vehicles into their long-term fleet purchasing plans and budgets by allowing incentives funds to be reserved well before actual purchases take place. Accordingly, the incentive amounts offered are $5,250 for a plug-in hybrid vehicle, $10,000 for a battery electric vehicle, and $15,000 for a fuel cell electric vehicle. This pilot project is operated as a set aside within CVRP.

CURRENT PROJECT STATUS

ARB awarded a FY 2014-15 grant of $2.9 million to CSE to administer the Public Fleet Pilot Project within CVRP. The pilot project launched in February 2015. To date, about $2.5 million of the available funding has been reserved by or issued to public fleets to purchase approximately 400 vehicles. More information is available on the project web site at: https://cleanvehiclerebate.org/eng/pfp. ARB staff estimates that the remaining available funding will run out in June or July 2016.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes a $3 million allocation for FY 2016-17. This project will continue to be administered as a set-aside within CVRP and will continue to require that the public fleet must operate in and near disadvantaged communities to be eligible. Staff is proposing no changes to project requirements for the FY 2016-17 funding cycle. For future funding cycles, ARB staff will transition this pilot project to become a standard part of CVRP. As public fleets achieve higher adoption rates of advanced technology vehicles, ARB staff will evaluate the continuing needs for these incentives, including consideration of reductions of rebate amounts for public fleets.

Terms and Conditions: ARB and the project administrator have developed Terms and Conditions to highlight the policies set forth by the Board in more detail for public fleet managers contemplating applying to participate in the project. These ensure a fair,

equitable, and responsible project. More specifically, the Terms and Conditions are intended to notify public fleet managers of the core requirements of the program prior to submitting an application. Additionally, ARB and the project administrator developed an Implementation Manual to further define these rules and explain roles and responsibilities. In an effort to ensure that the Board is updated on the status of these items, staff has included a copy of the current Terms and Conditions and Implementation Manual as Appendix D to the Funding Plan. These documents are updated periodically throughout the year to reflect project changes after the Board adopts each funding plan and as other changes are necessary to provide further clarity.

Project Solicitation: As noted previously in the CVRP section, ARB will conduct a competitive solicitation to select one grantee to administer both CVRP and the Public Fleet Pilot with the details provided in the CVRP section.

OUTCOMES

Public fleet vehicles that operate in and near disadvantaged communities present a unique opportunity for introducing zero- and near zero-emission vehicles directly to these communities. In addition to the health and other co-benefits these clean vehicles provide, residents will gain increased knowledge and experience with these vehicles and the technologies they employ as they operate in and around these communities. In addition, the clean vehicle purchases that these incentives will make possible will help State fleets achieve the Governor's goal of purchasing 25 percent zero-emission vehicles as part of their overall light-duty vehicle purchases.

The continuing need for public fleet incentives exists because local and state government fleets face cost and other barriers when adopting clean vehicles. Over the longer-term, staff envisions integrating the Public Fleet Pilot Project into CVRP, most likely as a set-aside of dedicated funding available to address the often lengthy procurement process for public fleets. Staff expects the proposed FY 2016-17 allocation of $3 million would fund approximately 400 vehicle rebates. This number of rebates would meet the demand expected by ARB staff and provide about 13,000 metric tons of CO_2 equivalent GHG emission reductions over the life of project.

Agricultural Worker Vanpools in the San Joaquin Valley

Proposed Low Carbon Transportation Allocation – $3 million

PROJECT OVERVIEW

The Agricultural Worker Vanpools in the San Joaquin Valley pilot project would provide expanded access to clean transportation vanpools for agricultural workers in the San Joaquin Valley's disadvantaged communities. Eligible vehicles will include zero-emission, plug-in hybrid, or hybrid passenger vans, with preferences for new, HVIP-eligible vehicles. Vehicle conversions and installation of electric vehicle supply equipment for appropriate multiunit dwellings and other appropriate locations may also be considered for funding. This pilot project would provide much needed GHG emission reductions in the San Joaquin Valley and would support SB 1275 requirements for ARB to increase access for lower-income consumers to clean transportation and to fund installation of charging infrastructure at multiunit dwellings in disadvantaged communities.

The Strategic Growth Council awarded $3 million of FY 2014-15 Affordable Housing and Sustainable Communities Program funding for an agricultural worker vanpool expansion project. ARB staff will coordinate with the Strategic Growth Council regarding the outcomes of that project and will apply any relevant lessons learned as it develops and implements ARB's proposed pilot.

The Board-approved FY 2015-16 Funding Plan included $3 million for this pilot project. However, with a smaller than anticipated budget appropriation, this project was not funded. ARB staff concurs with continued stakeholder input that this pilot project is needed for the health, economic, and social benefits it offers for agricultural workers in San Joaquin Valley disadvantaged communities.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes an allocation of $3 million for FY 2016-17, the same funding amount ARB planned to direct to this project in FY 2015-16. ARB staff will use a public work group process to develop project parameters, including development of vehicle eligibility criteria. Funding may be awarded either non-competitively through a grant agreement with a public entity or through a competitive solicitation process.

OUTCOMES

ARB staff cannot estimate specific outcomes of a pilot project until a project is selected for funding. ARB staff will report in Annual Reports and future Funding Plans the outcomes of this project as it begins serving agricultural workers and disadvantaged communities in the San Joaquin Valley. Based on input from stakeholders regarding the number of cleaner vanpools needed to serve the agricultural worker population,

ARB staff projects a continuing funding need for this pilot project of $3 million in FY 2017-18 and $3 million in FY 2018-19.

In Appendix A, staff has provided an illustration of emission reductions that could result from an agricultural worker vanpool pilot project scenario. When this project begins to be implemented and usage information is collected, ARB staff will have a better basis to calculate the associated emission reductions.

Financing Assistance for Lower-Income Consumers

Proposed Low Carbon Transportation Allocation – $6 million

PROJECT OVERVIEW

Vehicle financing can be a significant barrier to vehicle ownership for many lower-income consumers, especially for the purchase or lease of more expensive, zero-emission and near zero-emission vehicles. The goals for this pilot project are to help improve access to affordable financing mechanisms for lower-income consumers to purchase or lease cleaner vehicles, and to provide additional health, economic, and social benefits to their communities. This project also supports SB 1275 requirements for ARB to promote financing mechanisms to increase access to clean vehicles for lower-income consumers, which are defined for this project as individuals with incomes of less than 400 percent of the federal poverty level.

To meet these goals, the project includes helping participants with financial literacy and education on clean vehicles, so they have the knowledge necessary to have a successful loan experience and to understand how to operate and maintain these clean vehicles and the advanced technologies they use. Staff anticipates that many if not most vehicles acquired through this program will be used vehicles; eligible vehicles include new or used hybrid, plug-in electric hybrid, or zero-emission vehicles, and must be 8 years old or newer with a combined fuel economy rating of at least 20 miles per gallon of fuel or more depending on the model year. Project design includes additional consumer protections, such ensuring that the vehicles do not have any outstanding safety recalls, so that the participant experience is satisfactory and results in a larger positive impression about clean vehicles in lower-income communities.

The project funds a variety of financing mechanisms that a grantee can offer, including loan loss guarantees, interest rate buy-downs, vehicle price buy-downs, and support for installation of charging equipment for battery electric vehicles acquired through the program. These financing assistance approaches can be combined with CVRP and EFMP Plus-up funding opportunities to help make these other programs more accessible to lower-income Californians. ARB staff understands that because there is not much information currently available regarding the types of financing mechanisms that will actually help lower-income consumers obtain cleaner vehicles, there may be the need to make adjustments to project design as more information is gathered.

CURRENT PROJECT STATUS

In November 2015, ARB awarded a FY 2014-15 grant of about $900,000 to the Community Housing Development Corporation (CHDC) to administer a Financing Assistance pilot project to benefit disadvantaged communities and lower-income consumers in the Bay Area. The pilot project combines a loan loss reserve program with vehicle price buy-down assistance. Prospective recipients are identified through

the CHDC's housing assistance program and offered additional financial and vehicle technology familiarization training prior to receiving a vehicle loan. CHDC evaluates each client's commitment to the program and their credit, employment, and residence history. A loan committee made up of banks and community organizations decide on the client's ability to repay the loan. Once the loan is made, CHDC counselors remain in contact with the recipient throughout the term of the loan to help ensure optimal loan and vehicle usage outcomes. The project performance goals are to provide 100 loans for clean vehicles over the next 3 years. CHDC is targeting automotive lending projects up to $8,000 per loan at an interest rate of 8 percent or below, with a maximum loan term of 36 months.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes a $6 million overall allocation for FY 2016-17 with two complementary elements, $5 million for a statewide project and $1 million for local projects, as described below:

- *Statewide Project*: The $5 million statewide project would be open to lower-income consumers throughout California. This project would be designed to coordinate with the EFMP Plus-up programs and CVRP to ensure that lower-income consumers throughout the State have increased access to advanced technology vehicles. By coordinating closely with EFMP Plus-up, which will continue to focus on benefiting consumers living in and near disadvantaged communities, ARB will ensure much of this funding still benefits these communities.

  ARB staff proposes that this statewide project could be awarded through either a competitive solicitation process or via an interagency agreement with the State Treasurer's Office California Pollution Control Financing Authority (CPCFA). Based on ARB's experience with CPCFA as the administrator of the Truck Loan Assistance Program since 2009, ARB staff believes CPCFA is highly qualified to administer the statewide element of the Financing Assistance for Lower-Income Consumers pilot project. A bill currently pending before the Legislature would provide CPCFA the statutory authority it needs to administer this project.

- *Local Projects*: Staff proposes that $1 million be made available for local projects to be awarded via a competitive solicitation as did the FY 2014-15 Financing Assistance pilot project, with the exception that this $1 million element would also be available for lower-income consumers throughout California. Based on discussions with local community and non-profit organizations, there may be additional opportunities for one or more local programs that can help lower-income consumers purchase advanced technology vehicles, similar to the model that CHDC is currently administering in the Bay Area. Funding these types of programs could help lower-income consumers who may not be able to participate in a statewide financing project or require other avenues of assistance such as through job development or community housing organizations. Last,

staff proposes that these funds be available for the potential expansion of the existing project as well as for new projects.

If a statewide or a local financing project is undersubscribed, staff proposes allowing contingency provisions to shift funding between the statewide and local projects based on demand.

Proposed Changes to Financing Assistance Project Criteria: In February 2016, ARB staff began a public work group process to present potential project criteria changes to the FY 2016-17 Financing Assistance for Lower-Income Consumers pilot project. These changes are based on early experience with the FY 2014-15 pilot project, and are designed to better fit the needs of lower-income consumers. These potential changes include the following:

- Increasing assistance to lower-income consumers, such as by adjusting the vehicle price buy-down amount and lowering the interest rate cap.

- Offering more consumer protections, such as by modifying the used vehicle criteria.

- Increasing the integrity of the project, such as by extending the minimum ownership requirement.

Stakeholder feedback on these potential changes was generally positive but indicated that further evaluation and input is needed. ARB staff agrees and will continue the work group process to develop these potential changes to criteria for this project, pending the outcome of Board consideration of this Funding Plan.

Disadvantaged Community Benefits: This proposed funding would be available statewide, so it is not possible to estimate in advance exactly how much funding will benefit disadvantaged communities. However, staff expects that much of this funding still benefit these communities because the project would be closely coordinated with EFMP Plus-up which will continue to focus on benefiting consumers living in and near disadvantaged communities. Staff conservatively estimates that at least half this funding would benefit disadvantaged communities. As part of the reporting requirements associated with Cap-and-Trade auction proceeds funding, ARB will track where these funds are spent, so it can calculate the portion that benefits disadvantaged communities. To determine whether investments are in or benefiting disadvantaged communities, ARB uses the criteria to evaluate projects specified in the 2015 *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies that Administer California Climate Investments*.

OUTCOMES

ARB will use project data from the current CHDC project as it becomes available to better understand the costs, types, and issues associated with vehicles purchased or

leased, how well the needs of consumers that participate are met, how well the financing mechanisms work, and future opportunities to continue or even expand this project. This pilot project will also help identify if this a successful model that can be adopted by other local community housing corporations or non-profit organizations that have a focus on promoting car ownership for lower-income consumers. The progress that is made by the CHDC project, the emissions it reduces, and the co-benefits it delivers to Bay Area disadvantaged communities will be reported in annual reports to the Legislature and in future Funding Plans.

For FY 2016-17, the goal is to develop a $5 million statewide program and allocate $1 million for local financing assistance programs. For the statewide project, staff proposes a program that includes a loan loss reserve model that is designed to minimize lender risk for loans made to lower-income consumers, in combination with a vehicle price buy-down to assist consumers by making a clean vehicle purchases more affordable.

The statewide program proposal is based on the success of the EFMP Plus-up pilot project and stakeholder feedback urging ARB to expand the menu of assistance for lower-income consumers to access clean transportation. ARB staff anticipates that developing successful financing assistance pilot projects, especially on a statewide level, can create substantial demand for lower-income consumers to obtain clean vehicles that can be more expensive, especially zero-emission and near zero-emission vehicles. Also based on the experience from the Truck Loan Assistance Program, staff anticipates that as the loans are paid off, funds in the loan loss reserve can be used to leverage additional loans.

For FY 2016-17, based on feedback from CPCFA, ARB staff believes that $5 million could provide the financial resources necessary to create a new statewide project with a goal to fund up to 500 consumer loans. If the statewide project is successful at the initial funding level, staff believes that the demand in future years for the statewide project could increase substantially. To meet that potential demand, and to signal to potential grantees a longer term intent, staff has identified a potential funding need of $30 million to $50 million for FY 2017-18, enough to fund about 2,500 loans, and $40 million to $70 million in FY 2018-19, enough to fund about 5,000 loans. These projected funding amounts and goals for loans funded also include allocations for local programs in both fiscal years. For local projects, staff estimates the funding need could be $1 million to $3 million each year in order to fund 100 to 300 consumer loans.

Acknowledging that current data is limited on financing mechanisms targeting lower-income consumers, ARB staff sees the need for flexibility in funding allocations between the statewide and local programs and project design as new information is obtained and financial models are developed and administered. ARB staff believes this project has great potential for helping transform the fleet of vehicles operated by lower-income Californians, but acknowledges that project design needs careful and continued evaluation as knowledge is gained from the existing pilot project and feedback is provided by stakeholder through the public work group process.

CHAPTER 4: HEAVY-DUTY VEHICLE AND OFF-ROAD EQUIPMENT INVESTMENTS (SB 1204 and AQIP)

Achieving California's critical air quality and climate change goals requires a transformation of the on-road and off-road fleet to one that utilizes zero- and near zero-emission technologies operating with the cleanest, lowest carbon fuels. ARB staff's proposed investments for heavy-duty vehicles and off-road equipment are intended to support this transformation by demonstrating emerging technologies, advancing commercial viability through pilot and other deployment projects, and catalyzing further technological development by the private sector.

Because of the smaller than anticipated FY 2015-16 Low Carbon Transportation budget appropriation, only $5 million of the $148 million for heavy-duty vehicle and off-road equipment Low Carbon Transportation investments identified in the FY 2015-16 Funding Plan was allocated to projects. ARB staff proposes that the unfunded projects be carried forward to FY 2016-17, with adjustments made based on information learned over the last year as explained in the project descriptions in this chapter.

Policy and Statutory Drivers

ARB's *Mobile Source Strategy*, *First Update to the Climate Change Scoping Plan*, 2012 *Vision for Clean Air,*[17] and the *California Sustainable Freight Action Plan,* May 2016 draft, all emphasize the need for zero- and near zero-emission strategies to meet long-term GHG emission targets, federal health-based ozone standards, and petroleum use reduction goals. These plans identify near-term measures and actions to promote cleaner combustion in trucks, marine vessels, and off-road equipment as well as accelerated penetration of zero-emission trucks, buses, and equipment where the technologies are ready for the commercial market.

COMPLEMENTARY HEAVY-DUTY INVESTMENT PORTFOLIO

Development of advanced heavy-duty technologies requires a portfolio of incentives that provide funding for the range of technologies needed to achieve both near-term and long-term emission reductions. Where zero-emission technologies are not yet commercialized or have not yet reached the market penetration needed for deep near-term emission reductions, near zero-emission technologies can help meet critical emission reduction goals. For example, incentives for low NOx engines using renewable fuels, a project included in this chapter, can reduce criteria pollutant and GHG emissions while also supporting the goals of the Low Carbon Fuel Standard (LCFS) and complementing the Energy Commission's biofuel production incentives and the Very Low Carbon Fuels Incentive Project described in the next chapter.

[17] *Vision for Clean Air: A Framework for Air Quality and Climate Planning,* June 2012. http://www.arb.ca.gov/planning/vision/vision.htm

SB 1204 REQUIREMENTS AND GOALS

Guiding the investments proposed in this chapter are the requirements and goals of SB 1204 (Lara, Chapter 524, Statutes of 2014). SB 1204 created the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program in Health and Safety Code Section 39719.2 to fund the development, demonstration, pre-commercial pilot, and early commercial deployment of zero- and near zero-emission technologies with priority given to projects that benefit disadvantaged communities. This program, funded with auction proceeds appropriated to ARB, builds on AQIP and Low Carbon Transportation investments from prior funding cycles.

The FY 2015-16 Funding Plan described both the requirements of SB 1204 and how ARB would meet these requirements for the projects to be funded. As discussed earlier, most of the projects in the FY 2015-16 Funding Plan did not receive funding; however, the established framework continues to guide heavy-duty vehicle and off-road equipment investments for FY 2016-17. This framework, including each of SB 1204's requirements and a project-specific performance evaluation, is included in Appendix B.

The proposed heavy-duty vehicle and off-road equipment projects support SB 1204's overarching vision for technology development, demonstration, pre-commercial pilot, and early commercial deployments, with a focus on moving technologies through the commercialization process.

- The on-road and off-road advanced technology demonstration projects will encourage advancement of emission reducing technologies and give confidence to fleets and investors of the pathway for these advanced technologies to enter the pilot stage of commercialization. All demonstration projects will be located within, or will benefit, disadvantaged communities.

- For the proposed bus and truck pilot projects, zero-emission technology is ready for deployment, and heavy investments now will encourage the production and purchase necessary to achieve full commercialization and enable technology transfer into other vehicle weight classes and vocations.

- The additional funding proposed for ARB's ongoing HVIP for FY 2016-17 will help increase production volumes and enhance the process toward full commercialization. Over 50 percent of pilot and HVIP funding will benefit disadvantaged communities.

As a technology moves from commercial introduction to widespread deployment, or the transition phase as shown in Figure 3 below, incentives can be adjusted to focus specifically on moving the technology into new consumer demographic segments and on building upon earlier benefits in disadvantaged communities (as well as supporting other technology sectors). In the transition phase, incentives are targeted to foster technology adoption in these communities. While SB 1204 does not focus on funding for this later phase of a technology's evolution, the AQIP-funded Truck Loan Assistance

Program is an example of this type of incentive, providing loan assistance to help small fleets access financing to upgrade their trucks.

As required by SB 1204, the proposed heavy-duty project allocations ensure that at least 20 percent of Low Carbon Transportation truck funding supports early commercial deployment of existing zero- and near zero-emission heavy-duty truck technology. As shown in Table 9, about $90 million is proposed for heavy-duty truck projects, and about $60 million of that total, about two-thirds, is proposed for early commercial truck deployments:

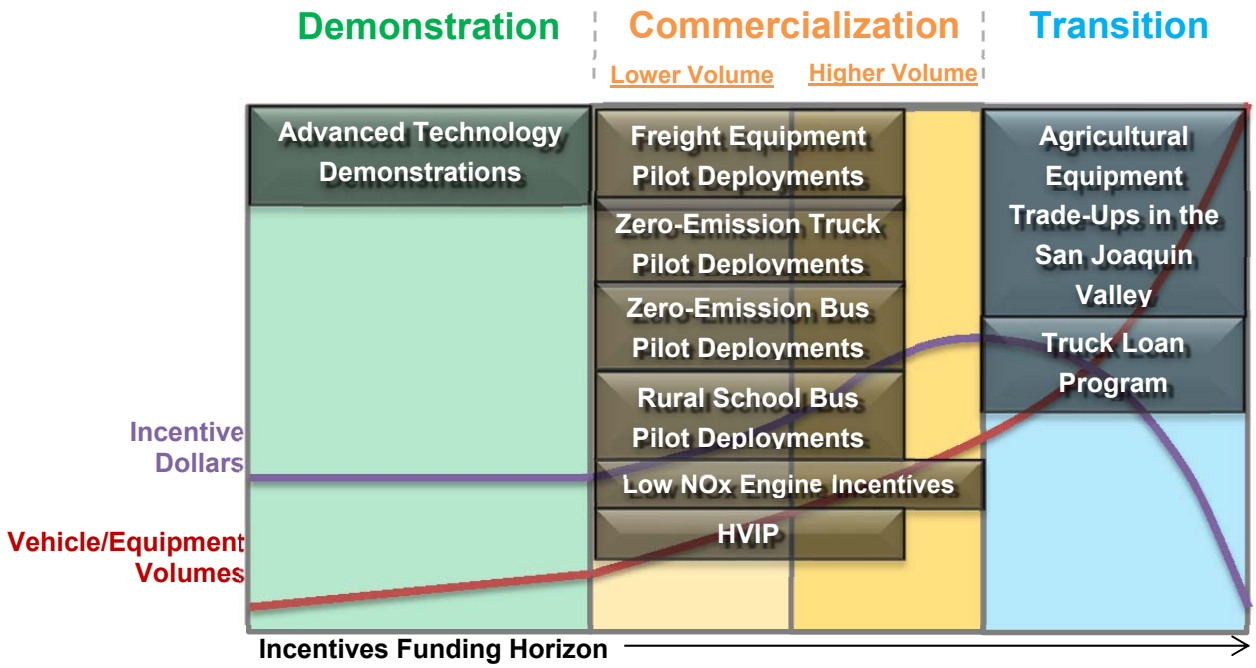
Table 9: Proposed FY 2016-17 Heavy-Duty Truck Investments

Project	Proposed Low Carbon Transportation Funding (million)	Early Commercial?
HVIP[1]	$18	Yes
Low NOx Engines[1]	$23	Yes
Truck Pilot Commercial Deployment	$18	Yes
Advanced Technology Demonstrations: On-Road Trucks	$30	No

[1]A portion of the proposed allocation is expected to fund buses, which would affect the percentage of truck funding that ultimately supports early commercial zero- and near zero-emission heavy-duty truck deployment.

The remainder of this chapter describes the proposed heavy-duty vehicle and off-road equipment projects shown in Figure 3.

Figure 3: Proposed FY 2016-17 Heavy-Duty Vehicle and Off-Road Equipment Investments



Advanced Technology Demonstration Projects

Proposed Low Carbon Transportation Allocation – $59 million

Advanced Technology Demonstration Projects are intended to accelerate into the California marketplace the introduction of advanced emission reducing technologies on the cusp of commercialization. In this first phase of technology advancement toward commercialization, per-vehicle incentives are high because manufacturing is not standardized and is focused on smaller batches of vehicles. Higher levels of incentives per vehicle are needed to help entrepreneurs cover the costs of technology development. A public investment in these technologies helps to achieve GHG reductions, as well as criteria pollutant and toxic air contaminant reductions, sooner than would be possible otherwise. This commitment from the State encourages industry to expeditiously invent, develop, test, and introduce cutting edge emission reducing technologies. All demonstration projects must have the potential for widespread commercialization that will significantly transform the industry while achieving GHG, criteria pollutant, and toxic emission reductions as required by SB 1204. Once demonstration projects reach the goal of market deployment, longer-term future emission reductions in considerably larger magnitudes can be achieved.

CURRENT PROJECT STATUS

The FY 2014-15 Funding Plan allocated $50 million for advanced technology demonstration projects for multi-source facilities and zero-emission drayage trucks. Competitive solicitations were released last year, and grantees have been selected. The two selected Multi-Source Facility Demonstration Projects will demonstrate multiple types of zero-emission heavy-duty off-road and on-road vehicles used in freight transport, as well as supportive fueling infrastructure, at the Port of Los Angeles and multiple freight facilities in San Bernardino and Los Angeles Counties. The Zero-Emission Drayage Truck Demonstration Project will demonstrate more than 40 zero-emission drayage trucks operating throughout California. All projects will launch in summer 2016.

Both solicitations for the demonstration projects above were oversubscribed, indicating a strong demand for advanced technology demonstration projects in the freight sector. In particular, applications requesting $94 million in funding were received for the $25 million Multi-Source Facility Demonstration Project.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes the projects shown in Table 10 to continue support for demonstrations of advanced technologies, with a priority for projects that benefit disadvantaged communities, consistent with the goals of the *Cap-and-Trade Auction Proceeds Second Investment Plan* and SB 1204. These proposed project categories

were included in the FY 2015-16 Funding Plan, but went unfunded. The projects build on previous demonstrations in on-road and off-road sectors, including the FY 2014-15 advanced technology demonstration projects described above.

Table 10: Proposed Advanced Technology Demonstration Projects

Project Category	Proposed Projects	Proposed Allocation (million)
On-Road Trucks	Intelligent Transportation Systems and Connected Trucks	$30
	Advanced Engines and Powertrains	
	Zero- or Near Zero-Emission Short and Regional Haul Trucks	
Off-Road Freight Equipment	Zero-Emission Cargo Handling Equipment	$18
	Zero-Emission Ground Support Equipment	
	Advanced Port Equipment	
	Zero-Emission Locomotive Technologies and Operations	
Non-Freight Off-Road Equipment	Advanced Technologies and Efficiencies for Agricultural Equipment	$11
	Advanced Technologies and Efficiencies for Construction Equipment	
	Advanced Technologies for Passenger Transportation	

The amount of funding that will be allocated to each of the projects within these categories as well as solicitation details will be determined in the public work group meeting process beginning after Board consideration and approval of the Funding Plan. Each of the proposed project categories is described further below.

The allocations in Table 10 reflect the staff recommendation to prioritize unfunded projects from the FY 2015-16 Funding Plan first. In the event that additional Low Carbon Transportation funding becomes available for heavy-duty projects, ARB staff will allocate the additional funding to the next highest-scoring applications received in response to the FY 2014-15 Multi-Source Facility Demonstration Project solicitation and the next highest-scoring bus applications from the Truck and Bus Pilot Commercial Deployment Projects solicitation.

<u>On-Road Trucks – Up to $30 Million</u>

Investments in on-road trucking industry transformations are needed to meet California's climate change and air quality goals. The project categories listed below will help meet that need, in addition to needs presented in the draft *California Sustainable Freight Action Plan* for more efficient truck movement in the freight system.

Intelligent Transportation Systems and Connected Trucks: Technologies in this category are focused on increasing efficiencies by allowing communications between trucks and their environment, or between two or more trucks. These technologies have the potential to increase truck efficiency, thereby reducing GHG

and criteria pollutant emissions, and potential ancillary benefits such as accident avoidance. Demonstrations might include real-time communications between individual trucks while on the road to allow for more efficient logistics scheduling; increased efficiency with multiple groups of trucks working in tandem to allow for efficient braking, acceleration, accident avoidance, and other strategies; technologies that can autonomously adjust to hills and grades and traffic anticipation strategies; and other advanced strategies that increase trucking efficiency.

Advanced Engines and Powertrains: Advanced technologies employed in the generation of motive power have the potential to increase on-road truck efficiency and reduce emissions. Increases in engine and powertrain efficiency can help achieve California's goal of a 50 percent reduction in petroleum use by 2030. Demonstrations might include advanced engines such as microturbine, opposed-piston engines, or other advanced engine or powertrain technologies, as well as auxiliary electrification, and other strategies to reduce engine load and emissions for use in long range Class 7 and 8 trucks; and engine waste heat technology in revenue service with Class 7 and 8 trucking fleets.

Zero-Emission or Near Zero-Emission Short and Regional Haul Trucks: Short and regional haul trucking services are characterized by shorter daily driving distances than line-haul trucking, but longer than some drayage trucks. These trucks tend to be domiciled in a central location nightly. Trucks in this service include food distribution, warehouse to retail store transport, longer-range drayage, solid waste collection, and recyclables transfer trucks, among others. Technologies to be demonstrated could include battery electric, fuel cell electric, electric drive with range extenders, or other advanced technologies that result in significant zero-emission miles.

Off-Road Freight Equipment – Up to $18 Million

Advanced technology demonstration projects in the off-road freight equipment category build upon advances from prior demonstration projects by expanding the type and numbers of zero-emission and near zero-emission off-road equipment. The following project categories are proposed for demonstrations.

Zero-Emission Cargo Handling Equipment: Advanced zero-emission technologies in this category have tremendous potential to reduce emissions of GHGs and criteria pollutants because cargo handling equipment is widely used in California. Cleaner technologies in this category also have the potential for broad applicability in other sectors. Demonstrations for applications that have not yet reached commercial deployment could include zero-emission technologies for high lift capacity forklifts, reach stackers, and other cargo handling equipment operating at ports or intermodal rail yards. Eligible technologies would be expected to provide zero-emission operation for at least part of the duty cycle.

Zero-Emission Ground Support Equipment: Projects would be designed to demonstrate advanced technologies and strategies that go beyond the current state of technology for airport ground support equipment and aircraft. Examples of technologies include battery electric, fuel cell electric, flow batteries, and strategies that can reduce emissions from aircraft while being loaded or unloaded, taxiing, and queuing. Equipment capable of zero-emission operation during a substantial part of its duty cycle may be eligible.

Advanced Port Equipment: Projects would be designed to demonstrate advanced technologies and strategies, such as zero-emission cargo handling equipment, zero-emission vessel automated container movement technologies, advanced logistic strategies, or other equipment or strategies that enable more efficient port operations.

Zero-Emission Locomotive Technologies and Operations: Projects in this category would demonstrate on-board energy storage systems to provide supplemental motive power to locomotives to reduce fuel consumption and GHGs as well as provide zero-emission operations for short periods. Projects could be designed to demonstrate locomotive tenders used for energy storage, such as batteries, and zero-emission energy generation systems, such as fuel cells, to facilitate zero-emission operation for part of the locomotive duty cycle.

<u>Non-Freight Off-Road Equipment – Up to $11 Million</u>

The focus of proposed demonstration projects in the non-freight off-road equipment category is on transferring and expanding the technology advancements from other categories, such as applying hybrid systems from the on-road truck and bus market into other market segments like construction equipment. This category also supports expanding the application of energy storage systems into other transportation sectors, such as off-road passenger movement, (e.g., passenger locomotives, ferry vessels, etc.). The following project categories are proposed for demonstrations.

Advanced Technologies and Efficiencies for Agricultural Equipment: This category is intended to demonstrate and deploy advanced technologies that reduce GHG and criteria pollutant emissions for off-road mobile agricultural equipment. Projects could include low NOx engines, electric drive powertrains, hybridization, automation strategies leading to efficiency gains, and new applications for zero- or near zero-emission technologies.

Advanced Technologies and Efficiencies for Construction Equipment: This category is intended to demonstrate and deploy advanced technologies that reduce GHG and criteria pollutant emissions for off-road mobile construction equipment. Projects could include hybrid bull dozers or front loaders, new applications for zero- and near zero-emission technologies, and engine, powertrain, and automation strategies leading to efficiency gains.

Advanced Technologies for Off-Road Passenger Transportation: This category is intended to demonstrate advanced, emission-reducing technologies for in-state passenger transport. Ferry projects could include use of fixed wing sail technology that builds on successful past demonstrations or use of fuel cells or other technologies to reduce emissions. Passenger locomotive demonstrations could include fuel cells, hybrid technologies, advanced energy storage strategies, and other emission reduction technologies. Other project types may also be considered.

Data Collection and Analysis: Data collection is an essential component of demonstration projects. Staff estimates that up to $3 million will be needed for independent third-party data collection and analysis to verify the emission reductions and performance of vehicles and equipment funded in such projects. This would ensure a uniform approach to collecting data across all projects, so results are more directly comparable and more useful for informing future planning and funding decisions, and in evaluating project performance and emission reductions. This would also help inform future investment opportunities for continued market development. Staff proposes that the Executive Officer have flexibility to determine the proper mechanism for funding data collection, analysis, and emission reduction verification.

Cost Sharing Requirements: Similar to past funding cycles, ARB continues to emphasize the importance of developing a strong public/private investment to ensure successful demonstrations of advanced technology. As such, ARB requires cost sharing from the technology demonstrator, grantee and/or the fleet or equipment end-user. Staff proposes to continue a minimum 25 percent cost share from project applicants. As with past funding cycles, applicants that provide higher overall match funding have the potential to be scored higher than projects with less match funding.

Disadvantaged Communities Benefits: To meet ARB's overall targets for funds spent in and benefitting disadvantaged communities, staff proposes that all funds allocated for Advanced Technology Demonstration Projects benefit disadvantaged communities, with at least $10 million directly spent on projects located in disadvantaged communities. This is the same approach that had been proposed in the FY 2015-16 Funding Plan.

Project Solicitation: ARB will issue grant solicitations that clearly identify eligible project categories and maximum funding available. As in previous years, eligible grantees are public agencies (including air districts, ports, cities, and counties) and non-profit organizations with relevant experience.

OUTCOMES

The proposed allocation for Advanced Technology Demonstration Projects would provide an estimated 14,000 metric tons of CO_2 equivalent GHG emission reductions. Appendix A provides additional details on the emission estimates. Staff proposes to develop applicable metrics of success that align with the goals and required results for each specific project, include them with the project solicitation, and, where feasible, ensure the project proposals be structured to enable collection of data to inform these

metrics. Applications for demonstration project funding will detail the individual project's metrics for success and compare the results for each project with the application's stated goals, the requirements of the solicitation, and the Funding Plan. Successful projects will use fundamental metrics to demonstrate the potential for future cost-effective emission reductions in the specific demonstration project category and the potential for widespread commercial acceptance of the demonstrated technology.

A long-term demonstration program, with sustained, multiyear funding directed at the acceleration of advanced technologies into the California marketplace will help meet the State's long-term GHG and criteria pollutant emission reduction goals. The transition toward zero-emission and near zero-emission technologies in on-road, off-road, locomotive, and other heavy-duty categories requires the State's continued strong financial commitment. This significant investment signals to vehicle and equipment manufacturers as well as end-users that their investments will help develop a strong market, reducing manufacturing and operational costs while benefitting disadvantaged communities.

Zero-Emission Freight Equipment Pilot Commercial Deployment Project

Proposed Low Carbon Transportation Allocation – $5 million

PROJECT OVERVIEW

Zero-emission technologies are commercially available and have been in use in a small number of off-road freight applications for years. These include battery electric and fuel cell electric forklifts with lower lift capacities, certain types of cargo handling equipment, and airport ground support equipment. However, these technologies are just entering the market or have not yet achieved substantial market penetration for many other freight applications. For example, zero-emission conversions for yard trucks have only recently become commercially available, and cryogenic transport refrigeration units (TRUs) are now transitioning from the demonstration to early commercial deployment phase. This project will provide incentives for larger deployments in these new and emerging commercial applications to support zero-emission transformation of the off-road freight fleet.

STAFF PROPOSAL FOR FY 2016-17

The intent of this project is to accelerate deployment and drive consumer acceptance in the early stages of commercialization. At the same time, project applications will give ARB staff the opportunity to assess multiple equipment types at various stages of commercialization and better plan for future freight project funding opportunities. Eligible types of equipment and technologies include zero-emission freight technologies in the early or low volume stages of commercial deployment for forklifts, cargo handling equipment, railcar movers, airport ground support equipment, and TRUs, among others. All vehicles and equipment would be expected to operate with zero emissions for their entire duty cycle. Fueling infrastructure to support project vehicles or equipment would also be eligible for funding.

Disadvantaged Community Benefits: Staff proposes that at least 50 percent of funds allocated for the Zero-Emission Freight Equipment Pilot Commercial Deployment Project benefit disadvantaged communities. All vehicles and equipment would need to be operated at a freight related facility, such as a port, intermodal rail yard, distribution center, warehouse, or freight hub. Because so many freight facilities are located in or near disadvantaged communities, ARB staff hopes to exceed these minimum requirements. To determine whether investments are in or benefiting disadvantaged communities, ARB uses the criteria to evaluate projects specified in the *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies That Administer California Climate Investments.* ARB will include provisions in both project solicitations and grant agreements to ensure these requirements are met.

Cost Sharing Requirements: Staff proposes that the maximum cost share provided by ARB for this project be 75 percent, consistent with other Low Carbon Transportation project categories such as the Advanced Technology Demonstration Projects. Ability to leverage significant additional match funding (beyond the minimum 25 percent applicant contribution) will be an important criterion within the competitive process.

Project Solicitation: Staff proposes releasing a project solicitation for the full $5 million funding allocation. The number of projects selected for funding will depend on the number of applications and strength of each application but could include one or more projects. The project solicitation will be open to public agencies (including air districts, ports, cities, and counties) as well as non-profit organizations with relevant experience. The solicitation will define the scoring criteria to be used by ARB to evaluate applications, including elements such as GHG emission reductions, benefits to disadvantaged communities, and potential for technology transfer to other freight sources.

OUTCOMES

The proposed allocation for the Zero-Emission Freight Equipment Pilot Project would provide an estimated 49,000 metric tons of CO_2 equivalent GHG emission reductions. Appendix A provides additional details on the emission estimates. Staff proposes to develop applicable metrics of success, include them with the project solicitation, and, where feasible, ensure the project proposals be structured to enable collection of data to inform these metrics. Metrics will focus on achievement of technology price reductions, manufacturer diversity, applicability to broader types of equipment, consumer acceptance, emission reductions, and any additional metrics stemming from discussions with stakeholders in future work group meetings.

Staff will assess the scalability of the projects funded in the first year of this pilot and will analyze the most promising scalable projects to promote their continuation and expansion in future years. This expansion has the potential to transition a targeted subset of projects to a first-come, first-served basis, similar to HVIP and CVRP. For example, if an initial pilot project for zero-emission yard trucks is successful and demand warrants, staff could propose a voucher-based project for zero-emission yard trucks.

Although zero-emission freight equipment is still at the early stages of commercialization, staff expects the pilot project to also work as a catalyst to spur technology development. Staff intends to design the pilot project in a way that is adaptable and can be adjusted each year to broaden the types of pilots funded as additional promising zero-emission freight equipment is introduced.

Zero-Emission Truck Pilot Commercial Deployment Project

Proposed Low Carbon Transportation Allocation – $18 million

PROJECT OVERVIEW

Zero-emission truck and bus pilot commercial deployment projects are designed to complement HVIP to support larger-scale deployments of zero-emission vehicles, thereby accelerating their introduction and market penetration. In the FY 2014-15 Funding Plan, ARB allocated $25 million in Low Carbon Transportation funding to this category. ARB intended to augment this allocation with an additional $60 million ($20 million for trucks and $40 million for transit/shuttle/school buses) in the FY 2015-16 Funding Plan. However, this additional funding was deferred because of the smaller than anticipated FY 2015-16 Low Carbon Transportation budget appropriation.

This project would place a significant number of zero-emission trucks in a handful of strategic "hubs," encouraging advanced technology clusters with infrastructure, marketing, workforce training, and other synergies. The technology hub or ecosystem concept, when fully implemented, can help address many of the deployment challenges we see today by supporting economies of scale in manufacturing, vehicle maintenance and repair, and infrastructure issues.

CURRENT PROJECT STATUS

In October 2015, ARB released a $25 million competitive solicitation for this project category.[18] The solicitation was greatly oversubscribed, with funding requests totaling about $290 million, with about $32 million in truck funding requests. The solicitation included provisions for adding $60 million (including $20 million for trucks) if funding is appropriated by the Legislature. All of the applications have been scored, and staff has notified preliminarily selected project applicants.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes allocating $18 million toward the highest-scoring remaining truck applications from the October 2015 solicitation for commercially available zero- and near zero-emission freight and delivery trucks. Staff proposes selecting projects using the solicitation's established criteria and process, which follows the framework approved in the FY 2015-16 Funding Plan. The project is intended to fund large scale deployments of heavy-duty trucks (>14,000 pounds gross vehicle weight rating (GVWR)) used in delivery or freight vocations, as well as accompanying fueling infrastructure and supporting vehicle service and repair facility upgrades. Eligible trucks include zero-emission battery electric and fuel cell electric delivery or freight trucks, near

[18]The solicitation for the Truck and Bus Pilot Commercial Deployment Project is available at http://www.arb.ca.gov/msprog/aqip/solicitations.htm.

zero-emission delivery or freight trucks with the capability to operate in zero-emission only mode, and conversions of any type of delivery or freight truck to zero-emission technology. All technologies are required to be commercially available. Additional project eligibility requirements are described in the solicitation.

Disadvantaged Community Benefits: Staff proposes that at least 75 percent of the funding allocated for the Zero-Emission Truck Pilot Commercial Deployment Project benefit disadvantaged communities. To determine whether investments are in or benefiting disadvantaged communities, ARB uses the criteria to evaluate projects specified in the *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies That Administer California Climate Investments.* ARB included provisions in the project solicitation and will include them in grant agreements to ensure these requirements are met.

Project Solicitation: As discussed earlier, a competitive solicitation for the FY 2014-15 funding was released last year, which included provisions for adding additional funding if appropriated by the Legislature. Staff would work to expeditiously execute grant agreements and grant amendments for FY 2016-17 funds upon Board approval and appropriation of funds in the State budget. Based on this approach, another solicitation will not be released.

OUTCOMES

The proposed allocation would fund an estimated 66 trucks and provide an estimated 24,000 metric tons of CO_2 equivalent GHG emission reductions. Appendix A provides additional details on the emission estimates. The solicitation includes metrics (such as zero-emission mile accumulation, fuel and energy usage, reliability, vehicle maintenance and operation costs, and infrastructure costs) that ensure project proposals are structured to enable collection of data needed to inform the metrics and to help illustrate how well the projects accelerate technology deployment and achieve consumer acceptance. ARB will require independent third party data collection and analysis to support these pilot commercial deployment projects. This will ensure a uniform approach to collecting data across all the heavy-duty projects, so results are directly comparable.

In evaluating future funding, ARB will consider the potential to expand upon the initial pilot projects and with technology deployment opportunities. Depending on the success of this project, staff may propose shifting pilot deployment project investments to a first-come, first-served model in the FY 2017-18 funding cycle or a later funding cycle.

Zero-Emission Bus Pilot Commercial Deployment Project

Proposed Low Carbon Transportation Allocation – $42 million

PROJECT OVERVIEW

As noted in the previous section, ARB designed zero-emission truck and bus pilot commercial deployment projects to support larger-scale deployments of zero-emission vehicles, thereby accelerating their introduction and market penetration. $25 million for zero-emission trucks and buses from the FY 2014-15 Funding Plan is being awarded via a competitive solicitation which was released in October 2015 and closed in January 2016. However, the FY 2015-16 allocation of $40 million for zero-emission buses included in the solicitation was deferred because of the smaller than anticipated FY 2015-16 Low Carbon Transportation budget appropriation.

This project would place a significant number of zero-emission buses in a handful of strategic "hubs," encouraging advanced technology clusters with infrastructure, marketing, workforce training, and other synergies. The technology hub or ecosystem concept, when fully implemented, can help address many of the deployment challenges we see today by supporting economies of scale in manufacturing, vehicle maintenance and repair, and infrastructure issues.

CURRENT PROJECT STATUS

In October 2015, ARB released a $25 million competitive solicitation for this project category.[19] As described in the previous section, the solicitation was significantly oversubscribed. The solicitation included provisions for adding $60 million ($20 million for trucks and $40 million for transit/shuttle/school buses) if funding is appropriated by the Legislature. All of the applications have been scored, and staff has notified preliminarily selected project applicants.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes allocating $42 million toward the highest-scoring remaining bus applications from the October 2015 solicitation for commercially available zero- and near zero-emission bus projects. ARB staff proposes selecting projects using the solicitation's established criteria and process, which follows the framework approved in the FY 2015-16 Funding Plan, including the requirement that at least half the funding be awarded to projects located in disadvantaged communities. The project is intended to fund large scale deployments of medium- and heavy-duty (>8,500 pounds GVWR) urban transit buses, shuttle buses, and school buses as well as accompanying fueling infrastructure and supporting vehicle service and repair facility upgrades. Eligible buses

[19]The solicitation for the Truck and Bus Pilot Commercial Deployment Project is available at http://www.arb.ca.gov/msprog/aqip/solicitations.htm.

include zero-emission battery electric and fuel cell electric urban transit buses, shuttle buses, and school buses; near zero-emission urban transit buses, shuttle buses, and school buses with the capability to operate in zero-emission only mode; and conversion of any type of urban transit buses, shuttle buses, and school buses to zero-emission technology. All technologies are required to be commercially available. Additional project eligibility requirements are stated in the solicitation. A separate project category for school buses in rural districts is included in the next section.

Disadvantaged Community Benefits: Staff proposes at least 75 percent of the funding allocated for the Zero-Emission Bus Pilot Commercial Deployment Project benefit disadvantaged communities, with at least half of the funding for projects located in disadvantaged communities. To determine whether investments are in or benefiting disadvantaged communities, ARB uses the criteria to evaluate projects specified in the *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies That Administer California Climate Investments.* ARB included provisions in the project solicitation and will include them in grant agreements to ensure these requirements are met.

Project Solicitation: As discussed earlier, a competitive solicitation for the FY 2014-15 funding was released last year, which included provisions for adding additional funding if appropriated by the Legislature. Staff would work to expeditiously execute grant agreements and grant amendments for FY 2016-17 funds upon Board approval and appropriation of funds in the State budget. In the event that additional Low Carbon Transportation funding becomes available for heavy-duty projects, ARB staff will allocate the additional funding to the next highest-scoring bus applications received in response to the Zero-Emission Truck and Bus Pilot Commercial Deployment Projects solicitation and the next highest-scoring applications received in response to the Multi-Source Facility Demonstration Project solicitation.

OUTCOMES

The proposed allocation would fund an estimated 43 buses and provide an estimated 39,000 metric tons of CO_2 equivalent GHG emission reductions as described in Appendix A. The solicitation includes metrics (such as zero-emission mile accumulation, fuel and energy usage, reliability, vehicle maintenance and operation costs, and infrastructure costs) that ensure project proposals are structured to enable collection of data needed to inform the metrics and to help illustrate how well the projects accelerate technology deployment and achieve consumer acceptance. ARB will require independent third party data collection and analysis to support these pilot commercial deployment projects. This will ensure a uniform approach to collecting data across all the heavy-duty projects, so results are directly comparable.

In evaluating future funding, ARB will consider the demand and strength of proposed project applications received during the solicitation. ARB will also evaluate the ability to expand upon the initial project and new technology deployment opportunities. Staff may recommend shifting the pilot deployment project funding to a first-come, first-served model in the FY 2017-18 funding cycle or a later funding cycle.

Rural School Bus Pilot Project

Proposed Low Carbon Transportation Allocation – $10 million

PROJECT OVERVIEW

The Rural School Bus Pilot Project will provide funding for zero- and near zero-emission school buses increasing zero-emission miles and prioritizing applicants in small air districts first, then medium air districts, and then large air districts. This pilot project will also provide funding for new conventional-fueled school buses that use renewable fuels. In addition, this pilot project will provide immediate GHG emission reductions and reduce school children's exposure to both cancer-causing and smog-forming pollution.

This pilot project was included in the FY 2015-16 Funding Plan with a $5 million allocation with the anticipation that additional funds would be allocated in future years. However, ARB was not able to fund this pilot project because of the smaller than anticipated FY 2015-16 Low Carbon Transportation budget appropriation.

STAFF PROPOSAL FOR FY 2016-17

For FY 2016-17, ARB staff proposes allocating $10 million for this project. In anticipation of including this project in this Funding Plan, ARB staff met with stakeholders and held a public work group meeting on November 16, 2015 to shape project specifications and identify a potential project administrator. As a result of stakeholder feedback, staff is proposing the following project parameters.

ARB staff proposes to give funding priority to school buses used in small and medium air districts because those school bus owners have less access to local funds, including DMV fees and other funding sources, than school bus owners located in large air districts where greater funding opportunities are available. However, school buses located in large air districts would be eligible to receive funding if projects in small and medium air districts do not materialize.

Funding would be made available for the purchase of new fuel cell and battery electric zero-emission school buses or near zero-emission plug-in hybrid school buses including funding for associated vehicle charging and/or fueling equipment. Applicants applying for zero-emission school buses may receive funding for up to three buses.

In addition, funding would be available for new school buses with internal combustion engines or hybrid school buses operating on renewable fuels, including renewable diesel, renewable natural gas, and renewable propane. Funding will also be available for the additional costs associated with purchasing renewable fuels. Applicants applying for a school bus with an internal combustion engine must replace an older, higher-emission, operational school bus. School bus owners may only receive funding for one conventional fueled school bus replacement in this first round of funding.

Finally, staff worked with the California Air Pollution Control Officers Association to identify the North Coast Unified APCD as a potential administrator of this pilot project. Staff proposes entering into a grant agreement with the North Coast Unified APCD to administer this pilot project.

As this pilot project is administered, staff may make modifications to project parameters. If staff believes changes are necessary, then these changes will be presented in a public work group process.

Disadvantaged Community Benefits: At this time, it is not possible to estimate in advance exactly how many school bus projects will benefit disadvantaged communities. As part of the reporting requirements for this pilot project, ARB will be able track where these funds are spent and can determine which projects provide benefits to disadvantaged communities.

Project Solicitation: The pilot project administrator will issue a competitive, statewide solicitation to school districts for project applications, with priority for eligible school bus owners located in small air districts first, then medium air districts, and then large air districts. Project applications will be required to be received during the application request period in order to be considered for funding and will be ranked by the selection criteria included in the solicitation.

OUTCOMES

This project encourages the turnover of the California school bus fleet to lower carbon transportation choices. The proposed allocation would fund about 30 to 60 new school buses, depending on the technology and school bus size purchased, providing an estimated 10,000 metric tons of CO_2 equivalent GHG emission reductions. Appendix A provides additional details on the emission estimates. Criteria pollutant and toxic air contaminant emission reductions are also expected as the advanced technology school buses replace conventional-fueled engines. Metrics such as data on zero-emission miles, technology type, and renewable fuel use will be used to assess the success of these incentives.

With approximately 20,000 conventional-fueled school buses operating throughout California, this pilot project provides opportunities to transform California's school bus fleet and meet zero-emission vehicle deployment goals along with near-term and long-term air quality goals. Additional funding will be needed to continue this work as staff expects demand for advanced technology school buses to continue for several years.

Low NOx Engine Incentives

Proposed Low Carbon Transportation Allocation – $23 million

PROJECT OVERVIEW

ARB's optional low NOx standards allow manufacturers the ability to certify heavy-duty vehicle engines to NOx emission levels that are up to 90 percent lower than today's mandatory diesel emission standards. Incentivizing deployment of these engines coupled with renewable fuels is an important strategy for achieving both near-term and long-term reductions of GHG and criteria pollutant emissions in the heavy-duty sector. This project is intended to fund the incremental cost of a heavy-duty vehicle engine above the purchase and installation costs of a conventional heavy-duty vehicle engine with the same fuel type and other characteristics. The incentivized engine must be used in a bus or truck greater than 14,000 pounds GVWR. Both engine repowers and new vehicle purchases would be eligible. The project would continue to be implemented through HVIP on a first-come, first-served, statewide basis with fleets able to secure a voucher through their local participating dealership as part of their engine repower or vehicle purchase order.

CURRENT PROJECT STATUS

Since the introduction of this project in the FY 2015-16 Funding Plan, ARB has certified the first low NOx heavy-duty engine. The Cummins 8.9 liter natural gas engine for both bus and truck duty cycles was certified in September 2015 to the lowest NOx level (0.02 grams per brake horsepower-hour (g/bhp-hr)) of the three optional low NOx standards. These engines are now available for purchase. The FY 2015-16 Funding Plan allocated $2 million in AQIP funding for low NOx engine incentives, and ARB intends to implement that portion of the project through HVIP, as described in the HVIP section of this chapter.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes a $23 million allocation from Low Carbon Transportation investments for low NOx engine incentives in order to meet the expected demand for the funding cycle. Staff proposes a maximum of $18,000 per engine incentive for the certified 8.9 liter natural gas engine that utilizes renewable fuel, as explained below. This incentive could be combined with other State incentives such as the Energy Commission's natural gas vehicle incentives, Proposition 1B funding, and Carl Moyer Program funding. As other low NOx engines come to market, staff will propose appropriate incentive amounts for those engines.

Renewable Fuel Requirement: Since replacing conventional natural gas engines with low NOx engines does not in itself provide GHG emission benefits, renewable fuels would be required to ensure GHG emission reductions. Low NOx engines or vehicles

purchased using this incentive would be required to have a fueling contract that incorporates 100 percent renewable fuel for the low NOx engines in the owner's heavy-duty on-road fleet for a period of at least three years. Implementation provisions for this element would be determined during the public work group process following Board approval of the Funding Plan.

Disadvantaged Community Benefits: Low NOx engine incentives will continue to be implemented on a first-come, first-served, statewide basis, so it is not possible to estimate in advance exactly how much funding will benefit disadvantaged communities. However, staff expects similarly high participation rates currently experienced in HVIP. About two-thirds of Low Carbon Transportation funding for HVIP to date has provided benefits to disadvantaged communities, and about 45 percent of the funding has been spent in disadvantaged communities.

ARB will track where these funds are spent, so it can calculate the portion that benefits disadvantaged communities. In Table 3 (Chapter 2), staff included an estimate that at least half of the FY 2016-17 low NOx engine incentives will benefit disadvantaged communities in order to demonstrate how ARB will meet its overall disadvantaged communities investment commitment.

Project Solicitation: As noted above, staff proposes to continue implementing this project for the FY 2016-17 allocation through HVIP, which is administered by a grantee selected through a competitive solicitation. The HVIP section of this chapter includes additional information regarding that process.

OUTCOMES

The proposed allocation would fund about 1,200 low NOx engines using renewable fuel, meeting expected demand for FY 2016-17 and providing an estimated 94,000 metric tons of CO_2 equivalent GHG emission reductions. Staff also estimates about 220 tons of criteria pollutant emissions would be reduced as the advanced technology engines replace conventional natural gas engines. Appendix A provides additional details on the emission estimates. Metrics such as aggregated data on vehicle mileage, vocations, and renewable fuel use will be used to assess the success of low NOx engine incentives.

Incentive funding for low NOx engines is expected to continue for multiple years to support larger-scale deployment of these vehicles in the California fleet. As more engines are certified and introduced into the market in future funding cycles, ARB staff expects the incentive funding allocated to this category to increase. Allocations would be based on engine availability, demand, and incremental costs, and staff would determine the most suitable program, including the Carl Moyer Program and other local funding sources, through which to implement future funding.

HVIP

Proposed Low Carbon Transportation Allocation – $18 million Remaining FY 2015-16 Demand (through Sept 2016) – $5 million FY 2016-17 (Oct 2016-Sept 2017) – $13 million

PROJECT OVERVIEW

HVIP is the nation's first program to directly reduce the up-front cost of hybrid or zero-emission trucks and buses, with fleets able to secure a voucher through their local participating dealership as part of their vehicle purchase order. HVIP is intended to encourage and accelerate the deployment of zero-emission and hybrid trucks and buses and heavy-duty vehicles using engines that meet the optional low NOx standard, which is an addition to the project beginning with FY 2015-16. HVIP incentives drive manufacturing production and fleet acceptance of the advanced heavy-duty vehicle technologies California must deploy to meet its long-term air quality and climate goals. Consumer incentives are needed because these products generally cost more than their conventional counterparts, which can be a significant deterrent to their purchase. 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.

In the near-term, HVIP must incentivize more vehicle manufacturers to come to market with fully integrated hybrid truck and bus systems – in which the engine and driveline are specifically manufactured to work together seamlessly in a diversity of vocations and platforms – to maximize operational efficiency and ensure in-use emission benefits. Series hybrid technologies, where a vehicle is equipped with an electric drive system that is powered by an on-board generator, is particularly well-suited to help commercialize zero-emission technologies, provide zero-emission miles, and serve as a pathway to help zero-emission technologies mature in the heavy-duty sector.

In addition, HVIP must continue to help accelerate demand for zero-emission trucks and buses as well as engines meeting the optional low NOx standards, while providing benefits to disadvantaged communities.

CURRENT PROJECT STATUS

Since its launch in 2010, HVIP has provided over $85 million to help California fleets purchase about 460 zero-emission trucks and buses and over 2,000 hybrid trucks. HVIP provides vouchers of up to $95,000 per vehicle for California purchasers and lessees of zero-emission trucks and buses, and up to $30,000 per vehicle for eligible hybrid trucks and buses, on a first-come, first-served basis. In addition, HVIP provides increased incentives for vehicles that provide benefits to disadvantaged communities. These fleets qualify for vouchers up to $110,000 for zero-emission trucks and buses. New to HVIP for the 2015-16 fiscal year, engines certified to an optional low NOx

standard used in heavy-duty vehicles above 14,000 pounds GVWR will be eligible for a voucher of up to $15,000. More information on this addition is provided below. Zero-emission vehicle conversion eligibility and a telematics requirement were also added to HVIP in FY 2015-16.

HVIP is also structured to enable leveraging of local, State (such as Carl Moyer Program and Proposition 1B), and federal funding. Air districts and State agencies have, in the past, provided HVIP voucher enhancements to help accelerate fleet demand for hybrid and zero-emission trucks and buses. These investments enable air districts to accelerate advanced technology deployment within their region, while maintaining the streamlined, statewide HVIP structure needed to drive production economies of scale and accelerate market growth.

As noted in the previous section, $2 million in FY 2015-16 AQIP funding will be available this spring through HVIP to offset the incremental cost of heavy-duty vehicle engines certified to an optional low NOx standard, and an additional $23 million from Low Carbon Transportation investments for FY 2016-17 is being proposed to incentivize these engines. Renewable fuel use will be optional for vouchers funded by AQIP. Low NOx vouchers may be provided for engine repowers and new vehicles.

Tables 11 and 12 summarize the types of vehicle vocations and weight classes receiving HVIP funding thus far.

Table 11: Vouchers Issued by Vocation

Vehicle Type	Vouchers Issued	Total Voucher Funds	Average Voucher	% of Total Vouchers
Parcel Delivery	1,025	$25,445,000	$24,824	41%
Beverage Delivery	449	$14,887,000	$33,156	18%
Other Truck[1]	432	$10,630,000	$24,606	17%
Food Distribution	192	$4,895,000	$25,495	8%
Uniform & Linen Delivery	112	$2,800,000	$25,000	4%
Tow Truck	75	$2,373,000	$31,640	3%
LP Pick-up & Delivery	47	$942,000	$20,043	2%
Refuse Hauler	25	$1,007,000	$40,280	1%
School Bus	15	$477,350	$31,823	1%
Shuttle Bus	52	$2,971,776	$57,150	2%
Utility Truck	13	$371,000	$28,538	0.5%
Urban Bus	50	$4,675,000	$93,500	2%
Dump Truck	4	$103,000	$25,750	0.2%
Other Vehicles	15	$980,000	$65,333	0.6%
Total	**2,506**	**$72,557,126**	**$28,953[2]**	**100%**

Through March 31, 2016.
[1]Examples include asphalt trucks, moving trucks, and other delivery trucks.
[2]Overall average for all HVIP vouchers issued to date.

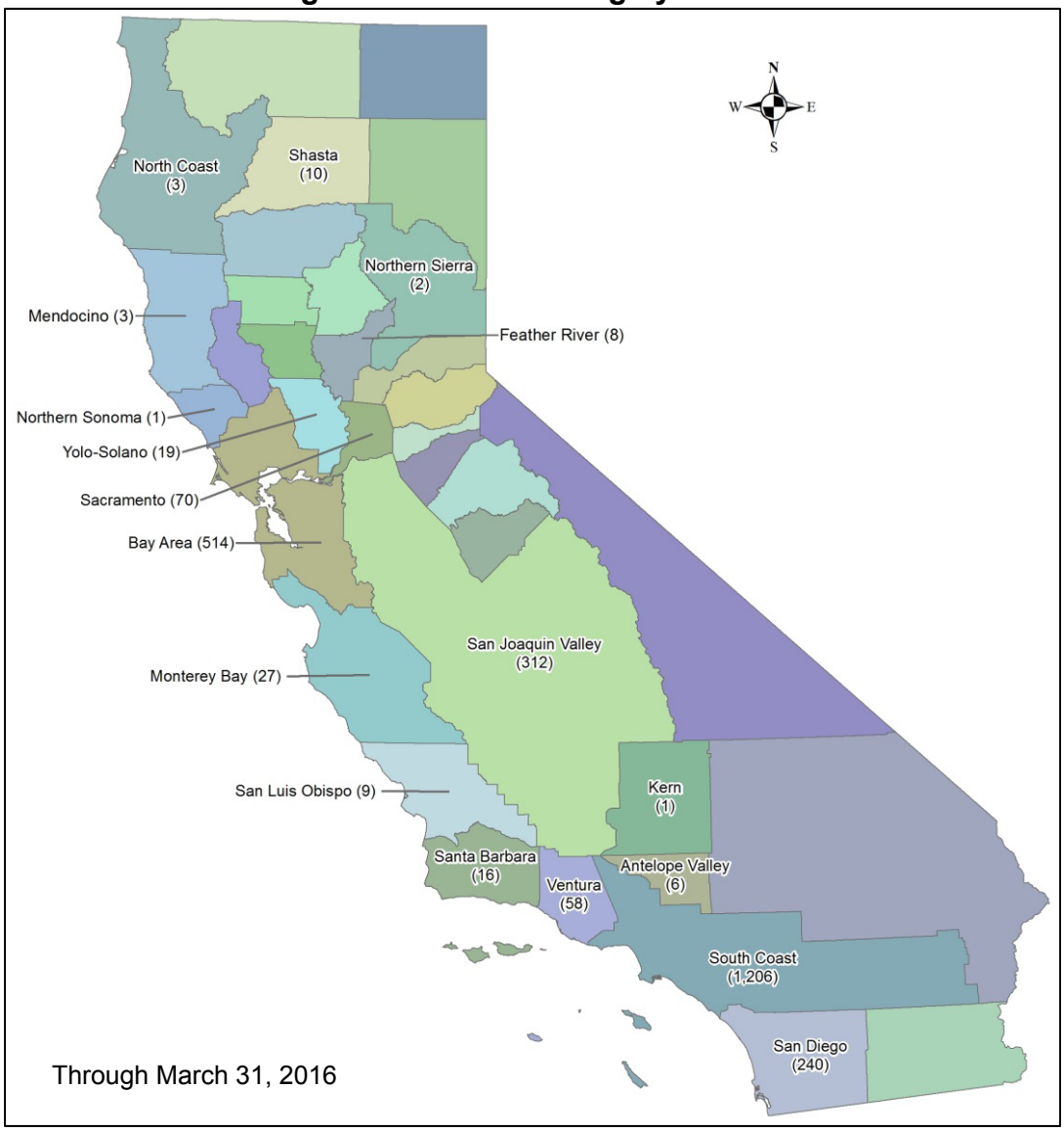
Table 12: Vouchers Issued by Gross Vehicle Weight Range

Gross Vehicle Weight Range	Vouchers Issued	Total Voucher Funds	% of Total Vouchers
5,001 – 6,000 lbs.	51	$653,000	2%
6,001 – 10,000 lbs.	0	$0	0%
10,001 – 14,000 lbs.	73	$3,005,000	3%
14,001 – 19,500 lbs.	1,433	$38,190,350	57%
19,501 – 26,000 lbs.	368	$8,790,000	15%
26,001 – 33,000 lbs.	112	$3,611,776	4%
>33,000 lbs.	469	$18,307,000	19%
Total	**2,506**	**$72,557,126**	**100%**

Through March 31, 2016.

Figure 4 lists the distribution of vouchers by air district.

Figure 4: HVIP Funding by Air District



The pathways for certification of new vehicles and engines are specified in regulatory certification procedures, with important differences depending upon vehicle size. In general, Class 1 through 3 vehicles (cars and light trucks below 14,001 lbs) must be certified to meet emissions, OBD (On-Board Diagnostic), warranty, and other requirements *as a complete vehicle*. In contrast, heavy-duty engines for use in Class 4 through 8 vehicles (trucks and buses above 14,000 lbs) are certified before being integrated into a vehicle. In December 2013, the Board approved Heavy-Duty Hybrid-Electric Vehicle Certification Procedures, providing voluntary, vehicle-based certification procedures to validate emission benefits of new hybrid trucks and buses.[20]

For hybrid manufacturers unwilling to pursue the optional full vehicle certification, a second option for a hybrid vehicle to become HVIP-eligible is available. Hybrid vehicle manufacturers may perform in-use or chassis dynamometer emission testing. Staff believes this dual path for HVIP-eligibility balances the need to ensure expected emission benefits, while providing an HVIP-eligibility pathway for manufacturers not yet ready for full vehicle certification. Staff expects that eventually full vehicle certification will be a requirement for HVIP-eligibility.

HVIP offers voucher enhancements for plug-in or hydraulic hybrids, school buses, hybrid vehicles receiving ARB's full vehicle certifications, fast charge capable ZEVs, OBD certified vehicles, aerial boom vehicles with electrified power takeoff (ePTO), and vehicles with extended warranties. The total voucher amount – including the HVIP base voucher, HVIP voucher enhancements, and all other public incentives – may not exceed 90 percent of the total vehicle cost. Public fleet school buses and public transit buses are exempt from this 90 percent limit. Voucher amounts are included in Appendix E, HVIP Terms and Conditions and Implementation Manual.

STAFF PROPOSAL FOR FY 2016-17

Staff expects demand to increase over the next year; therefore, staff proposes an $18 million allocation for FY 2016-17. Staff expects that FY 2015-16 funding will be expended prior to September 2016 (when staff expects to have a project administrator in place for the FY 2016-17 cycle after a competitive solicitation process). In order to provide uninterrupted funding until a grantee is selected to administer FY 2016-17 funding, ARB staff proposes that $5 million of the $18 million be incorporated via a grant amendment into the FY 2015-16 HVIP grant currently administered by CALSTART. The remaining $13 million for FY 2016-17 would be awarded to a project administrator via competitive solicitation as explained further below.

[20] ARB, Staff Report: Initial Statement of Reasons for Proposed Rulemaking; Proposed Greenhouse Gas (GHG) Regulations for Medium- and Heavy-Duty Engines and Vehicles, Optional Reduced Emission Standards for Heavy-Duty Engines, and Amendments to the Tractor-Trailer GHG Regulation, the Diesel-Fueled Commercial Motor Vehicle Idling Rule, and the Heavy-Duty Hybrid-Electric Vehicles Certification Procedures, 2013. http://www.arb.ca.gov/regact/2013/hdghg2013/hdghg2013.htm

Certification of Conversions: New hybrid and hybrid vehicle conversions will continue to be held to the current eligibility requirements specified in HVIP until the Innovative Technology Regulation[21] is adopted by the Board and becomes effective. Once the regulation is adopted, staff proposes that hybrid vehicle conversion manufacturers be required to follow emission testing requirements specified in the regulation for a pathway to HVIP funding eligibility. This new regulation would provide certification and aftermarket parts approval flexibility for innovative heavy-duty engine and vehicle technologies.

Transit Bus Vouchers: Currently, vouchers for transit buses and vans are based on GVWR. Based on input from stakeholders during public work group meetings, ARB staff proposes basing transit voucher amounts on bus and van length. Additionally, vouchers for buses and vans would be organized by vehicle type (e.g., fuel cell and battery electric transit buses and motor coaches).

Inductive Charging Technology: HVIP offers voucher enhancements for innovative technologies that further promote ARB clean air policy goals. ARB staff proposes building on existing voucher enhancements for fast charge capable vehicles by adding a voucher enhancement for vehicles that are equipped with inductive charging technology to help offset the associated additional costs. This wireless technology provides an additional approach to vehicle charging that helps to minimize potential infrastructure barriers faced by some fleets.

Charging and Fueling Infrastructure: Charging and fueling infrastructure is a critical element to the successful deployment and consumer acceptance of zero-emission and plug-in hybrid vehicles. ARB staff proposes working with stakeholders in the coming fiscal year to find opportunities for future funding cycles to meet the demand for heavy-duty infrastructure for battery electric and fuel cell electric trucks and buses.

Waiting List Provision: Staff anticipates that the proposed HVIP allocation will meet voucher demand for the full funding cycle, but acknowledges the uncertainties in forecasting demand. Staff proposes that the Board provide the Executive Officer discretion to establish a waiting list to bridge a funding gap between budget years in the event that HVIP runs short of funding prior to the end of FY 2016-17.

Disadvantaged Community Benefits: HVIP will continue to be implemented on a first-come, first-served, statewide basis, so it is not possible to estimate in advance exactly how much funding will benefit disadvantaged communities. However, project elements encourage funding for these areas, such as higher voucher amounts for vehicles that provide benefits to disadvantaged communities. About two-thirds of Low Carbon Transportation funding for HVIP to date has provided benefits to disadvantaged communities, and about 45 percent of the funding has been spent in disadvantaged communities as reported in the March 2016 *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds*. To determine

[21]For more information on the Innovative Technology Regulation, see http://www.arb.ca.gov/msprog/itr/itr.htm

whether investments are in or benefiting disadvantaged communities, ARB uses the criteria to evaluate projects specified in the *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies That Administer California Climate Investments.* Staff expects a similar percentage of future HVIP vouchers will benefit these communities. As part of the reporting requirements associated with Cap-and-Trade auction proceeds funding, ARB will track where these funds are spent, so it can calculate the portion that benefits disadvantaged communities. In Table 3 (Chapter 2), staff included a conservative estimate that at least 60 percent of the FY 2016-17 HVIP funding will benefit disadvantaged communities in order to demonstrate how ARB will meet its overall disadvantaged communities investment commitment.

Terms and Conditions: When HVIP was established, ARB and the project administrator developed Terms and Conditions to highlight the policies set forth by the Board in more detail for HVIP participants, and ensure a fair, equitable, and responsible project. More specifically, the HVIP Terms and Conditions are intended to notify potential participants of the core requirements of the program prior to submitting an application. Additionally, ARB and the project administrator developed an Implementation Manual to further define these rules and explain roles and responsibilities. In an effort to ensure that the Board is updated on the status of these items, staff has included a copy of the current Terms and Conditions and Implementation Manual as an Appendix E to the Funding Plan. These documents are updated periodically throughout the year to reflect project changes after the Board adopts each funding plan and as other changes are necessary to provide further clarity.

Project Solicitation: ARB will conduct a competitive solicitation to select a grantee to administer HVIP. Currently, ARB solicits for a grantee every two years. ARB staff proposes extending this time frame to allow ARB to conduct a three-year solicitation. While the solicitation would encompass up to three fiscal years, the grant agreement would initially cover one fiscal year with the option to renew for each of the following two years. The solicitation would be released after the Board approves the FY 2016-17 Funding Plan and the State Budget is signed. Staff anticipates having a grant in place for the FY 2016-17 by the end of September 2016.

OUTCOMES

The proposed HVIP allocation is expected to fund about 500 zero-emission and hybrid vehicle vouchers, meeting expected demand and providing an estimated 64,000 metric tons of CO_2 equivalent GHG emission reductions. Staff also estimates about 140 tons of criteria pollutant emissions would be reduced as the advanced technology vehicles replace conventional diesel trucks and buses. Appendix A provides additional details on the emission estimates.

The hybrid and zero-emission heavy-duty truck and bus markets are still at the very early stages of commercialization. Production capacity has substantial growth potential for both hybrid and electric trucks and buses, but current low production volumes contribute to an $18,000 to $60,000 vehicle cost premium for new hybrid trucks, up to

$170,000 for battery electric zero-emission trucks, and up to $500,000 for battery electric zero-emission buses. ARB expects production costs to decline as hybrid driveline and battery production volumes increase. When this occurs, the fuel economy payback period should shorten to the point where a hybrid or zero-emission truck or bus purchase is economical without incentives. Incentives also have a critical, parallel role in increasing consumer acceptance to ensure a willing market for this next generation of vehicles as technology costs decline.

Over the next several years, increasing annual investments in HVIP will be needed to continue encouraging early deployment of advanced technology vehicles, such as zero-emission delivery trucks and transit buses, and encourage technology advances in heavier truck sectors. These investments will be structured to encourage increasing HVIP participation among smaller California fleets, and with benefits to disadvantaged communities.

Because the HVIP program is evolving, there continues to be a need to evaluate the effectiveness of program investments. Staff believes metrics of hybrid and zero-emission truck and bus market success can eventually help identify when specific heavy-duty vehicle technologies become self-sustaining. Potential metrics could include:

- Number of hybrid (or battery electric) trucks sold per vehicle vocation.
- Number and types of battery electric buses sold per vocation (e.g., transit, school bus, airport shuttle, etc.).
- Hybrid powertrains sold per manufacturer.
- Manufacturer diversity.
- Declining vehicle incremental cost.
- Number of offerings in different vocational applications.
- Number of vehicles sold in states without public incentives.

These metrics are unlikely to drive a decision to sunset funding for hybrid or zero-emission trucks or buses in the near term. Instead, such a decision will be driven more by desire to promote purchase of a new, even cleaner available technology. This could take the form of phasing out basic hybrid truck eligibility in favor of new commercially available plug-in hybrids. Possible metrics of market health will continue to be developed as more technologies enter the market and will be discussed in depth with stakeholders in future work group meetings.

Agricultural Equipment Trade-Up Pilot Project in the San Joaquin Valley

Proposed AQIP Allocation – $3 million

PROJECT OVERVIEW

Emissions from mobile off-road agricultural equipment are among a number of significant sources of air pollution in the San Joaquin Valley. Incentive programs and regulations are already reducing emissions from a wide variety of diesel engines in the region; however, a continuing transition to the cleanest technologies is needed to meet federal ozone standards in 2023 and 2032. ARB staff proposes continuing its commitment to the Agricultural Equipment Trade-Up Pilot Project in the San Joaquin Valley (Trade-Up Pilot Project), first introduced in the FY 2015-16 funding cycle.

The Trade-Up Pilot Project provides ARB an opportunity to evaluate the feasibility of a new incentive model for mobile agricultural equipment, intended for owners of high-emitting equipment that are not well served by existing incentive programs which only provide funding for new equipment purchases. The trade-up concept is a two-step transaction in which the owner of equipment with a Tier 0 (uncertified) or Tier 1 certified diesel engine agrees to scrap that equipment in exchange for a previously used and reconditioned piece of equipment with a certified Tier 2 or Tier 3 engine at little or no out-of-pocket cost. This used equipment comes from another owner that relinquishes it for an incentive to purchase brand new equipment that employs the cleanest engine technology (Tier 4 Interim or Tier 4 Final certification).

CURRENT PROJECT STATUS

In FY 2015-16, ARB allocated $500,000 in AQIP funds to launch the Trade-Up Pilot Project. ARB has selected the San Joaquin Valley APCD, via competitive solicitation, to administer the project. Project goals include determining the project's cost-effectiveness; developing implementation guidelines that would enable emission reductions resulting from trade-up transactions to be creditable under the State Implementation Plan (SIP); and assessing the owner/user experience and acceptance of incentivized equipment. Project launch is targeted for the summer 2016.

STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes allocating $3 million for the Trade-Up Pilot Project, building upon the FY 2015-16 project. The proposed allocation would enable testing the feasibility of the trade-up concept at a larger scale, including streamlining methods for matching eligible growers with eligible equipment. An incrementally larger project is a logical and crucial next step in evaluating the viability of a trade-up program as a potentially new incentive type San Joaquin Valley-wide. An expanded project may also encourage increased participation among San Joaquin Valley mobile agricultural equipment

dealers and equipment manufacturers, resulting in more opportunities for equipment matches and enhanced product choices for project participants.

Disadvantaged Community Benefits: While disadvantaged community benefits are not a specific requirement of AQIP funding, the project area encompasses disadvantaged communities and is intended to benefit smaller-acreage and lower-income growers not well served by existing incentives that only cover new equipment purchases.

Project Solicitation: ARB will conduct a competitive solicitation to select a grantee to administer the Agricultural Equipment Trade-Up Project in the San Joaquin Valley. Staff will hold public work group meetings following Board approval of the FY 2016-17 Funding Plan and release a competitive solicitation for the full $3 million funding allocation. The solicitation will contain a match funding requirement and be open to California-based public agencies, which may subcontract with public, private, or California-based non-profit organizations. The solicitation's scope of work and application scoring criteria will be discussed with stakeholders during the work group meetings prior to the release of the solicitation.

OUTCOMES

The proposed allocation for the Agricultural Equipment Trade-Up Pilot Project is expected to fund about 40 to 60 equipment transactions, providing an estimated 190 tons of criteria pollutant emission reductions. Appendix A provides additional details on the emission estimates. Since the project would be funded through AQIP, GHG reductions are not required or quantified. Metrics, such as hours of operation, fuel efficiency, in-field equipment performance, and maintenance will be used to assess the success of the equipment trade-up incentives.

This year's pilot project is a sequential and necessary step in assessing the trade-up concept's potential as a new, mobile agricultural equipment incentive type in the San Joaquin Valley. If viable, staff may recommend expanding the project beyond the pilot stage in future years. This incentive type could complement the existing portfolio of federal, State and local incentives, and meet an unmet need of small farms and lower income growers. Targeting this investment in the San Joaquin Valley aids in accelerating needed adoption of cleaner diesel engine technologies in mobile agricultural equipment and in reducing the legacy fleet of high-emitting equipment in this heavily agricultural, non-attainment air basin.

Truck Loan Assistance Program

Proposed AQIP Allocation – $22 million

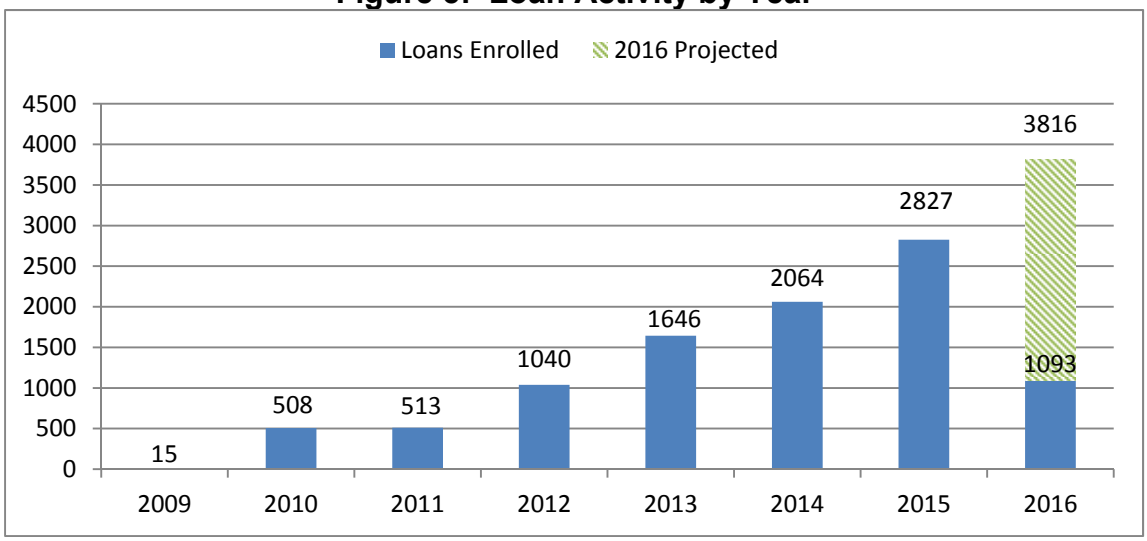
PROJECT OVERVIEW

Launched in 2009, the Truck Loan Assistance Program utilizes AQIP funds to help small-business fleet owners affected by ARB's In-Use Truck and Bus Regulation to secure financing for upgrading their fleets with newer trucks or with diesel exhaust retrofits. The program is implemented in partnership with the State Treasurer's Office's CPCFA through its California Capital Access Program (CalCAP) and leverages public funding with private funding from participating lending institutions. The program is available for small fleets with 10 or fewer trucks at the time of application. Lenders use their traditional underwriting standards to establish loan terms; however, the program currently includes an interest rate cap of 20 percent. Because the program primarily reduces criteria and toxic air contaminant emissions, AQIP is the only source of ARB funding available for this program.

CURRENT PROJECT STATUS

As of March 2016, about $76 million in Truck Loan Assistance Program funding has been expended to provide about $641 million in financing to small-business truckers for the purchase of approximately 10,700 cleaner trucks, exhaust retrofits, and trailers. Demand by truck owners continues to increase each year as shown in Figure 5. Program expenditures in 2015 were $20.8 million, a 35 percent increase over 2014. Program growth is driven by increased lender and borrower awareness and utilization of the program, increased cost of new diesel trucks, and increased enforcement of the In-Use Truck and Bus Regulation.

Figure 5: Loan Activity by Year



To meet consumer demand, ARB increased the original FY 2015-16 AQIP allocation of $15 million by $3 million to ensure that the program would remain fully funded through the rest of the FY 2015-16.

Table 13 provides a summary of financing provided to date. Nearly 60 percent of enrolled loans have been issued to owner operators with one truck, and nearly 95 percent of enrolled loans have been issued to fleet owners with 10 or fewer employees.

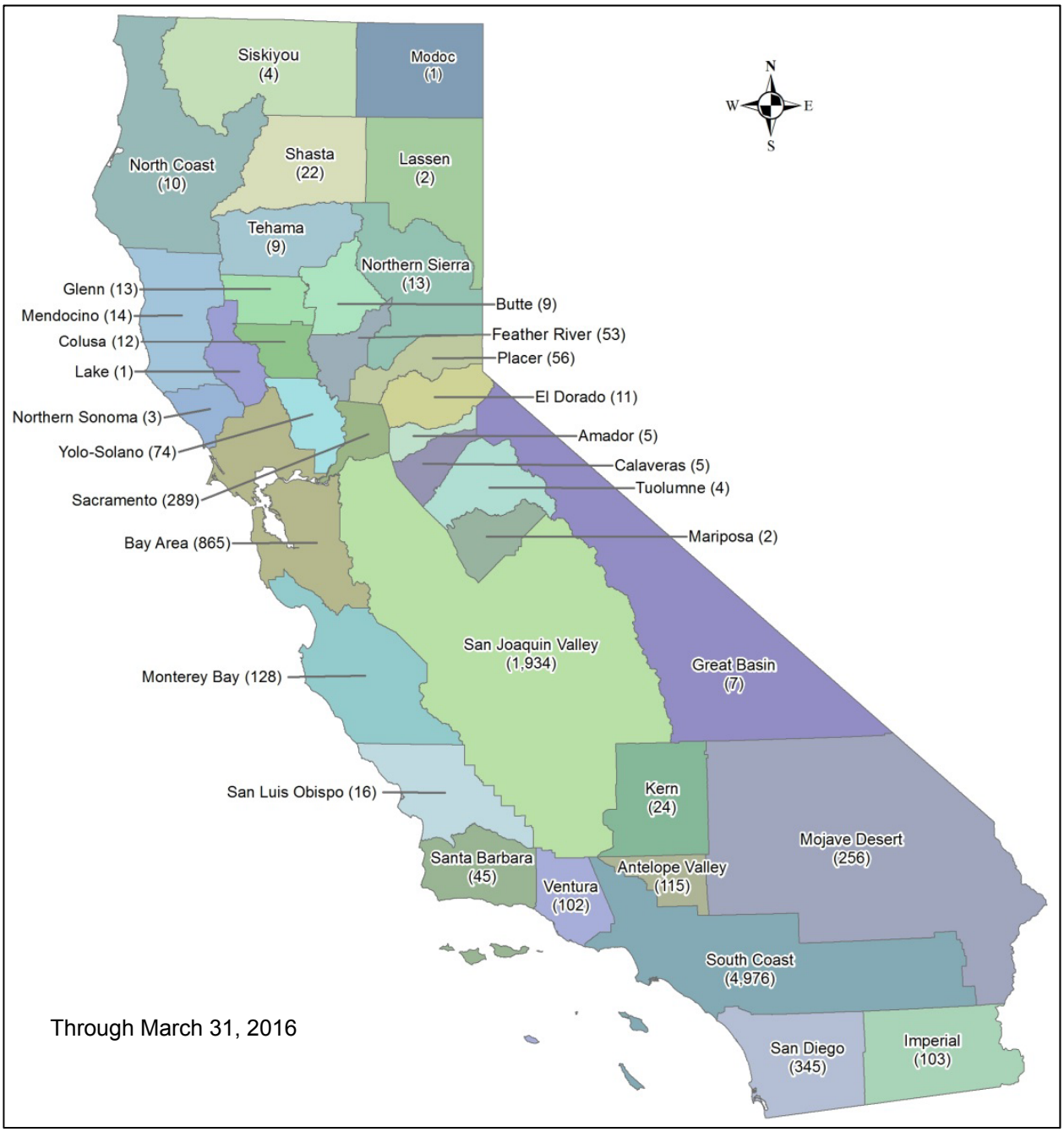
Table 13: Truck Loan Assistance Program Status –Vehicles/Equipment Financed

Number of Loans Issued[1]	Number of Projects Financed	Project Type	State Funding (millions)	Total Amount Financed (millions)
9,706	9,934	Truck Purchases	$76	$641
	594	Exhaust Retrofits		
	141	Trailers		

Based on data through March 31, 2016.
[1]Total number of loans issued does not equal the number of projects financed because some loans included multiple projects.

Figure 6 on the next page shows the number of truck loans issued within each air district through March 2016.

Figure 6: Truck Loans by Air District



STAFF PROPOSAL FOR FY 2016-17

ARB staff proposes an allocation of $22 million from AQIP for the Truck Loan Assistance Program to meet expected demand for the FY 2016-17 cycle. ARB remains committed to meeting the growing demand, as having loan assistance unavailable for even a short period erodes the confidence lenders have in providing the necessary financing to purchase trucks to meet the compliance requirements of the In-Use Truck and Bus Regulation. To ensure the sustainability of the program and continuous

availability of funding to participating lenders, ARB staff is working with CPCFA to examine potential program modifications to address both short- and long-term cash flow and to meet ever-increasing demand. Options under consideration include:

- *Alignment of contribution rates consistent with the State CalCAP Program:* In the coming months, CPCFA will obtain input from lenders on the feasibility of introducing lender and borrower fees to realign the contribution rates to those currently offered under the regular small business program. ARB contribution rates for loan loss reserve accounts have been adjusted as of January 1, 2016. The top tier rate has been reduced from 10 percent to 4 percent. This will improve the leverage of the program and slow the rate of the expenditure of AQIP funding.

- *Incremental recapture of funds in the lenders' loan loss reserve accounts:* CPCFA's analysis has indicated that an annual recapture mechanism is possible for each lender's loan loss reserve account for loans which have matured, or after five years from the date of loan enrollment, whichever comes first. Recapture would not be applicable to the contributions for loans which have defaulted or were charged-off. Any recapture mechanism would have to be adopted through a CPCFA public rulemaking, so the proposed structure or implementation details are subject to input from lenders and stakeholders, and approval from the CPCFA Board.

- *Short-term cash flow:* Because the AQIP revenues accrue throughout the fiscal year, the demand for funding for the Truck Loan Assistance Program may from time-to-time precede the availability of funds to advance to CPCFA. ARB staff will assess whether there are any sources of funding that may be available to cover the temporary lack of funding. The current interagency agreement includes a provision of a $5 million bridge loan from CPCFA to cover temporary funding needs. The proposed allocation along with recaptured premiums should be enough to cover the potential gap due to temporary lack of AQIP funding which typically occurs at the start of each fiscal year for about three months.

ARB staff will continue to closely monitor program demand and work with CPCFA staff, participating lenders, and other stakeholders to evaluate whether to implement program changes to balance available funding with meeting the needs of the fleets. If changes are warranted, they would be developed and implemented through a public process resulting in an amended interagency agreement between ARB and CPCFA.

Disadvantaged Community Benefits: Because the Truck Loan Assistance Program is funded through AQIP, it is not subject to the disadvantaged community investment requirements that accompany Low Carbon Transportation investments. However, it is worth noting much of the Truck Loan Assistance Program funding benefits disadvantaged communities. Over 80 percent of the loans to date have been issued for trucks registered in ZIP codes that are defined as benefiting disadvantaged communities.

OUTCOMES

The proposed allocation for the Truck Loan Assistance Program is expected to fund about 3,900 new truck purchases, meeting expected demand for FY 2016-17 and helping small business truckers comply with the In-Use Truck and Bus Regulation, which would result in an estimated 3,300 tons of criteria pollutant emission reductions. Appendix A provides additional details on the emission estimates.

Staff anticipates that future funding plans will maintain funding for the program to continue to meet the strong demand and support for small-business fleets through the compliance deadlines approved by the Board. Assessments of ongoing funding needs will take into account updated program activity trends, which reflect truck owners' demand for financing assistance, compliance schedules, and noncompliance rates. Because program activity fluctuates based on truckers' participation in the program, ARB staff commits to perform periodic assessments to develop funding projections for annual program needs.

CHAPTER 5: VERY LOW CARBON FUELS INVESTMENTS

Achieving California's air quality and climate change goals will require deploying a combination of regulatory and incentive strategies at the manufacturer, the fleet, and the consumer levels. In this Funding Plan, staff proposes to incentivize a suite of demonstration, pilot, and commercially available vehicle technologies to help support the overarching goals of ARB and the State. ARB staff proposes complementing the projects outlined in the previous chapters of this document, along with those projects proposed by other State agencies, with a project that incentivizes the production and use of very low carbon fuels in the transportation sector.

Incentive programs have already played a vital role in accelerating the transition of on-road and off-road heavy-duty vehicles and equipment to cleaner technology, and they will continue to do so for the foreseeable future. It takes time for technology transfer to happen, and staff recognizes that particularly in the heavy-duty (both on- and off-road) sector, we are just now beginning to see that technology transfer take place. Since these heavy-duty vehicles and equipment have long lifetimes – many of the engines sold today may still be operating in 2030 – investments that bring the cleanest technologies to market as quickly as possible will be essential for achieving our air quality and climate change goals. Lower NOx engines, when paired with the use of renewable fuels, could provide near-zero GHG emissions. Parallel development and use of these technologies and fuels should be further encouraged to provide the needed nearer term emission reductions as we encourage the technology transfer needed to achieve long-term reductions. This production incentive, concurrent with investments by other agencies, will be a critical component to transform transportation fuels to cleaner, very low carbon alternatives.

Policy and Statutory Drivers

There are already an existing suite of regulatory drivers designed to encourage the production of very low carbon transportation fuels, such as the Federal Renewable Fuels Standard (RFS), which was authorized under the Energy Policy Act of 2005 and expanded under the Energy Independence and Security Act of 2007, and ARB's LCFS (pursuant to the goals presented in AB 32 and Governor Schwarzenegger's Executive Order S-01-07). ARB's *Climate Change Scoping Plan* specifically recognizes the importance of reducing the carbon content of fuels and providing market support to get these very low carbon fuels into the marketplace as one part of a multi-pronged approach designed to help achieve California's long-term air quality and climate change goals.

ARB's LCFS is designed to promote the use of low carbon transportation fuels. The LCFS is intended to foster innovation in the fuels markets to encourage the development of the next generation of low carbon fuels used in California through the use of a declining carbon intensity standard. One aspect of this is the use of a

market-based credit trading system that allows fuel producers to decide how best to reduce emissions. The LCFS seeks to achieve a ten percent reduction in the carbon intensity of transportation fuels used in California by 2020.

The *Mobile Source Strategy* points out that continued early investments and incentives to accelerate deployment of zero- and near zero-emission technologies in the heavy-duty sector are going to be needed to meet our air quality and climate goals. With the Governor's goal of reducing petroleum use by 50 percent by 2030, the Strategy calls for the use of cleaner, lower carbon fuels over time. It specifically includes a measure concept to develop a low-NOx, low-PM, low carbon intensity (LPNC) diesel standard that would require progress towards a goal of a 50 percent LPNC diesel share of all diesel fuel sold by 2030.

At the federal level, Congress established the RFS program in 2005. The RFS was then further expanded into what is known as RFS2 under The Energy Independence and Security Act of 2007. The RFS program requires a certain volume of renewable fuel to replace or reduce the quantity of petroleum-based transportation fuel, heating oil or jet fuel. The RFS includes four renewable fuel categories: biomass-based diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel. Under RFS2, the size of the program was significantly increased, and key changes such as boosting the long-term goals to 36 billion gallons of renewable fuel and extending yearly volume requirements out to 2022 were included.

In spite of all this policy support, the economic viability of alternative fuels projects still continues to be tested by a variety of market and policy drivers. These drivers include a reduction in the RFS volume obligations at the national level, unresponsive investors in the face of temporary production tax credits, higher-than-anticipated costs of agricultural residues and waste feedstock, and especially low oil prices.

Some economic experts have commented that a long term "per gallon" subsidy may be more critical and cost effective at both maintaining existing levels of production and stimulating new investment. This Very Low Carbon Fuels Incentive Project is intended to incentivize the production of the fuels that will help California to achieve these targets and goals.

Complementary Incentive Funding Programs

California has a number of different, but complementary, incentive programs aimed at developing and deploying advanced technologies, fuels, and infrastructure for the transportation sector. As incentive funding continues to evolve, the State can help focus and prioritize spending to encourage development and demonstration of innovative technologies in new applications, support pilot programs to further advance promising applications, and incentivize the early commercialization of advanced technologies that have a remaining incremental cost that the market will not directly bear. Some of the State and other complementary incentive funding programs include:

California Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program provides about $100 million annually through 2024 to develop and deploy alternative and renewable fuels and advanced transportation technologies to help achieve the state's climate change goals. This program was created through AB 118 (2007), which authorizes the Energy Commission to utilize public funding to catalyze the development and deployment of innovative technologies aimed at transforming California's fuel and vehicle types away from petroleum use. Additionally, AB 8 (2013) reauthorized the program, extending the AB 118 clean fuel and vehicle programs as well as local air district funds for diesel emission reduction through 2023. To date, the Energy Commission has awarded over $500 million for biofuel production, alternative fueling infrastructure, advanced vehicle demonstration and deployment, vehicle and component manufacturing, and workforce training.

Federal Funding: There is also considerable investment in advanced transportation at the federal level. For example, there are federal programs to spur biofuel ($181 million in 2013 from the U.S. Department of Agriculture) and zero-emission technology development ($45 million in 2013).

Other Complementary Programs: There are several other State programs that, while primarily intended to accomplish other related goals, can also help to bring about GHG reductions from transportation. Both CalRecycle and the California Department of Food and Agriculture offer funding programs that are specifically designed for other purposes, such as the capture of methane from landfills and dairy manure. Some of the facilities funded under these programs may also serve to produce low carbon fuels for the transportation sector.

Very Low Carbon Fuels Incentives

Proposed Low Carbon Transportation allocation – $40 million

PROJECT OVERVIEW

The Governor's proposed FY 2016-17 State Budget includes $40 million in incentive funding for the production of very low carbon, renewable transportation fuels as part of $500 million in overall funding for Low Carbon Transportation and Fuels Investments.

This funding will be limited to renewable fuels that are produced in California and would be further limited to those fuels which meet a designated carbon intensity threshold. The ARB staff proposal also provides the option for additional incentives for the production of fuels that use in-state feedstock as well as for fuels that provide a disadvantaged communities benefit. Goals of this funding include:

- Increasing the volume of very low carbon fuels produced and used in California.
- Reducing GHG emissions and, to the greatest extent possible, also reducing the criteria pollutants and air toxics emissions associated with fuels.
- Helping accelerate the transition to the use of very low carbon fuels needed to meet California's long-term climate goals.
- Fulfilling related goals, such as the collection and diversion of waste, and the capture and use of biomethane from landfills, sewage treatment plants and dairy digesters.
- Supporting vehicles and equipment that do not yet have zero-emission technology options.

STAFF PROPOSAL FOR FY 2016-17

As a new project category, staff proposes $40 million in total for incentives for the production of very low carbon fuels in California. These incentives are intended to encourage increased production of these fuels, and the incentive would be designed to complement incentive programs administered by other agencies, such as the Energy Commission, the California Department of Food and Agriculture, and CalRecycle.

Under ARB staff's proposed approach, in-state producers of very low carbon fuels would be eligible for a base "per gallon" subsidy if the carbon intensity of the fuel meets a defined carbon intensity threshold. These fuels would be eligible for a further "per gallon" subsidy if they are sourced from feedstock produced in-state, and they would also be eligible for a further "per gallon" subsidy if they include a disadvantaged communities component. The rate of the base subsidy for a given fuel will correspond to the carbon intensity of the fuel pathway, with lower carbon intensity fuels earning a higher per gallon subsidy. This promotes diversity in the fuel pool in California and complements other agency funding efforts, such as the Energy Commission's role in funding infrastructure and production facilities.

Proposed Eligibility Requirements: Eligibility would be limited to fuels that are produced in-state. This supports the requirement that expenditures from the GGRF must reduce GHG emissions in California (Health and Safety Code section 39712(b)) and to the extent feasible support development of the green economy (Health and Safety Code section 39712(b)(2)).

Eligibility would also be limited to fuels that have a provisional or certified fuel pathway (such as under the LCFS regulation). This ensures that reductions in the fuel production chain are real, and includes emissions from well-to-wheels.

Fuels would need to have a carbon intensity no greater than 40 percent of the petroleum based fuels that they are replacing as shown in Table 14. This is consistent with the definition of very low carbon fuels as stated in AB 692 (Quirk, Chapter 588, Statutes of 2015). Adhering to this definition and using this carbon intensity threshold will help to encourage production of the lowest carbon fuels.

Table 14: Carbon Intensity Standards and Targets (as of 2016)

Fossil Fuel	Carbon Intensity (gCO_2e/MJ)	40% Carbon Intensity Target
Gasoline	96.50	38.60
Diesel	99.97	39.99

Proposed Incentive Amounts: The base production incentive will be determined by the carbon intensity of the fuel pathway. Proposed per gallon incentive amounts are shown in Table 15. Additional incentives would be available for fuels sourced with in-state feedstocks. The increased use of in-state feedstocks is important in helping to achieve our overall GHG reductions through minimizing transportation, diverting waste materials, and capturing methane. Additional incentives would also be available for benefitting disadvantaged communities and addressing an important community need. During the development process, community groups expressed their interest in having a disadvantaged community component to this project.

Table 15: Per Gallon Incentive Amounts

Carbon Intensity**	Base Incentive ($/GGE*)	Additional Incentives ($/GGE)		Total Potential Incentive ($/GGE)
		In-State Feedstock	Disadvantaged Communities	
0 or less	$0.50	$0.20	$0.20	Up to $0.90
0.01 – 20.00	$0.20	$0.20	$0.20	Up to $0.60
20.01 – 39.99	$0.10	$0.10	$0.10	Up to $0.30

*Gasoline Gallon Equivalent

**Eligibility for base incentive is dependent on meeting the following requirements:

- The fuel is produced in California.
- The fuel pathway has been certified.
- The carbon intensity of the fuel pathway is no more than 60 percent of the carbon intensity of the comparable petroleum based fuel.

Disadvantaged Community Benefits: Staff is proposing that there be an additional incentive for very low carbon fuels that benefit disadvantaged communities. Because

this will be a new program, ARB will work with stakeholders and community members, in a public process, to establish the criteria that will determine whether a project qualifies as benefiting a disadvantaged community. This public process will also include the development of reporting requirements that grantees will use to document project benefits.

Incentive Cap: Staff is proposing the inclusion of an incentive cap. This concept could take the form of a facility-level cap, a producer-level cap, or a fuel-type cap. The purpose of the cap would be to ensure that no single facility, producer, or fuel-type ends up taking a disproportionate share of the incentive funding, and it would also help to ensure that funding is preserved for new fuel facilities about to begin production. Staff will be developing the mechanism for implementing the incentive cap through a subsequent work group process.

Project Administration: Staff anticipates that this project will be treated as a new, standalone project. Under this proposal, eligible producers of very low carbon fuels would submit evidence that they have produced and delivered the fuel. Once this information has been evaluated and confirmed by staff, the producers would enter into a written agreement with ARB, allowing ARB to disburse the funds to the producers on a first-come, first-served basis. Staff will be developing the details regarding the project administration process and award of incentive funds through a subsequent work group process and recommends that the Board delegate to the Executive Officer the authority to finalize the details after the completion of that process.

OUTCOMES

Staff believes this project will incentivize the production of approximately 67 million GGE of renewable very low carbon transportation fuels, at about $0.60 per GGE, and resulting in a reduction of nearly 420,000 metric tons of CO_2 equivalent GHG emission reductions.

While ARB's intention for the first year of this project is to develop and implement a relatively simple approach to provide incentives for the production of very low carbon fuels in California, staff will continue to monitor the project, consult with stakeholders, and make recommendations for potential changes in subsequent years for as long as the project continues.

Looking forward, staff believes that this project can help to assist in both increasing the volumes of very low carbon transportation fuel being produced, and leading to the development and production of fuels with lower carbon intensities. At the same time, staff has heard a consistent message from stakeholders about the need for a more long-term program that offers reliable, annual funding support to reduce some of the investment risk associated with the production of low carbon transportation fuels. The lack of long-term stable pricing presents a challenge to expanding the volume of low carbon fuels produced. Uncertainty about the federal RFS, unpredictability in LCFS prices, and low petroleum prices all contribute to instability in the low carbon fuels

market. One approach that has been suggested is to set up a program that would look at the total market value of the fuels and contracting with fuel producers to guarantee a minimum floor price for a certain financeable term length (e.g. up to 10 years), taking into account the price for producing the fuel, in addition to the value of existing credits (i.e. RINS, LCFS credits, cellulosic tax credit, etc.). A structure like this would help to attract more private capital to California-based projects by mitigating the revenue risk concerns of the investment community. Structuring the program in the form of a guarantee would also ensure that funds would only be expended when necessary to compensate for weak market conditions or incentive program shortfalls. Until a longer-term program can be implemented, proceeding with the proposed per/gallon incentive approach should help to stabilize the prices of and market for very low carbon fuels as well as help to support the production and purchase of vehicles that use the fuels.

CHAPTER 6: MAXIMIZING DISADVANTAGED COMMUNITY BENEFITS FOR LOW CARBON TRANSPORTATION AND FUELS INVESTMENTS

ARB's 2015 *Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies that Administer California Climate Investments (*California Climate Investments Guidelines) establish requirements and recommendations for maximizing disadvantaged community benefits.[22] This chapter summarizes the steps ARB staff is taking to meet these requirements for the proposed FY 2016-17 Low Carbon Transportation and Fuels appropriation.

The California Climate Investments Guidelines lists a number of requirements for State agencies. These requirements are summarized below, along with the actions ARB is taking to address them.

Requirement: Evaluate investments to see if they could potentially result in benefits for disadvantaged communities, using the criteria contained in Appendix 2.A (of the California Climate Investments Guidelines).

> ARB Action: ARB staff expected that every project funded with the FY 2016-17 Low Carbon Transportation and Fuels appropriation will provide some benefit for disadvantaged communities. The project category descriptions included in Chapters 3, 4, and 5 of this Funding Plan describe the percentage of each project's funding the staff expects will benefit disadvantaged communities. For each project, ARB staff will use the criteria in Appendix 2.A of the Climate Change Investment Guidelines to evaluate the disadvantaged community benefits and to develop project solicitation and grant requirements. As project funds are expended, ARB will report the disadvantaged communities benefits in future Annual Reports to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds.

Requirement: Target funding, to the extent feasible, for projects that benefit disadvantaged communities and where possible, target projects physically located within disadvantaged community census tracts.

> ARB Action: The FY 2016-17 Funding Plan includes a mix of projects that are available statewide on a first-come, first-served basis and those that are limited to benefiting disadvantaged communities (or a portion of the project funding is limited to projects that benefit disadvantaged communities).

[22]See Climate Changes Investments Guidelines, Volume II, Chapter V: Guidance on Maximizing Benefits to Disadvantage Communities (pages 2-9 through 2-19 and Appendix 2.A) http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/arb-funding-guidelines-for-ca-climate-investments.pdf

- As a way to maximize disadvantaged community benefits, ARB staff is proposing that 100 percent of the funding for the Light-Duty Pilot Projects and Advanced Technology Demonstration Projects categories benefit disadvantaged communities.

- For the Zero-Emission Truck Pilot Commercial Deployment Project and the Zero-Emission Bus Pilot Commercial Project, ARB staff included in the solicitation scoring criteria extra points for those projects that demonstrate that they are located in or provide benefits to disadvantaged communities as a way to encourage funding applicants to design their potential projects to benefit disadvantaged communities.

- For the statewide first-come, first-served projects (CVRP and HVIP), ARB staff has incorporated project criteria intended to increase benefits to disadvantaged communities and lower-income consumers. For HVIP, zero-emission truck and bus voucher amounts are higher for vehicles that operate in disadvantaged communities. For CVRP, rebate amounts are higher for lower-income vehicle purchasers with household incomes less than 300 percent of the federal poverty level.

Requirement: Implement outreach to disadvantaged communities.

ARB action: ARB staff is taking several steps to outreach to disadvantaged communities.

- As a part of project solicitations, ARB requires that applicants provide information on how they will outreach to disadvantaged communities, and their applications are scored in part on the quality of the outreach proposal. Efforts to expand disadvantaged community outreach for CVRP are described in more detail in Chapter 3 of the Funding Plan.

- ARB has hired a dedicated staff person to assist with disadvantaged community outreach on Low Carbon Transportation and Fuels investments and help ensure these communities are aware of funding opportunities. With these additional resources, ARB has started an enhanced outreach/education program to maximize the benefits of Low Carbon Transportation and Fuels investments in disadvantaged communities. An important part of the effort is dedicated to assessing the needs of the communities and identifying ways to maximize their benefits from the Low Carbon Transportation and Fuels investments. ARB is partnering with stakeholders, such as community based organizations, community advocates, and environmental justice groups to conduct community meetings aimed at explaining available incentives and increasing the community's ability and willingness to use the programs.

  ARB staff is working with liaisons from State agencies receiving Cap-and-Trade auction proceeds to better share information at community

events, so citizens can have access to all relevant California Climate Investments opportunities.

ARB is also developing a comprehensive, but user-friendly website to promote its Low Carbon Transportation and Fuels projects and increase awareness among the community members for related services/assistance available in their ZIP code.

Requirement: Track and report on the disadvantaged community benefits of each investment.

ARB action: All ARB grant agreements with funding recipients require grantees to collect and report to ARB all data necessary to document disadvantaged community benefits. This includes all information necessary to complete the evaluations specified in Appendix 2.A of the California Climate Investments Guidelines (Criteria for Evaluating Benefits to Disadvantaged Communities by Project Type) and the data required in Volume 3 of the California Climate Investments Guidelines (Reporting Requirements).

ARB staff uses this information to provide input for the *Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Proceeds* including the amount of Low Carbon Transportation funding invested in and benefiting disadvantaged communities by project.

Requirement: To the maximum extent possible, investments should result in benefits that meaningfully address an important community need. Table 2-2 of the California Climate Investments Guidelines provides a list of common needs identified by community advocates during the development of the guidelines. Letters of community support can also be used to document that investments address a community need.

ARB action: ARB staff reviewed Table 2-2 of the California Climate Investments Guidelines and determined that the proposed FY 2016-17 Low Carbon Transportation and Fuels investments meet the following common needs of disadvantaged communities shown in Table 16.

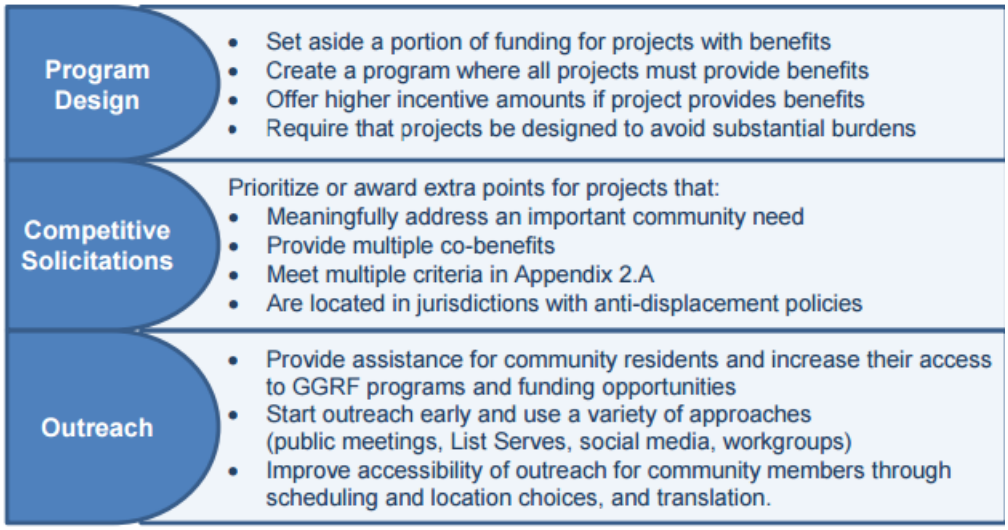
Table 16: Common Needs of Disadvantaged Communities Addressed by Proposed Low Carbon Transportation and Fuels Investments

Public Health and Safety, Need 1	Reduce health harms suffered disproportionately by low-income residents/communities due to air pollutants. *All Low Carbon Transportation and Fuels projects meet this need. A portion of funding from all projects is expected to benefit disadvantaged communities as shown in Table 3 (in Chapter 2 of the Funding Plan), and all these projects reduce criteria air pollutants and/or toxic air contaminants as co-benefits thereby reducing health harms due to air pollutants.*
Economic, Need 5	Reduce transportation costs and improve access to public transportation. *The Low Carbon Transportation and Fuels projects which provide consumer incentives for more fuel efficient vehicles meet this need. These include CVRP, EFMP Plus-Up, Financing Assistance for Lower-Income Consumers, and Car Sharing and Mobility Options projects.*
Environmental, Need 1	Reduce exposure to local environmental contaminants, such as toxic air contaminants, criteria air pollutants, and drinking water contaminants. *All Low Carbon Transportation and Fuels projects meet this need because all projects reduce criteria air pollutants and/or toxic air contaminants as co-benefits*.
Environmental, Need 2	Prioritize zero-emission vehicle projects for areas with high diesel air pollution. *The Low Carbon Transportation and Fuels projects which provide incentives for zero-emission vehicles to replace diesel vehicles meet this need. These include the Zero-Emission Freight Equipment Pilot Commercial Deployment Project, Zero-Emission Truck Pilot Commercial Deployment Project, Zero-Emission Bus Pilot Commercial Deployment Project, and Advanced Technology Demonstration Projects.*

Letters of community support can also be used to document that investments address a community need. During the development of the FY 2016-17 Funding Plan, ARB has received comment letters from organizations representing several community groups voicing support for ARB staff's proposed investments in light-duty pilot projects to benefit disadvantaged communities, financing assistance projects for lower-income consumers, the proposal to direct the bulk of the heavy-duty and freight demonstration and pilot project funding to benefit disadvantaged communities, and the change to CVRP to provide higher rebates to lower-income consumers. ARB has also received verbal comments from community groups advocating for a disadvantaged community component to the new very low carbon fuels incentive project.

In addition to the requirements summarized above, California Climate Investments Guidelines lists a number of recommended strategies for State agencies. Some of these strategies are listed in Figure 8 (excerpted from the Climate Change Investment Guidelines):

Figure 8: Examples of Strategies for Maximizing Disadvantaged Community Benefits[23]



The FY 2016-17 Funding Plan utilizes a number of these strategies, including:

- Set aside a portion of funding for projects which benefit disadvantaged communities: Funding for Light-Duty Pilot Projects to Benefit Disadvantaged Communities and Advanced Technology Demonstrations is limited to projects that benefit disadvantaged communities.

- Offer higher incentive amounts if project provides benefits to disadvantaged communities: HVIP provides higher voucher amounts for zero-emission trucks and buses that operate in disadvantaged communities. In addition, CVRP provides higher rebate amounts to lower-income consumers (though these increased rebates are not limited strictly to those lower-income consumers living in disadvantaged communities).

- Prioritize or award extra points for projects that meaningfully address an important community need: In the 2016 competitive solicitation for Zero-Emission Truck and Bus Pilot Commercial Deployment Projects, the scoring criteria provided extra points for those projects that demonstrate that they are located in or provide benefits to disadvantaged communities. Staff has proposed that funding in the Zero-Emission Truck Pilot Commercial Deployment Project and Zero-Emission Bus Pilot Commercial Deployment Project categories be awarded to the highest-scoring remaining projects from that competitive solicitation.

- Provide multiple co-benefits: Low Carbon Transportation and Fuels co-benefits include reducing criteria pollutant and toxic air contaminant emissions, reducing

[23]See Figure 2-2, on page 2-15 of the Climate Investments Guidelines.

fuel costs, and improving lower-income consumers' access to low carbon transportation.

- Provide assistance for community residents and increase their access to GGRF programs and funding opportunities: ARB includes outreach as a component of its grant agreements. As noted earlier in this chapter, ARB has also hired a dedicated staff person to assist with disadvantaged community outreach on Low Carbon Transportation and Fuels investments and help ensure these communities are aware of funding opportunities.

- Start outreach early and use a variety of approaches: ARB staff started the Funding Plan development process in December 2015, six months prior to Board consideration of the plan. ARB staff held three public workshops and a total of 15 public workgroup meetings on the Funding Plan. A list of these meetings is provided in Table 6 (in Chapter 2 of this document). ARB staff also met individually with groups that requested meetings.

CHAPTER 7: CONTINGENCY PROVISIONS

The proposed FY 2016-17 Funding Plan is based upon the latest available information. However, circumstances may change between the time the proposed Funding Plan is released for public comment and when the Board approves the Funding Plan, project solicitations are issued, project funds awarded, or as projects are implemented. This section describes staff's proposed contingency plans should mid-course corrections be needed to ensure that funds are spent expeditiously, efficiently, and where the need is the greatest. Under these provisions, the Board would grant the Executive Officer authority to make mid-course adjustments as necessary.

Low Carbon Transportation and Fuels Appropriation: The proposed Funding Plan includes allocations for Low Carbon Transportation and Fuels investments, based on the Governor's State Budget proposal, as revised in May 2016. The final State Budget has not been approved and signed at the time this proposed Funding Plan was released. If the final State Budget authorizes an amount different than the $500 million proposal, staff would present proposed modifications to address those changes at the June 23, 2016 Board meeting provided that the State Budget is signed by the Governor before the Board meeting date. The Board would consider those modifications as part of its consideration of the Funding Plan.

If there are further changes to the Low Carbon Transportation and Fuels appropriation after the Board meeting, staff proposes to allocate the funding as follows unless otherwise specifically directed by the Board or legislation:

- For an appropriation less than the $500 million in the Governor's proposed State Budget, ARB would scale funding allocations down proportionately for each project.

- For an appropriation exceeding the $500 million in the Governor's proposed State Budget, ARB would direct any additional funding up to $50 million to the next highest-scoring applications received in response to the FY 2014-15 Multi Source Facility Demonstration Project solicitation and the next highest-scoring bus applications received in response to the combined FY 2014-15 and FY 2015-16 Truck and Bus Pilot Commercial Deployment Projects solicitation with an equal funding amount to each category.

- For an additional funding amount above $50 million, ARB would allocate 25 percent of the available funding to light-duty vehicle projects and 75 percent of the funding to heavy-duty vehicle and off-road equipment projects. The light-duty vehicles funding would be allocated to the Light-Duty Pilot Projects to Benefit Disadvantaged Communities or Financing Assistance for Lower-Income Consumers project categories based on documented need such as over subscription to a solicitation or consumer demand exceeding available funding for projects such as EFMP Plus-up. The heavy-duty vehicle and off-road equipment project funding would be allocated first to fulfill remaining demand for

multi-source demonstration and bus pilot projects listed above and then to the other heavy-duty vehicle and off-road equipment project categories based on documented need such as over-subscription to a solicitation or demand exceeding available funding.

AQIP Funding Levels: Over past funding cycles, AQIP revenues were sometimes lower than the levels included in the State Budget, and project solicitations had to be scaled back. AQIP appropriation levels have been adjusted in the State Budget in recent years to more closely track anticipated revenues, so staff does not expect needing to scale back AQIP funding in the FY 2016-17 funding cycle. However, staff is proposing to leave $3.6 million of the AQIP appropriation unallocated to function as a prudent reserve. As noted in Chapter 2, staff proposes the following contingency provisions specifying how the $3.6 million in reserve funds would be allocated if revenues are sufficient. As a first priority, the additional funding would be allocated to either of the two AQIP-funded projects if there is demonstrated demand. As a second priority, funding could be allocated to research related to the mobile source emission categories covered in the Funding Plan if there are still remaining funds available.

Additional Funding Sources: If funding from other sources is provided for any of the project categories authorized in the Funding Plan, these outside funds will be allocated as needed for projects or as specifically required by the authorizing entity. Additionally, projects receiving additional funding may be altered to accommodate any conditions placed upon the use of alternative sources of funding as long as these conditions are consistent with the statutory provisions for Low Carbon Transportation and Fuels investments and AQIP. ARB staff will consult with project work groups prior to making any changes to projects.

Project Demand: ARB staff plans to issue initial solicitations and funding agreements based on the allocations listed in Tables 3 and 5 (Chapter 2). However, these solicitations and grant agreements will be written with provisions to allow an increase in awarded funding if there are sufficient revenues and project demand. Conversely, staff proposes that the Executive Officer have the ability to reallocate funding from any project in the event that demand does not materialize or if he determines that the project is not viable as envisioned in the Funding Plan (e.g. a technology considered for demonstration or pilot deployment is not ready to be funded). In this case, funds would be preferentially reallocated within the same project category or sector prior to reallocating to a different sector. For example, if demand fails to materialize for one of the truck projects, ARB would first prioritize reallocating that funding to other truck projects. Likewise, if demand falls short for one of the light-duty pilot projects, ARB would shift that funding to another light-duty pilot. Any changes in funding for a particular project category would be publicly vetted through public project work groups.

When ARB is evaluating solicitations, there may be cases where funding has been awarded to the highest scoring applications and the remaining available funds are less than the amount requested in the next highest scoring application. In these cases, staff proposes that the Executive Officer have the authority to offer funding to the next

highest scoring project(s) at a scaled down scope, carry the remaining funds forward to the next fiscal year, or shift the funds to another project category at his discretion.

Finally, staff proposes the Executive Officer have the authority to establish consumer waiting lists for CVRP, HVIP, Public Fleet Pilot, or Low NOx Engine Incentives in the event funding is exhausted prior to the end of the funding cycle.

Minor Technical or Administrative Changes: The proposed Funding Plan specifies all policy-related details regarding the projects to be funded. However, technical or administrative changes in implementation procedures may be needed from time to time to ensure these projects are successful. Staff proposes a transparent process in which minor changes to a project category would be publicly vetted through the public project work groups that have been established to discuss the implementation details of each project. For several project categories, staff is already planning to use the public work group process to finalize technical details prior to issuing solicitations. These changes would be within the Funding Plan parameters approved by the Board.

PART II:
LONG-TERM PLAN FOR CVRP AND LIGHT-DUTY VEHICLE INCENTIVES

Overview

The California clean car market has grown rapidly over the past few years, along with the need for continued and expanded incentives to ensure long-term market success. Over the past several funding cycles, ARB has directed significant funding toward light-duty vehicle incentives, primarily through CVRP. Because of this, policy makers continue to inquire about the cost-effectiveness, equity, financial sustainability, and structure of these incentive programs. More specifically, the Legislature and the Board have expressed interest in understanding when a self-sustaining ZEV market is expected and what steps can be taken to ensure incentives are phased out appropriately. In response to these requests, ARB staff has spent the past two years reviewing relevant literature and evaluating available vehicle and market data. ARB has also sponsored external research projects in these areas to address these needs. Throughout the development of the FY 2016-17 Funding Plan, ARB staff also engaged stakeholders in public workshops and a series of public work groups to better define the task and refine the work undertaken. The resulting Long-Term Plan for CVRP and Light-Duty Vehicle Incentives is intended to serve as a foundational framework for future decision-making related to light-duty incentives policy.

The advanced technology clean vehicle market is still in its infancy. Only about five years of vehicle sales data for ZEVs and PHEVs is available, and while the market is growing impressively, these vehicles collectively only made up about 3.1 percent of new car sales in 2015.[24] Predicting how this market will grow over the next several years is challenging. However, ARB staff has identified several possible market indicators and a plan for continued evaluation and annual updates to inform the Board moving forward.

Specifically, ARB staff recommends evaluating the market based on ZEV sales in comparison to the comparable California new car market as a measure of market sustainability. Using this approach, staff believes that the ZEV market won't be sustainable without broad purchase incentives for at least the next five to ten years. Focused financial incentives, or other types of incentives may still be necessary beyond that point. Staff recommends an approach for ramping down the current purchase incentive over time based both on expected market sustainability and budgetary constraints, and suggests maintaining the primary current incentive structure at least for the next several years.

Statutory Goals and Requirements

SB 1275, signed into law in 2014, establishes the Charge Ahead California Initiative with the goals of placing one million zero-emission and near zero-emission vehicles in California by 2023 to establish a self-sustaining market and increasing access to these vehicles for lower-income consumers and consumers in disadvantaged communities. Among other requirements, SB 1275 requires ARB to include a long-term plan for CVRP and related programs in the FY 2016-17 Funding Plan. The plan must include:

[24] http://www.cncda.org/CMS/Pubs/Cal%20Covering%204Q%2015.pdf

- A three-year forecast of funding needs to support the goals of technology advancement, market readiness, and consumer acceptance of advanced vehicle technologies. Acknowledging the uncertainty in forecasting a dynamic market over an extended period, SB 1275 states that this forecast may be described as a range with high and low funding levels. The three-year forecast will cover the period between July 1, 2016 and June 30, 2019.

- A market and technology assessment for each funded vehicle technology (battery electric, plug-in hybrid, and fuel cell) to inform the appropriate funding level, incentive type, and incentive amount.

- An assessment of when a self-sustaining market is expected and how existing incentives may be modified to recognize expected changes in future market conditions.

Three-Year Forecast of Funding Needs

As required by SB 1275, ARB staff, in consultation with CSE, the CVRP administrator, developed three-year funding projections for light-duty investments including both CVRP and light-duty pilot projects. ARB staff held a series of public work group meetings to discuss projections developed by staff and external stakeholders.

Based on the projections developed for CVRP and the light-duty pilot projects, the estimated funding need is shown in Table 17. Projection approaches are described in further detail.

Table 17: Light-Duty Project Projections

Fiscal Year	Estimated Funding Need (millions)				
	All LD Projects	Low		High	
		CVRP	LD Pilots	CVRP	LD Pilots
FY 2016-17	**$210 - $240**	$160	$50	$190	$50
FY 2017-18	**$250 - $330+**	$180	$70	$220	$110+
FY 2018-19	**$320 - $420+**	$220	$100	$260	$160+

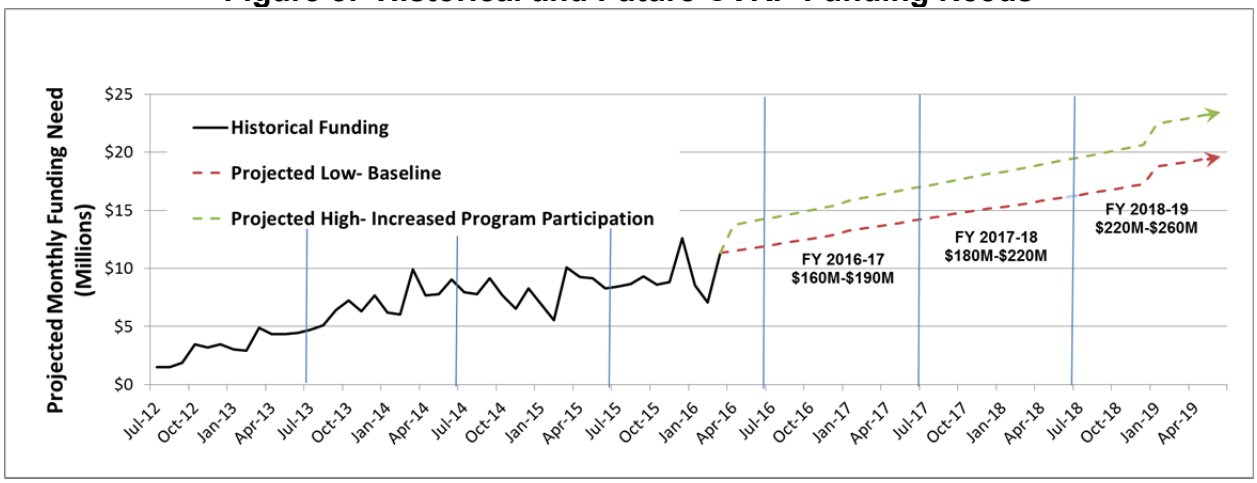
The CVRP funding estimates shown in Table 17 correspond to a projected rebate demand of: 68,000-82,000 rebates in FY 2016-17; 79,000-95,000 rebates in FY 2017-18; and 92,000-111,000 rebates in FY 2018-19.

<u>CVRP Three-Year Funding Estimates</u>

CVRP funding estimates are based on linear extrapolations of vehicle registration and historical rebate data, as explained in the following section. Both ARB staff and CVRP stakeholders are aware that these funding projections are not meant to predict the future of the clean vehicle market, but rather to provide an estimation of funding needs. Furthermore, projections farther into the future contain greater uncertainties that are

difficult to model quantitatively. Uncertainties include new vehicle model introductions, fluctuation of gasoline prices, vehicle and battery prices, and other factors.

Figure 8: Historical and Future CVRP Funding Needs



Projection Approach

ARB staff considered various approaches to projecting funding needs, and after comparing results, staff determined that linear extrapolations of historical data serve as a reliable method for short-term funding estimations at this time. Some stakeholders have expressed concern that linear extrapolations may not capture potential large increases in market growth. ARB staff considered using polynomial and exponential extrapolations, but these approaches produce unrealistic trends for the next three fiscal years. This may change as the market progresses, and ARB staff will reconsider the most appropriate forecasting approach each time it updates its projections. Other approaches, such as forecasting by each vehicle model factoring in future model introductions based on manufacturers' public announcements rely heavily on assumptions that have limited supporting empirical data. After these considerations, staff concluded that linear extrapolations of historical data are appropriate to estimate funding needs.

Staff acknowledges the comments from stakeholders at the April 4, 2016 public workshop and in subsequent comment letters that ARB's selected approach could potentially underestimate the funding needs if all manufacturers' announced future vehicle launches materialize in the most optimistic time frames.

ARB staff worked with CSE to develop the three-year funding projections by estimating market growth by technology type. Staff used linear extrapolations of data for each technology type to forecast short-term vehicle sales. Staff used vehicle registration data where available (March 2010 through 2015), and where not yet available, CVRP rebate data is used by adjusting it for historical rates of program participation to represent overall sales. About 82 percent of BEVs and about 63 percent of PHEVs purchased or leased in California receive a CVRP rebate; these participation percentages are estimates of BEV and PHEV overall sales in staff's projections. Due to the small

number of fuel cell electric vehicle data points, staff used a ZEV regulation compliance scenario (from 2011) instead of an extrapolation. The zero-emission motorcycle forecast was extrapolated from adjusted rebate data, assuming participation similar to the BEV category.

After staff estimated volumes for each technology type, funding need estimates were derived by multiplying forecasted volumes by the historical percentage of participating vehicles relative to the overall California market. Staff used current rebate amounts for each technology type ($5,000 for fuel cell electric vehicles, $2,500 for BEVs, $1,500 for PHEVs, and $900 for zero-emission motorcycles) as well as current CVRP administrative costs in these forecasts. There are not yet historical data available on which to directly project forward the impact on CVRP funding needs of the increased rebates for lower-income consumers and the income cap, so these impacts were evaluated in the sensitivity analysis described further below and found to fall within the ranges shown in Figure 8.

Staff estimated a low and a high range for long-term funding needs as shown in Figure 8. Both the high and low ranges are based on the historical growth since the beginning of CVRP. The low range estimate is the baseline, which assumes that growth, participation rates, and other technology trends remain unaffected. The high range assumes baseline growth and trends, but assumes CVRP participation will be at historical highs for each technology type. This means, staff assumed 63 percent of California PHEV buyers and 82 percent of California BEV buyers participate in CVRP to forecast the baseline case (or low range estimate of future funding needs), but staff assumed CVRP participation rates of 80 percent for PHEV buyers and 95 percent for BEV buyers in the high range estimate.

External factors that staff did not analyze due to a lack of quantitative data to directly model include the impact of:

- The upfront cost of ZEVs relative to conventional equivalents.
- Fuel costs and total cost of ownership.
- Other incentives such as federal incentives, high occupancy vehicle (HOV) lane access, subsidized electricity, free parking.
- Product diversity and new ZEV model introductions.
- ZEV awareness increased through education and outreach.

However, staff acknowledges that each of these factors may impact CVRP's future funding needs.

<u>Sensitivity Analysis Scenarios: Effect of Assumption Changes</u>

Staff conducted a sensitivity analysis to evaluate how various factors would impact the projections shown in Figure 8. For this sensitivity analysis, staff used the following baseline assumption:

- Data used from the life of the program (5 year extrapolation).
- Continued consistent growth for each technology type.
- Consistent project participation.
- Income criteria were not included.

Staff then modeled the 12 separate scenarios (in addition to the baseline scenario) shown in Table 18. This table shows the effect on the baseline of changing a single factor, while keeping in mind that these factors are heavily interrelated and complex.

Table 18: Effect of Assumption Changes

#	Scenario	% of Baseline-Low range	FY 16–17 (millions)	FY 17–18 (millions)	FY 18–19 (millions)
1	Baseline	100%	$157	$183	$216
2	36-Month Extrapolation	93%	$148	$169	$198
3	12-Month Extrapolation	90%	$143	$165	$194
4	Historical low % of market rebated	76%	$120	$140	$165
5	% of market rebated -10 points	86%	$135	$157	$186
6	% of market rebated +10 points	114%	$179	$208	$246
7	Historical high % of market rebated	120%	$188	$219	$258
8	30% PHEV / 70% BEV	98%	$155	$181	$210
9	60% PHEV / 40% BEV	85%	$134	$156	$182
10	Income criteria	99%	$156	$181	$214
11	Income criteria +25% additional participation by lower-income consumers	104%	$162	$189	$224
12	Income criteria +50% additional participation by lower-income consumers	108%	$169	$197	$233
13	Baseline w/extrapolated fuel cell electric vehicles	93%	$146	$172	$197

Below is a short explanation of the assumptions that make up each of the scenarios listed in Table 18:

- Scenario 1 shows the Baseline or Low projection shown in Figure 8.
- Scenario 2-3 shows the effect in the change of the time span of data used to make the projections. Instead of projecting forward based on all data from the life of the project, these scenarios show the impact of extrapolating only using the last the last 36 months of data (Scenario 2) and only the last year of data (Scenario 3).
- Scenarios 4-6 show the effect of varying levels of participation, with Scenario 4 showing the effect of participation dropping to historical lows (even with baseline market growth).

- Scenarios 5 and 6 illustrate the effect if participation percentages were 10 percent above and below the project life average.
- Scenario 7 assumes participation is at its highest historical levels. This is the high end projection shown in Figure 8.
- Scenarios 8-9 show a change in technology type mixes, which currently average at about 60 percent BEVs and 40 percent PHEVs. Scenario 8 illustrates the effect if the percent of BEVs rebated were to reach 70 percent, and Scenario 9, if BEVs made up only 40 percent.
- Scenarios 10-12 show the potential effect of the recently implemented changes in income criteria (income cap and increased incentives for lower-income consumers). Scenario 10 shows, based on CVRP survey data, the effect of these changes without any corresponding increase in participation by lower-income consumers. Scenario 11 is based on an increase of 25 percent more lower-income consumers than the baseline, and Scenario 12, 50 percent more.
- Scenario 13 illustrates if the fuel cell electric vehicle category were to be linearly extrapolated in the same fashion as the more matured technology categories.

In Scenarios 10 through 12, staff modeled the impact that increased participation by lower-income consumers as a result of the increased rebates might have on the funding needs shown in Figure 8. Staff found that the increase in CVRP participation attributed to the higher rebates for lower-income consumers will likely fall within the range projected according to preliminary estimates based on the CVRP survey. Although this program change has the potential to increase funding needs, by both raising the rebate amount and increasing program participation among these consumers, the effect will be partially offset by the savings associated with implementing the income cap.

ARB staff continues to assess the clean vehicle market and continues to seek input on other assumptions or potential methods to enhance future projections. Staff believes that linear extrapolations with participation increased to historical highs are the most appropriate method to provide a funding need estimate over the next three year period. Staff acknowledge the high variability of this market and the possibility that funding needs may exceed (or fall below) the range provided. Staff also acknowledges that uncertainty increases the further out projection are made. Therefore, staff will continue to examine clean vehicle market trends, consult relevant peer-reviewed scientific studies, keep open communication with stakeholders, and update projections at least once a year.

Light-Duty Pilot Project Estimates

In addition to three-year funding projections for CVRP, staff also developed projections for light-duty pilot projects to benefit lower-income consumers and disadvantaged communities. The projections for light-duty pilot projects are based on current funding needs and were developed through a series of public work groups with external stakeholders. These projections, shown on Table 19, also account for future growth over the next three years.

Table 19: Light-Duty Pilot Projects Draft 3-Year Funding Projections

Pilot Projects	Funding To Date (millions)	3-Year Projections (millions)		
	FY 2014-15 & 2015-16	FY 2016-17	FY 2017-18	FY 2018-19
EFMP Plus-up	$12	$30	$30 to $50	$40 to $70
Car Sharing	$3.1	$8	$20 to $25	$25 to $30
Increased Public Fleet Incentives for CVRP-Eligible Vehicles	$3	$3	*	*
Agricultural Worker Vanpools in San Joaquin Valley *(New for FY 16-17)*	-	$3	$3	$3
Financing Assistance for Low-Income Consumers	$0.9	$6	$20 to $25	$35 to $50
Potential New Projects	-	-	$0 to $5	$0 to $10
Total	**$19**	**$50**	**$70 - $110+**	**$100 - $160+**

* Project and funding transitioned to on-going set-aside within CVRP
\+ Funding need may increase above range shown in table based on new project categories.

Projected funding needs for these pilot projects are based on a mix of staff experience in developing and administering these pilot projects and stakeholder input received since 2014. Stakeholders have consistently maintained that all of these projects serve an important equity function for lower-income and disadvantaged communities and urge ARB to provide increasing funding support as the pilot projects move forward. Below are more detailed discussions of how the three-year funding projections for the current pilot projects were developed.

In addition to these projections for current pilot projects, ARB staff is open to consideration of and encourages input regarding the potential for new pilot projects for clean light-duty transportation options. For FY 2016-17, staff will use the public work group processes for the existing pilot projects to consider new eligible components instead of proposing any new stand-alone pilot projects. For future funding cycles, staff will continue to seek input on possible new light-duty pilot projects. Projections of funding needs for FY 2017-18 and FY 2018-19 are subject to staff's continuing evaluation of performance of the existing pilot projects. Projections of data for all the projects will become more robust and informed as these projects are carried out. ARB will continue to seek stakeholder input regarding the effectiveness of the existing pilot projects and their opportunities for growth, as well as ideas for future funding needs to assist the State's lower-income and disadvantaged communities, meet GHG and other emission reductions needs, and help meet State goals for transforming the light-duty vehicle fleet to advanced clean technologies.

EFMP Plus-up

- EFMP Plus-up's enhancement of retire-and-replace incentive projects is an essential component of ARB's strategy to transition California's light-duty vehicle fleet to zero-emission and near zero-emission technologies by assisting lower-income households in and near disadvantaged communities choose clean vehicles over older, high polluting alternatives in the marketplace.

- High demand has resulted in the existing EFMP Plus-up programs being over-subscribed with first year funding being exhausted after providing incentives for over 400 vehicles in less than six months of implementation.
  South Coast AQMD, which accepts applications in part through its website, has a backlog of roughly 2,000 applicants. The San Joaquin Valley APCD, which holds biweekly events, continues to see large volumes of interested and eligible applicants. Both air districts have worked to increase program efficiency and are now processing program participants at an even higher rate.

- The projected funding needs reflect both this upward trajectory of the existing programs as well as the expected expansion of EFMP Plus-up to additional air districts eager to implement their own EFMP Plus-up programs. Bay Area, Sacramento, and Santa Barbara air districts are expected to begin developing and potentially administering programs during the FY 2016-17 funding cycle and have demonstrated the ability to scale up incentive programs quickly. Additional districts may be added, and possible changes to the Carl Moyer Program Guidelines scheduled for spring 2017 may allow Carl Moyer Program funds to be used toward vehicle retire-and-replace programs and provide additional support of EFMP Plus-up programs.

- Currently, the supply of used plug-in hybrid- and battery-electric vehicles remains a hurdle in expanding the programs to levels higher than those being considered. As such, the funding need identified attempts to balance the improvements to the existing programs and expansion into additional areas of California with the projected availability of advanced technology vehicles in the used vehicle market.

Car Sharing

- The FY 2014-15 $2.5 million Car Sharing solicitation generated substantial interest, with 13 applications requesting more than $16 million in funds. Staff experience with grantees as they build their projects suggests that these projects could be expanded and that other disadvantaged communities could benefit from similar projects.

- In addition to the proposed $8 million in FY 2016-17, ARB staff projects that there is potential for between 40 to 50 new car sharing projects throughout California with a potential funding need of up to $25 million in FY 2017-18, and up to $30 million for FY 2018-19. This reflects staff's understanding of a potential

uptake for these types of projects, interest expressed by disadvantaged communities, stakeholder input of demand in the next three years, and staff's intent to encourage the willingness of car sharing companies to invest in disadvantaged communities.

Public Fleets Increased Incentives

- Transforming the public fleets that operate in and near disadvantaged communities to zero-emission and near zero-emission vehicles will deliver emission reductions and health benefits to the communities they serve. In addition to the health and other co-benefits these clean vehicles provide, residents will gain increased knowledge and experience with these vehicles and the technologies they employ as they operate in and around these communities. State incentives make up for federal tax credits that are not available to public fleets for the purchase of clean vehicles, and help facilitate fleet planning and budgeting to encourage introduction of these vehicles.

- ARB staff proposes $3 million for Public Fleets Increased Incentives in FY 2016-17 based on demand since the project launched.

- Beginning with the process to develop the FY 2017-18 Funding Plan, staff recommends reevaluating the continuing need for Public Fleets Increased Incentives. If some level of continued incentives is appropriate, staff will recommend transitioning from a pilot project to a CVRP component available to public fleets.

Agricultural Worker Vanpools in San Joaquin Valley

- ARB staff proposes $3 million for Agricultural Worker Vanpools in San Joaquin Valley for FY 2016-17 and has identified a similar funding need for the FY 2017-18, and FY 2018-19 funding cycles. While it is difficult to gauge exact future year funding needs for a project that hasn't yet launched, staff believes there is both a need and a demand for these types of projects in the San Joaquin Valley based on stakeholder input. Staff also believes that signaling ARB's interest in funding this project over multiple years is key to encouraging potential uptake. Staff is open to expanded funding for this type of project, but projecting future needs for a new pilot project is difficult, especially prior to engaging in a public process to develop project parameters and to determine the availability of appropriate technologies. Staff will closely monitor project implementation to inform and adjust funding needs for agricultural vanpools in future funding plans.

Financing Assistance

- ARB awarded $0.9 million in FY 2014-15 funds for a financing assistance pilot project that provides low cost financing opportunities to lower-income consumers in the Bay Area.

- For FY 2016-17, ARB staff proposes an increased allocation of $6 million for the Financing Assistance for Lower-Income Consumers pilot project. Staff recommends that $5 million be available for a statewide project and $1 million to support one or more local projects. If the State Treasurer's Office CPCFA is provided the statutory authority to offer financial assistance to consumers, ARB staff anticipates working with CPCFA to create a new statewide financing assistance pilot project. If this statutory authority is not provided, ARB staff would try to obtain a grantee through a competitive solicitation to administer a statewide financing project.

- Based on the strong demand from lower-income consumers for purchasing/leasing advanced technology vehicles through the EFMP Plus-up pilot project, staff estimates that the potential need for financing assistance could be substantial since not all lower-income consumers have access to low cost financing opportunities. In addition, the two air districts administering the EFMP Plus-up pilot project have noted to ARB staff that there are still a substantial number of lower-income consumers unable to participate because they have no or limited access to low cost financing. If these lower-income consumers are provided access to low cost financing opportunities, staff believes that the demand could increase substantially over the next few years.

- Staff acknowledges that developing a new statewide financing pilot project targeting lower-income consumers is a large task with many barriers to overcome. Stakeholders have maintained, and CVRP and EFMP Plus-up have demonstrated, that substantial financing assistance is needed for lower-income consumers throughout California. Although the estimated funding needs may seem ambitious and the pilot projects still need to be created and successfully administered, staff believes that there could be demand from lower-income consumers for funding of up to $25 million in year two, and potentially up to $50 million in year three.

- In addition, signaling long-term funding objectives should encourage interest from potential grantees to develop and administer new and innovative local and statewide financing pilot projects as well as increase financial institutions' interest in participating. If the pilot projects come to fruition, better information would become available in order to more accurately estimate funding needs for FY 2017-18 and beyond.

Market and Technology Assessment

This section provides an overview of ARB staff's market and technology assessment, a second element of the long-term plan required by SB 1275.

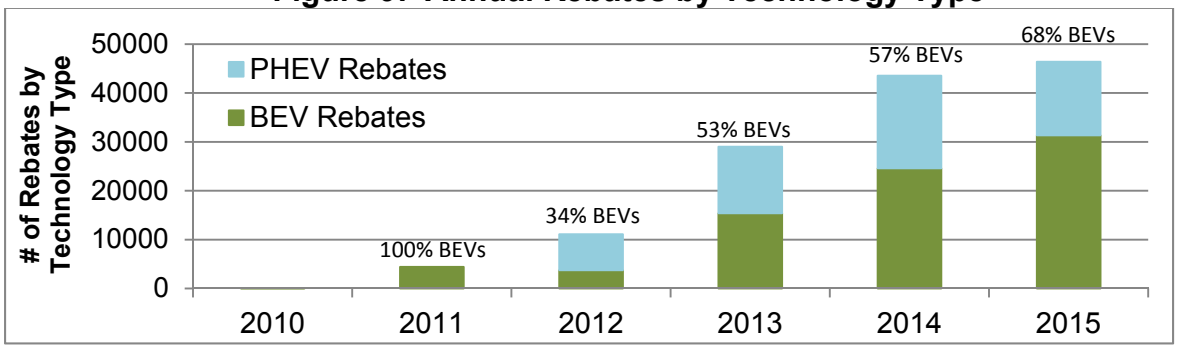
Market Assessment

To conduct the market assessment, staff evaluated different aspects of the PEV market to understand where the market is today. Staff evaluated vehicle deployment, rebates by technology type, model releases, and rebate demand compared to gas prices.

In developing the three-year funding forecast for CVRP, staff evaluated vehicle data from various sources, including CVRP data and DMV registration data, in order to assess where the clean vehicle market is today. Although approximately 1.3 million PEVs have now been sold worldwide and 2015 showed strong growth with over 158,000 PEVs registered in California alone, PEVs still represent less than 1 percent of the nationwide light-duty vehicle sales last year.[25,26] In California, the PHEV and BEV sales account for 3.1 percent of total new car sales in 2015.[27] This number was 2.5 percent and 3.2 percent in 2013 and 2014 respectively. Fuel cell electric vehicles are just being introduced into the California market; there were only 229 fuel cell vehicles registered in October 2015.[28]

Over the life of CVRP, the technology split between BEVs and PHEVs has grown in favor of BEVs, in part due to technology advancements and model availability. In addition, the split between BEVs and PHEVs is heavily influenced by awareness and understanding of these advanced technologies in general, as well as many other factors. Figure 9 shows the number of rebates for BEVs and PHEVs and the percent of BEVs over the last 5 years.

Figure 9: Annual Rebates by Technology Type



Fuel cell vehicles, zero-emission motorcycles, and neighborhood electric vehicles not shown.

New model releases and product availability are important factors in the growth of CVRP. Since 2010, CVRP has provided rebates for 39 different vehicle models: 25 BEVs; 10 PHEVs; and 4 fuel cell electric vehicles. Today, 35 of these models remain available. Table 20 shows the progression of the new model eligibility over the last 5 years. Note that the table does not incorporate the release of new model years of a particular model.

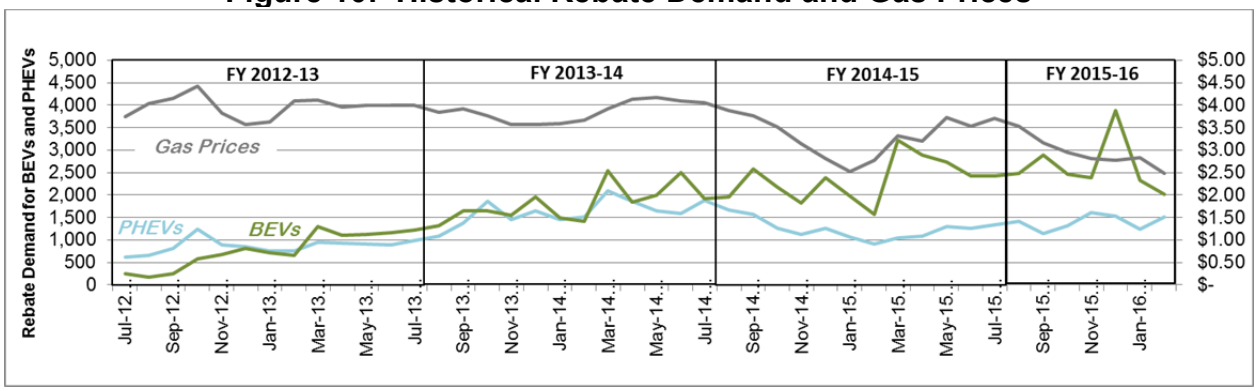
[25] http://about.bnef.com/press-releases/electric-vehicles-to-be-35-of-global-new-car-sales-by-2040/
[26] Vehicle Identification Number Analysis (VINA) Vehicle Registration (VR) Bi-Annual (OCT15) Extract.
[27] http://www.cncda.org/CMS/Pubs/Cal%20Covering%204Q%2015.pdf
[28] Vehicle Identification Number Analysis (VINA) Vehicle Registration (VR) Bi-Annual (OCT15) Extract.

Table 20: New Vehicle Models Released Since 2010

Year	Model Eligible	Year	Model Eligible
2010	Tesla Roadster	2013	Ford Fusion Energi
	Honda FCX Clarity		Honda Accord Plug-in
	smart fortwo		Tesla Model S 60
	Nissan LEAF		FIAT 500e
2011	Th!nk City		Chevrolet Spark EV
	Wheego LiFe		Cadillac ELR
	Mitsubishi i-MiEV	2014	BMW i3
2012	Toyota Prius Plug-in Hybrid		Hyundai Tucson Fuel Cell
	Chevrolet Volt		BMW i3 REx
	Ford Focus Electric		Mercedes-Benz B250e
	CODA		Kia Soul EV
	Tesla Model S 85		Volkswagen e-Golf
	BMW 1 Series Active E	2015	Tesla Model S 70
	Mercedes-Benz F-CELL		Mercedes-Benz S-Class 550e
	Honda Fit EV		Toyota Mirai
	Toyota RAV4 EV		Tesla Model S 90
	Ford C-MAX Energi		Tesla Model X
	BYD e6		Hyundai Sonata Plug-in Hybrid
Legend (by color) :			Audi A3 e-tron
BEV	PHEV	FCEV	Volvo XC90 T8
		2016	Bollore Bluecar

ARB staff also evaluated historical rebate demand in relationship to monthly average California gasoline prices to determine if any relationship between the two exists. The results of that analysis are included in Figure 10.

Figure 10: Historical Rebate Demand and Gas Prices



This component of the assessment is important because ZEV sales in 2015 didn't grow as rapidly as prior years, and many stakeholders suspect this is because gas prices in 2015 were considerably lower than in previous years. Although gas prices were lower, ZEV sales have continued to grow as shown in Figure 10. There may be a relationship, but there isn't enough data to support the finding that a direct relationship exists. Further, in 2015, PHEV sales were lower because manufacturers limited offerings of

older models in preparation of the release of newer models at the end of 2015. PHEV sales are already showing growth again in the first quarter of 2016.

As discussed previously in the three-year forecast of the funding needs section, staff continues to assess the clean vehicle market and continues to seek input on available data sources, assumptions, and other potential methods for enhancing future projections and evaluations. Further, staff inquired at the public work group meetings on this topic if additional analysis for the market assessment was necessary and whether or not the assessment conducted as part of the three-year funding forecast met the stakeholders expectations for what SB 1275 requires. Stakeholders indicated that this approach is sufficient given the early state of the market.

Stakeholders did suggest a variety of other studies that could be evaluated for future market assessments and projections. These include: technology advancements and costs; oil prices; vehicle transaction prices; production costs of batteries and fuel cells; purchase vs lease rates; the used vehicle market; and the second life of batteries. Stakeholders also noted that it is important to ensure data collected from various studies use comparable assumptions and align with ARB's evaluation and to acknowledge the interdependencies of all the factors.

Conclusions from Market Assessment

The market assessment shows positive signs of growth as demand for CVRP rebates has increased, number of eligible vehicles and participating manufacturers for rebates has grown, and overall ZEV sales rates are growing with CVRP-eligible vehicles now accounting for about 3 percent of annual passenger car sales. However, the ZEV market is still at its infancy and total ZEV deployment is far from the Governor's goal of 1.5 million ZEVs by 2025. As noted, staff will continue to examine clean vehicle market trends, review the latest published scientific studies, seek input from stakeholders, and update projections at least once a year.

Technology Assessment

ARB staff has relied upon its own and outside light-duty vehicle technology assessments to help inform assumed vehicle costs, the overall status of technology, and long-term trends. Typically, these assessments cover a wide range of topics, including emission reduction strategies, electrification trends, safety considerations, and costs. Findings indicate positive trends such as significant battery cost reductions, and extended battery electric range.

Since adopting Advanced Clean Cars in 2012, ARB has been participating in a joint-agency review (commonly referred to as "the midterm review") of the nationwide GHG fleet average standards with the United States Environmental Protection Agency (U.S. EPA) and National Highway Traffic and Safety Administration (NHTSA). Now in its fourth and final year, a joint-agency draft technical assessment report (TAR) is being

finalized, and will include a full review of light duty vehicle technologies, including component and vehicle costs as well as projected GHG compliance costs.

Due to the nature of the review, it is important that the technical analysis being conducted in the midterm review be released in line with the full fleet analysis which is expected to be released in June 2016 (after the planned release of the proposed FY 2016-17 Funding Plan). The vehicle costs and technology assumptions that will be released in the draft TAR are a result of years of study, analysis, stakeholder feedback, and review. It is important that those numbers are considered in any future ARB technical assessment of advanced vehicles.

In addition to the joint-agency review, ARB is conducting its own midterm review on the ZEV regulation and particulate matter standards. ARB will hold a technical symposium in September 2016 on advanced conventional and ZEV technologies to gather more input on its review. ARB will release a final report in the fall 2016, which will build upon information released in the TAR, further exploring improvements made since the 2012 rulemaking and the 2016 summer TAR release. Staff plans to present its findings to the Board in December 2016.

Because these more comprehensive studies will not be concluded in time to incorporate into this year's SB 1275-required technical assessment, staff has limited the scope of the technology assessment to conducting an evaluation of the state of zero- and near zero-emission technologies by examining the following studies:

- Most recent ARB regulatory vehicle incremental cost projections published in December 2011 for the January 2012 Board hearing on the Advanced Clean Cars regulation proposal.

- The 2013 National Academies of Sciences (NAS) study that directly compares vehicle cost projections of varying electric vehicle types.[29]

- More recent battery system cost reference review.

- More recent fuel cell system cost reference review.

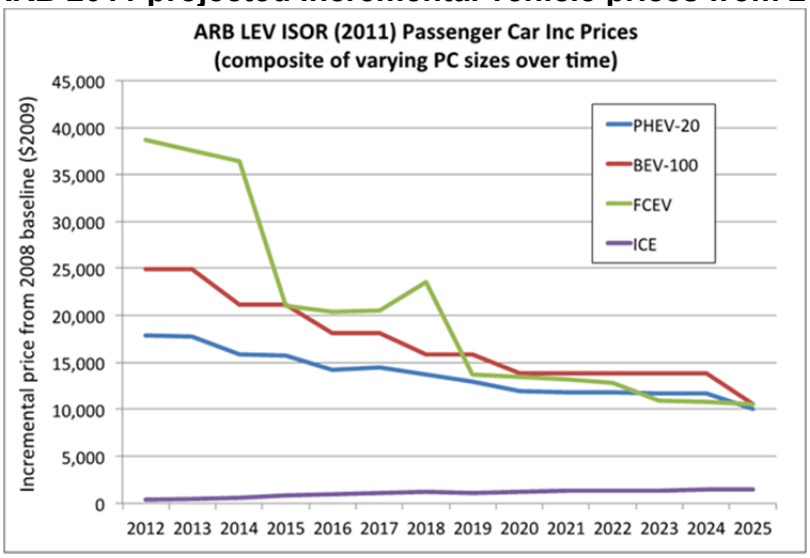
The following section summarizes each of these studies and presents the findings related to advanced technology vehicles cost projections through the year 2023. In developing the long-term plan, staff presented these findings at a public work group meeting with external stakeholders.

[29]National Academies "Transitions to Alternative Vehicles and Fuels 2013", Appendix F: The Vehicle Cost Summary (http://cart.nap.edu/cart/deliverxls.cgi?p=tavf&f=appF_vehiclecostsumm)

ARB 2011 Advanced Clean Cars Staff Report (ISOR)[30]

In the Advanced Clean Cars staff report supporting data released in December 2011, ARB projected incremental vehicle prices from 2012 to 2025 are shown in Figure 11. This analysis was based on the joint agency technology assessment from 2010 and 2011 (ARB, U.S. EPA, and NHTSA). The values shown represent the increased price for the given technology above a 2008 baseline internal combustion engine (ICE) vehicle. The ICE curve near the horizontal axis of the plot shows that the incremental cost of producing an ICE vehicle increases slowly from zero (from a 2008 baseline vehicle in 2009 dollars) to a few thousand dollars in 2025. The slow increase represents the increased costs required to comply with increasing federal vehicle emission standards. Thus, it will cost from $1,000 to $2,000 more (in 2009 dollars) to produce an ICE vehicle in 2025 that is compliant with vehicle emission standards, than in 2008. The figure also indicates (for example) that in order to produce a fuel cell electric vehicle in 2016, it will cost almost $20,000 more dollars (in 2009 dollars) than a similar 2008 ICE baseline vehicle. In 2023, all alternative drive trains will each cost between $11,000 and $14,000 more.

Figure 11: ARB 2011 projected incremental vehicle prices from 2012 to 2025*



*BEV-100 refers to a battery electric vehicle (BEV) capable of 100 miles of range on a single charge, while a PHEV-20 refers to a plug-in hybrid electric vehicle (PHEV) capable of 20 all electric miles before the ICE engages to extend the range of the vehicle.

NAS 2013 Model

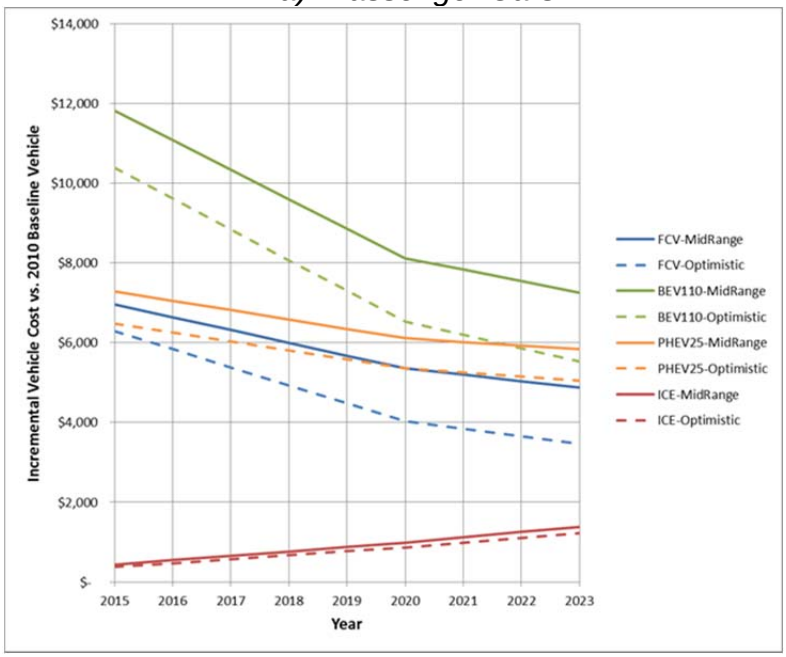
The National Academy of Sciences Vehicle Cost Summary model (2013) is from the "Transitions to Alternative Vehicles and Fuels 2013" report. This is a well-known and publically available model that features both a "mid-range" and "optimistic" technology

[30]Advanced Clean Cars - AB1085 Background Materials for Emissions Data, Economic Data and Public Health Impacts. "ACC Compliance Scenario Summary" (Refer to tab 2 in the spreadsheet, rows 30-42). http://www.arb.ca.gov/msprog/clean_cars/clean_cars_ab1085/clean_cars_ab1085.htm

market.[31] The incremental advanced technology vehicle costs for the years 2015 to 2023 are shown in Figure 12. The first figure (12a) is for vehicles in the federal vehicle type classifications of "passenger cars" and the second (12b) for "light trucks." These incremental costs are relative to a 2010 baseline ICE vehicle (in 2009 dollars). Interpretation of these figures is similar to the ARB figure above except that this time there is a 2010 baseline vehicle and BEV110 refers to a BEV with a 110 mile range, and PHEV25 refers to a PHEV with a 25 mile all electric range. For example, the passenger car projections indicate that in 2023, it will cost more than $7,000 (in 2009 dollars) to produce a BEV110 over a similar baseline 2010 ICE vehicle in the "mid-range" market scenario. Although the ARB 2011 cost projections are compared to a 2008 baseline vehicle and the NAS 2013 model is with respect to a 2010 baseline vehicle, evidence indicates that the newer cost projection is lower than the original for the entire date range.

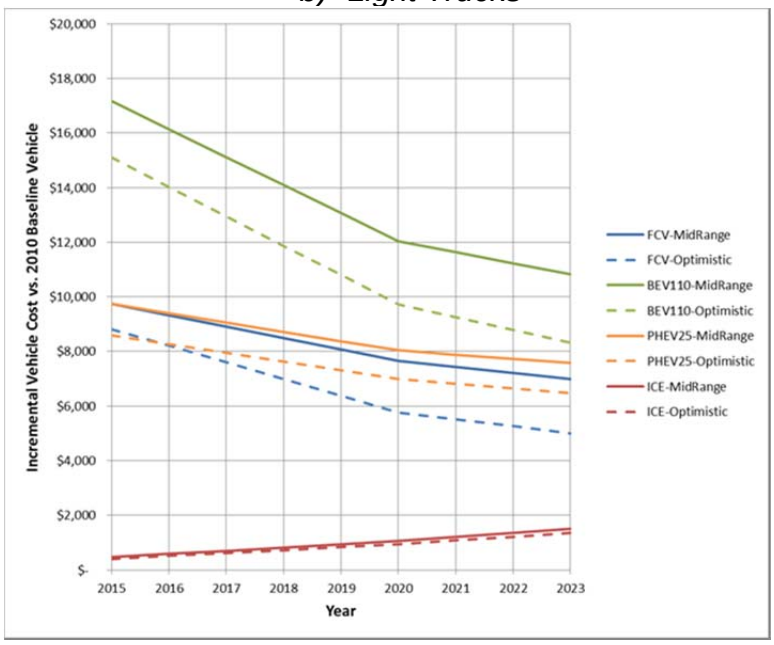
Figure 12: NAS 2013 Vehicle Incremental Cost Projections: EVs vs. Conventional ICE Vehicle**

a) Passenger Cars



[31] *"Midrange" goals for cost and performance are ambitious but plausible in the committee's opinion. Meeting this level will require successful research and development and no insurmountable barriers, such as reliance on critical materials that may not be available in sufficient quantities. The more optimistic goals are stretch goals: possible without fundamental technology breakthroughs, but requiring greater R&D and vehicle design success".* NRC 2013 Transitions to Alternative Vehicles and Fuels, National Academies Press, Washington DC.

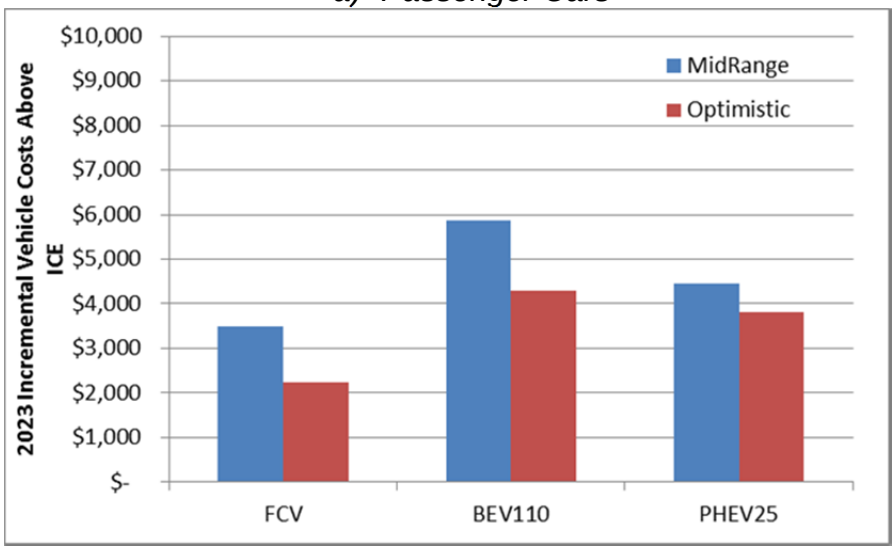
b) Light Trucks



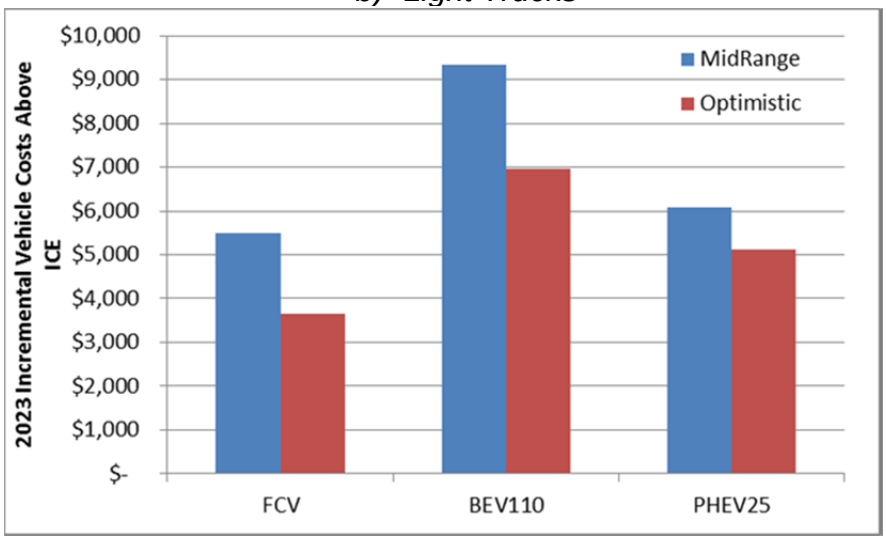
Of particular interest to the SB 1275 requirements, is the 2023 difference in the incremental cost for a given advanced vehicle technology and its ICE vehicle counterpart. Thus, the 2023 differences are shown for both passenger cars and light trucks in Figures 13a and 13b. The passenger car figure (13a) indicates that under a mid-range market assumption, a 2023 BEV with 110 mile range, will cost almost $6,000 more than a similar 2023 ICE vehicle.

Figure 13: NAS 2013 Incremental Vehicle Costs Above ICE in Model Year 2023**

a) Passenger Cars



b) Light Trucks



*** Vehicle cost projections reference a 2010 ICE baseline vehicle. Fuel cell costs are based on an assumed annual production rate of at least 200,000 per year from 2015-2023. BEV and PHEV costs are based on an undefined high volume production for all time periods.*

System Cost Parameters from NAS 2013 Model

The key cost input parameters for the NAS 2013 for battery pack fuel cell systems and hydrogen storage systems are shown in Figures 14 through 16. The costs are generally assumed to reduce over time as the technology improves and more vehicles produced per year allow for economies of scale. The values are shown for mid-range and optimal market assumptions for the years 2015 through 2025 (minimum to span 2023). The plots indicate a projected cost for PHEV battery packs in the mid-range market to be approximately $350 per kWh of the battery pack in the year 2025, fuel cell system costs will be approximately $33 per kW of the fuel cell stack, with a hydrogen storage system at a cost of approximately $2,500, in the year 2030.

Figure 14: NAS 2013 BEV110 and PHEV25 Battery Cost Inputs

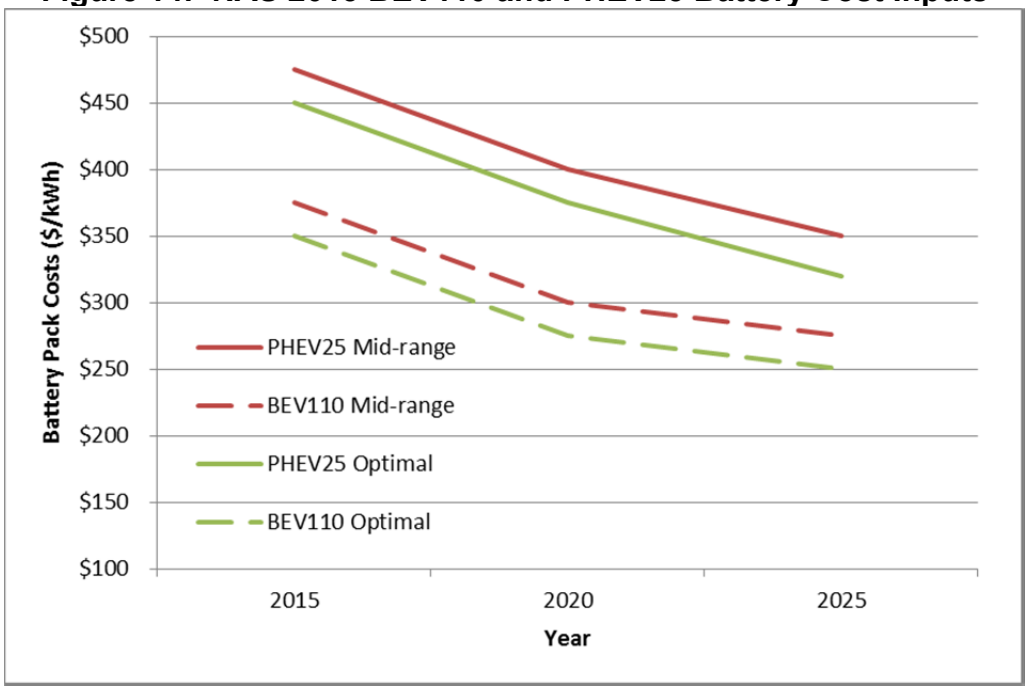


Figure 15: NAS 2013 Fuel Cell System Cost Inputs

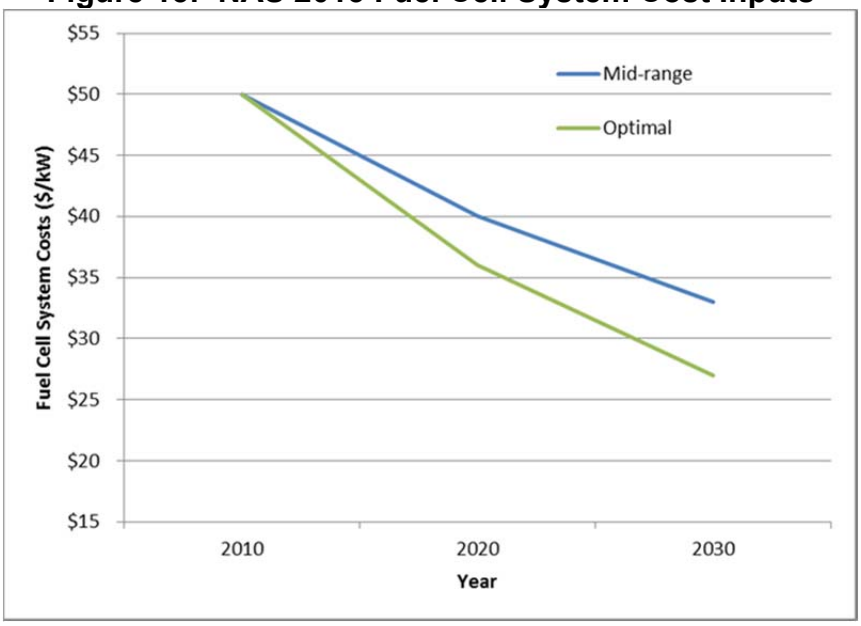
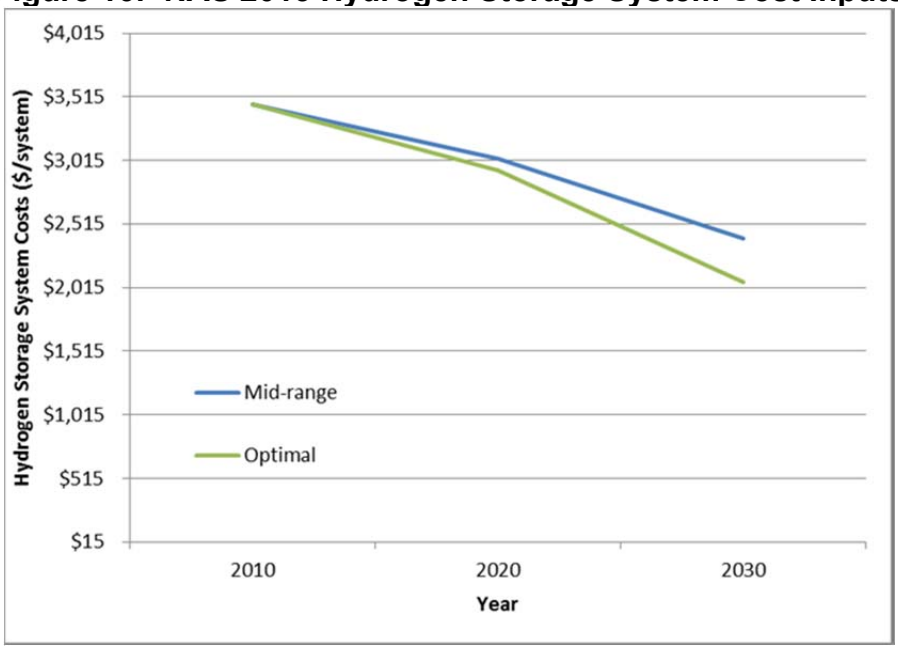


Figure 16: NAS 2013 Hydrogen Storage System Cost Inputs



Staff has reviewed several more current sources covering battery system costs, fuel cell system costs, and hydrogen storage system costs.

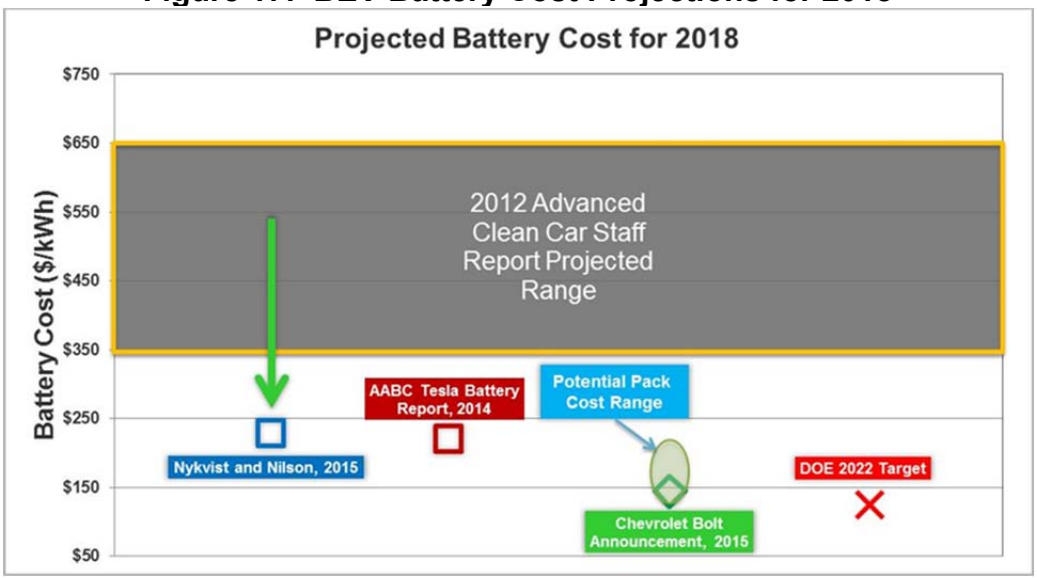
BEV and PHEV Battery System Costs

Review of the EPA NHTSA 2011 Joint Technical Support Document: Final Rulemaking for 2017 – 2025 Light-duty Vehicle GHG Emission Standards and CAFÉ Standards shows BEV battery costs that are lower than the NAS 2013 Model. However, PHEV battery costs are approximately the same as those used in the NAS 2013 Model.

The BEV battery cost projections for 2018 from newer cost analyses and announcements (as presented to the ARB Board in October 2015) are shown in Figure 17.[32] The grey band along the top of the figure represents the range of battery costs in dollars per kWh of the battery pack assumed for 2018 from the ARB 2012 Advanced Clean Car Staff Report. The four points below the grey band each represent individual data points from individual sources that represent newer or updated information. The plot indicates that projections in 2012 regarding 2018 are already too high for 2014 and 2015. The last of the four points is a target set by the DOE for 2022.

[32]The grey band across the top represents the range of battery costs assumed for 2018 from the ARB 2012 Advanced Clean Car Staff Report. The four points below that are from: Nykvist and Nilson, Rapidly falling costs of battery packs for electric vehicles, March 23, 2015, http://www.nature.com/nclimate/journal/v5/n4/full/nclimate2564.html; Anderman, The Tesla Battery Report, November 12, 2014, https://www.advancedautobat.com/industry-reports/2014-Tesla-report/Extract-from-the-Tesla-battery-report.pdf; Chevrolet Bolt Announcement, October 2, 2015, http://www.hybridcars.com/gm-ev-battery-cells-down-to-145kwh-and-still-falling/; and the U.S. DOE 2022 Target, January 31, 2013, http://energy.gov/sites/prod/files/2014/02/f8/eveverywhere_blueprint.pdf respectively.

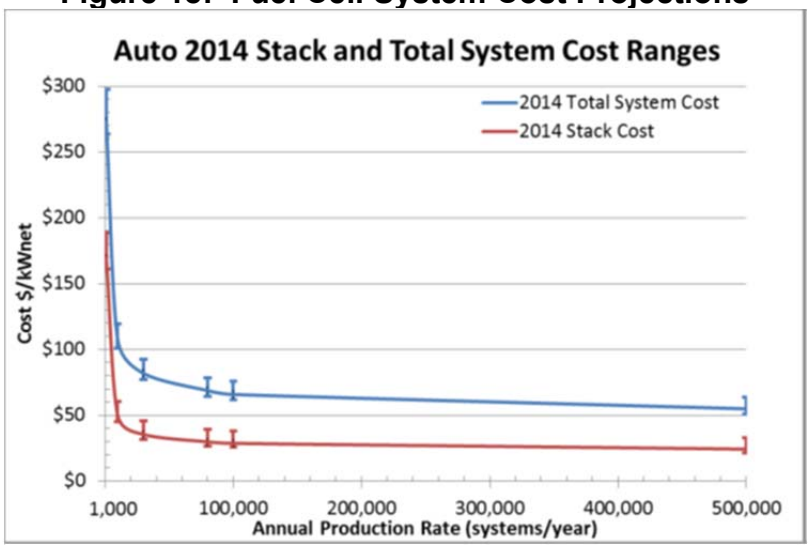
Figure 17: BEV Battery Cost Projections for 2018



Fuel Cell System and Hydrogen Storage System Costs

The fuel cell system cost projections in dollars per kW of the fuel cell system as a function of annual production rates are shown in Figure 18.[33] The plot indicates that when only 1,000 units are produced per year, the cost of the total system is approximately $300 per kW of the fuel cell system. But, when 500,000 units are produced per year, the cost is approximately $50/kW.

Figure 18: Fuel Cell System Cost Projections

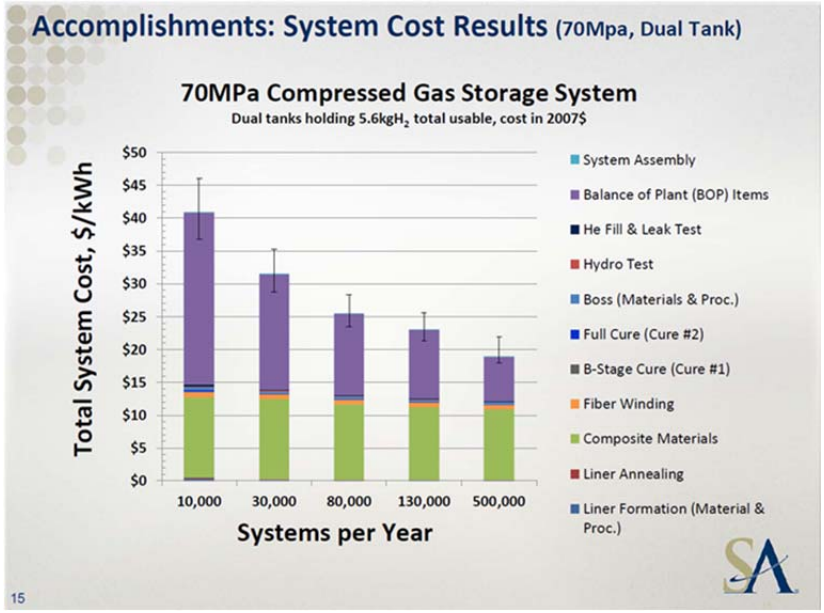


[33] James, Brian. "Fuel cell vehicle and bus cost analysis." Annual Merit Review and Peer Evaluation Meeting. U.S. Department of Energy. Arlington, VA. 10 June 2015. Presentation.

Hydrogen Storage System Costs

The hydrogen storage system cost projections as a function of annual production rates for a two tank (187kWh) system holding 5.6 kg of hydrogen are shown in Figure 19.[34] The plot indicates that for 70MPa (about 10,000 psi of pressure), when 10,000 units are produced per year, a two-tank hydrogen storage system will cost approximately $40 per kWh of storage. The colored legend on the right indicates what specific component of the storage system is assigned which color on the plot. It appears that most of the costs are due to the materials needed for the construction of the tanks, and for the balance of plant (BOP), which includes valves, safety releases, regulators, etc.

Figure 19: Hydrogen Storage System Cost Projections



Conclusions from Technology Assessment

ARB staff recognizes that this assessment does not directly inform the appropriate funding level, incentive type, or incentive amount. However, this assessment helps to show how vehicle technology costs are declining, in most cases, quicker than originally expected. These are all positive signs for the development of the ZEV market. This assessment, combined with the market assessment, three-year funding forecast, and market sustainability assessment, aim to provide a framework for incentives policies going forward. The efforts underway with the TAR and midterm review will further illustrate and verify the course of technology advancement, serving as important tools in future updates and evaluations.

[34] ibid

A Sustainable ZEV Market

To address the requirements of SB 1275 related to the self-sustaining market assessment, ARB staff took the following approach:

1. Considered definitions of "self-sustaining ZEV market" and identified various indicators to determine how and when a self-sustaining market may be achieved.

2. Evaluated possible modifications to the current incentive structure and how to ramp it down over time.

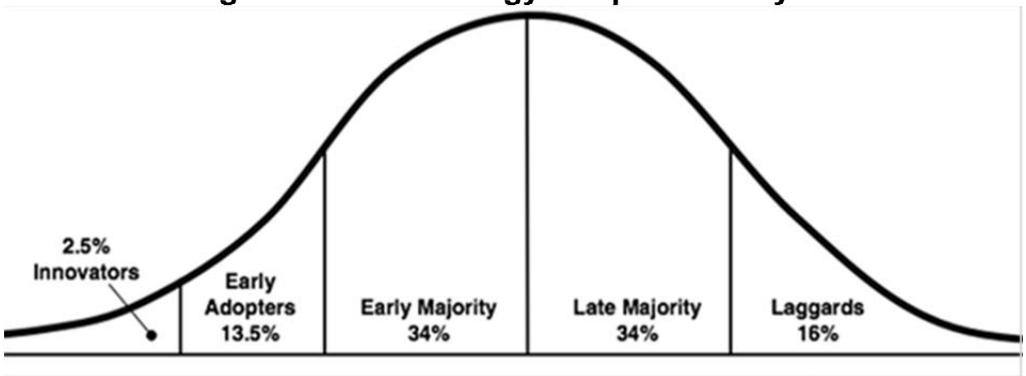
3. Evaluated other incentive structures to determine the most effective incentive approaches for promoting the ZEV market.

Defining a Self-Sustaining ZEV Market

Studying the evolution of the current ZEV market, including the interaction of policy, technology, energy systems, and consumer culture, is essential to understanding the overarching dynamics of the ZEV market. Staff reviewed a broad range of literature to help define a self-sustaining ZEV market. The Diffusion of Innovation Theory, developed by Everett Rogers, is one of the oldest social theories related to ideas and technology adoption.[35] Staff believes this behavioral change model serves as an appropriate framework to lay the foundation for this discussion.

The theory essentially seeks to explain how, why, and at what rate new ideas and technology spread. In other words, consumers adopt new technologies at varying rates. Their relative speed of adoption follows a bell curve, with the primary difference being individuals' psychological disposition to new ideas. Based on this definition, consumers are categorized into five different classifications on the basis of adopting innovations. As shown in Figure 20, the five categories include innovators, early adopters, early majority, late majority, and laggards. These five broad categories of adopters each have a specific set of characteristics in relation to embracing innovative products.

Figure 20: Technology Adoption Lifecycle

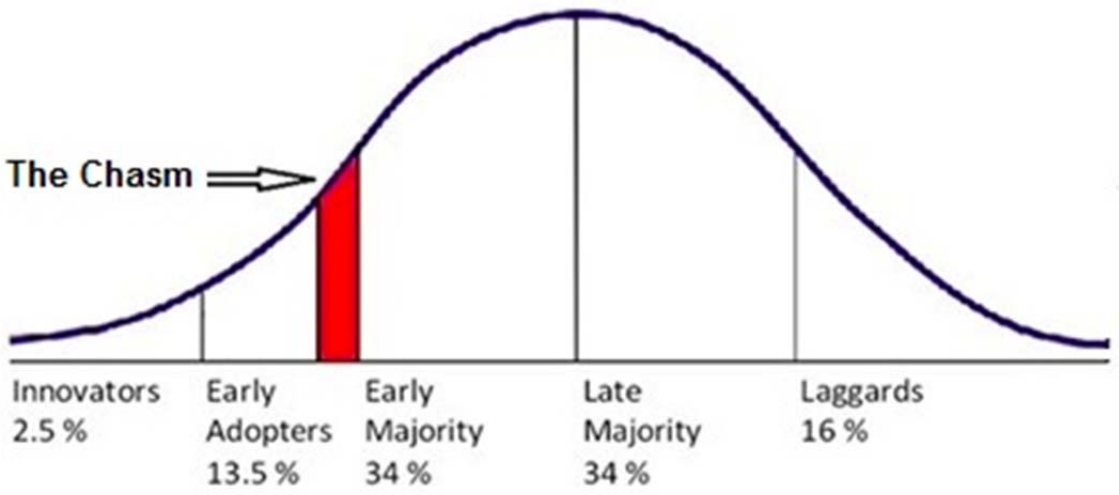


[35]Rogers, E.M., (2003) "Diffusion of Innovations".5th ed.

Innovators are the first 2.5 percent of a group to adopt a new idea. The next 13.5 are early adopters followed by 34 percent early majority, 34 percent late majority, and laggards as the last 16 percent of the group of consumers in a market.

In 1991, Geoffrey A. Moore expanded the theory with the focus on high tech products and argued that there is a chasm between the early adopters of a high tech product (the technology enthusiasts) and the early majority (as shown in Figure 21).[36] He found that during the diffusion process, the focus should be on one group at a time, using each group as a base of transition to the next. He argues that the most difficult step is making the transition from early adopters to early majority, mostly because of their very different expectations, which creates a chasm between the two groups. Crossing this chasm is necessary to ensure successful diffusion of the technology into the next adopter categories.

Figure 21: Transitioning Early Adopters to Early Majority[37]



Staff believes these theories help to provide a foundation for understanding technology adoption and may serve as a guide when using certain indicators to evaluate the market. These theories are well established among academia and empirically validated across many product categories. They can help in understanding consumer purchase decisions and market development processes for PEVs. For example, if the adopter categories outlined here were compared against current new car sales, California's market, at 3.1 percent of new car sales, is just starting to enter the early adopter phase.

[36]Moore, G.A., (1991) "Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers"
[37]Adapted from Moore, G.A., (1991) "Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers"

Staff presented the concept of using this theory to help define a self-sustaining ZEV market at a public work group in February 2016. The majority of the stakeholders argued that it is too early to provide an accurate definition or forecast on market sustainability as the ZEV market is still in its infancy and there is a lack of relevant data. Staff presented a list of indicators that could be evaluated to show where ZEV market and technology is on the path to broad consumer adoption and received mixed feedback about how these indicators may be helpful. Below is the list of indicators and feedback associated with each approach:

- Evaluation of annual new ZEV sales in the comparable California new car market.
    - Stakeholders noted that because a regulatory requirement for ZEVs exists, using annual sales or some other "market percentage" approach to evaluating market sustainability would be distorted. However, this approach presents the most available and reliable data compared to other indicators.
- Consideration of technology advancement (such as improved battery range).
    - This approach provides useful insight regarding the advancement and improvements in technology over time but doesn't necessarily provide a signal or guide related to sustainability. Additionally, since range options among BEVs are limited, there are not any significant data sources available to analyze from this approach.
- Evaluation of battery/fuel cost or vehicle price.
    - Vehicle manufacturers argue that the market for ZEVs is sustainable only when the vehicle can be sold for the amount of money it takes to produce and market that vehicle. ARB staff agrees that this is a clear approach for evaluating sustainability on a per-vehicle basis, but notes that there are no current (2014 or more recent) available or reliable data on full vehicle manufacturing costs and transaction prices to analyze. As noted in the Technology Assessment section, technology costs (associated with batteries, fuels, fuel systems, etc.) are being evaluated closely in the 2016 TAR and mid-term review. The results of those analyses may help provide some insight on how this type of indicator can be evaluated better over time.
- Consideration of vehicle choice diversity and/or number of manufacturers that produce ZEVs.
    - Similar to technology advancement above, this approach is useful for showing how the technology is spreading over time but is more difficult for use in measuring market penetration. From a consumer behavior standpoint, the more vehicle choice diversity exists, the more options consumers have for making a ZEV purchase decision, and the more likely consumers will adopt

the technology broadly. An ARB-sponsored research project, to be finalized in mid-2016, is examining the impact of the number of PEV models on the market.

- Analyzing the used ZEV market.

  - The used (or secondary) ZEV car market is an important element of the overall market, as some consumers may opt to test the newer technologies through used vehicle purchases instead of buying new. Staff agrees that understanding the used ZEV market is important, but as this market is especially new, available and reliable data is limited. Staff is continuing to seek reliable sources of data to better understand the secondary market. An ARB-sponsored research project focused on the secondary PEV market, expected to be finalized by mid-2017, will shed light in this area.

- Evaluating consumer awareness about ZEVs.

  - Education and awareness is a critical component to the broad adoption of ZEVs. Consumers are generally unaware of ZEV technologies, including their availability, benefits, and available incentives, but as their knowledge increases so does their interest. A 2011 survey of adults with current driver's licenses in the 21 largest American cities asserts that two thirds of respondents provided incorrect answers to basic factual questions about PEVs.[38] They also found 94 percent of the respondents were unaware of these local and state PEV incentives, although 82 percent of them claimed purchase incentives would make them more likely to consider buying a PEV.

    ARB-sponsored research determined that financial incentives alone do not overcome the barriers of the people who do not already have a favorable valuation of ZEVs. Simply making the vehicles less expensive doesn't address the lack of knowledge and litanies of concerns and barriers, perceptual and real, to ZEV acquisition and use.[39] Furthermore, studies show that when consumers are more familiar with PEVs, they express stronger interest in acquiring a PEV, while those that are unaware or have misconceptions about them are less likely to be interested in acquiring PEVs.[40,41]

- Infrastructure development.

  - Based on existing literature, the availability of charging infrastructure is an important predictor of PEV adoption. The Energy Commission has made

[38]Krause, R. M., et al. (2013). "Perception and reality: Public knowledge of plug-in electric vehicles in 21 U.S. cities." Energy Policy 63(0): 433-440.
[39]Kurani, K. S., et al. (2015). New Car Buyers' Valuation Toward Zero-Emission Vehicles: California.
[40]Krause, R. M., et al. (2013). ibid
[41]Kurani, K. S., et al. (2015). ibid

significant investments to support PEV infrastructure as noted earlier in the Funding Plan. Infrastructure development, or lack thereof, is one of the primary barriers to PEV market penetration[42] and some research suggests that construction of one charging station for every 100,000 residents could have twice the impact on a country's PEV adoption than financial incentives of $1,000 to consumers.[43] Moreover, coordinating the Energy Commission's investments in charging infrastructure and ARB's investments in light-duty vehicle deployment may increase the PEV market share and ultimately support a sustainable PEV market.

Additionally, stakeholders suggested the following indicators for ARB staff consideration:

- Cost of avoided health impacts for each ZEV brought into the market.
    - Stakeholders asked ARB staff to look more broadly at avoided health impacts and the costs associated with them and correlate those costs with the costs of ZEV adoption. Essentially, some stakeholders argued that ZEV market sustainability depends upon the elimination of related pollution and the existence of zero healthcare costs associated with that pollution. American Lung Association in its second report on Public Health and Societal Benefits of a Zero Emission Vehicle Fleet in California provides useful findings on annual and daily avoided health damages and costs as a result of a 100 percent ZEV fleet in California.[44] ARB staff agrees that this analysis is important and fits best within the larger planning efforts that take place, including the development of the SIP, AB 32 Scoping Plan, and other guiding efforts.
- Understanding consumer's willingness to pay for ZEV technology.
    - In addition to increased consumer awareness, improvements in consumer willingness to pay for ZEV can be used as another measure toward sustainable ZEV market.

Considering the dynamic nature of the early ZEV market with various driving forces and multiple perspectives, staff believes that multiple indicators may be helpful for both defining a self-sustaining ZEV market and tracking progress toward achieving sustainability. Other indicators or topics staff is continuing to explore include infrastructure and the value of other non-monetary incentives. Given the availability of

[42]National Research Council of the National Academies (2015), "Overcoming Barriers to Deployment of Plug-In Electric Vehicles"
[43]Sierzchula, W., et al. (2014). "The influence of financial incentives and other socio-economic factors on electric vehicle adoption." Energy Policy 68(0): 183-194.
[44]American Lung Association. (2012) THE ROAD TO CLEAN AIR II – A Zero Emission Future, Public Health and Societal Benefits of a Zero Emission Vehicle Fleet in California. http://www.lung.org/assets/documents/research/estimated-prevalence.pdf

data, staff recommends using the available research on technology adoption to help guide the discussion for this first year.

Staff recommends using Moore's theory, built upon Rogers' Diffusion of Innovation Theory, as a starting point for defining a self-sustaining ZEV market. As noted above, once a technology transitions from early adopters to early majority of consumers, the technology is most likely to be successful in diffusing across the remaining adopter categories. Staff recommends applying this theory to the new car market - specifically, sales of light-duty passenger vehicles by comparing annual new ZEV sales to California comparable light-duty new car sales.

The theory suggests that 16 percent of a population represents when the market has penetrated the most difficult group of adopters for ensuring success of a technology. Staff believes that if this is applied to the comparison between ZEVs and comparable new car sales in California that it would represent about 200,000 vehicles in a given year, in today's vehicle market. This assumes a California vehicle market of about 2 million new vehicle sales per year, with 60 percent of those vehicles being light-duty automobiles. Given that sales of ZEVs and PHEVs combined only reached around 60,000 in 2015, staff believes it will take at least another 5 to 10 years before this level of adoption is achieved.

This provides a starting point for assessing when the ZEV market will be sustainable. Staff will re-assess this evaluation and adjust accordingly in future long-term plans as the market grows over time and new data become available.

Ramping Down Incentives Over Time

As noted above, staff believes that broad purchase incentives remain important for at least the next 5 to 10 years, until the ZEV market makes up 16 percent of California new light-duty passenger vehicle sales. The last few percent of those adopters are the most critical, making incentives critical in overcoming that chasm of technology adoption. Focused financial incentives, or other types of incentives may still be necessary beyond that point.

Hence, staff recommends continuing the current incentive structure for the next several years, with modifications for effectiveness as necessary. However, the funding needed to support such a commitment may exceed funding available. Staff is considering the following approaches for ramping down the current incentive program, CVRP, under both of the following situations: once the market approaches the sustainability threshold and to address possible budgetary constraints.

- Adjust income eligibility requirements.
    - Staff recommends adjusting income eligibility requirements over time such that the project transitions to focusing investments on economically challenged populations, consistent with the Conceptual Evolution of the Role

of Incentives, as presented in the FY 2015-16 Funding Plan.[45] Staff will monitor income distribution within the project and consider adjustments over time as appropriate to ensure continued effectiveness of the project. However, this modification may also be used as a lever to make short-term changes to the project in response to budgetary constraints. Staff believes this type of adjustment is consistent with the intent of SB 1275.

- Lower the incentive amount over time.
    - Staff recommends to ramp down incentive levels slowly as more is learned about technology costs. Changes in incentive amounts should be linked to the reduction of technology cost premiums. However, because of the difficulty in obtaining the most appropriate data for this type of analysis, this approach would also be appropriate to implement as the ZEV market reaches the sustainability threshold. For example, the incentive could be reduced by $500 once 5 percent, 10 percent, and 15 percent of market share is achieved, thus slowly ramping down the incentive for PHEVs and ZEVs such that the cleanest vehicles continue to receive an incentive of about $1000 as the market approaches the early adopter market.
    - Reducing rebates may be necessary in the future to address budgetary constraints. Staff cautions however, that significant reductions too quickly could have a negative effect on the market. Several studies indicate that the timing of incentives relative to market maturity is important in nurturing an emerging market for advanced technology clean vehicles.[46] A modeling study of adoption of PEVs in San Francisco suggests that it is too early to remove the state rebate because adoption rates would be cut significantly.[47] In another study, Greene concluded that the timing of incentives is important in determining the overall benefits of clean vehicle incentive policies.[48] Georgia ended its $5,000 income tax credit for PEVs on July 1, 2015, and market data show sales have plummeted suggesting the removal of the incentive occurred before the market was mature enough to be self-sustaining.[49]
- Implement a manufacturer's suggested retail price (MSRP) cap.
    - Similar to adjusting the project based on income eligibility, this approach is aimed at targeting ZEV sales toward more mainstream vehicle purchases. Staff recommends that this approach only be considered in future years to

[45]Proposed Fiscal Year 2015-16 Funding Plan for Low Carbon Transportation Investments and the Air Quality Improvement Program (2015). Air Resources Board.
[46]Eppstein, M. J., et al. (2011). "An agent-based model to study market penetration of plug-in hybrid electric vehicles." Energy Policy 39(6): 3789-3802.
[47]Adepetu, A., et al. (2016). "An agent-based electric vehicle ecosystem model: San Francisco case study." Transport Policy 46: 109-122.
[48]Green, E. H., et al. (2014). "Increasing electric vehicle policy efficiency and effectiveness by reducing mainstream market bias." Energy Policy 65: 562-566
[49]Adepetu, A., et al. (2016). ibid

address budgetary constraints, as the above approaches listed are more appropriate for addressing technology costs and market advancement.

- Phase out rebates for lower electric range.
    - This approach is aimed at maintaining incentives for only the cleanest vehicles in the long-term. Because fuel cell electric vehicle, BEV, and PHEV technologies are all critical to meeting long-term air quality and climate change goals, staff would only consider this approach in future years if necessary to meet budgetary constraints.

Alternative Incentive Structures

Staff conducted a literature review to better understand the suite of incentive options and their effectiveness in promoting the adoption of clean vehicles and meeting environmental goals. Preliminary research findings indicate that making PEVs more affordable through purchase incentives has the greatest impact on PEV adoption compared to other strategies studied.[50]

Research suggests that the most effective incentives are purchase subsidies, HOV access and emission testing exemptions, and that their effect is stronger on BEV market share compared with the PHEV market.[51] However, other state-specific factors, such as market maturity, charging infrastructure and consumer knowledge, appear to also play a significant role in the success of the PEV market in those states.[52]

Fully understanding the effects of each individual incentive is a challenge because several states offer different combinations of incentives that likely have a compounding effect. For example, California offers both HOV access and the $2,500 CVRP rebate to BEV purchasers and has a much larger BEV market share than Colorado which offers only an income tax credit for BEV purchasers capped at $6,000.[53] In contrast, Washington State has roughly the same BEV market share as California despite a BEV state subsidy in the form of a sales tax exemption which is about $500 smaller than California's CVRP rebates and no special HOV access.[54]

Although staff recommends maintaining the current incentive structure for the next several years, it also evaluated several alternative incentive options as possible alternatives to CVRP in the future to provide the Board and stakeholders information to consider in evaluating ARB's light-duty vehicle incentive strategy moving forward.

[50]Adepetu, A., et al. (2016). ibid.
[51]Jin, L., et al. (2014). Evaluation of state-level U.S. electric vehicle incentives, The International Council on Clean Transportation" White Paper.
[52]Adepetu, A., et al. (2016). ibid.
[53]Jin, L., et al. (2014). ibid.
[54]Jin, L., et al. (2014). Ibid.

- Purchase Rebates and Tax Incentives

  - Research suggests that policies offering upfront payments, such as point-of-sale sales tax waivers, appear to be more effective than deferred payments, such as rebates and tax credits.[55,56,57] Some studies suggest that purchase tax credits are the least effective policy at reducing GHG emissions from the transportation sector because they require excessive government expenditures to make a significant difference.[58] Furthermore, Green, Skerlos et al. (2014) assert that incentives in the form of income tax credits are not cost-effective because they mostly subsidize vehicle purchases that would have happened anyways since most consumers do not have a tax liability high enough to use the tax credit.[59]

  - To date, the majority of research in this area has focused on hybrid electric vehicles (HEV). Several studies analyzed PEV incentives both in the U.S. and in other countries and found that each incentive offered has had a different effect within each different market. Because the ZEV market in general is still in its infancy, each individual market reacts to incentives differently, thus making it difficult to draw clear conclusions about the best form of incentive for California.

  - Some research indicates that tax credits are considered more desirable because they directly offset a taxpayer's liability in the exact amount of the credit, whereas tax deductions reduce the amount of reported income that is subject to taxation rather than directly offsetting taxes owed. However, tax credits are available only to those who file a tax return, and tax deductions are available only to those who file an itemized tax return. Studies show that less than 50 percent of federal tax returns claim itemized deductions.[60]

- Sales Tax Exemption

  - Sales tax exemption benefits are realized immediately at the point-of-sale. This type of incentive would not lend itself to constraints on participation such as income limitations or ownership requirements. In addition, the incentive would essentially be available to anyone, including those who would have

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[55]Diamond, D. (2009). "The impact of government incentives for hybrid-electric vehicles: Evidence from US states." Energy Policy 37(3): 972-983.
[56]Beresteanu, A. and S. Li (2011). "Gasoline prices, government support, and the demand for hybrid vehicles in the United States." International Economic Review 52(1): 161-182.
[57]Gallagher, K. S. and E. Muehlegger (2011). "Giving green to get green? Incentives and consumer adoption of hybrid vehicle technology." Journal of Environmental Economics and Management 61(1): 1-15.
[58]Morrow, R. W., et al. (2010). "Analysis of policies to reduce oil consumption and greenhouse-gas emissions from the US transportation sector." Energy Policy 38(3): 1305-1320.
[59]Green, E. H., et al. (2014). ibid.
[60]Prante, G. 2007. "Most Americans Don't Itemize on Their Tax Returns." Tax Foundation, July. http://taxfoundation.org/article/most-americans-dont-itemize-their-tax-returns .

purchased advanced clean vehicles anyway. This approach has impacts on local sales tax and cannot be applied toward leased vehicles in the same way it is applied to purchased vehicles. This approach would require legislative action.

- Feebates
  - There is much research evaluating feebates as an incentive approach. Feebates refer to collecting an upfront fee applied to the purchase or registration of vehicles that a government is trying to disincentivize (such as those with lowest gas mileage or the highest emitters) and using the revenues generated by that fee to incentivize the purchase of cleaner vehicles. Several European countries have instituted various feebate programs. Brand, Anable et al. (2013) found that car purchase feebates were the most effective policy instrument (relative to excise taxes and scrappage schemes) at achieving GHG emissions reductions quickly in the U.K. and, if carefully implemented, can result in relatively little burden to the consumer.[61] In contrast, Higgins, Paevere et al. (2012) modeled various feebates in Australia and determined that they would have virtually no impact on the fraction of BEVs, PHEVs and ICE vehicles sold by 2030.[62] Using the Swiss fleet, de Haan, Mueller et al. (2009) studied different revenue-neutral feebate schemes which included both a cash incentives for very fuel efficient vehicles and additional fees for the most fuel inefficient vehicles.[63] They concluded that these feebate systems nudged consumers to pay for the more efficient version of the vehicle they wanted anyway, rather than an entirely different vehicle.
  - It appears feebate programs may be effective in some cases, but it is unclear how such an approach would work in California. Bunch et al. (2011) finds that while feebate policies in California may achieve additional GHG reductions than otherwise expected from emission standards alone, factors beyond the State's control would really determine the effectiveness of such a policy.[64] This approach would require legislative action.

[61]Brand, C., et al. (2013). "Accelerating the transformation to a low carbon passenger transport system: The role of car purchase taxes, feebates, road taxes and scrappage incentives in the UK." Transportation Research Part A: Policy and Practice 49(0): 132-148.
[62]Higgins, A., et al. (2012). "Combining choice modelling and multi-criteria analysis for technology diffusion: an application to the uptake of electric vehicles." Technological Forecasting and Social Change 79: 1399-1412.
[63]de Haan, P., et al. (2009). "How much do incentives affect car purchase? Agent-based microsimulation of consumer choice of new cars—Part II: Forecasting effects of feebates based on energy-efficiency." Energy Policy 37(3): 1083-1094.
[64]Bunch, D. S., et al. (2011). "Potential Design, Implementation, and Benefits of a Feebate Program for New Passenger Vehicles in California"

- Emissions-Based Incentives
    - Emissions-based taxes may encompass both taxes on the vehicle, such as registration fees, and taxes on the fuel, such as gasoline taxes. Eppstein, Grover et al. (2011) simulated consumer uptake of PHEVs and concluded that gas prices and the ability of consumers to accurately account for lifetime fuel costs for PHEVs vs. ICEs or HEVs play an important role in determining PHEV uptake. They recommend setting a price floor or otherwise taxing gasoline in order to foster continued growth of PHEV market share.[65] Morrow, Gallagher et al. (2010) concluded that increasing the cost of driving through gasoline taxes resulted in the largest GHG reductions compared to tax credits for new vehicles and increasing fuel economy.[66] Brand, Anable et al. (2013) concluded that vehicle excise taxes can be effective at reducing GHG emissions, but acknowledged that they are more likely (relative to feebates and scrappage schemes) to face opposition from the driving public and lobbying groups.[67] Ozaki and Sevastyanova (2011) examined the motivations for British consumers of HEVs (Toyota Prius) and found that, among many factors that influence their decision, London's congestion charge may be a significant influence.[68] To varying degrees, many researchers all found that gasoline prices and their volatility are important motivators for the adoption of cleaner vehicles.[69,70,71,72]

- Targeting Niche Markets
    - Some argue that incentives would be more cost-effective if targeted specifically to niche markets, such as car sharing and fleets in addition to early adopters instead of mainstream consumers.[73] A co-benefit of PEV car sharing programs is that they allow a larger number of drivers to experience an electric vehicle, making drivers more comfortable with and interested in PEVs as well as re-evaluate their preferences of different vehicle

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[65]Eppstein, M. J., et al. (2011ibid.
[66]Morrow, R. W., et al. (2010). "Analysis of policies to reduce oil consumption and greenhouse-gas emissions from the US transportation sector." Energy Policy 38(3): 1305-1320.
[67]Brand, C., et al. (2013). "Accelerating the transformation to a low carbon passenger transport system: The role of car purchase taxes, feebates, road taxes and scrappage incentives in the UK." Transportation Research Part A: Policy and Practice 49(0): 132-148.
[68]Ozaki, R. and K. Sevastyanova (2011). "Going hybrid: An analysis of consumer purchase motivations." Energy Policy 39(5): 2217-2227.
[69]Diamond, D. (2009). "The impact of government incentives for hybrid-electric vehicles: Evidence from US states." Energy Policy 37(3): 972-983.
[70]Beresteanu, A. and S. Li (2011). "Gasoline prices, government support, and the demand for hybrid vehicles in the United States." International Economic Review 52(1): 161-182.
[71]Gallagher, K. S. and E. Muehlegger (2011). "Giving green to get green? Incentives and consumer adoption of hybrid vehicle technology." Journal of Environmental Economics and Management 61(1): 1-15.
[72]Hidrue, M. K., et al. (2011). "Willingness to pay for electric vehicles and their attributes." Resource and Energy Economics 33(3): 686-705.
[73]Green, E. H., et al. (2014). ibid.

attributes.[74,75] Fleets tend to be early adopters because they have high vehicle purchase rates. A survey of fleet managers in the U.S. and the Netherlands determined that their main motivation for their initial PEV adoption was testing new technologies.[76] However, for financial reasons, half of the fleets decided not to expand their PEV fleets beyond their initial test purchase even with government subsidies. In contrast, a modeling study based on the current travel patterns of their gasoline vehicles determined that it is profitable for a San Francisco taxi company to transition their fleet to PEVs in San Francisco.[77] The researchers suggest this may be true for other taxi companies in other cities with similar mobility practices because of the higher cost of electricity in San Francisco compared to the rest of the U.S. Green, Skerlos et al. (2014) proposed replacing the U.S. Postal fleet with PEVs, as the majority of the delivery routes are less than 24 miles and their current fleet is nearing the end of their useful life.[78]

  - Staff agrees that targeting incentives specifically to niche markets such as car sharing, public fleets, and providing financing tools to early adopters is an important component for successful ZEV adoption. ARB has already begun investments in these areas and recommends ramping them up over time as outlined in the three-year funding forecast.

- Choose Your Incentive

  - Stakeholders agree that different incentives motivate consumers differently in various regions. Therefore limiting consumers with only one state incentive, for instance to choose between financial rebate or HOV sticker, may take the pressure off the growing market by splitting the burden between direct and indirect incentive mechanisms. At this time, staff does not have a clear proposal for how to structure such an approach. However, staff will continue to evaluate this option for consideration in future funding cycles.

Although not the primary concern of an effective incentive program, incentive types that are easy to evaluate provide policymakers with more straightforward opportunities to adjust and improve the program. It is also much more straightforward to evaluate the effect of an incentive program if it is offered in isolation, as demonstrated by Chandra, Gulati et al. (2010) for Canada's HEV rebate program.[79] The presence of other

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[74]Jensen, A. F., et al. (2013). "On the stability of preferences and attitudes before and after experiencing an electric vehicle." Transportation Research Part D: Transport and Environment 25: 24-32.
[75]Shaheen, S., et al. (2015). Zero- and low-emission vehicles in U.S. carsharing fleets impacts of exposure on member perceptions, Transportation Sustainability Research Center, UC Berkeley.
[76]Sierzchula, W., et al. (2014). "The influence of financial incentives and other socio-economic factors on electric vehicle adoption." Energy Policy 68(0): 183-194.
[77]Carpenter, T., et al. (2014). "The return on investment for taxi companies transitioning to electric vehicles." Transportation 41(4): 785-818.
[78]Green, E. H., et al. (2014). ibid.
[79]Chandra, A., et al. (2010). "Green drivers or free riders? An analysis of tax rebates for hybrid vehicles." Journal of Environmental Economics and Management 60(2): 78-93.

incentives and perks that influence PEV purchases (such as HOV access, parking and/or charging access, etc.) can confound analysis of the effectiveness of rebates and other financial incentives programs.

ARB staff will consider each of these potential approaches in future funding cycles as it re-evaluates the best strategy for incentivizing advanced technology light-duty vehicles. As staff has noted above, ARB does not have existing statutory authorize to implement many of these approaches, so legislative action would be needed in those cases before ARB could consider implementing them.

Long-Term Plan Conclusions

In order to achieve the goals identified by SB 1275 and the Governor's Executive Order to place 1.5 million ZEVs in California by 2025, continued significant investments are necessary, at least in the near-term. As the market share of ZEV grows, with a related increase in demand for rebates, ARB is continuing to refine its strategy to most effectively deploy incentives to foster the growth of the clean vehicle market.

Because the market is still in its infancy, staff recommends using the most reliable and available data to evaluate the market based on ZEV sales in comparison to the comparable California new car market. Using this approach, staff believes that the ZEV market won't be sustainable without broad purchase incentives for at least the next five to ten years. Focused financial incentives, or other types of incentives may still be necessary beyond that point. Staff recommends an approach for ramping down the current incentive over time based both on expected market sustainability and budgetary constraints, and suggests maintaining the primary current incentive structure at least for the next several years.

Appendix A

Emission Reductions: Quantification Methodology

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EMISSION REDUCTIONS: QUANTIFICATION

Overview

In the Governor's proposed budget for the 2016-17 fiscal year (FY), ARB was appropriated $28.6 million for Air Quality Improvement Program (AQIP) projects and $500 million in Cap-and-Trade auction proceeds for Low Carbon Transportation and Fuels investments. This appendix conservatively estimates the emission reductions of the project categories found in the Funding Plan and provides additional details on the methodology developed and assumptions used. This analysis was guided by AB 8 (Perea, Chapter 401, Statutes of 2013) and published Greenhouse Gas Reduction Fund (GGRF) quantification methodologies.[1] Because criteria pollutant emission reductions are geographically localized, values reported herein are estimated at the tailpipe. Greenhouse gas (GHG) emission reductions were tabulated on a well-to-wheel (WTW) basis, as GHGs are a statewide pollutant.

ARB anticipates updating and revising the analysis in each subsequent Funding Plan as new data become available and methodologies are refined. It is important to note that these emission reduction estimates are illustrative examples of potential emission reductions that can be achieved with the funding allocated to these projects. Refined emission reduction estimates will be quantified as projects are implemented and data becomes available. For this Funding Plan, the methodology has been updated, as have the emission factors, assumptions, and projects. This appendix serves as the analysis required under the AB 118 Air Quality Guidelines for the AQIP projects.

Table A-1 summarizes the funding allocations for the projects proposed in the Funding Plan and the potential emissions benefits over the project life.

[1] Cap-and-Trade auction proceeds quantification materials available at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/quantification.htm

Table A-1: Summary of Proposed Projects in the FY 2016-17 Funding Plan and Total Potential Emission Reductions

Phase	Project	Proposed FY 2016-17 Allocation (millions)	# of Vehicles/ Equipment or Gallons of Fuel Funded	Total Potential Emission Reductions	
				Weighted Tailpipe Criteria Emissions (tons)	Well-to-Wheel GHG Emissions (metric tons CO_2e)
Demos	Advanced Technology Demonstrations	$59	90	TBD*	13,690
Commercialization	Zero-Emission Freight Pilot	$5	60	TBD*	48,538
	Zero-Emission Truck Pilot	$18	66	TBD*	24,428
	Zero-Emission Transit Bus Pilot	$42	43	TBD*	38,705
	Rural School Bus Pilot	$10	45	TBD*	10,127
	CVRP	$230	98,000	4,307	3,762,249
	HVIP	$18	500	142	64,164
	Low NOx Engines[2]	$23	1,200	220	94,304
	Very Low Carbon Fuels Incentive	$40	67,000,000	TBD*	424,020
Transition	Truck Loan Assistance[3]	$22	3,900	3,290	N/A
	Agricultural Equipment Trade-Up Pilot[3]	$3	50	189	N/A
Pilot Projects to Benefit DACs	EFMP Plus-up	$30	4,900	104	25,419
	Car Sharing Pilot Project	$8	550	TBD*	2,707
	Agricultural Worker Vanpools	$3	60	TBD*	1,907
	Public Fleets in DACs	$3	400	15	12,782
	Light-Duty Financing Assistance	$6	550	TBD*	3,688

* For new projects, quantification of the criteria pollutant benefits will be determined during the solicitation process.

[2] The GHG benefits for low NOx engines are due to the project's renewable fuel requirement.
[3] GHG emissions are not quantified for the Truck Loan Assistance and Agricultural Equipment Trade-Up Pilot projects as explained later in the appendix.

Table A-2 summarizes the benefit-cost score for the projects funded under AQIP, consistent with AB 8 requirements.

Table A-2: Summary of AB 8 Scoring Analysis for AQIP Funded Projects

Project	Proposed FY16-17 Allocation (millions)	Cost Recovery Factor (CRF)	Weighted Criteria Emission Reductions (tons per year or tpy)	Per Vehicle Incentive Levels ($)	Cost-Effectiveness ($/ton)	Benefit-Cost Score (lbs/$)
Truck Loan Assistance	$22	0.35	0.28	$10,000	$12,340	0.16
Agricultural Equipment Trade-Up Pilot	$3	0.21	0.76	$50,000	$14,013	0.14

AB 8 Background

The analysis and methodology in this appendix describes the implementation of the provisions that require ARB to assign preference to projects with a higher benefit-cost score. This analysis is fully executed for the two projects that will be funded through AQIP: the Agricultural Equipment Trade-Up Pilot Project and the Truck Loan Assistance Program. AB 8 extended the funding for AQIP through 2023, refined the evaluation criteria for projects supported by AQIP, and introduced the following requirements that staff followed to develop the project scoring criteria:

- The state board shall provide preference in awarding funding to those projects with higher benefit-cost scores that maximize the purposes and goals of the Air Quality Improvement Program.[4]
- "Benefit-cost score" means the reasonably expected or potential criteria pollutant emission reductions achieved per dollar awarded by the Board for the project.[5]
- The state board also may give additional preference based on the following criteria, as applicable, in funding awards to projects:[6]

    1. Proposed or potential reduction of criteria or toxic air pollutants.
    2. Contribution to regional air quality improvement.
    3. Ability to promote the use of clean alternative fuels and vehicle technologies as determined by the state board, in coordination with the Energy Commission.
    4. Ability to achieve climate change benefits in addition to criteria pollutant or air toxic emission reductions.

[4] Health & Safety Code Section 44274(b)
[5] Health & Safety Code Section 44270.3(e)(1)
[6] Health & Safety Code Section 44274(b)

5. Ability to support market transformation of California's vehicle or equipment fleet to utilize low carbon or zero-emission technologies.
6. Ability to leverage private capital investments.

Statute directs ARB to annually evaluate potential project categories to assign preference for AQIP funding, based upon the specific criteria identified above. Staff's analysis and evaluation methodology was applied to the proposed project types funded with AQIP, as identified in the FY 2016-17 Funding Plan, to determine project-specific benefit-cost scores.

Methodology

Conservative estimates for criteria pollutant and GHG emission reductions were developed using guidance provided in AB 8. Because criteria pollutant emission reductions are geographically localized, values reported herein are estimated at the tailpipe. Greenhouse gas emission reductions were tabulated on a well-to-wheel basis, as GHGs are a statewide pollutant. This appendix provides additional information regarding the emission factors used in the quantification of emission benefits. For applicable projects, cost evaluation, analysis to support the additional preference criteria, and scoring methodology is also included. This appendix provides information on the following:

- Emissions Benefit Analysis for all projects;
- Cost Analysis for all projects;
- Benefit-Cost Score Analysis for AQIP-funded projects;
- Additional Preference Criteria for AQIP-funded projects;
- Total Benefit Index for AQIP-funded projects; and
- Lifetime Emission Reductions Analysis for all projects.

Emissions Benefit Analysis

Emission Factors

To support the analysis of emission reductions from the proposed projects, staff developed a set of emission factors for the six different vehicle classes shown below. The emission factors and assumptions used in the analysis were derived from a number of sources such as ARB's California-modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (CA-GREET 2.0) model,[7] ARB's Emission Factor (EMFAC2014) Model,[8] information from ARB regulation staff reports, publically available technical reports, and staff assumptions.

[7] http://www.arb.ca.gov/fuels/lcfs/ca-greet/ca-greet.htm
[8] http://www.arb.ca.gov/emfac/2014/

Based on the proposed project types in the Funding Plan, staff developed emission factors for six general vehicle classes:

- Light-duty vehicles (LDV);
- Light heavy-duty vehicles (LHD);
- Medium heavy-duty vehicles (MHD);
- Heavy heavy-duty vehicles (HHD);
- Urban buses; and
- School buses.

GHG Emission Factors

Fuel economy is an important component of the emissions analysis, as the value determines the emissions generated based on the production of each unit of fuel for the miles traveled. Fuel economy values were derived from EMFAC2014. The fuel economy was paired with upstream emission data derived from the LCFS to calculate the WTW GHG emissions for each project type. This was done so that the well-to-tank emissions of the fuel were representative of the fuel used, paired with the specific technology. Table A-3 summarizes the baseline fuel economy estimates used in the analysis of conventional vehicles.

Table A-3: Fuel Economy Values of Baseline Conventional Vehicles

Vehicle Class	Fuel Type	Fuel Economy (mpg)				
		1995	1998	2008	2011	2016
LDV	Gasoline	23.1	-	-	-	29.9
LHD	Gasoline	-	-	-	-	10.8
MHD	Diesel	-	-	-	-	8.6
HHD	Diesel	-	5.1	5.4	5.5	6.3
Urban Buses	Diesel	-	-	-	-	5.2
School Buses	Diesel	-	-	-	-	7.4

Staff developed upstream emission factors that were based on the mix of feedstock used in the production of the various fuels. Staff assumed the following upstream pathways for the fuels analyzed:

- Gasoline: California reformulated gasoline (CaRFG) used to calculate baseline and conventional hybrid emission factors;
- Diesel: Ultra-low-sulfur diesel (ULSD);
- Compressed Natural Gas (CNG): CNG formed from natural gas or flare gas;
- Electricity: Current California average mix used to calculate battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV) emission factors;
- Hydrogen: Mix of gaseous hydrogen formed on-site at the refueling station from North American natural gas and 33 percent renewable hydrogen from biomass, such as landfill gas, used to calculate fuel cell vehicle (FCV) emission factors;
- Renewable Diesel (RD): Tallow-based renewable diesel; and

- Renewable Natural Gas (RNG): Landfill gas to CNG (off-site refueling).

It should be noted that as more renewables are introduced into the transportation fuel pool, additional benefits may be achieved, which may lower the emission factors. As the fuel mix changes, staff will reflect those changes in future analyses.

Criteria Pollutant Emission Factors

For the determination of tailpipe criteria pollutant emission factors, staff utilized ARB's EMFAC2014 model to calculate the tailpipe emissions and emissions associated with the usage of the supported vehicles or equipment such as PM emissions from brake and tire wear, when applicable. As discussed in previous funding plans, preliminary data show that attaching a hybrid driveline to a vehicle without careful integration with the engine and after-treatment system can have the unintended consequence of increasing criteria pollutant emissions. Subsequently, the emission factors for hybrid MHDs are based on a certified vertically integrated hybrid vehicle. Moreover, improved fuel economy from the use of a hybrid system[9] provides improvements in the emission factors as less fuel is used and the upstream (well-to-tank) GHG emissions are reduced. Emission factors were developed for advanced technology vehicles supported by the proposed projects when appropriate, along with emission factors for new conventional vehicles.

Table A-4 through Table A-9 provide an overview of the emission factors generated for each vehicle category.

Table A-4: Emission Factors for Light-Duty Vehicles (LDV)

(g/mi)	2016 Gasoline	PHEV	BEV
HC	0.005	0.003	0
NOx	0.032	0.019	0
PM	0.020	0.011	0.010
GHG (gCO_2e/mi)	382	243	120

Note: Staff assumed PHEV operate in all-electric mode 40 percent of the time with additional fuel economy improvements provided by the use of the hybrid drivetrain.[10]

Table A-5: Emission Factors for Light Heavy-Duty (LHD) Vehicles

(gCO_2e/mi)	2016 Gasoline	Conventional Hybrid
GHG	1,060	848

[9] Hybrid vehicle fuel economy improvement based on Climate Change Scoping Plan Appendices, Volume I: Supporting Documents and Measure Detail. http://www.arb.ca.gov/cc/scopingplan/document/appendices_volume1.pdf

[10] Consistent with assumptions used in 2012 Proposed Amendments to the California Zero-Emission Vehicle Program Regulations Staff Report: Initial Statement of Reasons. http://www.arb.ca.gov/regact/2012/zev2012/zevisor.pdf

Table A-6: Emission Factors for Medium Heavy-Duty (MHD) Vehicles

(g/mi)	2016 Diesel	Conventional Hybrid	BEV
HC	0.02	0.02	0
NOx	0.49	0.39	0
PM	0.06	0.03	0.03
GHG (gCO_2e/mi)	1,596	1,277	609

Table A-7: Emission Factors for Heavy Heavy-Duty (HHD) Vehicles

(gCO_2e/mi)	2016 Diesel	BEV	FCV
GHG	2,181	833	994

Table A-8: Emission Factors for Urban Buses

(g/mi)	2016 Diesel	CNG	BEV	FCV
HC	0.02	1.63	0	0
NOx	1.82	0.47	0	0
PM	0.37	0.36	0.18	0.18
GHG (gCO_2e/mi)	2,640	2,254	648	1,203

Note: For baseline urban bus emission factors, staff assumed an average between diesel and CNG baseline urban buses, as the current California fleet utilizes a mix of the two fuel types.

Table A-9: Emission Factors for School Buses

(gCO_2e/mi)	2016 Diesel	RD	BEV
GHG	1,859	761	456

Project-Specific Emission Factors

In some cases, staff determined project-specific emission factors. These projects include:

- Truck Loan Assistance Program – emission factors updated to reflect program-specific data;
- Low NOx Engine Incentives – emission factors updated to reflect CNG/RNG fuels and a 2016 CNG MHD vehicle baseline;
- Enhanced Fleet Modernization Program (EFMP) Plus-up – emission factors updated to reflect program-specific data;
- Agricultural Equipment Trade-Up Pilot – emission factors updated to reflect the Agricultural Equipment Inventory;
- Light-Duty Financing Assistance – emission factors updated to reflect EFMP Plus-up program-specific data; and
- Very Low Carbon Fuels Incentive – WTW emission factors based on LCFS.

Truck Loan Assistance Program:

The Truck Loan Assistance Program aids small business truckers affected by ARB's In-Use Truck and Bus Regulation by providing financing assistance for fleet owners to upgrade their fleets with newer trucks or with diesel exhaust retrofits. Emission factors were developed specifically for the Truck Loan Assistance Program because program data indicates alternative model years should be used for the analysis. Based on data from program inception through March 31, 2016, on average, funds were directed toward the replacement of 1998 engine model year (MY) diesel trucks with a mix of HHD trucks equipped with engine model years 2008 and 2011.

While analyzing annual purchase trends, staff has seen an increasing number of trucks with MY 2010 or newer engines purchased through the Truck Loan Assistance Program. In 2016, with more than 1,000 loans financed so far, project data indicate that 70 percent of the replacements were trucks with MY 2010 or newer engines, and MY 2007-2009 engines trucks made up the remaining 30 percent. Staff used this engine model year information and a weighted average of the emission factors for the analysis.

Finally, PM reductions are not included in the benefit-cost score as PM reductions are required by the In-Use Truck and Bus Regulation. Table A-10 below summarizes the tailpipe emission factors for the Truck Loan Assistance Program to be used in the benefit-cost score analysis.

Table A-10: Emission Factors for Truck Loan Assistance Program*

(g/mi)	1998 Diesel	2008 Diesel	2011 Diesel
HC	0.61	0.24	0.09
NOx	18.54	10.20	3.10

*Population-weighted average of EMFAC2014 T7 categories, excluding out-of-state vehicles

Low NOx Engine Incentives:

For FY 2016-17, the Funding Plan proposes incentivizing the deployment of certified low NOx engines. The project will support deployment of engines that meet optional low NOx standards, which provide manufacturers the ability to certify engines to NOx emission levels that are 50 percent, 75 percent, or 90 percent lower than today's mandatory heavy-duty engine emission standards. In September 2015, ARB certified the first low NOx 8.9-liter, medium heavy-duty engine to the lowest standard of 0.02 g/bhp-hr. Staff proposes that this project provide funding for both new vehicle purchases and engine repowers with engines certified to any of the optional low NOx standards.

Since the only currently available low NOx engines are natural gas engines and because we are proposing to fund only the incremental cost of going from a conventional CNG to a low NOx CNG engine, staff utilized a 2016 medium heavy-duty

CNG vehicle and the associated fuel economy value as the baseline for this analysis. Staff assumed the medium heavy-duty vehicle class because it is one of the intended service classes for this engine type. When more data is available on how this engine is being deployed, staff will update this analysis.

In order to maximize the GHG emission benefits of low NOx engines, staff proposes requiring the use of 100 percent renewable fuels for the first 3 years. Since low NOx engines are only available for natural gas at this time, staff developed emission factors for RNG. For GHG emission factors, staff derived data from CA-GREET 2.0 and used CI values from LCFS to determine the upstream GHG emissions generated for RNG from landfill gas and emissions from the associated vehicle usage.

Additionally, criteria pollutant emission factors were developed using the optional low NOx engine emission standards and tailpipe emissions data of medium heavy-duty diesel vehicles in EMFAC2014 as the baseline. Considering the only optionally certified low NOx engine meets the standard that is 90 percent lower than the diesel baseline, staff assumed a 90 percent tailpipe NOx reduction for RNG. Table A-11 summarizes the emission factors for the baseline, conventional CNG vehicle and the low NOx replacement engine fueled with RNG to be used in the analysis.

Table A-11: Emission Factors for CNG Trucks

(g/mi)	2016 CNG Baseline	Low NOx CNG Engine Fueled with RNG
HC	0.02	0.02
NOx	0.49	0.05
PM	0.06	0.06
GHG (gCO_2e/mi)	1,363	315

EFMP Plus-up:

EFMP Plus-up, also known as the Enhanced Fleet Modernization Program (EFMP) Plus-up Pilot Project, is a pilot project that provides additional incentives for lower-income consumers to retire old vehicles and replace them with used or new hybrid, plug-in hybrid, or zero-emission vehicles. According to the EFMP staff report,[11] the average MY of a vehicle replaced through EFMP is 1995. Staff calculated the average fuel economy and annual VMT of a 1995 MY vehicle from EMFAC2014 for the 2016 calendar year to use as the baseline.

Based on updated project data, staff found that funding in 2015 and 2016 has been split between approximately 20 percent BEVs, 25 percent PHEVs, and 55 percent conventional hybrids, so the emission factors of the new technologies were weighted in the analysis. EFMP Plus-up emission factors based on the information above were derived from LCFS, CA-GREET 2.0, and EMFAC2014 and summarized in Table A-12.

[11] http://www.arb.ca.gov/regact/2014/carscrap14/efmp14isor.pdf

Table A-12: Emission Factors for EFMP Plus-up

(g/mi)	1995 Gasoline	Conventional Hybrid	PHEV	BEV
HC	0.086	0.005	0.003	0
NOx	0.454	0.032	0.019	0
PM	0.028	0.012	0.011	0.010
GHG (gCO_2e/mi)	495	326	243	120

Agricultural Equipment Trade-Up Pilot:

The purpose of the Agricultural Equipment Trade-Up Pilot project in the San Joaquin Valley is to provide smaller growing operations' vehicle owners who cannot use current incentive options with a mechanism to "trade-up" an older, high-emitting tractor to a pre-owned, cleaner tractor provided by another growing operation's vehicle owner who is seeking to replace their tractor with the cleanest technology available. This pilot would provide an incentive for those grower operation's vehicle owners to upgrade their equipment to the cleanest available technology.

Due to this pilot project's focus on mobile agricultural equipment and its emission benefits from two tractors per trade, there are slight variances in the analysis. First, the tractors being traded are all diesel-fueled (no alternative fuels). The diesel technology in new tractors reduce criteria pollutant emissions more efficiently, with Tier 4 final engines being the cleanest available and Tier 0 engines being uncontrolled. Since the fuel type is the same for each tractor involved, and staff found the overall fuel consumption remained approximately the same according to ARB's 2015 Agricultural Equipment Inventory,[12] upstream emissions were not quantified, and only the downstream criteria pollutant emission factors are shown in Table A-13 for each engine tier within the assumed horsepower range.

According to ARB's Agricultural Equipment Inventory, the average tractor in the San Joaquin Valley is between 76 and 100 horsepower; therefore, staff used emission factors for this horsepower range in the analysis. Since the diesel emission control technologies only reduce criteria pollutants, GHG emissions are not included or quantified. In addition, emission factors for agricultural equipment are measured in grams per hour, rather than the grams per mile associated with on-road vehicle emissions. Other adjustments to the analysis associated with this project are addressed throughout the appendix.

[12] http://www.arb.ca.gov/ag/agtractor/agtractor.htm

Table A-13: Emission Factors for Agricultural Equipment Trade-Up Pilot

(g/hr)	Tier 0	Tier 2	Tier 4 Final
HC	69.9	13.0	1.2
NOx	503.6	233.2	4.0
PM	37.6	14.6	0.4

Light-Duty Financing Assistance:

The purpose of the Light-Duty Financing Assistance project is to assist lower-income consumers in purchasing clean vehicles by improving access to more affordable financing options. This project includes mechanisms such as loan loss guarantees, interest rate buy-downs, and vehicle cost buy-downs. This project was introduced in the FY 2014-15 Funding Plan and launched to the public in early 2016. Due to the recent project launch date, staff does not have much data on this project. However, since this project is designed to assist the same consumer base as EFMP Plus-up, staff used EFMP data to estimate potential emission reductions as explained further below.

According to EFMP data, the average replacement vehicle is a 2013 model year. Since the proposed Light-Duty Financing Assistance project assists with the purchase of vehicles up to 8 years old, a 2013 model year, conventional gas vehicle is used as the baseline. Staff anticipates that lower-income consumers may pair this program with EFMP Plus-up, and thus, the technology splits seen in EFMP Plus-up were assumed to be similar to the Financing Assistance project as well (20 percent BEVs, 25 percent PHEVs, and 55 percent conventional hybrids). Staff used the emission factors corresponding to this technology split for new vehicles. It should also be noted that because this program may be used in conjunction with EFMP Plus-up, CVRP, and other programs, there is the potential for double counting emission reductions achieved through these programs.

The emission factors for the Light-Duty Financing Assistance project were calculated based on data derived from CA-GREET 2.0 and EMFAC2014 and are summarized in Table A-14 below.

Table A-14: Emission Factors for Light-Duty Financing Assistance

(gCO_2e/mi)	2013 Gasoline	Conventional Hybrid	PHEV	BEV
GHG	495	326	243	120

Very Low Carbon Fuels Incentive:

The purpose of the Very Low Carbon Fuels Incentive Project is to increase the volume of very low carbon transportation fuels produced and used in California and to accelerate the reduction in the carbon intensity of these fuels. This project was introduced for the first time in the Governor's proposed 2016-17 Budget as a new project category. Since this program incentivizes fuels rather than vehicles or

equipment, this analysis uses the LCFS 2010 base year carbon intensity values for fuels used as diesel and gasoline substitutes.

To be conservative for the replacement fuels, staff used 40 percent of the 2010 base year LCFS carbon intensity values, as these will be the maximum allowable carbon intensity values of fuels eligible for incentives under this program. For the analysis, staff converted the CI values from LCFS into gasoline gallon equivalent (gge) values, which are the standard units for this project. For this analysis, criteria pollutant emission factors are not calculated as the production volumes and types of fuels incentivized are still unknown.

Table A-15: Emission Factors for Very Low Carbon Fuels Incentive

(gCO_2e/gge)	Diesel Baseline	Gasoline Baseline	Gasoline Replacement Fuels	Diesel Replacement Fuels
GHG	11,816	11,406	4,562	5,487

Supported Vehicles and Fuels

With the emission factors generated for each of the vehicle types or fuel replacements, staff then analyzed the GHG emission benefits for each of the proposed projects and the criteria pollutant emission benefits, when applicable. Evaluations were performed by comparing the advanced clean vehicles supported by projects proposed in the Funding Plan to a new, conventional baseline vehicle, unless project data indicated that another baseline vehicle should be used. For the evaluation of the Very Low Carbon Fuels Incentive project, staff compared the LCFS 2010 base year CI value to the maximum CI value of fuels eligible under the program. Staff performed analyses on the following projects with the corresponding emission factors:

- CVRP (Emission Factors: LDV);
- Light-Duty Pilot Projects to Benefit Disadvantaged Communities (DACs):
    - EFMP Plus-up Pilot Project (Table A-12);
    - Car Sharing Pilot Project (Emission Factors: LDV);
    - Agricultural Worker Vanpools (Emission Factors: LHD);
    - Public Fleets in Disadvantaged Communities (Emission Factors: LDV);
    - Light-Duty Financing Assistance (Emission Factors: Table A-14);
- Advanced Technology Demonstration Projects (Emission Factors: HHD);
- Zero-Emission Freight Pilot (Emission Factors: HHD);
- Zero-Emission Truck Pilot (Emission Factors: MHD);
- Zero-Emission Bus Pilot (Emission Factors: Urban Bus);
- Rural School Bus Pilot (Emission Factors: School Bus);
- HVIP (Emission Factors: MHD and Urban Bus);
- Low NOx Engine Incentives (Emission Factors: Table A-11)
- Truck Loan Assistance Program (Emission Factors: Table A-10);

- Agricultural Equipment Trade-Up Pilot (Emission Factors: Table A-13); and
- Very Low Carbon Fuels Incentive (Emission Factors: Table A-15).

Advanced Technology Demonstration Projects proposed for FY 2016-17 consist of various categories including on-road trucks, off-road freight equipment, and non-freight off-road equipment. The Zero-Emission Freight Pilot consists of various eligible zero-emission vehicle and equipment types. Details regarding the vehicles and equipment supported by these demonstration and pilot projects will not be known until the projects are launched, therefore staff selected representative technologies to determine emission factors: zero-emission short and regional haul trucks, a project proposed in the Funding Plan, for the Advanced Technology Demonstration Projects and zero-emission yard trucks for the Zero-Emission Freight Pilot analyses.

Similarly, light-duty pilot projects to benefit DACs were introduced in FY 2014-15 and while there is a data collection component to the projects, the majority of the projects have not yet launched, and therefore, the current information on the projects is limited. To evaluate light-duty pilot projects to benefit DACs, staff refined the previous years' analyses, which included increased incentives for public fleets, car sharing and mobility options, and EFMP Plus-up. For the projects that have not yet launched, staff used representative vehicles and technologies to quantify agricultural worker vanpools and light-duty financing assistance for lower-income consumers. For the agricultural worker vanpools project, staff used the EMFAC2014 category for light heavy-duty trucks with 8,501 to 10,000 pounds GVWR to represent passenger vans, and for the Light-Duty Financing Assistance project, staff used EFMP Plus-up data.

Using the emission factors identified above with project data and assumptions, staff determined the vehicles or equipment that may be supported by the projects to provide emission reductions for each of the projects in FY 2016-17. Table A-16 summarizes the supported technologies and vehicles that were used in the analysis to calculate the emission benefits based on currently available advanced technologies.

Table A-16: Supported Technology Types by Proposed Project

Phase	Proposed Project	Representative Supported Technology Types	Comments
Demos	Advanced Technology Demonstrations	Fuel cell and battery-electric short and regional haul trucks (HHD)	Eligible technologies
Commercialization	Zero-Emission Freight Pilot	Electric yard trucks (HHD)	Eligible technology
	Zero-Emission Truck Pilot	Battery-electric medium heavy-duty trucks	Assumption based on project data
	Zero-Emission Transit Bus Pilot	Fuel cell and battery-electric urban buses	Eligible technologies
	Rural School Bus Pilot	Battery-electric school buses and school buses utilizing renewable fuels	50/50 split of the two technologies assumed, staff assumed renewable diesel fuel for the evaluation
	CVRP	Plug-in hybrid and battery-electric passenger cars	40% PHEVs and 60% BEVs, based on CVRP rebate data since program inception
	HVIP	Hybrid and battery-electric medium heavy-duty trucks	95% of total HVIP funding with 85% hybrid and 15% battery electric split, based on HVIP data from 2015-16
		Battery-electric urban transit buses	5% of total HVIP funding; assumption based on HVIP data from 2015-16
	Low NOx Engines	Low NOx engines utilizing RNG	90% reduction in NOx from the medium heavy-duty engine standard, fueled with RNG 100% of the time
	Very Low Carbon Fuels Incentive	Fuels with a CI value of 40% or less, in comparison to the 2010 base year CI values from LCFS	Eligible fuel pathways under LCFS
Transition	Truck Loan Assistance	Replacement of a 1998 MY with a 2008 MY or 2011 MY (HHD) truck or trailer	Assumption based on project data
	Agricultural Equipment Trade-Up	Advanced diesel engines with emission control technologies	Tier 4 tractors replacing Tier 2 tractors, subsequently replacing Tier 0
Pilot Projects to Benefit DACs	EFMP Plus-up	Conventional (gasoline) hybrid, plug-in hybrid, and battery-electric passenger vehicles	20% BEVs, 25% PHEVs, and 55% conventional hybrids, based on project data
	Car Sharing Pilot Project	Plug-in hybrid and battery-electric passenger vehicles	50/50 split of the two technologies assumed
	Agricultural Worker Vanpools	Light heavy-duty van conversion to conventional hybrid system	Eligible technology
	Public Fleets in DACs	Plug-in hybrid and battery-electric passenger vehicles	50/50 split of the two technologies assumed
	Light-Duty Financing Assistance	Conventional (gasoline) hybrid, plug-in hybrid, and battery-electric passenger vehicles	Staff assumption - same technology split as EFMP Plus-up

Staff generated vehicle usage assumptions (annual vehicle miles traveled or VMT) through literature review for each of the vehicle types evaluated, data from EMFAC2014, and actual usage data from the projects, when available. Table A-17 summarizes the annual usage assumptions used for emissions benefit analysis.

Table A-17: Annual Usage Assumptions

Phase	Proposed Project	Annual Usage Assumptions (mi/year or hrs/year)	Details
Demos	Advanced Technology Freight Demonstrations	40,000	According to California Hybrid, Efficient and Advanced Truck Research Center's (CalHEAT) report,[13] short haul/regional trucks operate 55,000 miles a year; staff used conservative estimates for the use of advanced technologies and will update the annual usage as project data becomes available
Commercialization	Zero-Emission Freight Pilot	40,000	Staff assumption based on 51,000 miles per year for 2016 model year, diesel HHD vehicles in EMFAC2014 - staff used conservative estimates for the use of advanced technologies and will update the annual usage as project data becomes available
	Zero-Emission Truck Pilot	25,000	Staff assumption based on annual VMT of 2016 model year, diesel MHD vehicles in EMFAC2014
	Zero-Emission Bus Pilot	35,000	National Renewable Energy Laboratory's (NREL) Technical Report, "NREL/TP-7A2-47919"[14]
	Rural School Bus Pilot	13,500	Based on annual VMT of diesel school buses in EMFAC2014 (average of all model years)
	CVRP	EV: 11,059	Based on 30.3 miles per day[15]
		PHEV: 14,855	Based on 40.7 miles per day[16]
		Hybrid: 14,855	Staff assumption - same as PHEVs
	HVIP	EV: 12,000 Hybrid: 22,000	Climate Change Scoping Plan, Measure Documentation Supplement[17], Measure T-7
	Low NO_x Engines	25,000	Staff assumption based on annual VMT of 2016 model year, diesel MHD vehicles in EMFAC2014
Transition	Truck Loan Assistance	18,500	Based on annual VMT of 1998 model year, T7 diesel trucks, excluding out-of-state vehicles, from EMFAC2014
	Agricultural Equipment Trade-Up	Large Farm: 660 Small Farm: 430	Based on average annual usage hours from ARB's Agricultural Equipment Inventory[18]

[13] http://www.calstart.org/Libraries/CalHEAT_2013_Documents_Presentations/CalHEAT_Roadmap_Final_Draft_Publication_Rev_6.sflb.ashx
[14] http://www.afdc.energy.gov/pdfs/47919.pdf
[15] Smart, J. and Schey, S., "Battery Electric Vehicle Driving and Charging Behavior Observed Early in The EV Project," *SAE Int. J. Alt. Power.* 1(1):27-33, 2012, doi:10.4271/2012-01-0199. (http://papers.sae.org/2012-01-0199/)
[16] Smart, J., Powell, W., and Schey, S., "Extended Range Electric Vehicle Driving and Charging Behavior Observed Early in the EV Project," SAE Technical Paper 2013-01-1441, 2013, doi:10.4271/2013-01-1441. (http://papers.sae.org/2013-01-1441/)
[17] http://www.arb.ca.gov/cc/scopingplan/document/measure_documentation.pdf
[18] http://www.arb.ca.gov/msei/msei.htm

Phase	Proposed Project	Annual Usage Assumptions (mi/year or hrs/year)	Details
Pilot Projects to Benefit DACs	EFMP Plus-up	7,500	Based on the average VMT of a 1995 MY light-duty passenger vehicle operating in 2016 from EMFAC2014
	Car Sharing Pilot Project	8,200	Based on the average miles driven for vehicles shared by U.S. carsharing members[19]
	Agricultural Worker Vanpools	25,000	Based on the annual VMT of 2016 model year, gasoline-fueled, light heavy-duty vehicles with GVWR of 8,501-10,000 lbs in EMFAC2014
	Public Fleets in DACs	10,647	California Department of General Services 2010 Fleet Report[20]
	Light-Duty Financing Assistance	EV: 11,059 PHEV: 14,855 Hybrid: 14,855	Since Light-Duty Financing Assistance will be used to purchase a new or lightly used vehicle, staff assumed the usage would be the same as CVRP

Annual Emission Reductions

Based on the emission factors (EF) and additional information provided above, the GHG and criteria pollutant emission reductions (NOx, HC, and PM2.5) for supported vehicle types were calculated by multiplying the assumed annual mileage by the difference between the conventional and supported vehicle emissions for each technology type. According to the technology type(s) and ratios shown in Table A-16, GHG emission benefits for each project and in some cases, weighted criteria pollutant emission benefits were calculated for the assumptions. Annual GHG and criteria emissions benefit analyses were performed on a per vehicle basis using the following formula:

$$Emissions\ Reductions = Annual\ VMT\ x$$
$$(EF\ for\ new\ conventional\ vehicle - EF\ for\ advanced\ technology\ vehicle)$$

The above formula is the basis for the following formula, which calculates the annual total criteria pollutant emission reductions for the Agricultural Equipment Trade-Up Pilot. Annual hours of usage per tractor was used in lieu of annual VMT. In addition, reductions from the scenarios of both growing operations' fleets involved were combined, as shown below.

[19] Martin, E., Shaheen, S., and Lidicker, J. "Impact of Carsharing on Household Vehicle Holdings," *Transportation Research Record: Journal of the Transportation Research Board,No. 2143,* Transportation Research Board of the National Academies, Washington, D.C., 2010, pp. 150–158. DOI: 10.3141/2143-19. (http://sfpark.org/wp-content/uploads/carshare/Impact_of_Carsharing_on_Household_Vehicle_Holdings.pdf)

[20] DGS, "Final Report on the Execution of Executive Order S-14-09: Vehicle and Home Storage Permit Reduction", 2010. (http://www.documents.dgs.ca.gov/ofa/FleetReduction/FleetReduction-FinalReport-July2010.pdf)

$$
\begin{aligned}
&Emission\ Reductions\ for\ Agricultural\ Equipment\ Trade - Up \\
&\quad = Annual\ usage\ hours\ at\ large\ farm\ x\ (EF\ for\ Tier\ 2\ tractor \\
&\quad - EF\ for\ Tier\ 4\ Final\ tractor) \\
&\quad + Annual\ usage\ hours\ at\ small\ farm\ x\ (EF\ for\ Tier\ 0\ tractor \\
&\quad - EF\ for\ Tier\ 2\ tractor)
\end{aligned}
$$

Unlike the other projects, the Very Low Carbon Fuels Incentive project is analyzed in terms of gallons of fuel produced in a year, as shown in the following formula:

$$
\begin{aligned}
&Emission\ Reductions\ for\ Very\ Low\ Carbon\ Fuels \\
&= (EF\ for\ LCFS\ baseline\ fuel - EF\ for\ very\ low\ carbon\ substiute\ fuel) \\
&\quad x\ volume\ of\ fuel\ produced\ (in\ gge)
\end{aligned}
$$

As discussed in previous Funding Plans,[21] staff based the analysis of PM emissions on PM2.5 instead of PM10 due to the difference in adverse health impacts associated with PM emissions of different sizes. In order to provide direct comparisons between the projects by comparing similar criteria pollutant emissions, PM2.5 was selected as the corresponding PM emissions component. Moreover, due to the toxicity of PM2.5, staff proposes to assign a greater weight for PM2.5 by weighing it by 20 times, consistent with the methodology outlined in the Carl Moyer Memorial Air Quality Standards Attainment Program's 2011 Guidelines, Appendix C.[22] For the analysis of PM, staff also included tire and brake wear associated with the corresponding vehicle classes and applied a 50 percent reduction[23] for brake wear emissions for vehicles with regenerative braking capability.

Table A-18 on the following page summarizes the potential annual GHG emission benefits from the vehicles and equipment supported by each project, and Table A-19 summarizes the potential GHG emission benefits from the fuels supported by the Very Low Carbon Fuels Incentive project.

[21] http://www.arb.ca.gov/msprog/aqip/fundplan/fundplan.htm
[22] http://www.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmp_appc_20151218.pdf
[23] NREL, BAE/Orion Hybrid Electric Buses at New York City Transit, http://www.afdc.energy.gov/pdfs/42217.pdf, March 2008

Table A-18: Potential Per Vehicle Annual GHG Emission Benefits

Phase	Proposed Project	Representative Supported Technologies	Per Vehicle Annual Emission Reductions (metric tons CO_2e/yr)	
			Per Technology Type	Weighted Average[24]
Demos	Advanced Technology Demonstrations	Battery-Electric Short/Regional Haul Trucks	53.93	50.70
		Fuel Cell Short/Regional Haul Trucks	47.48	
Commercialization	Zero-Emission Freight Pilot	Battery-Electric Yard Trucks	53.93	53.93
	Zero-Emission Truck Pilot	Battery-Electric MHD Trucks	24.67	24.67
	Zero-Emission Bus Pilot	Battery-Electric Urban Buses	69.73	60.01
		Fuel Cell Urban Buses	50.29	
	Rural School Bus Pilot	Battery-Electric School Buses	18.93	16.88
		Renewable Diesel School Buses	14.82	
	CVRP[25]	Battery-Electric LDVs	2.90	2.56
		Plug-In Hybrid LDVs	2.05	
	HVIP[26]	Hybrid MHD Trucks	7.02	8.56
		Battery-Electric MHD Trucks	11.84	
		Battery-Electric Urban Buses	23.91	
	Low NOx Engines	Replacement of CNG with MHD low NOx engines fueled with RNG	26.20	26.20
Pilot Projects to Benefit DACs	EFMP Plus-up	Hybrid LDVs	1.27	1.73
		Plug-In Hybrid LDVs	1.88	
		Battery-Electric LDVs	2.81	
	Car Sharing	Plug-In Hybrid LDVs	1.13	1.64
		Battery-Electric LDVs	2.15	
	Agricultural Worker Vanpools	Hybrid LHD Vans	5.30	5.30
	Public Fleets in DACs	Plug-In Hybrid LDVs	1.47	2.13
		Battery-Electric LDVs	2.79	
	Light-Duty Financing Assistance	Hybrid LDVs	1.55	2.24
		Plug-In Hybrid LDVs	2.78	
		Battery-Electric LDVs	3.43	

[24] Average is weighted by supported representative technology types as listed in Table A-16.
[25] While CVRP funds fuel cell vehicles, staff found that fuel cell vehicles account for less than 1 percent of CVRP rebates; therefore, when determining the potential emission reductions, staff used battery-electric and plug-in hybrid vehicles for the analysis.
[26] Since there are no hybrid urban buses available on the market today, staff used a mix of hybrid and battery-electric trucks and battery-electric urban buses for the analysis.

Table A-19: Potential GHG Emission Benefits for Very Low Carbon Fuels Incentive

Proposed Project	Representative Supported Technologies	Emission Reductions per GGE (metric tons CO_2e/yr)	
		Per Fuel Type	Average
Very Low Carbon Fuels Incentive	Diesel Replacement Fuels (conservative CI of 40.80)	0.0063	0.0063
	Gasoline Replacement Fuels (conservative CI of 39.39)	0.0068	

Note: staff used the estimated emission reductions for diesel replacement fuels, as reflected in this analysis.

Table A-20 summarizes the annual criteria pollutant emission benefits for projects where the vehicle or equipment technology is known. For new projects, quantification of the criteria pollutant benefits will be determined during the solicitation process.

Table A-20: Potential Per Vehicle Annual Weighted Criteria Pollutant Emission Benefits

Phase	Proposed Project	Representative Supported Technologies	Per Vehicle Weighted Annual Criteria Pollutant Emission Reductions (tpy)	
			Per Technology Type	Average
Commercialization	CVRP	Battery-Electric LDVs	0.003	0.003
		Plug-In Hybrid LDVs	0.003	
	HVIP	Hybrid MHD Trucks	0.016	0.019
		Battery-Electric MHD Trucks	0.015	
		Battery-Electric Urban Buses	0.075	
	Low NOx Engines	Replacement of CNG with MHD Low NOx Engines Fueled with RNG	0.012	0.012
Transition	Truck Loan Assistance	Replacement of 1998 MY with 2008 MY HHD Trucks	0.178	0.281
		Replacement of 1998 MY with 2011 MY HHD Trucks	0.326	
	Agricultural Equipment Trade-Up Pilot[27]	Replacement of T2 with T4 & Replacement of T0 with T2	0.756	0.756
Pilot Projects to Benefit DACs	EFMP Plus-up	Hybrid LDVs	0.007	0.007
		Plug-In Hybrid LDVs	0.007	
		Battery-Electric LDVs	0.008	
	Public Fleets in DACs	Plug-In Hybrid LDVs	0.002	0.002
		Battery-Electric LDVs	0.003	

[27] For the Agricultural Equipment Trade-Up Pilot, emission reductions are shown per trade-up (i.e., two tractors), as shown in the preceding formula.

Cost Analysis

Staff analyzed the cost of each project, and for projects funded by AQIP, staff used the costs in a benefit-cost analysis. For this section, project costs are grouped in the following categories:

- Demonstration Phase Projects;
- Commercialization Phase Projects;
- Transition Phase Projects; and
- Pilot Projects to Benefit Disadvantaged Communities.

Demonstration Phase Projects: As discussed in previous Funding Plans, manufacturers are developing, testing, and proving technologies in the demonstration phase. Incentives are provided to help advance the development of technologies through demonstration projects focused on single vehicle prototypes to low-volume demonstration projects to advance the technology to the commercialization phase. In the demonstration phase, incentive funding levels are high because manufacturing is not standardized and is focused on smaller batches of vehicles. For projects in the demonstration phase, the high project costs were based on the potential funding amounts, assumed by staff, to be allocated to the proposed advanced technology demonstration projects.

Commercialization Phase Projects: For commercialization phase projects, funding support is assumed to be directly related to the incremental cost of advanced technologies. For example, HVIP currently provides vouchers to address the higher costs associated with advanced technology vehicles by offsetting a portion of incremental costs. For medium to heavy-duty commercialization phase projects, the incentives are based on current voucher amounts[28] provided for the various technologies and vehicle classes supported by the program.

Transition Phase Projects and Pilot Projects to Benefit Disadvantaged Communities: The proposed projects under these categories are primarily intended to support the penetration of advanced technology vehicles to benefit disadvantaged communities or support the purchase of commercialized clean technologies by economically challenged consumers. Moreover, transition phase project types have been established to increase market acceptance in disadvantaged communities or agricultural areas, unlike commercialization projects with the purpose to advance the widespread use of advanced technologies to reduce costs due to lower production volumes.

[28] https://www.californiahvip.org/docs/HVIP_Y4_Implementation%20Manual_2014-08-01.pdf

Project Costs

Based on the information provided on the previous page, staff determined the incentive levels for the proposed projects and supported technologies on a per vehicle basis. Table A-21 summarizes the proposed or estimated incentive levels for each of the projects.

Table A-21: Incentive Amounts for Projects and Supported Technologies

Phase	Proposed Projects	Representative Supported Technologies	Cost Per Technology	Average Cost	Additional Details
Demos	Advanced Technology Demonstrations	Battery-Electric Short/ Regional Haul Trucks	$500,000	$625,000	For the incentive amounts, staff assumed that 25% of the costs would be matched.
		Fuel Cell Short/Regional Haul Trucks	$750,000		
Commercialization	Zero-Emission Freight Pilot	Battery-Electric Yard Trucks	$80,000	$80,000	Staff assumed ARB would fund $80,000 towards the purchase of a battery-electric yard truck
	Zero-Emission Truck Pilot	Battery-Electric MHD Trucks	$500,000	$500,000	For the incentive amounts, staff assumed that 25% of the costs would be matched.
	Zero-Emission Bus Pilot	Battery-Electric Urban Buses	$500,000	$625,000	For the incentive amounts, staff assumed that 25% of the costs would be matched.
		Fuel Cell Urban Buses	$750,000		
	Rural School Bus Pilot	Renewable Diesel School Buses	$165,000	$237,500	Based on proposed incentive amounts; staff assumed that funding would be split equally between battery-electric school buses and renewable diesel school buses. To calculate the incentive amount for battery-electric school buses, staff took an average of small and large school buses.
		Battery-Electric School Buses	$310,000		
	CVRP	Plug-In Hybrid LDVs	$1,650	$2,250	Staff assumed 10% of CVRP rebates would go to low-income consumers for an increased rebate amount. For the average incentive amounts, staff applied the same technology split of 60% BEVs and 40% PHEVs.
		Battery-Electric LDVs	$2,650		
	HVIP	Battery-Electric Urban Transit Bus	$110,000	$34,665	For the average incentive amounts, staff applied the same technology split used in the emissions calculations, based on project data for historical funding amounts
		Hybrid MHD Truck	$22,000		
		Battery-Electric MHD Truck	$80,000		
	Low NOx Engines	Low NOx CNG Engines	$18,000	$18,000	Based on proposed incentive amounts
	Very Low Carbon Fuels Incentive	Very Low Carbon Fuels (40% of the 2010 LCFS base year, or lower)	$0.60	$0.60	Based on estimated incentive amounts; staff anticipate that the CI of incentivized fuels would vary, so to be conservative, staff used the average incentive amount for fuels from in-state feedstock and provide a DAC benefit.

Phase	Proposed Projects	Representative Supported Technologies	Cost Per Technology	Average Cost	Additional Details
Transition	Truck Loan Assistance	Replacement of a 1998 MY HHD Truck with 2008 or 2011 MYs	$10,000	$10,000	Based on historical project data
	Agricultural Equipment Trade-Up Pilot	Tier 4 Engines Replacing Tier 2, Subsequently Replacing Tier 0	$50,000	$50,000	Staff assumption based on $45,000 incentive for Tier 4 tractor purchase and $5,000 for the reconditioning and repair of Tier 2 tractor
Pilot Projects to Benefit DACs	EFMP Plus-up	Conventional Hybrid LDVs	$5,000	$6,125	For the average incentive amounts, staff applied the same technology split used the emissions calculations of 20% BEVs, 25% PHEVs, and 55% conventional hybrids and calculated incentive amounts based on the rebate amounts for moderate income levels.
		Plug-In Hybrid LDVs	$7,500		
		Battery-Electric LDVs	$7,500		
	Car Sharing Pilot Project	Battery-Electric LDVs	$14,000	$14,000	Based on data from a similar car share program in Buffalo
		Plug-In Hybrid LDVs	$14,000		
	Agricultural Worker Vanpools	Hybrid LHD Passenger Vans	$45,000	$45,000	Staff assumption based on estimated costs for all components for van conversion to hybrid system
	Public Fleets in DACs	Battery-Electric LDVs	$10,000	$7,625	Based on proposed incentive amounts
		Plug-In Hybrid LDVs	$5,250		
	Light-Duty Financing Assistance	Replacement with a Conventional Hybrid Vehicle, PHEV, or BEV Less than 8 Years Old	$10,500	$10,500	Staff estimates the average cost per loan, including the vehicle price buy down and loan loss reserve, will range from $9,000 to $12,000

Benefit-Cost Score Analysis

Staff analyzed the expected costs and developed cost-effectiveness scores for each project using well-established cost-effectiveness calculation methodology for incentives (consistent with that used in the Carl Moyer Memorial Air Quality Standards Attainment Program). In addition, to calculate cost-effectiveness, staff also applied an appropriate discount rate and utilized a capital cost recovery factor (CRF) in the analysis based on Carl Moyer Program Guidelines[29] to determine the annualized costs. Annualized cost is determined by the formula below:

$$Annualized\ Cost = CRF\ x\ incentive\ amounts\ for\ vehicles\ or\ equipment$$

[29] http://www.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmpgl_20151218.pdf

A two percent discount rate[30] was used and the corresponding CRFs were determined based on the assumed usage life of the vehicles or equipment supported by the proposed projects. Table A-22 below shows the assumed vehicle or equipment usage life and the corresponding CRF values used to determine the annualized cost of the projects.

Table A-22: Vehicle Usage and Corresponding Cost Recovery Factors

Phase	Proposed Projects	Usage Life (Years)	CRF	Comments
Demos	Advanced Technology Demonstrations	3	0.35	Based on required minimum project life, although some technologies may be in use longer than 3 years
Commercialization	Zero-Emission Freight Pilot	15	0.08	Similar to HVIP, project life based on similar heavy-duty trucks
	Zero-Emission Truck Pilot	15	0.08	Similar to HVIP, project life based on similar heavy-duty trucks
	Zero-Emission Bus Pilot	15	0.08	Based on transit bus usage life of 15.1 years[31]
	Rural School Bus Pilot	15	0.08	Based on average school bus useful life of 15 years[32]
	CVRP	15	0.08	Project life is based on a 15 year vehicle life assumed by ARB staff. The assumption is based on the median life for passenger cars in California, which is 14 years, or 186,000 miles, and other factors.
	HVIP	15	0.08	Staff assumed a conservative usage life of 15 years, but trucks can have a useful life of over 20 years[33]
	Low NO_x Engines	3/15	0.08	Renewable fuel is required for 3 years; for engine usage life, assumed to be the same as vehicles under HVIP
Transition	Truck Loan Assistance Program	3	0.35	ARB's In-Use Truck and Bus Regulation[34] requires all 1999 or older MY trucks to be replaced by January 1, 2020
	Agricultural Equipment Trade-Up Pilot	5	0.21	Staff assumption based on expected remaining life of Tier 0 tractor, although the incentivized tractors are likely to be in service much longer

[30] http://www.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmp_appg_20151218.pdf
[31] US Department of Transportation, Federal Transit Administration, Useful Life of Transit Buses and Vans, Report No. FTA VA-26-7229-07.1, April 2007. http://www.fta.dot.gov/documents/Useful_Life_of_Buses_Final_Report_4-26-07_rv1.pdf
[32] http://www.afdc.energy.gov/uploads/publication/case-study-propane-school-bus-fleets.pdf
[33] Jennings, G. and Brotherton, T. "Vehicle and Technologies Characterization and Baseline," California Hybrid, Efficient and Advanced Truck Research Center, http://www.calstart.org/Libraries/CalHEAT_Documents/Baseline_and_Preliminary_Pathways_Whitepaper.sflb.ashx
[34] http://www.arb.ca.gov/msprog/onrdiesel/documents/tbfinalreg.pdf

Phase	Proposed Projects	Usage Life (Years)	CRF	Comments
Pilot Projects to Benefit DACs	EFMP Plus-up	3	0.35	Staff assumption based on expected remaining useful life of baseline 1995 MY vehicle
	Car Share Pilot Project	3	0.35	Based on car share vehicle operating life[35]
	Agricultural Worker Vanpools	6	0.18	Staff assumption based on CalVans program
	Public Fleets in DACs	15	0.08	See CVRP comments
	Light-Duty Financing Assistance	3	0.35	Staff assumption based on expected maximum term of loan and vehicle ownership requirement, although the purchased vehicle will likely last longer

With the information presented above, a cost-effectiveness score was calculated for the proposed projects funded by AQIP. The cost-effectiveness of a project is determined by dividing the incentive amounts of an average vehicle or equipment supported by the proposed projects by the annual per-vehicle weighted emission reductions, as shown below.

$$\textit{Cost Effectiveness (\$/ton)} = \frac{Annualized\ Cost\ (^{\$}/_{year})}{Annual\ Per\ Vehicle\ WTW\ Emission\ Reductions(^{tons}/_{year})}$$

Table A-23 provides the inputs and the resulting weighted criteria pollutant cost-effectiveness of the projects funded by AQIP.

Table A-23: Weighted Criteria Pollutant Cost-Effectiveness

Proposed Projects	CRF	Emission Reduction (tpy)	Incentive levels ($)	Cost-Effectiveness ($/ton)
Truck Loan Assistance Program	0.35	0.28	$10,000	$12,340
Agricultural Equipment Trade-Up	0.21	0.76	$50,000	$14,013

The cost-effectiveness shown in the table above are in units of dollars per ton of criteria pollutant emissions reduced ($/ton). Per AB 8, the cost-effectiveness values were converted to a benefit-cost score based on pound of criteria pollutant emissions benefit per dollar spent (lbs/$). Finally, the cost-effectiveness scores for each project were given points based on a scale from 1 to 5 points. Those projects with a cost-effectiveness of less than $15,000 per ton of emissions reduced received a high of 5 points, because this cost-effectiveness level is within the range of allowable

[35] Shaheen, Susan and Adam Cohen. "Carsharing and Personal Vehicle Services: Worldwide Market Developments and Emerging Trends," International Journal of Sustainable Transportation, No. 7, pp. 5-34, 2010.

cost-effectiveness in other ARB incentive programs. The remaining bins were increased by $15,000 increments with the least cost-effective projects, those projects over $60,000 per ton of emissions reduced, receiving the lowest points possible. The cost-effectiveness scores for each project were then scored based on the scale to be used in the "Total Benefit Index" score for AB 8 project selection. The cost-effectiveness of each proposed project was scored based on the following scale and summarized in Table A-24:

5: Less than $15,000/ton
4: Greater than or equal to $15,000/ton and less than $30,000/ton
3: Greater than or equal to $30,000/ton and less than $45,000/ton
2: Greater than or equal to $45,000/ton and less than $60,000/ton
1: Greater than or equal to $60,000/ton

Table A-24: Final Cost-Effectiveness/Benefit-Cost Score and Corresponding Scaled Score for Total Benefit Index for AQIP Projects

Proposed Projects	Final Cost-Effectiveness ($/ton)	Benefit-Cost Score (lbs/$)	Scaled Score
Truck Loan Assistance Program	$12,340	0.16	**5**
Agricultural Equipment Trade-Up	$14,013	0.14	**5**

Additional Preference Criteria

The additional preference criteria may be used to provide additional funding preference in conjunction with the benefit-cost score shown above. As discussed further below, staff also evaluated additional preference criteria, as identified in AB 8. These criteria included:

1. Proposed or potential reduction of criteria or toxic air pollutants.
2. Contribution to regional air quality improvement.
3. Ability to promote the use of clean alternative fuels and vehicle technologies.
4. Ability to achieve GHG reductions.
5. Ability to support market transformation of California's vehicle or equipment fleet to utilize low carbon or zero-emission technologies.
6. Ability to leverage private capital investments.

Recognizing the range of potential benefits and to ensure a robust mix of proposed projects to be funded, for quantitative preference criteria 1, 2, and 4, staff analyzed the associated data and equally divided the results into scoring ranks between 0 and 5, according to the following steps:

- Results for each specific additional preference criteria were quantified for each of the proposed projects.

- Scoring scale increments were established for each rank (0-5) to generate an equal distribution in points for the proposed projects. Additional information on the scales is discussed below for each additional preference criteria.
- The proposed projects are then ranked based on the scale (0-5) to be used in the "Total Benefit Index."

Staff anticipates that the scales for the quantitative additional preference criteria may change each year depending on the mix of projects proposed due to differences in the range of expected benefits or when additional information becomes available to refine the evaluation. The data and rationale used to establish each of the criteria weighting factors for the associated scores are described below:

1. *Proposed or potential reduction of criteria or toxic air pollutants* – This analysis considered the magnitude of emission reductions by quantifying the direct lifetime criteria pollutant emission reductions expected per average vehicle or piece of equipment supported under each project. With the benefit-cost score analysis primarily driven by overall project incentive amounts, this additional criteria allowed staff to make direct comparisons of the emission reductions expected by the different proposed projects, independent of the associated incentive amounts. Staff analyzed the emission benefits on a per vehicle basis to account for differences in vehicle sale volumes and statewide populations of the various vehicles supported by AQIP. Resulting total lifetime emission reductions ranged from less than 0.1 tons to 4.3 tons of lifetime criteria pollutant emission reductions per vehicle. The scoring scale associated within each rank (1-5) for this criterion was established by evaluating the range of lifetime tons of emission reductions between the highest and lowest value to try to have an equal distribution of scores. As a result, the bins were scaled in 0.3 ton increments. Projects with less than or equal to 0.3 tons of criteria pollutant emissions reduced receive 1 point, while those projects with greater than 1.5 tons of criteria pollutant emissions reduced receive 5 points. Below is the resulting scale for criteria pollutant emission reductions per vehicle:

   5: Greater than or equal to 1.5 tons
   4: Greater than or equal to 0.9 tons and less than 1.5 tons
   3: Greater than or equal to 0.6 tons and less than 0.9 tons
   2: Greater than or equal to 0.3 tons and less than 0.6 tons
   1: Less than 0.3 tons
   0: No Benefits

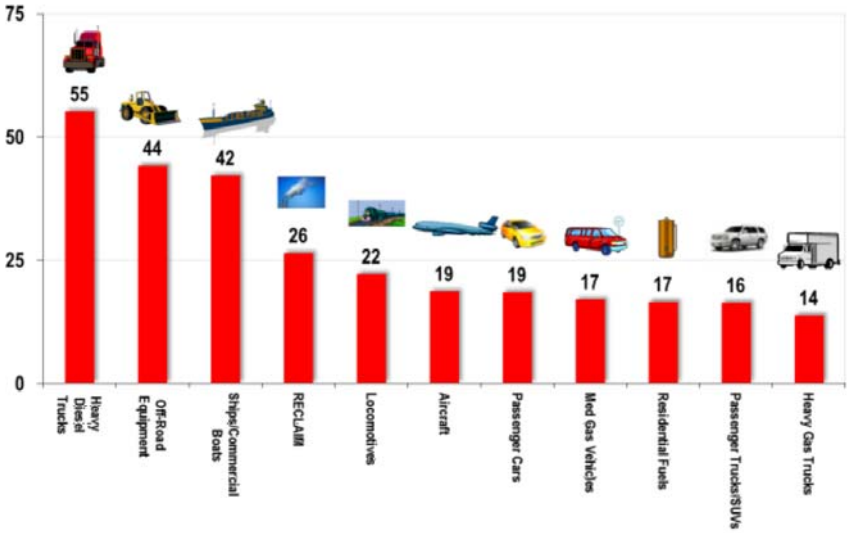
   Based on the information described above, Table A-25 summarizes the results and the corresponding score for this additional preference criterion.

Table A-25: Results for Additional Preference Criterion 1

Proposed Projects	Emission Reductions (tpy)	Project Life	Lifetime Emission Reductions (tons)	Score
Truck Loan Assistance Program	0.28	3	0.84	**3**
Agricultural Equipment Trade-Up	0.76	5	3.78	**5**

2. *Contribution to regional air quality improvement* – Staff developed a scoring scale based on the ARB emissions inventory for the largest region federally designated as an extreme non-attainment area in CA, and ranked projects based on their corresponding emissions inventory contributions from highest to lowest. Specifically, staff used the NOx emissions inventory in tons per day for 2023 in the South Coast Air Basin, found in ARB's Vision for Clean Air: A Framework for Air Quality and Climate Planning.[36] The ranking scale is based on the emissions inventory shown in Figure A-1.

Figure A-1: Largest South Coast NOx Emission Sources in Tons Per Day



NOx emission sources were ranked in tons per day for various vehicle and equipment types, ranging from heavy-duty gas trucks, at 14 tons per day, to heavy-duty diesel trucks, at 55 tons per day. The scoring scale associated with each rank (1-5) for this criterion was established by calculating the range of NOx emissions between the highest and lowest value, and dividing that range by five. As a result, the bins were rounded and scaled in 10-ton increments. Projects corresponding to inventory sources with less than or equal to 10 tons of NOx per

[36] Air Resources Board. (2013d). Vision for Clean Air: A Framework for Air Quality and Climate Planning; Public Review Draft. Appendix: Actions for Development, Demonstration, and Deployment of Needed Advanced Technologies.

day receive one point, while those projects with greater than 40 tons receive five points. The sources of emissions contribution were ranked based on the following scale:

5: Category contributes more than 40 tons of NOx per day
4: Category contributes between 31 and 40 tons of NOx per day
3: Category contributes between 21 and 30 tons of NOx per day
2: Category contributes between 11 and 20 tons of NOx per day
1: Category contributes between 1 and 10 tons of NOx per day

3. *Ability to promote the use of clean alternative fuels and vehicle technologies* – Clean alternative fuels are fuels that have lower well-to-wheel emissions compared to conventional fuels, such as electricity, hydrogen, and renewable fuels. Clean vehicle technologies are technologies that emit zero tailpipe emissions, such as battery-electric and fuel cell vehicle technologies, or enabling technologies, such as hybrid or plug-in hybrid technologies. This qualitative analysis ranked projects by whether or not they used a clean low carbon alternative or renewable fuel or were clean vehicle technologies. Staff scored this preference criterion based on the following:

   5: Technologies that use low carbon alternative fuels <u>and</u> are a clean vehicle technology.
   3: Technologies that use low carbon alternative fuels <u>or</u> are a clean vehicle technology.
   0: Technologies that do not use clean alternative fuels and are not a clean vehicle technology.

4. *Ability to achieve GHG reductions* – Similar to the methodology established in the first preference criterion, staff conducted a lifetime well-to-wheels GHG emissions analysis for the vehicles and equipment supported by the proposed projects. Staff determined expected GHG emission reductions achieved for each vehicle or equipment funded by the proposed projects and found that GHG emission reductions were minimal. The bins were determined by taking the high and low resulting benefits, and scaled to try to develop an equal distribution of scores. Below is the resulting scale for GHG reductions per vehicle:

   5: Greater than or equal to 500 $MTCO_2e$
   4: Greater than or equal to 400 $MTCO_2e$ and less than 500 $MTCO_2e$
   3: Greater than or equal to 250 $MTCO_2e$ and less than 400 $MTCO_2e$
   2: Greater than or equal to 50 $MTCO_2e$ and less than 250 $MTCO_2e$
   1: Less than or equal to 50 $MTCO_2e$
   0: No GHG emission reductions

   Based on the information described above, Table A-26 summarizes the results and the corresponding score for this additional preference criterion.

Table A-26: Results for Per Vehicle Additional Preference Criterion 4

Proposed Projects	GHG Emission Reduction (metric tons CO2e)	Project Life	Total GHG Emission Reduction (metric tons CO2e)	Score
Truck Loan Assistance Program	N/A	3	N/A	**0**
Agricultural Equipment Trade-Up Pilot	N/A	5	NA	**0**

5. *Ability to support market transformation of California's vehicle or equipment fleet to utilize low carbon or zero-emission technologies* – Similar to criterion 3 above, this qualitative analysis ranked projects by whether or not technologies that support market transformation are supported by the proposed projects. Staff used ARB's Vision for Clean Air document as a key reference in scoring technologies for this evaluation. Light-duty PHEVs, BEVs, and FCEVs, for example, are considered transformative technologies that will help the State meet its air quality goals. Staff scored this preference criterion based on the following:

   5: Technologies that support market transformation
   0: Technologies that do not support market transformation

6. *Ability to leverage private capital investments* – Staff is not proposing to include this criterion for FY 2016-17 as staff is working on developing methodologies to analyze the private capital investments leveraged by projects. Staff intends to identify information sources and may include this preference criterion in future years.

<u>Total Benefit Index</u>

Staff utilized the benefit-cost/cost-effectiveness scores of the proposed projects and the additional preference criteria in the consideration of the projects to be given funding preference under AB 8. Staff developed the Total Benefit Index (TBI) score that preferentially weights the benefit-cost score (at 75 percent of the total weighting) with additional preference scores (weighted at 25 percent). Staff weighted the benefit-cost/cost-effectiveness scores in this manner because AB 8 identified the benefit-cost score as the primary metric to assign funding preference for proposed projects.

Table A-27 summarizes the scores for all projects and the Total Benefit Index score for all of the AQIP projects currently proposed in the FY 2016-17 Funding Plan.

Table A-27: Project Scores and Total Benefit Index Score of Proposed Projects

Proposed Projects	Additional Preference Criteria					**25% of TBI**	**75% of TBI**	**Total Benefit Index Score**
	Proposed or potential reduction of criteria or toxic air pollutants.	Contribution to regional air quality improvement.	Ability to promote the use of clean fuels and technologies	Ability to achieve GHG reductions	Ability to support market transformation	**Average of Additional Preference Criteria Score**	**Benefit Cost Score**	
Truck Loan Assistance Program	3	5	3	0	0	**2.2**	**5**	**4.3**
Agricultural Equipment Trade-Up Pilot	5	5	3	0	5	**3.6**	**5**	**4.7**

Lifetime Emission Reductions Analysis

To determine the potential emission reductions for each project, staff estimated the number of vehicles or volume of fuels that could be funded, based on current project data or using the proposed allocations in the Funding Plan and the average per vehicle incentive amounts listed in Table A-21. Table A-28 summarizes the number of vehicles and volume of fuels that are reasonably expected to be funded based on the proposed allocations.

Table A-28: Potential Number of Vehicles or Volume of Fuels Funded with Proposed Allocations

Phase	Proposed Projects	Proposed FY16/17 Allocation	Average Cost	# of Vehicles/ Volume of Fuels Funded[37]	Comments
Demos	Advanced Technology Demonstrations	$59,000,000	$625,000	90	
Commercialization	Zero-Emission Freight Pilot	$5,000,000	$80,000	60	
	Zero-Emission Truck Pilot	$18,000,000	$500,000	66	Staff assumption for number of vehicles funded is based on applications received from the FY15-16 Zero-Emission Truck and Bus Pilot Solicitation
	Zero-Emission Bus Pilot	$42,000,000	$625,000	43	Staff assumption for number of vehicles funded is based on applications received from the FY15-16 Zero-Emission Truck and Bus Pilot Solicitation
	Rural School Bus Pilot	$10,000,000	$237,500	40	
	CVRP	$230,000,000	$2,250	98,000	
	HVIP	$18,000,000	$34,665	500	
	Low NOx Engines	$23,000,000	$18,000	1,200	
	Very Low Carbon Fuels Incentive	$40,000,000	$0.60	67,000,000	
Transition	Truck Loan Assistance	$22,000,000	$10,000	3,900	Estimated number of vehicles funded assumes that ARB will pay a contribution rate of 4% for top tier loans, which approximately doubles the leveraged funds
	Agricultural Equipment Trade-Up Pilot	$3,000,000	$50,000	50	
Pilot Projects to Benefit DACs	EFMP Plus-up	$30,000,000	$6,125	4,900	
	Car Sharing Pilot Project	$8,000,000	$14,000	550	
	Public Fleets in DACs	$3,000,000	$7,625	400	
	Agricultural Worker Vanpools	$3,000,000	$45,000	60	
	Light-Duty Financing Assistance	$6,000,000	$10,500	550	

[37] Estimate includes administrative costs, when applicable

Finally, to determine the total potential emission reductions over the course of the project life for each project proposed in the Funding Plan, staff used the following formula:

$$Total\ Project\ Emission\ Reduction = Annual\ Emission\ Reductions\ per\ Vehicle\ x\ Project\ Life\ x\ \#\ of\ Vehicles\ Funded$$

Table A-29 displays the total weighted criteria pollutant emission reductions for AQIP and projects that until recently were traditionally funded through AQIP using the formula shown above.

Table A-29: Total Potential Criteria Emission Reductions

Phase	Proposed Project	Per Vehicle Average (tons)	Project Life (years)	Total per Vehicle Lifetime Emission Reductions (tons)	Number of Vehicles Funded	Total Lifetime Criteria Pollutant Emission Reductions (tons)
Commercialization	CVRP	0.003	15	0.044	98,000	4,307
	HVIP	0.019	15	0.283	500	142
	Low NOx Engines	0.012	15	0.183	1,200	220
Transition	Truck Loan Assistance	0.281	3	0.844	3,900	3,290
	Agricultural Equipment Trade-Up Pilot	0.756	5	3.782	50	189
Pilot Projects to Benefit DACs	EFMP Plus-up	0.007	3	0.021	4,900	104
	Public Fleets in DACs	0.002	15	0.037	400	15

Finally, Table A-30 displays the total potential GHG emission reductions for each project based on the methodology and assumptions outlined throughout this appendix.

Table A-30: Total Potential GHG Emission Reductions

Phase	Proposed Project	Per Vehicle Average	Project Life (years)	Total per Vehicle Lifetime Emission Reductions	Number of Vehicles or Equipment Funded	Total Lifetime GHG Emission Reductions (metric tons CO_2e)
Demonstration	Advanced Technology Demonstrations	50.70	3	152.11	90	13,690
Commercialization	Zero-Emission Freight Pilot	53.93	15	808.96	60	48,538
	Zero-Emission Truck Pilot	24.67	15	370.12	66	24,428
	Zero-Emission Bus Pilot	60.01	15	900.13	43	38,705
	Rural School Bus Pilot	16.88	15	253.17	40	10,127
	CVRP	2.56	15	38.39	98,000	3,762,249
	HVIP	8.56	15	128.33	500	64,164
	Low NOx Engines	26.20	3	78.59	1,200	94,304
	Very Low Carbon Fuels Incentive	0.006	N/A	N/A	67,000,000[38]	424,020
Transition	Truck Loan Assistance	N/A	3	N/A	3,900	N/A
	Agricultural Equipment Trade-Up Pilot	N/A	5	N/A	50	N/A
Pilot Projects to Benefit DACs	EFMP Plus-up	1.73	3	5.19	4,900	25,419
	Car Sharing Pilot Project	1.64	3	4.92	550	2,707
	Agricultural Worker Vanpools	5.30	6	31.79	60	1,908
	Public Fleets in DACs	2.13	15	31.95	400	12,782
	Light-Duty Financing Assistance	2.24	3	6.71	550	3,688

[38] Based on volume of fuel funded (in gallons)

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Appendix B

SB 1204 Requirements and Performance Criteria Evaluation For Heavy-Duty Projects

(Health & Safety Code Section 39719.2(c) and (d))

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Overview

SB 1204 (Lara, Chapter 452, Statutes of 2014) created the California Clean Truck, Bus, and Off-road Vehicle and Equipment Technology Program funded with Low Carbon Transportation Investments, to support the development, demonstration, pre-commercial pilot, and early commercial deployment of zero- and near zero-emission technologies with priority given to projects that benefit disadvantaged communities. This appendix describes the ten requirements of SB 1204 and how ARB is addressing each of these requirements, followed by an evaluation of how each applicable heavy-duty or off-road project proposed in the FY 2016-17 Funding Plan satisfies the proposed performance criteria.

ARB's proposed heavy-duty vehicle and off-road equipment projects were evaluated based on a range of criteria that address emission reductions, technology viability and advancement, and market acceptance. Both SB 1204 and AB 8 (Perea, Chapter 401, Statutes of 2013) provide important policy drivers behind ARB's process of evaluating heavy-duty and off-road projects for funding consideration. Projects funded by AQIP must be evaluated based on the benefit-cost of criteria pollutant reductions and five additional preference criteria consistent with the requirements of AB 8, as detailed in Appendix A – Emission Reductions: Quantification Methodology. While some of the heavy-duty and off-road projects receive funding from AQIP, most are funded from ARB's Low Carbon Transportation appropriation and must satisfy the requirements of SB 1204, discussed in this appendix. The complete AB 8 and GHG emission analysis is detailed in Appendix A.

1. Addressing SB 1204 Requirements

SB 1204 establishes specific program planning and project eligibility requirements and directs ARB to use the existing AQIP Funding Plan process to develop the guidance necessary to implement the program (Health and Safety Code section 39719.2(c)). The Funding Plan coordinates AQIP and Low Carbon Transportation investments in the heavy-duty sector, while implementing the specific statutory requirements that apply to each program.

SB 1204 establishes ten goals for California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program in Health and Safety Code section 39719.2(d) that should be addressed in ARB's guidance. The following describe how ARB will address each of these requirements, either by continuing procedures and processes that have been in place for previous AQIP or Low Carbon Transportation funding cycles or through new requirements proposed in this Funding Plan, followed by ARB's overarching vision for heavy-duty vehicle investments.

SB 1204 Requirement 1: Outline performance criteria and metrics for deployment incentives. The goal shall be to design a simple and predictable structure that provides incentives for truck, bus, and off-road vehicle and equipment technologies that provide significant greenhouse gas reduction and air quality benefits.

As Low Carbon Transportation and AQIP evolve, there is a clear need to evaluate the effectiveness of program investments. Staff has and will continue to work with stakeholders to identify appropriate metrics of success for each project funded under AQIP and the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Program.

To achieve the pace of technology advancement needed to meet long-term air quality and climate goals, this funding should spur increasingly low-emission and low-carbon technologies as they are introduced and achieve market acceptance. The availability of significant Low Carbon Transportation funding will enable the progression of advanced heavy-duty technologies toward commercialization at a faster pace. Similar to how light-duty vehicles transitioned from basic hybrids to plug-in and fuel cell electric vehicles, basic hybrid trucks are a precedent to advanced hybrids, and finally to the ultimate goal of zero-emission trucks (or trucks that achieve zero-emission miles in specific duty cycles).

While ARB's heavy-duty vehicle incentives have historically funded hybrid and zero-emission urban package and delivery trucks, California Clean Truck, Bus, and Off-Road Vehicle and Equipment Program funding is expected to also expedite widespread deployment of zero-emission urban buses, freight and line-haul trucks, and off-road equipment, which are responsible for the bulk of emissions from the heavy-duty sector. Investments in HVIP, truck and bus pilot projects, freight equipment pilot projects, and demonstrations all play a critical role in transitioning the entire freight and passenger transportation sector to zero-emission technologies, while at the same time providing immediate benefits to disadvantaged communities.

Proposed Performance Criteria for Evaluating Heavy-Duty Projects: Staff proposes the following performance criteria for evaluating heavy-duty projects funded through AQIP, California Clean Truck, Bus, and Off-Road Vehicle and Equipment Program, or both. These performance criteria are also intended to fulfill SB 1204 requirements:

- Potential for statewide and local emission reductions and health benefits.
    - Near-term reductions in both GHG and criteria emissions.
    - Long-term reductions in GHG and criteria emissions.
    - Emission reductions in non-attainment areas.
    - Emission reductions in and benefiting disadvantaged communities.

- Potential for technology viability.
    - Cost parity compared to conventional technology.
    - Reliability and durability in chosen application.

- Ability to transfer technology to other vehicle or equipment types.
- Fueling infrastructure support.
- Ability to integrate renewable fuels.

- Broad market acceptance.
  - Ability to leverage additional public and private funding.
  - Collaboration between multiple entities.
  - Ability to address market barriers.

SB 1204 Requirement 2: Ensure that program investments are coordinated with funding programs developed pursuant to the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (Chapter 8.9 (commencing with Section 44270) of Part 5).

Developing a joint Funding Plan that covers both AQIP and Low Carbon Transportation funding sources ensures coordinated investments between these two programs. The California Clean Truck, Bus, and Off-Road Vehicle and Equipment Program complements and enhances the existing ARB/Energy Commission coordination in the AQIP planning process by directing additional funding for the development, demonstration, pre-commercial pilot, and early commercial deployment of zero- and near zero-emission truck, bus, and off-road vehicle and equipment technologies.

In developing the joint Funding Plan, ARB and the Energy Commission staff meet routinely during the development of each agency's funding/investment plans for these respective programs to ensure that investments are coordinated. ARB has a representative on the Advisory Committee that assists with the development of the Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program. Similarly, Energy Commission staff participate in the public workshops and work groups that are part of ARB's annual funding plan development.

SB 1204 Requirement 3: Promote projects that assist the state in reaching its climate goals beyond 2020, consistent with Sections 38550 and 38551.

In the FY 2014-15 and FY 2015-16 Funding Plans, heavy-duty projects focused on vehicles and industry sectors that, when transitioned to zero-emission, will have a significant impact on reducing climate change emissions. Both Funding Plans included significant Low Carbon Transportation funding allocations for demonstrations, pilot commercial deployments, and ongoing deployments of commercially available vehicles that will achieve both near-term and long-term GHG emission reductions.

By continuing to develop promising near zero- and zero-emission technologies for use in industry sectors that: (1) are significant GHG emitters; and (2) hold promise for technology expansion and transfer to other sectors, these investments will help the State reach its long-term climate goals. Some of the key performance criteria listed above are "potential for long-term GHG reductions" and "ability to transfer technology to

other vehicle or equipment types." These criteria help to promote projects that will contribute to meeting post-2020 climate goals.

> *SB 1204 Requirement 4: Promote investments in medium- and heavy-duty trucking, including, but not limited to, vocational trucks, short-haul and long-haul trucks, buses, and off-road vehicles and equipment, including, but not limited to, port equipment, agricultural equipment, marine equipment, and rail equipment.*

Since the launch of AQIP with the first annual Funding Plan in 2009, ARB has funded the types of projects identified by SB 1204, and staff proposes to continue and to expand these investments. As shown in Table 3 in Chapter 2 of this Funding Plan, staff proposes $175 million for demonstrations, pilots, and deployment projects in the truck, bus, and off-road vehicle and equipment sectors.

> *SB 1204 Requirement 5: Implement purchase incentives for eligible technologies to increase use of the cleanest vehicles in disadvantaged communities.*

Consistent with this requirement, the Board approved the FY 2014-15 and FY 2015-16 Funding Plans with the commitment that at least half of the total Low Carbon Transportation funding be invested in projects that provide benefits to disadvantaged communities. For FY 2016-17, staff proposes to continue this level of incentives in disadvantaged communities. In addition, staff's proposal ensures that at least 10 percent of these funds will be invested in disadvantaged community census tracts. This will ensure that ARB's heavy-duty vehicle incentives increase the use of the cleanest vehicles in these communities.

Over past funding cycles, ARB has provided AQIP and Low Carbon Transportation funding for purchase incentives for clean technologies, reducing emissions from the heavy-duty sector and providing benefits to disadvantaged communities. To date, nearly 2,500 vouchers have helped fund hybrid and battery electric delivery trucks and buses through HVIP, with about two-thirds of HVIP funding providing benefits to disadvantaged communities, and about 45 percent spent in disadvantaged communities. In addition, new pilot deployment projects for zero-emission trucks and buses that ARB will launch this year will also increase use of the cleanest vehicles and benefit disadvantaged communities.

> *SB 1204 Requirement 6: Allow for remanufactured and retrofitted vehicles to qualify for purchase incentives if those vehicles meet warranty and emissions requirements, as determined by the state board.*

The Hybrid and zero-emission conversions of original equipment manufacturer (OEM) vehicles were added to HVIP in FY 2015-16 and is proposed to continue for this project in FY 2016-17. ARB is also allowing conversions of existing in-use vehicles to zero-emission as an eligible vehicle category in the zero-emission truck and bus pilot projects being funded as part of the FY 2014-15 Funding Plan and proposed in this

Funding Plan. Additionally, staff is proposing that the Low NOx Engine Incentive Project include repowers of existing heavy-duty vehicles with engines certified to an optional low NOx standard.

SB 1204 Requirement 7: Establish a competitive process for the allocation of moneys for projects funded pursuant to this section.

ARB has used an established process for awarding AQIP funding through competitive solicitations since 2009. This process has served as the basis for allocating most Low Carbon Transportation funding since the FY 2014-15 funding cycle, and staff proposes using the same process moving forward to solicit and award California Clean Truck, Bus, and Off-Road Vehicle and Equipment Program funding. Staff also proposes to allow funding allocations to be directed to a local air district or other agency to competitively solicit projects that more effectively address local needs.

SB 1204 Requirement 8: Leverage, to the maximum extent feasible, federal or private funding.

Currently, most grant solicitations require a minimum level of match funding, and projects that offer more match funding have the potential to be scored higher than projects with less match funding. Proponents are encouraged to seek additional funding from federal, state, and local public sources, as well as private sources. Staff proposes continuing the solicitation scoring criteria to encourage leveraging and is working with other funding providers to maximize federal and private funding.

SB 1204 Requirement 9: Ensure that the results of emissions reductions or benefits can be measured or quantified.

Since the inception of AQIP, all grant solicitations require that the project proponent report various metrics associated with vehicle operation and fuel consumption. Emissions from vehicles certified to a cleaner standard (i.e., low NOx) will be compared to a diesel baseline to determine emission reductions. Fuel consumption and carbon intensity will be used to quantify GHG emission benefits from hybrids, battery electric and fuel cell electric vehicles, as well as from vehicles using renewable fuels, compared to their conventional counterparts. All program-level emission reduction benefits will be quantified by comparing to conventional technologies on a well-to-wheel basis. In addition, telematic devices will be used when possible to monitor in-use data and provide information on usage in disadvantaged communities and other designated areas. Staff proposes to contract with a third party to collect and analyze operation, maintenance, and performance data associated with demonstration and pilot projects.

SB 1204 Requirement 10: Ensure that activities undertaken pursuant to this section complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminants.

The zero- and near zero-emission technologies funded in California Clean Truck, Bus, and Off-Road Vehicle and Equipment Program provide GHG reductions as well as criteria pollutant and toxic air contaminant reductions, consistent with the existing AQIP program. These technologies operating in and near disadvantaged communities will reduce NOx and diesel particulate matter, contribute to criteria pollutant emission reductions, and reduce GHG emissions in the heavy-duty sector.

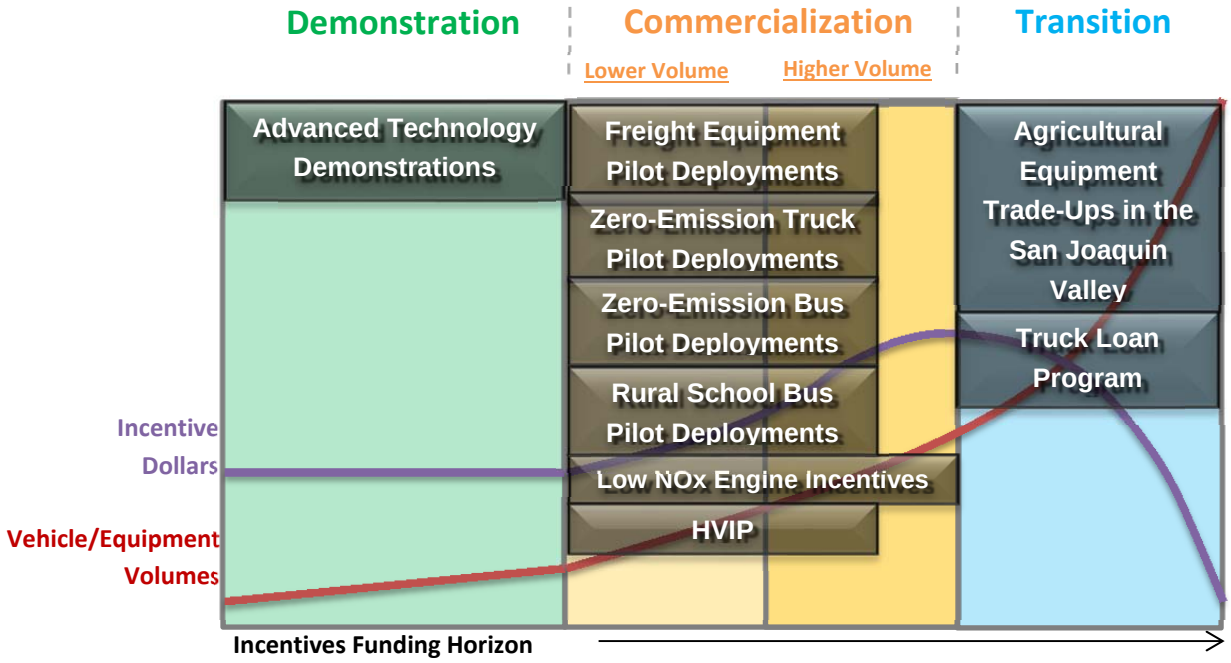
OVERARCHING VISION FOR HEAVY-DUTY VEHICLE INVESTMENTS

SB 1204 directs that the annual framework and plan required under Health and Safety Code Section 39719.2(f):

> Articulate an overarching vision for technology development, demonstration, pre-commercial pilot, and early commercial deployments, with a focus on moving technologies through the commercialization process.

The recommended heavy-duty vehicle and off-road equipment projects support SB 1204's overarching vision for technology development, demonstration, pre-commercial pilot, and early commercial deployments, with a focus on moving technologies through the commercialization process. This evolutionary role of incentives – is illustrated in Figure B-1 and described below.

Figure B-1: Proposed Heavy-Duty Vehicle and Off-Road Equipment Investments



In the *demonstration phase*, manufacturers are placing pre-commercial vehicles and equipment in service under real-world operating conditions. In this phase, per-vehicle incentives are high because manufacturing is not standardized and is focused on smaller batches of vehicles.

Funding is also provided for *pilot projects* to help the technology evolve in the early commercialization phase by deploying a larger volume of vehicles and equipment. Pilot projects can include both pre-commercial pilots and commercial pilots depending on the stage of technology advancement. *Pre-commercial pilots* are focused on first-time demonstrations of advanced technologies in new applications. *Commercial pilots*, on the other hand, involve deployments of vehicles and equipment that have been demonstrated, are certified by ARB, come with a warranty, and are purchased or leased by the end user. Vehicles in commercial pilots are ready to be sold commercially, but in such small numbers that they would not be able to compete without incentive support.

Table B-1: Pilot Project Categories

Milestone	Demonstration or Pre-commercial Pilot	Early Commercial Deployment or Commercial Pilot
ARB Certification/Approval	Experimental permit	Vehicle/engine certification or zero-emission approval letter
Vehicle Ownership	Retained by manufacturer	Purchase or lease transaction
Manufacturer Warranty	No	Yes

In addition, many projects would not advance to commercialization without the appropriate fueling infrastructure. For this reason, ARB provides funding for fueling infrastructure that directly supports funded vehicles and equipment.

In the *commercialization phase*, incentives are provided to encourage consumer adoption of advanced technologies. The commercialization phase can be broadly separated into lower volume and higher volume production phases. In the lower volume commercialization phase, per vehicle incentives are high. As sales grow and economies of scale are achieved, incentive funding levels and vehicle eligibility requirements can be adjusted to reduce per vehicle funding to ensure maximum incentive efficiency. In this higher volume commercialization phase, while per vehicle incentives are decreasing, total sales are increasing and total incentive funding commitments increase as a result. As a technology moves from lower volume commercialization to a fuller more mature higher volume, the incentive funding goals shift from a focus on technology development to a more specific focus on moving the technology from early adopters to mainstream consumers, disadvantaged communities, and the secondary market.

As a technology moves from commercialization into the transition phase, incentives can be adjusted to focus specifically on moving the technology into new consumer demographic segments and on building upon earlier benefits in disadvantaged communities.

2. Project-Specific SB 1204 Performance Criteria Evaluation

Following is an evaluation of each proposed heavy-duty and off-road equipment project in terms of how they satisfy the proposed performance criteria detailed earlier in this appendix. Only projects proposed to be funded with Low Carbon Transportation Investments are included below.

ADVANCED TECHNOLOGY DEMONSTRATION PROJECTS

Following is an assessment of the proposed Advanced Technology Demonstration Projects in terms of how they meet the proposed SB 1204 evaluation and performance criteria.

Potential for Statewide and Local Emission Reductions and Health Benefits: Advanced Technology Demonstration Projects are focused on demonstrating technologies that are on the cusp of commercialization and have the potential for significant emission reductions. The proposed projects for conventional on-road trucks will demonstrate how increasing efficiencies in conventional technologies can result in near-term emission reductions, while the zero-emission truck demonstrations will demonstrate technologies that can replace conventionally fueled trucks, leading to long-term emission reductions in the trucking sector once fully commercialized. In addition to cleaner on-road trucks, the projects focusing on demonstrating zero-emission rail and cargo handling technologies will result in immediate air quality benefits to communities located near rail yards, ports, distribution centers, and airports – which in many instances are within or near disadvantaged community census tracts. Due to their relatively small scale, these demonstration projects will result in modest emission reductions in the short term while, more importantly, supporting the potential for longer term emission reductions from the demonstrated technologies once fully deployed into the marketplace.

Potential for Technology Viability: Advanced Technology Demonstration Projects can achieve several objectives: (1) determining the viability of applying advanced technologies in revenue service through real-world field demonstrations; (2) evaluating the potential for expanding use of the technologies in similar sectors or vocations; and (3) evaluating the use of demonstrated technologies in new applications and industry sectors. The locomotive freight projects, for example, demonstrate the use of zero-emission technologies within and near the rail yards, while providing data to evaluate the potential for increasing the use of zero-emission technologies in line-haul locomotives. Similarly, the zero-emission short and regional haul truck demonstrations will build on the advances made through the demonstration of zero-emission drayage trucks from the FY 2014-15 Funding Plan. The non-freight off-road projects will transfer proven hybrid technologies to agricultural and construction equipment, and are expected to lead to increased operational efficiencies and reduced operation and maintenance costs. Because many of these demonstration projects will require the installation of fueling infrastructure, they provide the opportunity to demonstrate

hydrogen and charging fueling infrastructure in heavy-duty on- and off-road applications, and provide increased opportunities to integrate renewable fuels.

Broad Market Acceptance: The success of any Advanced Technology Demonstration Project is forged on strong public-private partnerships, requiring collaboration between many entities, such as the State, regional municipalities, local air districts, ports and rail yards, fleet owners and equipment operators. Demonstration projects require private technology firms to team with public agencies or non-profit organizations in submitting their application for funding and a significant contribution of match funds. ARB requires a minimum of 25 percent cost share from the project applicants, where a higher contribution from the project proponents is scored higher than those projects that just meet the minimum match requirements. Airport ground support equipment (GSE) and cargo handling equipment, such as baggage equipment, forklifts, reach stackers and yard trucks, are used throughout the State. Successful demonstrations of pre-commercial zero-emission GSE and cargo handling equipment support broad market utilization of these technologies and future cost-reductions due to economy-of-scale production.

FREIGHT EQUIPMENT COMMERCIAL DEPLOYMENT PILOT PROJECT

Following is an assessment of the proposed Freight Equipment Commercial Deployment Pilot Project in terms of how it meets the proposed SB 1204 evaluation and performance criteria.

Potential for Statewide and Local Emission Reductions and Health Benefits: The proposed project is expected to achieve near-term greenhouse gas reductions along with co-benefit reductions in toxic and criteria pollutant emissions. Longer term reductions in GHG, criteria and toxic pollutant emissions will be realized as the off-road zero-emission technology pilots increase in scale over time, and as more end-users take advantage of the incentive funding for these technologies. Staff expects at least 50 percent of the equipment funded will benefit disadvantaged communities, which will have the added benefit of improving air quality in areas non-attainment.

Potential for Technology Viability: Funding to incentivize the purchase of zero-emission off-road freight equipment has significant potential for technology viability by helping to support their penetration into the broader market, which in turn will positively impact cost differentials and consumer acceptability. The availability of funds for current commercialized freight equipment will also help transition zero-emission technologies to similar freight related applications that require even higher horsepower and longer duty cycles.

Broad Market Acceptance: Collaboration and commitment on the part of early users and beneficiaries of clean technology is essential to market acceptance. Fortunately, the need for air quality improvements is the impetus behind federal, state, and local funding for technologies that will result in lower emissions and increased use freight technology. The pilot project will increase public and industry acceptance of the

technology through education, outreach, and positive exposure to new technologies. Zero-emission freight equipment that successfully perform the same functions as their conventional counterparts will send a strong signal to those considering adopting similar zero-emission technologies.

ZERO-EMISSION TRUCK PILOT COMMERCIAL DEPLOYMENTS AND ZERO-EMISSION BUS PILOT COMMERCIAL DEPLOYMENTS

Following is an assessment of the proposed Zero-Emission Truck Pilot Commercial Deployment Project and Zero-Emission Bus Pilot Commercial Deployment Project in terms of how they meet the proposed SB 1204 evaluation and performance criteria.

Potential for statewide and local emission reductions and health benefits: Zero-emission freight and delivery truck pilot deployments and zero-emission transit, shuttle, and school bus pilot deployments are designed to achieve near-term and long-term emission reduction targets. Displacing diesel-powered vehicles with zero-emission trucks and buses will result in immediate reductions of criteria pollutant, toxic air contaminant, and GHG emissions. Centering projects in disadvantaged communities will ensure that the early criteria pollutant and PM emission reductions directly benefit disadvantaged communities as well as contribute to emission reductions in ozone non-attainment areas. Finally, the pilot deployments are designed to help overcome technology and market barriers to widespread adoption, ultimately leading to long-term reductions in emissions associated with the production and combustion of diesel fuel.

Potential for technology viability: Two key objectives of these pilot deployments are to increase the numbers of zero-emission medium- and heavy-duty vehicles in use, and increase zero-emission miles. Increased production volumes will lead to cost reductions in vehicle components and assembly, energy storage systems, and fueling infrastructure. Economy-of-scale cost reductions combined with potential fuel and maintenance cost savings will help drive zero-emission technology closer to cost parity with conventional technologies. Increased miles traveled by zero-emission trucks and buses will greatly broaden industry's understanding of the technology, and help identify opportunities for cost savings, technology improvements, and technology transfer. Increasing the numbers of advanced technology vehicles and miles traveled will also result in increased demand for electricity and hydrogen fuels, which will help the State meet goals for transitioning from petroleum to renewable fuels.

Broad Market Acceptance: Collaboration and commitment on the part of early users and beneficiaries of clean technology is essential to market acceptance. Fortunately, the need for air quality improvements is the impetus behind federal, state, and local funding for technologies that will result in lower emissions and increased use of transit buses and school buses. This funding coupled with commitments made by local air districts, transit agencies, and planning organizations to invest resources toward improving local air quality motivates technology providers and entrepreneurs to invest in developing zero-emission technologies. For this reason, the truck and bus pilot

deployment solicitation encourages local agency participation as well as leveraging of match funding from public and private sources. The deployment projects will increase public and industry acceptance of the technology through education, outreach, and positive exposure to new technologies. Trucks and buses that successfully perform the same functions as their conventional counterparts will send a strong signal to those considering adopting similar advanced clean technologies.

RURAL SCHOOL BUS PILOT PROJECT

Following is an assessment of the proposed Rural School Bus Pilot Project in terms of how it meets the proposed SB 1204 evaluation and performance criteria.

Potential for statewide and local emission reductions and health benefits: Incentivizing lower carbon options for California's rural school bus fleet is expected to achieve near-term and long-term emission reductions. Displacing older, conventional-fueled school buses with zero-emission or hybrid technologies will result in immediate reductions of criteria pollutant, toxic air contaminant, and GHG emissions, providing health benefits to children, California's largest population group sensitive to the effects of air pollution. Internal combustion engine school buses using renewable fuels will also provide immediate GHG reductions while increasing the demand for low carbon fuels. The pilot deployments are designed to help overcome technology and market barriers to widespread adoption, ultimately leading to long-term reductions in emissions associated with the production and combustion of conventional fuel. Finally, while it is unknown if funding will occur in disadvantaged community census tracts, centering projects in rural areas will enhance fleet turnover to cleaner technologies in areas that would not otherwise benefit.

Potential for technology viability: As with the zero-emission bus pilot deployments, the Rural School Bus Pilot Project will increase the numbers of zero-emission school buses in use and increase zero-emission miles. These increases will contribute to economy-of-scale cost reductions and provide school bus fleets the potential to experience fuel and maintenance cost savings. The use of renewable fuels for internal combustion engine school buses will help support the goals of the Low Carbon Fuel Standard and provide an opportunity to reduce GHG emissions. All of the low carbon options available in this project will help the State meet goals for reducing petroleum use.

Broad Market Acceptance: Collaboration and commitment on the part of early users and beneficiaries of clean technology is essential to market acceptance. The need for air quality improvements is the impetus behind federal, state, and local funding for technologies that will result in lower emissions and increased use of school buses with these technologies. The project will increase public and industry acceptance of zero-emission school buses and clean fuels through education, outreach, and positive exposure to new technologies. Advanced technology school buses and school buses using renewable fuels that successfully perform the same functions as their

conventional counterparts will send a strong signal to those school bus owners considering adopting similar advanced clean technologies.

LOW NOX ENGINE INCENTIVES

Following is an assessment of the proposed low NOx engine incentives in terms of how they meet the proposed SB 1204 evaluation and performance criteria.

Potential for Statewide and Local Emission Reductions and Health Benefits: The Low NOx Engine Incentives project is expected to achieve near-term reductions of GHG and criteria pollutant emissions, particularly with the use of renewable fuels. These near-term reductions will complement the incentives provided for zero-emission pathway technologies that achieve long-term reductions. Staff expects at least 50 percent of the funding for this project will benefit disadvantaged communities. However, the actual geographic locations of vehicle buyers and driving routes are unknown; staff will rely on required reporting and monitoring information to quantify the emission reductions in disadvantaged communities and federal ozone standard non-attainment areas.

Potential for Technology Viability: Funding to incentivize the purchase of early low NOx heavy-duty vehicle engines has significant potential for technology viability. Incentivizing the production and purchase of vehicles with these engines will help support their penetration into the heavy-duty market, which in turn will positively impact cost differentials and consumer acceptability. Making this funding available to medium heavy-duty vehicles (14,001 to 26,000 pounds GVWR) will help transition the technology to heavy heavy-duty vehicles (greater than 26,000 pounds GVWR), since advanced technologies are often implemented in lighter weight classes before evolving to heavier weight classes with longer duty cycles. Lastly, this project encourages the development of renewable fuels by requiring renewable fueling for vehicles funded by Low Carbon Transportation Investments.

Broad Market Acceptance: Incentivizing the production and purchase of vehicles with low NOx engines will help support consumer acceptance and drive down incremental costs. Staff will continue to coordinate with the Energy Commission to ensure a clear, systematic implementation approach for this project. This coordination will be essential in addressing market barriers, since the Energy Commission has significant experience developing and implementing funding projects for alternative fueled vehicles.

HYBRID AND ZERO-EMISSION TRUCK AND BUS VOUCHER INCENTIVE PROJECT

Following is an assessment of the proposed Zero-Emission Truck and Bus Pilot Commercial Deployment Projects relative to the proposed SB 1204 evaluation and performance criteria.

Potential for statewide and local emission reductions and health benefits: Zero-emission trucks and buses, along with hybrid trucks, are designed to achieve

near-term and long-term emission reductions. Vouchers issued to date indicate that about 75 percent of HVIP funding has provided benefits to disadvantaged communities, and staff expects this trend to continue. HVIP is designed to encourage and accelerate the deployment of new hybrid and zero-emission trucks and buses in California, ultimately leading to long-term reductions in criteria and greenhouse gas emissions, and aiding California in attainting federal ozone and particulate matter standard within non-attainment areas.

Potential for technology viability: The incremental cost for zero-emission trucks and buses is substantial when compared to their conventional counterpart. For hybrid trucks, the incremental cost is not as significant. Providing incentive funding towards the purchase of zero-emission trucks and buses, along with hybrid trucks accelerates the penetration of these technologies into the heavy-duty market. Increased production volumes will lead to cost reductions in vehicle components and assembly, energy storage systems, and fueling infrastructure. Making this funding available to medium heavy-duty vehicles (14,001 to 26,000 pounds GVWR) will help transition the technology to heavy heavy-duty vehicles (greater than 26,000 pounds GVWR), since advanced technologies are often implemented in lighter weight classes before evolving to heavier weight classes with longer duty cycles. Increasing the numbers of advanced technology vehicles and miles traveled will also result in increased demand for electricity and hydrogen fuels, which will help the state meet goals for transitioning from petroleum to fuels produced from renewable resources.

Broad Market Acceptance: HVIP is structured to encourage leveraging of local, State, federal funding and private funding. The collaboration between public agencies and their commitment to invest resources toward improving local air quality motivates advanced technology providers to invest in developing near zero-, and zero-emission technologies. Incentive funding, along with public and private partnerships, encourages the deployment of advanced technology, reduces production costs, and increases commercial viability within the truck and bus market.

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Appendix C

CVRP
Terms and Conditions
and
Implementation Manual

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California Environmental Protection Agency
Air Resources Board
Center for Sustainable Energy®

California's Clean Vehicle Rebate Project
Rebate Application Form Terms and Conditions

PART 1: REBATE PROCESS

Note to Applicants: At the time an applicant submits a signed application for a rebate, the most current CVRP Implementation Manual available, as well as the Terms and Conditions signed by the consumer, will apply.

Rebates are distributed on a first-come, first-served basis and issued to qualified recipients in a single payment within 90 days of approval. Delays beyond normal processing times may occur. To apply for a rebate:

1. Submit an online application. The Project Administrator (Center for Sustainable Energy) will reserve funds for your rebate.
2. Submit supporting documentation within 14 calendar days from the date you submitted your online application. The supporting documentation may be scanned and submitted through the CVRP website. Applicants without internet access may mail the supporting documentation to the Administrator: Center for Sustainable Energy, Clean Vehicle Rebate Project, 9325 Sky Park Court, Suite 100, San Diego, CA 92123. If mailed, submittal date will be determined by U.S. mail postmark. For security purposes, supporting documents that are sent on removable media (flash drives, CDs, DVDs, etc.) will not be accepted. Because of security and privacy concerns, applicants are strongly discouraged from emailing their supporting documentation. However, applicants may email their supporting documentation to cvrp@energycenter.org with the understanding that they accept all risk associated with emailing these documents. Required documentation will include, at a minimum, the following:
    I. A scanned copy of the submitted application signed by the vehicle purchaser, lessee or authorized representative.
    II. Proof of temporary or permanent vehicle registration for the vehicle listed in the application. The applicant's name must be on the registration, and the registration must be current (not expired).
    III. A complete copy of the sales or lease contract. A complete contract is executed and signed. It includes an itemization of credits, discounts, and incentives received, if applicable, and all information needed to process the application.
        I. For eligible zero-emission motorcycles (ZEMs) and neighborhood electric vehicles (NEVs), evidence of sealed maintenance-free batteries (if lead acid) and a 24-month warranty.
    IV. Proof of California residency:
        I. For individuals, a legible copy of their current (not expired) California driver's license.
            I. Individuals who do not have a California driver's license will be required to provide a legible copy of a current alternate unique identifier as approved by the Administrator. They must also provide proof of California residency in the form of a utility or cable bill within the last 3 months, a copy of the current DMV registration of another vehicle in the name of the purchaser or lessee, a signed, dated, and notarized residential rental agreement, or other valid form of California residency as approved by ARB.
        II. For businesses, a copy of the formation document filed with the California Secretary of State, California business license, California business tax paid certificate, or other documentation as approved by the Administrator. In lieu of the options above, sole proprietorships may submit a DBA form.
    V. Proof of income, if selected for income verification.
        I. For consumers applying for a standard rebate, a completed and signed IRS Form 4506-T. Alternate proof of income, such as recent tax returns, may be submitted as approved by the Administrator.
        II. For consumers applying for an increased rebate, option A or B:
            I. Option A: A document confirming the applicant's participation in at least one of the public assistance programs on CVRP's Categorical Eligibility List.
            II. Option B: One completed Household Summary Form and a completed IRS Form 4506-T for every household member age 17 and older.

Important: If you do not submit the required supporting documentation within 14 calendar days, the Administrator will release the reserved rebate funds back to the CVRP, and you will have to submit a new application. Rebate checks must be cashed within six months of the date on the check. Checks not cashed within this timeframe will be cancelled, and the rebate amount will be returned to the CVRP.
Rebate applications that have been denied or cancelled by the Administrator may be appealed within 10 days of the date of the cancellation. If the only basis for an appeal is that the applicant disagrees with the policies set forth in the CVRP Terms and Conditions, and the Implementation Manual, there is no basis for an appeal. A formal letter of appeal must be postmarked within 10 days of a cancelled application.

PART 2: APPLICANT AND VEHICLE REQUIREMENTS

As a condition for receiving State of California, Air Resources Board (ARB) rebate funds, you (the applicant/purchaser/lessee) must comply with the requirements below. You are responsible for reviewing the CVRP program requirements prior to applying for a rebate. Eligible applicants must meet requirements that include, but are not limited to, the following:

1. Income eligibility requirements apply to rebate applications for vehicles purchased or leased on or after March 29, 2016.
    I. Consumers are not eligible for CVRP rebates if their gross annual incomes are above the following thresholds: $250,000 for single filers, $340,000 for head-of-household filers, or $500,000 for joint filers. The income cap applies for all eligible vehicle types except fuel-cell electric vehicles.
    II. Rebate amounts will be increased by $1,500 per rebate for consumers with household incomes less than or equal to 300 percent of the federal poverty level. Applicants who are claimed as dependents are not eligible for increased rebates regardless of their income. Increased rebate amounts are available for fuel-cell electric vehicles, battery electric vehicles, and plug-in hybrid electric vehicles.
2. Except for rental, public, and car share fleets, no single entity is eligible to receive more than two CVRP rebates either via direct purchase and/or lease as of January 1, 2015. All rebates issued prior to this date do not count toward the two rebate limit. Rental and car share fleets are subject to limits of 20 per calendar year. Public fleets are subject to limits of 30 per calendar year.
3. Be an individual, business, or government entity that is based in California or has a California-based affiliate at the time the rebated vehicle is purchased or leased.
    I. Eligible vehicles may be purchased out-of-state, but consumers must be California residents at the time of vehicle purchase. All businesses must be licensed to operate in California. Active duty military members stationed in California, but with permanent residency in another state are eligible to apply and may use military orders in lieu of other proof of residence documentation.
4. Be a purchaser or lessee of a new, eligible vehicle and submit a CVRP application prior to exhaustion of available rebate funds.
    I. Vehicles previously used as dealership floor models and test drive vehicles (demo vehicles) are eligible for the rebate only if the vehicles have not been previously registered with the California Department of Motor Vehicles (DMV). Vehicles determined by the Administrator to be unrebated rollback or unwind vehicles will be eligible to receive a rebate.
5. Submit a rebate application within 18 months after the date of purchase/lease to be eligible for a rebate. For the purposes of CVRP, the date of purchase is the day of sale. A sale is deemed completed when the purchaser of the vehicle has executed and signed a purchase contract or security agreement. For the purposes of CVRP, a vehicle is deemed to be leased on the date upon which the lease of the vehicle commences, as specified in a signed lease agreement. For Tesla vehicles ordered prior to March 29, 2016, the vehicle order date will be considered the date of purchase or lease. For Tesla vehicles ordered on or after March 29, 2016, the date of first registration with the California DMV will be considered the date of purchase or lease.
6. Not make or allow any modifications to the vehicle's emissions control systems, hardware, software calibrations, or hybrid system.
    I. Commit that any emission reductions generated by the purchased vehicle will not be used as marketable emission reduction credits, to offset any emission reduction obligation of any person or entity, or to generate a compliance extension or extra credit for determining regulatory compliance.
7. Retain ownership of the vehicle for a minimum of 30 consecutive months immediately after the vehicle purchase or lease date.
    I. The original lease must be a minimum lease term of 30 months.
    II. Only rental and car share vehicles are eligible for a reduced ownership provision if retained in California for a minimum of twelve consecutive months but less than 30 consecutive months.
8. Rebate recipients who do not retain the eligible vehicle for the full 30-month ownership or lease period will be required to reimburse ARB all or part of the original rebate amount.
    I. Vehicle purchaser or lessee is required to notify the Administrator to arrange for early termination of vehicle ownership in advance of intent to sell or terminate a lease prior to the required 30-month ownership period.
    II. ARB will periodically check vehicle identification numbers with vehicle registrations to ensure that CVRP applicants meet this requirement. If an applicant violates this requirement, ARB or its designee reserves the right to recoup CVRP funds from the original vehicle purchaser identified on the rebate application form and may pursue other remedies available under the law.
9. Register the new vehicle with the DMV for a minimum of 30 consecutive months from the original purchase or lease date for use in California.
    I. Any government owned vehicle not registered with the DMV is still required to operate within California for 30 consecutive months immediately after the vehicle purchase or lease date.
10. Be available for follow-up inspection if requested by the Administrator, ARB, or ARB's designee for project oversight and accountability.
11. ARB reserves the right to request participation from rebate recipients in ongoing research efforts that support the CVRP and AQIP goals as well as ARB Research Division efforts.

If you have questions about CVRP Terms and Conditions, contact the Administrator (866-984-2532 or cvrp@energycenter.org).

CVRP APPLICATION NUMBER

California Environmental Protection Agency
Air Resources Board
Center for Sustainable Energy®

PART 3: APPLICANT AND VEHICLE INFORMATION

APPLICANT INFORMATION		
NAME OF VEHICLE OWNER/LESSEE:		TELEPHONE NUMBER:
STREET ADDRESS:		EMAIL ADDRESS:
CITY:	STATE:	ZIP CODE:
MAILING ADDRESS (IF DIFFERENT FROM ABOVE):		
APPLICANT TYPE: ○ Individual ○ Business ○ Non-Profit Organization ○ Local Government Agency ○ State Government Agency ○ Federal Government Agency		FLEET VEHICLE: ○ Car Share / Rental Vehicle ○ Public Fleet Vehicle
ORGANIZATION ID:		INDIVIDUAL ID:

VEHICLE INFORMATION	
DATE OF PURCHASE OR DATE WHICH LEASE COMMENCED:	LEASE TERM IN MONTHS (IF APPLICABLE):
MAKE, MODEL, AND YEAR OF THE VEHICLE: -	VEHICLE IDENTIFICATION NUMBER (VIN):
DEALER CONTACT (NAME AND TITLE): -	DEALER TELEPHONE NUMBER:

PART 4: SIGNATURE

By signing this application, the purchaser or lessee agrees to the following:

1. I agree to pay back all or a portion of rebate funds if any of the above terms and conditions are not met.
2. I understand that ARB reserves all rights and remedies available under the law to enforce the terms of this agreement.
3. I acknowledge that I have read and understand, and agree to be bound by, the terms and conditions as outlined within this Rebate Application Form.
4. I choose to voluntarily submit personally-identifying information for the purposes of processing my rebate and enforcing the Clean Vehicle Rebate Project Terms and Conditions. I have read and understood the Clean Vehicle Rebate Project Privacy Policy.

I certify under penalty of perjury that the information provided in this application and supporting documentation is accurate.

NAME OF APPLICANT OR AUTHORIZED REPRESENTATIVE:	**REQUESTED REBATE AMOUNT:**
SIGNATURE:	**DATE:**

Submit a signed copy of this application form online at cleanvehiclerebate.org/login

If you do not have internet access, mail this signed application form with your supporting documents to:
Attn: Clean Vehicle Rebate Project, Center for Sustainable Energy, 9325 Sky Park Court, Suite #100, San Diego, CA 92123

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IMPLEMENTATION MANUAL
FOR THE FY 2015-16
CLEAN VEHICLE REBATE PROJECT (CVRP)

March 2016

California Environmental Protection Agency
Air Resources Board

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IMPLEMENTATION MANUAL
FOR THE CLEAN VEHICLE REBATE PROJECT

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A. INTRODUCTION AND OVERVIEW

In 2007, Governor Schwarzenegger signed into law the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (AB 118, Statutes of 2007, Chapter 750). AB 118 created the Air Quality Improvement Program (AQIP), a voluntary incentive program administered by the Air Resources Board (ARB or Board), to fund clean vehicle and equipment projects, air quality research, and workforce training.

As required in Health and Safety Code (HSC) Section 44274(a), the Board adopted regulatory guidelines in 2009 for AQIP. The Guidelines for the AB 118 Air Quality Improvement Program (Guidelines) define the overall administrative requirements and policies and procedures for program implementation based on the framework established in statute. Central to the Guidelines is the requirement for a Board-approved annual funding plan developed with public input. The funding plan is each year's blueprint for expending AQIP funds appropriated to the ARB in the annual State Budget. The funding plan focuses AQIP on supporting development and deployment of the advanced technologies needed to meet California's longer-term, post 2020 air quality goals.

In 2012, the legislature passed and Governor Brown signed into law 3 bills – AB 1532 (Pérez, Chapter 807), Senate Bill (SB) 535 (de León, Chapter 830), and SB 1018 (Budget and Fiscal Review Committee, Chapter 39) – that established the Greenhouse Gas Reduction Fund (GGRF) to receive Cap-and-Trade auction proceeds and to provide the framework for how the auction proceeds will be administered to further the purposes of AB 32. Cap-and-Trade auction proceeds have been appropriated to the Air Resources Board (ARB) for Low Carbon Transportation projects that reduce greenhouse gas (GHG) emissions, with an emphasis on investments that benefit the State's disadvantaged communities. Per statute these funds must be used to further the purposes of Assembly Bill 32 (AB 32; Nunez, Chapter 488, Statutes of 2006). The Low Carbon Transportation investments build upon and greatly expand existing advanced technology, clean transportation programs, which provide mobile source incentives to reduce criteria pollutant, air toxic, and GHG emissions.

In June 2015, ARB approved the Fiscal Year 2015-16 Funding Plan for Low Carbon Transportation Investments and Air Quality Improvement Program (FY 2015-16 Funding Plan)[1], providing up to $163 million in funding for CVRP. The $163 million is comprised of up to $3 million in AQIP funding and $160 million in Low Carbon Transportation funding from the Greenhouse Gas Reduction Fund (GGRF) for CVRP.

At the time of the June 2015 Board action, the Legislature had appropriated FY 2015-16 AQIP funds to ARB as part of the Budget Act of 2015, Assembly Bill (AB) 93 (Weber, Chapter 10, Statutes of 2015). However, the Legislature had deferred action on Cap-

[1] The approved FY 2015-16 Funding Plan is available at: http://www.arb.ca.gov/msprog/aqip/fundplan/fundplan.htm

and-Trade auction proceeds, including the $350 million in Low Carbon Transportation funds for ARB in the Governor's May Revision Budget proposal. Hence, the Low Carbon Transportation elements of the Board-approved FY 2015-16 Funding Plan were contingent on appropriation of these funds.

In September 2015, the Legislature approved an appropriation of $90 million in Low Carbon Transportation project funding and associated State operations funding to ARB in Senate Bill (SB) 101 (Committee on Budget and Fiscal Review, Chapter 321, Statutes of 2015). The Legislature has deferred action on appropriating the remaining Cap-and-Trade auction proceeds funding, including any additional Low Carbon Transportation funds to ARB, until a later date. At the October 2015 Board meeting, the Board approved $75 million in Low Carbon Transportation project funding for CVRP.

CVRP is intended to encourage and accelerate zero- and near-zero-emission, on-road light-duty vehicle deployment and technology innovation. This project provides rebates to qualified individuals, businesses, public agencies and entities, and nonprofit organizations for the purchase or lease of eligible vehicles. CVRP benefits the citizens of California by providing immediate air pollution emission reductions while stimulating development and deployment of the next generation of zero-emission and plug-in hybrid electric light-duty vehicles. It is administered and implemented through a partnership between ARB and a Rebate Administrator (Administrator), selected via a competitive ARB grant solicitation. The majority of project funds are for rebates for purchasers or lessees of new, eligible on-road vehicles.

The CVRP Terms and Conditions in conjunction with the Air Quality Guidelines, and the Funding Plan identify the minimum requirements for implementing CVRP. The Implementation Manual for the FY 2015-16 Clean Vehicle Rebate Project (Implementation Manual) provides necessary definitions, explanations, and processes associated with those minimum requirements. The Implementation Manual may be periodically updated as needed to clarify project requirements and improve project effectiveness. The Implementation Manual, including any updates, will be posted on ARB's website at http://www.arb.ca.gov/msprog/aqip/cvrp.htm and on the CVRP webpage at cleanvehiclerebate.org.

Note to Applicants: At the time an applicant submits a signed application for a rebate, the most current CVRP Implementation Manual available, as well as the Terms and Conditions signed by the consumer, will apply.

This document constitutes the Implementation Manual for CVRP for FY 2015-16. Definitions of key program parameters are located in Section D of this manual.

1. CVRP Project Overview

CVRP enables the purchaser or lessee of an eligible vehicle to receive a rebate of up to $6,500 for fuel-cell electric vehicles (FCEVs), up to $4,000 for all-battery electric vehicles (BEVs), up to $3,000 for plug-in hybrid electric light-duty vehicles (PHEVs), and

up to $900 for neighborhood electric vehicles (NEVs) and zero-emission motorcycles (ZEMs) based on income and contingent upon availability of funds. After the purchaser takes possession of and registers the eligible vehicle or, if leased, the lessee has obtained registration on the eligible vehicle, they are qualified to apply for the rebate. Applications are available online via the CVRP website or by contacting the Administrator directly by email at cvrp@energycenter.org or calling (866) 984-2532.

Information about CVRP is available to the public and other interested parties via the CVRP website. The CVRP website, cleanvehiclerebate.org, is operated and maintained by the Administrator, and includes an up-to-date list of eligible vehicles, rebate amounts for each vehicle, online rebate applications, all supporting documentation and forms applicable to CVRP, a real-time running total of available funds remaining in the program, as well as the amount of rebates approved and issued by vehicle type. This website allows the program to be "user-friendly" while providing project transparency.

Key milestones for CVRP development and implementation for FY 2015-16 are identified in Table 1.

Table 1: CVRP Development and Implementation Timeline for FY 2015-16*

Action Item	Date or Time Period
Selection of Rebate Administrator.	October 2015
Rebate Administrator develops project website and conducts outreach. Implementation Manual and online application finalized.	October 2015 and ongoing
FY 2015-16 vehicle funding becomes available. Online applications available at the CVRP website.	October 2015

*This timeline may be changed at ARB's sole discretion.

B. VEHICLE ELIGIBILITY

1. Vehicle Categories

This section discusses the categories of vehicles eligible for grant funding under CVRP and the specific criteria that a vehicle model must meet to be considered eligible. Aftermarket PHEV and BEV conversions are not eligible for CVRP funding. Vehicle models will be approved by ARB on a model-year basis and placed on a List of Eligible Vehicle Models for rebates. A continuously updated list of eligible vehicles and rebate amounts will be maintained on the designated CVRP website. Vehicle manufacturers must submit a Vehicle Eligibility Application to ARB to have their vehicles considered for rebate eligibility. The vehicle manufacturer is responsible for providing all the required documentation described on the application. ARB will coordinate with vehicle manufacturers to request any additional documentation needed for eligibility determinations. ARB is responsible for providing the Administrator the current List of Eligible Vehicle Models and the corresponding rebate amounts.

There are four major categories of vehicles eligible for grant funding under CVRP: (a) light-duty zero-emission vehicles, (b) light-duty plug-in hybrid electric vehicles, (c) neighborhood electric vehicles, and (d) zero-emission motorcycles.

a. **Light-Duty Zero-Emission Vehicles (ZEVs)**
Vehicles in the ZEV category include electric-drive, all-battery electric vehicles (BEVs) and fuel-cell electric vehicles (FCEVs) up to 8,500 pounds gross vehicle weight rating (GVWR). For the purposes of CVRP, ZEVs are categorized as defined in the California Zero-Emission Vehicle Regulation sections 1962 and 1962.1, Title 13, California Code of Regulations (CCR). The range-extended battery electric vehicle (BEVx) is a regulatory vehicle category that was approved by the Board in January 2012 and included as a zero-emission vehicle type for CVRP in June 2012 as part of the FY 2012-13 AQIP Funding Plan approval. In the FY 2014-15 Funding Plan, the BEVx continues to be an approved zero-emission vehicle type for CVRP. The funding provided by the California Energy Commission will be used for Light-Duty Zero-Emission vehicles capable of freeway operation and certified for four or more passengers.

b. **Light-Duty Plug-in Hybrid Electric Vehicles (PHEVs)**
PHEVs are hybrid electric vehicles that have zero-emission vehicle range capability, an on-board electrical energy storage device, and an on-board charger, and are rechargeable from an external connection to an off-board electrical source. Rebate-eligible PHEVs include only those meeting Super Ultra Low Emission Vehicle (SULEV) tailpipe-emission standards, have a 15-year 150,000 mile warranty on emission-control components, and have zero evaporative emissions from its fuel system. The funding provided by the California Energy Commission will be used for Light-Duty Plug-in Hybrid Electric vehicles capable of freeway operation and certified for four or more passengers.

c. **Neighborhood Electric Vehicles (NEVs)**
Vehicles in the NEV category are low-speed zero-emission vehicles. California Vehicle Code (CVC) section 385 defines a low-speed vehicle as a motor vehicle with four wheels on the ground, having an unladen weight of 3,000 pounds or less, and is capable of propelling itself at a minimum speed of 20 miles per hour with a maximum speed of 25 miles per hour on a paved level surface. NEVs may be legally operated on public streets with posted maximum speed limits of 35 miles per hour or lower. Low-speed vehicles are subject to the Department of Transportation (DOT) safety standard (49 CFR 571.500) that requires ten specific items of safety equipment.

d. **Zero-Emission Motorcycles (ZEMs)**
Vehicles in the ZEM category include zero-emission vehicles designed to travel on three wheels and two-wheel electric motorcycles meeting the provisions of CVC section 400 and the ZEM evaluation procedures.

2. Vehicle Eligibility Criteria

Vehicles must meet the following criteria to be eligible for a rebate:

a. **Be new:**
With the exception of vehicles described in section 2(a)(i), the vehicle must be a new vehicle as defined in CVC section 430.[2] The Original Equipment Manufacturer (OEM) or its authorized licensee must manufacture the vehicle. Vehicles considered new vehicles solely for determination of compliance with state emissions standards pursuant to Health and Safety Code, Article 1.5, Prohibited Transactions, (sections 43150-43156) and CVC section 4000.2, Registration of Out-of-State Vehicles, are not eligible vehicles. If the vehicle is not new, is pre-owned, has been re-leased, is the subject of a lease assumption without prior approval from ARB, or has been transferred into California after previously having been registered out-of-state, the vehicle is not eligible for a rebate through CVRP. If the required supporting documentation does not satisfactorily prove that the vehicle is new, other documentation may be requested to satisfy this requirement, at the Administrator's discretion.

Vehicles previously used as dealership floor models and test drive vehicles are eligible for the rebate only if the vehicles have **not** been previously registered with the California Department of Motor Vehicles (DMV). The Administrator will use specific procedures when processing rebate applications for floor model, test drive, unwind and rollback vehicles.

i. **Rollback and Unwind Vehicle Provision**
A "rollback" occurs when a buyer purchases or leases a vehicle then returns it shortly after purchase, or when a buyer's financing is disapproved. An "unwind" occurs when an Application for Registration of New Vehicle is completed, but the sale was not consummated and the buyer never took delivery. Vehicles determined by the Administrator to be unrebated rollback or unwind vehicles will be eligible to receive a rebate. However, additional documentation from the dealership may be required.

b. **Be ARB approved/certified:**
With the exception of ZEMs, the vehicle model must be certified by ARB as a new, zero-emission or plug-in hybrid electric vehicle as defined in the California ZEV Regulation, section 1962.1(d)(5)(A), Title 13, CCR for 2009 and subsequent model years. The manufacturer must also certify that the vehicle model complies with all applicable federal safety standards for new motor vehicles and new motor vehicle equipment issued by the National Highway Traffic Safety Administration

[2] Per section 430 of the California Vehicle Code, a "new vehicle" is a vehicle constructed entirely from new parts that have never been the subject of a retail sale, or registered with the California Department of Motor Vehicles, or registered with the appropriate agency or authority of any other state, District of Columbia, territory or possession of the United States, or foreign State, province, or country.

(NHTSA). Federal Motor Vehicle Safety Standards are found in Title 49 of the Code of Federal Regulations (CFR) Part 571. If a written statement and documentation have been previously provided to ARB in the course of applying for the ARB certification of the vehicle model, no additional written statement is required.

c. **Meet prescribed performance, emissions, and service thresholds:**

i. **PHEVs** must meet the Transitional Zero-Emission Vehicle definition in the California ZEV Regulation section 1962.2(c) Title 13, CCR, including SULEV, evaporative emissions, onboard diagnostics, extended warranty, zero-emission Vehicle Miles Traveled (VMT), and advanced componentry Partial Zero-Emission Electric Vehicle (PZEV) allowance standards as defined in section 1962.1(c).

ii. **NEVs** must meet the "Neighborhood Electric Vehicle" definition in Section D of this Implementation Manual, have been evaluated for baseline performance in accordance with United States Department of Energy (U.S. DOE) NEV America guidelines (successful completion of the NEV America assessment), be equipped with maintenance-free batteries (and sealed if lead-acid), and be covered by a minimum level of after sales service as described:

a) Successful completion of the NEV America assessment means the NEV meets: (1) all of the minimum vehicle requirements specified in the NEV America Technical Specifications (Revision 3, effective September 21, 2007), and (2) the acceleration, top speed, and constant speed range performance specification in sections 5.1 through 5.3 of the same document. NEVs that successfully completed the NEV America assessment prior to Revision 3 of the Technical Specifications are still eligible for a rebate provided that the vehicle model applying for incentives is sufficiently similar to the vehicle model that completed the assessment. The Specifications are available at: http://avt.inl.gov/pdf/nev/nevtechspec.pdf.

b) Each manufacturer must demonstrate to ARB that they have a program to offer convenient and time-sensitive warranty and maintenance service to the vehicle owner. An acceptable service program will have readily available parts, trained service technicians, and the ability to either send a technician to an owner's home or pick up and transport the vehicle to an authorized repair facility.

iii. **ZEMs** must meet the "Zero-Emission Motorcycle" definition in Section D of this Implementation Manual, successfully complete the Zero-Emission Motorcycle Evaluation Procedure, have sealed batteries (if lead-acid), and be covered by a minimum level of after sales service as described below.

a) Successful completion of the Zero-Emission Motorcycle Evaluation Procedure means that a recognized third-party vehicle standards organization has evaluated ZEM using specific procedures and ARB has verified that ZEM meets the specified range and acceleration requirements.

b) Each manufacturer must demonstrate to ARB that they have a program to offer convenient and time-sensitive warranty and maintenance service to the vehicle owner. An acceptable service program will have readily available parts, trained service technicians, and the ability to either send a technician to an owner's home, or pick up and transport the vehicle to an authorized repair facility.

d. **Warranty Provisions**

The vehicle drive train, including applicable energy storage system or a battery pack, must be covered by a manufacturer warranty. Prior to approving a vehicle model for addition to the List of Eligible Vehicles, ARB may request that the manufacturer provide copies of representative vehicle and battery warranties and a description of the manufacturer's plans to provide warranty and routine vehicle service. Warranty provisions must meet the following requirements:

i. **ZEVs** must have, at a minimum, a warranty of 36 months; the first 12 months of the coverage period shall be a full warranty. If the warranty for the remaining 24 months is prorated, the percentage of the battery pack's original value to be covered or refunded must be at least as high as the percentage of the prorated coverage period still remaining. For the purpose of this computation, the age of the battery pack must be expressed in increments no larger than three months.

ii. **PHEVs** must meet the extended warranty requirements applicable to PZEVs as described in section 1962.1(c)(2)(D), Title 13, CCR.

iii. **NEVs and ZEMs** must have, at a minimum, a warranty of 24 months. At least four months of the first 12 months of the NEV/ZEM coverage period shall be a full warranty; the remainder of the first 12 months and all of the second 12 months of the coverage period may be covered under optional (available for purchase) extended warranties and may be prorated. If the extended warranty is prorated, the percentage of the battery pack's original value to be covered or refunded must be at least as high as the percentage of the prorated coverage period still remaining. For the purpose of this computation, the age of the battery pack must be expressed in intervals no larger than three months. Alternatively, a manufacturer may cover 50 percent of the original value of the battery pack for the full period of the extended warranty.

3. Development of List of Eligible Vehicle Models

The CVRP List of Eligible Vehicle Models will be periodically updated as manufacturers submit applications and vehicle models are approved. In order for a vehicle to be eligible for a rebate, the vehicle manufacturer must submit to ARB the Vehicle Eligibility Application and all supporting documentation. ARB will work with the vehicle manufacturer to ensure that all the required documentation is received and request any additional information needed to make an eligibility determination. If the vehicle meets the eligibility requirements set forth in Section B(2) of this Implementation Manual, then ARB will add the vehicle to the List of Eligible Vehicle Models, calculate the rebate amount, and provide the updated list to the Administrator. New model years of vehicles already approved for CVRP eligibility can be rebated prior to the new model year being added to the List of Eligible Vehicle Models. All other new vehicle models purchased before being on the List of Eligible Vehicle Models are not rebate eligible.

4. Eligibility Based on Income

Senate Bill 1275 (2014) (also known as Charge Ahead California) required CVRP to implement eligibility criteria based on income. ARB approved the 2015-16 Funding Plan in late June 2015, which included several changes to CVRP based on income:

- Income cap for higher-income consumers
- Increased rebate levels for low- and moderate-income consumers

Income eligibility requirements will apply to rebate applications for vehicles purchased or leased on or after March 29, 2016.

a. Income Cap for Higher-Income Consumers

The income cap for higher-income consumers is set at the same income thresholds established in Proposition 30, a ballot initiative approved by California voters in 2012. Consumers will not be eligible for CVRP rebates if their gross annual incomes are above the following thresholds:

- $250,000 for single filers
- $340,000 for head-of-household filers
- $500,000 for joint filers

The income cap applies to all eligible vehicle types except fuel-cell electric vehicles.

For the purposes of CVRP, gross annual income is determined by the amount reported on the applicant's federal tax return:

- On IRS Form 1040: Line 22

- On IRS Form 1040A: Line 15
- On IRS Form 1040EZ: Line 4

Gross annual income is determined based on the applicant's most recent federal tax return or other proof of income documentation as determined by the Administrator.

b. **Increased Rebate Levels for Low- and Moderate-Income Consumers**

Rebate amounts will be increased by $1,500 per rebate for consumers with household incomes less than or equal to 300 percent of the federal poverty level. Applicants who are claimed as dependents are not eligible for increased rebates regardless of their income. Increased rebate amounts are available for fuel-cell electric vehicles, battery electric vehicles, and plug-in hybrid electric vehicles.

For the purposes of CVRP, a household includes all family members or other unrelated persons, including the rebate applicant, who reside together and share common living expenses.

For the purposes of CVRP, gross annual household income includes that of the applicant and all other individuals in the household, ages 17 years and older, regardless of whether or not they are related to the rebate applicant. Gross income includes, but is not limited to the following:

> Wages, unemployment, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources.

The household size and gross annual household income that is reported on the application should reflect the income when the vehicle was purchased or leased.

5. Vehicle Rebate Amounts for Individuals, Businesses, and Public Entities

ARB establishes a rebate amount for each eligible vehicle model up to the maximum rebate amount for that vehicle type listed in Table 2. Specific rebate amounts for each eligible vehicle model will be included in the List of Eligible Vehicle Models and available on the project website.

Table 2 summarizes the maximum per vehicle rebate amount.

Table 2: CVRP Maximum Rebate Amounts

	Filing Status	Gross Annual Income Level	Vehicle Type		
			FCEVs	BEVs	PHEVs
Increased Rebates for Low/Moderate Income	Gross annual household income ≤ 300 percent of the federal poverty level* (FPL)		$6,500	$4,000	$3,000
Standard Rebate	Individual	300% of FPL to $250K	$5,000	$2,500	$1,500
	Head-of-Household	300% of FPL to $340K			
	Joint	300% of FPL to $500K			
Income Cap	Individual	> $250K	$5,000	Not Eligible	
	Head-of-Household	> $340K			
	Joint	> $500K			

***Federal poverty level is updated annually, usually in the first calendar quarter of the year. CVRP applies the update on July 1 of that year. The current levels can be found at https://aspe.hhs.gov/poverty-guidelines.**

Combining Vehicle Rebates with Other Incentives

Participation in CVRP does not preclude a vehicle purchaser or lessee from combining CVRP rebates with other incentive opportunities. Rebates could be combined with federal, state, or local agency incentives as well as Administrator match funding, if available, to help further buy-down an eligible vehicle's cost.

6. Reduced Ownership Period Provisions Specific to Rental and Car Share Fleets

Rental and car share fleets provide a unique opportunity for introducing eligible vehicles to a large consumer base. Because vehicles are typically circulated out of the fleets in less than the 30-month ownership/lease period required under CVRP, provisions are warranted to allow these vehicles to be rebated. Rental and car share vehicles are rebate-eligible if retained in California for a minimum of one year (twelve consecutive months) but less than 30 months. Vehicles must be available for rent from a California rental location for the minimum twelve consecutive month term. Rental fleets and car share fleets are subject to a limit of 20 rebated vehicles per calendar year. See Section B(6) for more detailed information regarding the maximum number of rebates per entity.

Vehicles rebated under the reduced-ownership provision for rental and car share fleets are eligible for the rebate amounts identified in Table 3. Rental or car share fleets that own and operate vehicles in California for a minimum of 30 months are eligible for the vehicle's maximum rebate amount identified in Table 2.

Table 3: Rebate Amounts for Rental and Car Share Fleets Under the Reduced Ownership Provision

Vehicle Type	Maximum Rebate Amount Under Reduced Ownership
Fuel-Cell Electric Vehicle	$2,000
All-Battery or Range-Extended Electric Vehicle	$1,000
Plug-in Hybrid Electric Vehicle	$600
Neighborhood Electric Vehicle	$360
Zero-Emission Motorcycle	$360

7. Maximum Rebates per Entity

Except for rental, public, and car share fleets, no single entity is eligible to receive more than two CVRP rebates either via direct purchase and/or lease as of January 1, 2015. All rebates issued prior to this date do **not** count toward the two rebate limit. Traditional rental car fleets and car share fleets are capped at 20 rebates per calendar year. Public fleets are limited to 30 rebates per calendar year. Table 4 summarizes the maximum number of rebates per entity.

Table 4: Maximum Number of Rebates per Entity

Consumer Type	Maximum Number of Rebates
Individual or Business	2 total*
Public Fleet	30 per calendar year
Rental Fleet	20 per calendar year
Car Share Fleet	20 per calendar year

***Individuals or businesses that were previously rebated the maximum number of rebates and wish to upgrade to a FCEV may apply for an additional rebate.

a. Taxpayer Identification Number (TIN) Requirements

For the purposes of CVRP, vehicles under common ownership or fiduciary control of a fleet – including, but not limited to, entities sharing a common Taxpayer Identification Number (TIN) – are considered part of a single fleet even if they are part of different subsidiaries, divisions, or other organizational structure of a company, government agency, or other entity. All entities, other than individuals, are required to disclose their TIN at the time of rebate application. ARB or its designee may seek financial reimbursement and/or civil and criminal penalties from a vehicle purchaser/lessee for non-disclosure or inaccurate disclosure of its TIN or other information relating to common ownership of fiduciary control of the purchasing entity.

b. Unique Identifier for Individuals

All individuals are required to disclose their California driver's license number at the time of rebate application and to provide a legible copy of their California

driver's license as part of the supporting documentation. This number is used to uniquely identify an individual and to enforce the maximum rebate limit for individuals as described in Table 4. ARB or its designee may seek financial reimbursement and/or civil and criminal penalties from a vehicle purchaser/lessee for non-disclosure or inaccurate disclosure of their California driver's license number. Individuals who do not have a California driver's license will be required to provide an alternate unique identifier as approved by the Administrator.

8. Distribution of Rebates

The purchaser or lessee must submit a rebate application within 18 months after the date of purchase/lease to be eligible for a rebate. For the purposes of CVRP, the date of purchase is the day of sale. A sale is deemed completed when the purchaser of the vehicle has executed and signed a purchase contract or security agreement. For the purposes of CVRP, a vehicle is deemed to be leased on the date upon which the lease of the vehicle commences, as specified in a signed lease agreement. For Tesla vehicles ordered prior to March 29, 2016, the vehicle order date will be considered the date of purchase or lease. For Tesla vehicles ordered on or after March 29, 2016, the date of first registration with the California DMV will be considered the date of purchase or lease.

Ownership of the vehicle will be demonstrated by providing documentation as approved by the Administrator. With the exception of vehicles purchased under the special provisions of Section B(5), owned and leased vehicles must be operated and registered in California for a minimum of 30 consecutive months from the purchase or lease date (see Section (C)(1) for more information).

Rebates will be distributed on a first-come, first-served basis contingent upon funding availability. Available rebate funds will be reserved by the Administrator following submission of an online application at the CVRP website or upon receipt of a mailed application. Applicants without internet access can contact the Administrator in order to receive a rebate application by mail. After an application is accepted by the Administrator, the required supporting documentation (outlined in Section C(3) must be submitted by the purchaser or lessee to the Administrator within 14 calendar days (if mailed, submittal date will be determined by U.S. mail postmark). The supporting documentation may be scanned and submitted through the CVRP website or e-mailed to cvrp@energycenter.org. Applicants without internet access may mail the supporting documentation to the Administrator.

The rebate for an eligible vehicle will be issued to the qualified recipient in a single allotment. The distribution of this rebate will be made within 90 calendar days of application approval, contingent upon availability of funds. Rebate checks must be cashed within six months of the date on the check. Checks not cashed within this timeframe will be cancelled, and the rebate amount returned to the project.

9. Waiting List

ARB will review the progress of CVRP as well as development of the Funding Plan to determine if a waiting list is necessary and appropriate. If necessary, ARB will coordinate the development of a waiting list with the Administrator.

C. VEHICLE PURCHASER OR LESSEE DUTIES AND REQUIREMENTS

1. Vehicle Purchaser or Lessee

The vehicle purchaser or lessee is responsible for submitting the rebate application and providing all required documentation to the Administrator. Eligible vehicle purchasers or lessees must accept the rebate directly – CVRP does not provide an option to assign the rebate to a vehicle seller or lessor (i.e. vehicle dealer or manufacturer). To receive a CVRP rebate, a vehicle purchaser or lessee must:

a. Be an individual, business or government entity that is based in California or has a California-based affiliate at the time the rebated vehicle is purchased or leased. Proof of California DMV registration will be required to complete a CVRP application.

   i. Eligible vehicles may be purchased or leased out-of-state, but consumers must be California residents at the time of vehicle purchase. All businesses must be licensed to operate in California. Active duty military members stationed in California, but with permanent residency in another state are eligible to apply and may use military orders in lieu of other proof of residence documentation.

b. Purchase or lease a new, eligible vehicle as specified in Section B of this Implementation Manual. The original lease must be a minimum lease term of 30 months. Lease extensions and lease buy-outs are not eligible for a rebate.

c. Be a purchaser or lessee of a new, eligible vehicle and submit a CVRP application within 18 months of the vehicle purchase or lease date and prior to exhaustion of available rebate funds.

d. Purchase or lease an eligible vehicle before applying for a rebate.

e. Retain ownership of the vehicle in California for a minimum of 30 consecutive months immediately after the vehicle purchase or lease date (only rental and car share vehicles are eligible for a reduced ownership provision if retained in California for a minimum of twelve consecutive months but less than 30 consecutive months).

   i. Rebate recipients who do not retain the eligible vehicle for the full 30-month ownership or lease period will be required to reimburse ARB all or part of the

original rebate amount. See Section C(4).

ii. Vehicle purchasers or lessees are required to notify the Administrator, by calling (866) 984-2532 or emailing cvrp@energycenter.org, to arrange for early termination of vehicle ownership in advance of intent to sell or terminate a lease prior to the required 30-month ownership period.

f. Register the new vehicle with the California DMV for a minimum of 30 consecutive months from the original purchase or lease date for use in California. Any government owned vehicle not registered with the California DMV is still required to operate within California for 30 consecutive months immediately after the vehicle purchase or lease date. Rental and car share purchasers or lessees must register the vehicle with the California DMV and operate the vehicle for a minimum of 12 consecutive months after vehicle purchase or lease date under the reduced-ownership provision or for at least 30 months in order to receive full rebate amounts. Planned non-operation (PNO) registrations are not acceptable. Vehicles that have PNO registrations are not eligible for the rebate.

g. Submit the signed application form and all required supporting documentation within 14 calendar days of application submittal as specified in Section C(3) of this Implementation Manual.

h. Not make or allow any modifications to the vehicle's emissions control systems, hardware, software calibrations, or hybrid system (Violation, CVC 27156).

i. Commit that any emission reductions generated by the purchased vehicle will not be used as marketable emission reduction credits, to offset any emission reduction obligation of any person or entity, or to generate a compliance extension or extra credit for determining regulatory compliance.

j. Be available for follow-up inspection if requested by the Administrator, ARB, or ARB's designee for the purposes of project oversight and accountability.

k. Rebate checks must be cashed within six months of the date on the check. Checks not cashed within this timeframe will be cancelled and the rebate amount returned to the project.

The vehicle purchaser or lessee is responsible for ensuring the accuracy of the information on all rebate applications and required documentation submitted to the Administrator. Submission of false information on any required documents may be considered a criminal offense and is punishable under penalty of perjury under the laws of the State of California. ARB or its designee may recoup the CVRP funds which were received based upon misinformation or fraud, or for which the dealership, manufacturer, or vehicle purchaser or lessee is in significant or continual non-compliance with this Implementation Manual or State law. ARB also retains the authority to prohibit any entity from participating in CVRP due to non-compliance with project requirements.

Rebate applications that have been denied or cancelled by the Administrator may be appealed within 10 days of the date of the cancellation. If the only basis for an appeal is that the applicant disagrees with the policies set forth in the CVRP Terms and Conditions and the Implementation Manual, there is no basis for an appeal. A formal letter of appeal must be postmarked within 10 days of a cancelled application and addressed to the following:

CVRP Appeals
MSCD 5th Floor
1001 I St., P.O. Box 2815
Sacramento, CA 95812

2. Research Participation

ARB reserves the right to request participation from rebate recipients in ongoing research efforts that support the CVRP and AQIP goals as well as ARB Research Division efforts. The Administrator shall administer vehicle owner surveys to rebate recipients to collect data and other information pertaining to CVRP-eligible vehicle ownership. ARB will coordinate with the Administrator to identify survey parameters and determine the most effective mechanism for obtaining information.

3. Supporting Documentation

After submitting a rebate application, if the purchaser or lessee does not submit the required supporting documentation within the specified 14 calendar days, the funds will be released back to the project and the purchaser or lessee will be required to submit a new rebate application.

The supporting documentation may be scanned and submitted through the CVRP website. Applicants without internet access may mail the supporting documentation to the Administrator. If mailed, submittal date will be determined by U.S. mail postmark. For security purposes, supporting documents that are sent on removable media (flash drives, CDs, DVDs, etc.) will not be accepted. Because of security and privacy concerns, applicants are strongly discouraged from emailing their supporting documentation. However, applicants may email their supporting documentation to cvrp@energycenter.org with the understanding that they accept all risk associated with emailing these documents.

Required documentation will include, at a minimum, the following:

a. For applicants who request applications by phone, a complete application with signature and date. For online applicants, a scanned copy of the submitted application signed by the vehicle purchaser, lessee, or authorized representative.

b. Proof of temporary or permanent vehicle registration for the vehicle listed in the

application. The applicant's name must be on the registration, and the registration must be current (not expired). Acceptable forms of proof of registration include the following:

i. A copy of the Application for New Vehicle Registration submitted by the dealer to the DMV if submitted within one year of sale/lease.

ii. A copy of a temporary operating permit if accompanied by a receipt of payment for DMV registration fees.

iii. Local, state, and federal agencies and entities may submit other documents with the prior approval of the Administrator.

Unacceptable forms of proof of registration include the following:

i. A DMV file copy.

ii. An expired registration.

iii. A PNO registration.

c. A complete copy of the sales or lease contract. A complete contract is executed and signed. It includes an itemization of credits, discounts, and incentives received, if applicable, and all information needed to process the application.

d. For individuals, a legible copy of their current (not expired) California driver's license. This is used to uniquely identify the applicant, prove California residency, and to enforce the maximum rebate limit for individuals (see Section 6, Table 4).

i. Individuals who do not have a California driver's license will be required to provide a legible copy of a current alternate unique identifier as approved by the Administrator. They must also provide proof of California residency in the form of a utility or cable bill from within the last 3 months, a copy of the current DMV registration of another vehicle in the name of the purchaser or lessee, a signed, dated, and notarized residential rental agreement, or other valid form of California residency as approved by ARB.

e. For businesses, a copy of the formation document filed with the California secretary of state, California business license, California business tax paid certificate, or other documentation as approved by the Administrator. In lieu of the options above, sole proprietorships may submit a DBA form.

f. For ZEMs and NEVs, evidence of maintenance free batteries (and sealed if lead-acid), and a 24-month warranty.

The Administrator will select a subset of applications for income verification. Failure to provide documentation for income verification will result in the application being cancelled and no rebate issued.

Standard applicants selected for income verification must submit IRS Form 4506-T, Request for Transcript of Tax Return as proof of income. Alternate proof of income, such as recent tax returns, may be submitted as approved by the Administrator.

Increased rebate applicants selected for income verification must submit option A or B as proof of household income:

- Option A: A document confirming the applicant's participation in at least one of the public assistance programs on CVRP's Categorical Eligibility List.
- Option B: One completed Household Summary Form and a completed IRS Form 4506-T **for every** household member age 17 and older.

Additional documentation may be requested to provide complete details on household size and income.

Once the Administrator has verified the documentation, a rebate check will be issued to the vehicle purchaser or lessee.

4. Vehicle Ownership Provision

With the exception of vehicles purchased or leased under the special provisions in Section B(5), vehicle purchasers and lessees participating in CVRP are required to keep the vehicle and meet all applicable project requirements for a minimum 30-month period after the vehicle purchase or lease date.

If a manufacturer defect or other unforeseen circumstances require the replacement of a CVRP rebated vehicle with another vehicle of the same technology type (FCEV, BEV, PHEV, etc.) or upgrade (e.g., replace PHEV with BEV), the Administrator, in conjunction with ARB, has discretion to allow updated information to be provided with no return of CVRP rebate funds.

ARB also reserves the right to allow a lease transfer or lease assumption of a rebated vehicle–so long as the vehicle is not returned to the dealership for resale or release–without the return of CVRP rebate funds. The individual or entity assuming the lease will be responsible for compliance with the CVRP Terms and Conditions in effect at the time the rebate was initially issued.

Resale of a vehicle or return of a leased vehicle to a dealer may be allowed within this 30-month period if necessitated by unforeseen or unavoidable circumstances. To employ this provision, contact the Administrator to initiate this process. If the vehicle is resold or returned, the vehicle purchaser or lessee must refund promptly to the Administrator a prorated portion of their rebate, in an amount equivalent to the original rebate amount divided by 30 months and then multiplied by the number of months

remaining in the original 30-month period (rounded to the nearest month):

(Original Rebate Amount ÷ 30 Months) x (30 – months since vehicle purchase or lease date)

The Administrator will follow specific procedures when managing vehicles that received a rebate at the time of original sale or lease and have since been sold or returned to the dealer prior to the 30-month ownership commitment (see Attachment A).

Purchasers or lessees who must resell a vehicle or return a leased vehicle to a dealer due to unforeseen or unavoidable circumstances such as military duty or a totaled vehicle may be exempt from returning the prorated rebate amount. Military duty exemptions will be approved by ARB on a case-by-case basis.

ARB verifies vehicle ownership through periodic checks of Vehicle Identification Numbers (VINs) in the California DMV database. If a vehicle purchaser or lessee sells or returns the rebated vehicle to the dealer and does not receive prior approval, ARB or its designee reserves the right to recoup CVRP funds from the original vehicle purchaser identified on the rebate form and may pursue other remedies available under the law for unauthorized early termination of vehicle ownership.

D. DEFINITIONS

"ARB-certified" means a vehicle that has been certified as a ZEV or a Transitional Zero Emission Vehicle and issued an Executive Order by ARB in accordance with the provisions of the California ZEV Regulation (section 1962(e), Title 13, CCR).

"Battery Electric Vehicle (BEV)" means any vehicle that operates solely by use of a battery, or that is powered primarily through the use of an electric battery but uses a flywheel or capacitor that also stores energy to assist in vehicle operation.

"BEVx" means a vehicle powered predominantly by a zero-emission energy storage device, able to drive the vehicle for more than 75 all-electric miles, and also equipped with a backup APU, which does not operate until the energy storage device is fully depleted, and meeting requirements in subdivision 1962.1(d)(5)(G), Title 13, CCR section 1962.1(i)(12).

"Business" means an enterprise, organization, or association entered into for common purpose. Businesses include, but are not limited to, limited liability companies or partnerships, cooperatives, sole proprietorships, corporations, S corporations, not-for-profit and non-profit organizations, associations, and investor owned utilities. Businesses are delineated by Taxpayer Identification Number (TIN). Vehicles owned by a business are considered part of a single business even if they are part of different subsidiaries, divisions, or other organizational structures. For the purposes of CVRP, franchises, divisions or subsidiaries doing business under a common name will be considered one entity, even if they do not share a TIN, at the discretion of the ARB.

“Car share fleet” is a vehicle fleet solely composed of car sharing vehicles. These vehicles are under common ownership or fiduciary control, including, but not limited to, entities sharing a common Taxpayer Identification Number (TIN). For CVRP purposes, even if a car share fleet is composed of vehicles that are part of different subsidiaries or divisions of an organization, including but not limited to entities sharing a common Taxpayer Identification Number (TIN), it is considered a single fleet. The organization owning the rebated car sharing vehicles must own and operate the car sharing program and use the rebated vehicles exclusively for car sharing purposes.

“Car sharing” means a model of vehicle rental where users can rent vehicles for short periods of time and users are members that have been pre-approved to drive.

“Fleet” means vehicles under common ownership or fiduciary control, including, but not limited to, entities sharing a common Taxpayer Identification Number (TIN). Vehicles are considered part of a single fleet even if they are part of different subsidiaries, divisions, or other organizational structures of a company, government agency, or other entity.

“Floor Model/Test Drive Vehicle” is provided by original equipment manufacturers to car dealerships for the purpose of test drives and other customer interactions. California dealerships may temporarily operate a floor model or test drive vehicle on public roads with “dealer” license plates for the purpose of test drives. Use of floor model or test drive vehicles on public roads with “dealer” license plates does not require vehicle registration with the California Department of Motor Vehicles (DMV).

“Fuel-Cell Electric Vehicle (FCEV)” means a vehicle that is powered by a group of individual fuel cells, known as a fuel-cell stack. The stack is designed to contain enough cells to provide the necessary power for the automotive application. A fuel-cell stack produces power as long as fuel is available, similar to a conventional engine, but does so electrochemically rather than with combustion. The electricity generated by the fuel-cell stack powers the electric motor that propels the vehicle.

“Gross annual household income” includes that of the applicant and all other individuals in the household, ages 17 years and older, regardless of whether or not they are related to the rebate applicant. Gross income includes, but is not limited to the following: wages, unemployment, workers’ compensation, Social Security, Supplemental Security Income, public assistance, veterans’ payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources.

“Gross annual income” is determined by the amount reported on the applicant’s federal tax return: line 22 on IRS Form 1040, line 15 on IRS Form 1040A, and line 4 on IRS Form 1040EZ.

“Gross Vehicle Weight Rating (GVWR)” means the vehicle weight described on the original manufacturer Line Setting Ticket provided to the vehicle dealer.

“Household” includes all family members or other unrelated persons, including the rebate applicant, who reside together and share common living expenses.

“Neighborhood Electric Vehicle (NEV)” means a motor vehicle that meets the definition of “low-speed vehicle” either in section 385.5 of CVC or in 49 CFR 571.500 (as it existed on July 1, 2000) and is certified to zero-emission vehicle standards.

“Plug-in Hybrid Electric Vehicle (PHEV)” (in some cases referred to as an Extended Range Electric Vehicle, Transitional Zero-Emission Vehicle, or E-REV) means a hybrid electric vehicle which:

- has zero-emission vehicle range capability,
- has an on-board electrical energy storage device with useful capacity greater than or equal to ten miles of Urban Dynamometer Driving Schedule (UDDS) range on electricity alone,
- is equipped with an on-board charger, and
- is rechargeable from an external connection to an off-board electrical source.

“Public entity” as defined in California Government Code section 811.2 includes the state, the Regents of the University of California, the Trustees of the California State University and the California State University, a county, city, district, public authority, public agency, and any other political subdivision or public corporation in the State. For non-California public entities (e.g., federal, tribal, international), an analogous definition applies.

“Public fleet” means a fleet under ownership of a public entity.

“Rollback/Unwind Vehicle” is a vehicle returned to a dealership shortly after being purchased and operated by a buyer. Rollbacks can occur if a buyer’s financing is rejected. An unwind occurs when an Application for Registration of New Vehicle is completed, but the sale of the vehicle was not consummated and the buyer never took delivery.

“Rental fleet” means a fleet categorized under the North American Industry Classification System (NAICS) as an establishment engaged in renting passenger cars without drivers, generally for short or long periods of time (2007 NAICS code 532111 and 532112).

“Zero-Emission Motorcycle (ZEM)” means either a fully-enclosed zero-emission vehicle designed to travel on three wheels or a two-wheeled electric motorcycle. ZEMs must meet the provisions of CVC section 400 and be freeway capable.

“Zero-Emission Vehicle (ZEV)” means any vehicle certified to zero-emission standards.

Attachment A

Procedures for Authorizing Early Lease/Ownership Termination of Rebated Vehicles

This document provides the necessary steps involved for the Rebate Administrator (Administrator) and the California Air Resources Board (ARB) to follow if notified of the resale or lease termination of a Clean Vehicle Rebate Project (CVRP) rebated vehicle.

Step One: Notify the Administrator of Vehicle Resale/Lease Termination Request
If ARB is notified of vehicle resale or lease termination request, ARB will contact the Administrator with the applicant's email and contact information and a brief description of the request for processing.

Step Two: The Administrator Documents Vehicle Resale/Lease Termination Request
Once notified by a rebate recipient of interest in reselling/terminating the lease on a CVRP funded vehicle, the Administrator will document the case on a resale/lease termination request form:

1. Applicant contact information
2. Date when the individual applied for CVRP
3. Original rebate amount received
4. Vehicle Identification Number
5. Reason for vehicle resale/lease termination
6. Status of vehicle resale/lease termination
7. Odometer reading on date of resale/lease termination
8. Prorated rebate amount using the formula below:

   (Original Rebate Amount ÷ 30 Months) x (30 – months since vehicle purchase or lease date)

Step Three: Administrator Review and Rule on Vehicle Resale/Lease Termination Request
The Administrator will review the resale/lease termination request and any supporting documentation, and inform the individual of their decision within 10 working days.

Step Four: The Administrator Notifies Applicant Ruling
The Administrator will communicate their decision to the individual requesting resale/lease termination, including instructions for refunding the prorated amount of the rebate to the Administrator if the resale/lease termination request is granted. Refunded rebates will be added back into the rebate funding pool.

Step Five: The Administrator Notifies ARB of Applicant Refund or a Non-

Responsive Rebate Recipient

Once the prorated rebate amount is refunded back to CVRP, the Administrator will inform ARB, through program reporting. Additionally, the Administrator will provide monthly status reports until the refund is received. If a the individual requesting resale/lease termination is unresponsive and fails to return the prorated rebate amount within 30 calendar days of initial ruling notification, the Administrator shall notify ARB and provide the individual's information outlined in Step Two.

Step Six: Coordination with Enforcement of CVRP Ownership Terms

ARB program staff is responsible for coordination with staff conducting periodic VIN checks of the DMV database for ownership compliance. Individuals that received resale/lease termination approval from ARB will not be in violation of the CVRP ownership terms.

Attachment B

Procedures for Floor Model/Test Drive and Rollback/Unwind Vehicle Eligibility

This document provides the steps necessary for the Administrator and the California Air Resources Board (ARB) to manage Clean Vehicle Rebate Project (CVRP) rebate applications for floor model, test drive, rollback and unwind vehicles.

Step One: Definitions

Floor Model/Test Drive Vehicles

Floor model or test drive vehicles are provided by original equipment manufacturers to car dealerships for the purpose of test drives and other customer interactions. California dealerships may temporarily operate a floor model or test drive vehicle on public roads with "dealer" license plates for the purpose of test drives. Use of floor model or test drive vehicles on public roads with "dealer" license plates does not require vehicle registration with the California Department of Motor Vehicles (DMV).

Rollback/Unwind Vehicles

A rollback is a vehicle returned to a dealership shortly after being purchased or leased and operated by a buyer. Rollbacks can occur if a buyer's financing is rejected. An unwind occurs when an Application for Registration of New Vehicle is completed, but the sale or lease of the vehicle was not consummated and the buyer never took delivery.

Step Two: Review of Vehicle Supporting Documents

The Administrator will review the supporting documents within the rebate application to ensure the application meets all program requirements. A California vehicle sales or lease contract will indicate if a vehicle is new or used.

2.1 Floor Model/Test Drive Documentation: Per the California DMV's Vehicle Registration Procedures Manual, a new vehicle operated as a floor model or test drive vehicle (referred to as "demonstrator" vehicles by the California DMV) is classified to be a used vehicle when subsequently sold to a retail buyer. However, when sold to the retail buyer, floor model or test drive vehicles must be registered with the California DMV as a new vehicle through the use of the *Application for Registration of a New Vehicle* (California DMV Form 397). The sale or lease contract and the proof of temporary or permanent vehicle registration should reflect these DMV requirements. The Administrator may require documentation showing that the dealership is attesting to the fact that the car is an unregistered floor model or test drive vehicle (demo vehicle).

2.2 Rollback/Unwind Documentation: Per the Califonia's DMV's Vehicle

Registration Procedures Manual, rollback and unwind vehicles occur when they have been registered by the original purchaser through the use of the Application for Registration of New Vehicle (California DMV Form 397). The Administrator requires documentation showing that the dealership is attesting to the fact that the car is either a rollback or unwind vehicle.

Step Three: Determining Vehicle Eligibility

Based on the supporting documents provided with the rebate application, the Administrator, with input from ARB, will determine whether the applicant is eligible for the CVRP rebate.

3.1 Floor Model/Test Drive Eligibility: A floor model or test drive vehicle which was not previously registered with the California DMV, and meets all other CVRP vehicle eligibility criteria, is eligible for the CVRP rebate. Per section 2(a) of the CVRP Implementation Manual, a floor model or test drive vehicle which has previously been registered with the California DMV does not meet the CVRP vehicle eligibility criteria, thus is not eligible for the CVRP rebate.

3.2 Rollback/Unwind Eligibility: A rollback or unwind vehicle has previously been registered with the California DMV; however, the sale or lease was never completed. The vehicle was either returned or never delivered due to financing issues. These vehicles' eligibility will be determined on a case by case basis after reviewing the supporting documentation.

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Appendix D

Public Fleet Pilot Project
Terms and Conditions
and
Implementation Manual

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California Environmental Protection Agency
Air Resources Board
Center for Sustainable Energy™

California's Public Fleet Pilot Project
Rebate Application Form
Terms and Conditions

Rebate Process

Rebates are distributed on a first-come, first-served basis and issued to qualified recipients in a single allotment within 90 days of approval. Delays beyond normal processing times may occur. To apply for a rebate:

1. Submit an online application and a vehicle information spreadsheet. The Project Administrator (Center for Sustainable Energy) will contact you regarding the next steps.
2. Email requested supporting documentation to publicfleets@energycenter.org within 14 calendar days of Administrator request. Required supporting documentation includes the following:
    a. Signed rebate application form
    b. Proof of temporary or permanent vehicle registration.
    c. A copy of the final sales contract with an itemization of credits, discounts and incentives received, if applicable.
3. Eligible public entities may also submit an application for vehicles that have not yet been acquired. After submitting an application, applicants must provide the additional documentation listed below within 14 calendar days of Administrator request in order to reserve rebate funds. Final post-delivery documentation as listed above must then be submitted within six months of original application date for final application approval and rebate disbursement.
    a. Signed rebate application form
    b. If the vehicle has been ordered, a copy of the purchase order, invoice or other documentation confirming the vendor has received the order and/or payment.
    Or
    If the vehicle has not been ordered, an official agency vehicle acquisition plan and/or a resolution from the applicant's governing body (i.e. City Council or County Board of Supervisors), or other documentation signed by a duly authorized official with authority to make financial decisions, authorizing the submittal of the application and confirmation to purchase an eligible vehicle(s) within 6 months of applying.
        i. Documentation must either: a) indicate the planned vehicle domicile location to confirm that the disadvantaged community eligibility criteria will be met; or b) provide justification that meets other criteria as defined by ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies as approved by ARB. For more information, see ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies , Appendix A, Table A-1 ((http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/535investments.htm).

Important: If you do not submit your required supporting documentation within 14 calendar days of request, the Administrator will release the reserved rebate funds. Rebate checks must be cashed within six months of the date on the check. Checks not cashed within this timeframe will be cancelled, and the rebate amount will be returned to the Public Fleet Pilot Project.

Applicant and Vehicle Requirements

As a condition for receiving State of California, Air Resources Board (ARB) rebate funds, you must comply with the requirements below. You are responsible for reviewing the Public Fleet Pilot Project program requirements prior to applying for a rebate. Eligible applicants must meet requirements that include, but are not limited to, the following:

1. Public fleets are limited to 30 Public Fleet Pilot Project rebates per calendar year.
2. Be a California public entity. A public entity is defined in California Government Code section 811.2 includes the state, the Regents of the University of California, the Trustees of the California State University and the California State University, a county, city, district, public authority, public agency, and any other political subdivision or public corporation in the State. Non-California public entities (e.g., federal, tribal, international) are not eligible to participate.
    a. Eligible vehicles may be purchased out-of-state, but must be registered as new vehicles with the California DMV.
3. Purchase a new, eligible vehicle on or after July 1, 2014 and submit a Public Fleet Pilot Project application within six months of the vehicle purchase date and prior to exhaustion of available rebate funds. Leased vehicles are not eligible to participate.
4. Purchase an eligible vehicle before applying for a rebate, or certify documented intent to purchase an eligible vehicle within six months of application.
5. Retain ownership of the vehicle in California for a minimum of 30 consecutive months immediately after the vehicle purchase date.
    a. Rebate recipients who do not retain the eligible vehicle for the full 30-month ownership period will be required to reimburse ARB all or part of the original rebate amount.
    b. Vehicle purchasers are required to notify the Administrator, by calling (858) 634-4733 or emailing publicfleets@energycenter.org, to arrange for early termination of vehicle ownership in advance of intent to sell or terminate ownership prior to the required 30-month ownership period.
6. Own and operate an eligible vehicle for the required 30 month ownership term, in accordance with the following criteria for benefiting a disadvantaged community, a vehicle must: a) be domiciled at a facility within the boundaries of a ZIP code containing at least one disadvantaged community census tract; or b) meet other criteria as defined by ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies as approved by ARB. For more information, see ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies , Appendix A, Table A-1 ((http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/535investments.htm).
    a. Rebate recipients must notify the Administrator within six months of any change in vehicle domicile location occurring during the required 30 month ownership term. If vehicles are moved to ineligible locations, a partial return of rebate funds may be required.
7. Register the new vehicle with the California DMV for a minimum of 30 consecutive months for use in California.
8. Submit the signed application form and all required supporting documentation within 14 calendar days of the Administrator's request.
9. Not make or allow any modifications to the vehicle's emissions control systems, hardware, software calibrations, or hybrid system.

10. Be available for follow-up inspection if requested by the Administrator, ARB, or ARB's designee for the purposes of project oversight and accountability.
11. Submit annual vehicle usage reports to the Administrator for all rebated vehicles for a period of at least 30 months. Required data may include but is not limited to mileage reporting, annual fuel use by fuel type and percentage of operation within disadvantaged communities.

Applicant and Vehicle Information

APPLICANT INFORMATION		
APPLICANT ENTITY: Reservation Form Test	APPLICANT TYPE: Local Government Entity	TAXPAYER ID: 140000010
CONTACT NAME: Test Reservation	PHONE NUMBER: 1231231234	EMAIL ADDRESS: randy.wilde@energycenter.org
MAILING ADDRESS: 9325 Sky Park Ct, San Diego CA 92123		

VEHICLE INFORMATION						
APPLICATION ID	MAKE AND MODEL	MODEL YEAR	DOMICILE ZIP	VIN	DELIVERY DATE	REBATE AMOUNT
TOTAL REBATE AMOUNT REQUESTED:						

SIGNATURE

By signing this application, the purchaser agrees to the following:

1. I agree to pay back all or a portion of rebate funds if any of the above terms and conditions are not met.
2. I understand that ARB reserves all rights and remedies available under the law to enforce the terms of this agreement.
3. I acknowledge that I have read and understand, and agree to be bound by, the terms and conditions as outlined within this Rebate Application Form.
4. I choose to voluntarily submit personally-identifying information for the purposes of processing my rebate and enforcing the Public Fleet Pilot Project Terms and Conditions.

I certify under penalty of perjury that the information provided in this application and supporting documentation is accurate.

NAME OF APPLICANT OR AUTHORIZED REPRESENTATIVE:	TOTAL REBATE AMOUNT REQUESTED:
SIGNATURE:	DATE:

Return Instructions
Please scan and email signed copy with other requested supporting documentation to CSE staff at:

PublicFleets@energycenter.org

Or mail to CSE offices at:

Attn: Public Fleet Pilot Project
Center for Sustainable Energy
9325 Sky Park Court, Suite #100
San Diego, CA 92123

FOR CSE USE ONLY	
CSE ADMINISTRATOR:	TOTAL REBATE AMOUNT REQUESTED:
SIGNATURE:	RECEIVED DATE:

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IMPLEMENTATION MANUAL FOR INCREASED INCENTIVES FOR PUBLIC FLEETS IN DISADVANTAGED COMMUNITIES PILOT PROJECT FOR FY 2014-15 (PUBLIC FLEET PILOT PROJECT)

December 2014

California Environmental Protection Agency

Air Resources Board

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A. INTRODUCTION AND OVERVIEW

In 2007, Governor Schwarzenegger signed into law 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). AB 118 created the Air Quality Improvement Program (AQIP), a voluntary incentive program administered by the Air Resources Board (ARB or Board), to fund clean vehicle and equipment projects, air quality research, and workforce training.

As required in Health and Safety Code (HSC) Section 44274(a), the Board adopted regulatory guidelines in 2009 for AQIP. The Guidelines for the AB 118 Air Quality Improvement Program (Guidelines) define the overall administrative requirements and policies and procedures for program implementation based on the framework established in statute. Central to the Guidelines is the requirement for a Board-approved annual Funding Plan developed with public input. The Funding Plan is each year's blueprint for expending AQIP funds appropriated to the ARB in the annual State Budget. The Funding Plan focuses AQIP on supporting development and deployment of the advanced technologies needed to meet California's longer-term, post 2020 air quality goals.

In 2012, Governor Brown signed into law three bills – AB 1532 (Pérez, Chapter 807, Statutes of 2012), Senate Bill (SB) 535 (De León, Chapter 830, Statutes of 2012), and SB 1018 (Budget and Fiscal Review Committee, Chapter 39, Statutes of 2012) – that establish the Low Carbon Transportation Greenhouse Gas Reduction Fund (GGRF) to receive proceeds from the distribution of allowances via auction and to provide the framework for how those auction proceeds will be appropriated and expended.

These statutes require that the State portion of the proceeds from the auction of allowances under the Cap-and-Trade program be deposited in the GGRF and used to facilitate the achievement of greenhouse gas emission reductions and, where applicable and to the extent feasible, to further additional goals of AB 32 and the Legislature. In addition, expenditures must comply with the requirements contained in SB 862 (Chapter 836, Statutes of 2014), the trailer bill which establishes requirements for agencies receiving FY 2014-15 appropriations of GGRF monies.

In June 2014, ARB approved the Fiscal Year 2014-15 Funding Plan for the Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments (FY 2014-15 Funding Plan)[1], providing up to $117.36 million in funding for the Clean Vehicle Rebate Project (CVRP) and Increased Incentives for Public Fleets in Disadvantaged Communities Pilot Project (Public Fleet Pilot Project). In order to meet the SB 535 obligations on GGRF funding, the FY 2014-15 Funding Plan included several pilot projects to directly benefit California's most vulnerable and pollution-burdened communities. The Public Fleet Pilot Project is one of these projects

[1] The approved FY 2014-15 Funding Plan is available at: http://www.arb.ca.gov/msprog/aqip/fundplan/fundplan.htm

and will be implemented as a set-aside within CVRP.

Up to $2.877 million in funding from GGRF is available for California public entities located in or serving disadvantaged communities. The Public Fleet Pilot Project benefits the citizens of California residing in disadvantaged communities by providing immediate air pollution emission reductions while stimulating local deployment of the next generation of zero-emission and plug-in hybrid electric light-duty vehicles. It is administered and implemented through a partnership between ARB and a Rebate Administrator (Administrator), selected via a competitive ARB grant solicitation.

This Implementation Manual for the Public Fleet Pilot Project, in conjunction with the Guidelines, and the Funding Plan identify the minimum requirements for implementing the Public Fleet Pilot Project. The Implementation Manual may be periodically updated as needed to clarify project requirements and improve project effectiveness. The Implementation Manual, including any updates, will be posted on ARB's website at http://www.arb.ca.gov/msprog/aqip/cvrp.htm and on the Public Fleet Pilot Project webpage housed at www.energycenter.org/PFP.

Definitions of key program parameters are located in Section D of this manual.

1. Project Overview

The purpose of investing in disadvantaged communities is to reduce emissions in neighborhoods that are already disproportionately impacted by pollution. In addition, public fleets located in or serving disadvantaged communities are not eligible for additional incentives, such as the federal tax credit, to bring down the higher prices associated with advanced clean cars. As a result, combined with other barriers, local and state government fleets make up a very small number of the total rebates reserved.

The intent of the Public Fleet Pilot Project is to provide rebates for the purchase of eligible vehicles by public fleets that are unable to take advantage of the federal tax credit. Vehicles must service disadvantaged communities as described in Section C (1)(f) and rebate recipients must report vehicle usage data as described in Section C (1)(l). Neighborhood Electric Vehicles and Zero-Emission Motorcycles are not eligible for increased incentives under the Public Fleet Pilot Project. However, these vehicle types are still eligible under CVRP. Leased vehicles are also not eligible for the Public Fleet Pilot Project rebates.

After the purchaser takes possession of and registers the eligible vehicle, they are qualified to receive the rebate. The Public Fleet Pilot Project offers a new application process for qualifying fleets which allows agencies to reserve Public Fleet Pilot Project funds in advance of taking possession of an eligible vehicle. Applicants must certify intent to acquire an eligible vehicle and provide proof of acquisition in order to receive reserved rebate funds. Applications are available online via the Public Fleet Pilot Project webpage, www.energycenter.org/PFP, housed on the CVRP website or by contacting the Administrator directly by email at publicfleets@energycenter.org or

calling (858) 634-4733.

Information about the Public Fleet Pilot Project is available to the public and other interested parties via the Public Fleet Pilot Project webpage. The Public Fleet Pilot Project webpage at www.energycenter.org/PFP is operated and maintained by the Administrator, and includes: an up-to-date list of eligible vehicles, rebate amounts for each vehicle, online rebate applications, and a real-time running total of available funds remaining in the program. This webpage allows the program to be "user-friendly" while providing project transparency.

Key milestones for the Public Fleet Pilot Project development and implementation for FY 2014-15 are identified in Table 1.

Table 1: Public Fleet Pilot Project Development and Implementation Timeline for FY 2014-15*

Action Item	Date or Time Period
Selection of Rebate Administrator	August 2014
Rebate Administrator develops project website and conducts outreach. Implementation Manual and online application finalized.	October 2014 and ongoing
FY 2014-15 vehicle funding becomes available. Online applications available at the Public Fleet Pilot Project webpage.	December 2014

*This timeline may be changed at ARB's sole discretion.

B. VEHICLE ELIGIBILITY

1. Vehicle Categories

This section discusses the categories of vehicles eligible for grant funding under the Public Fleet Pilot Project and the specific criteria that a vehicle model must meet to be considered eligible. Aftermarket Plug-In Hybrid Electric Vehicle (PHEV) and Battery Electric Vehicle (BEV) conversions are not eligible for the Public Fleet Pilot Project funding. Vehicle models will be approved by ARB on a model-year basis and placed on a List of Eligible Vehicle Models for rebates. A continuously updated list of eligible vehicles and rebate amounts will be maintained on the designated Public Fleet Pilot Project webpage. Vehicle manufacturers must submit a Vehicle Eligibility Application to ARB to have their vehicles considered for rebate eligibility. The vehicle manufacturer is responsible for providing all the required documentation described on the application. ARB will coordinate with the vehicle manufacturers to request any additional documentation needed for eligibility determinations. ARB is responsible for providing the Administrator the current list of eligible vehicles and the corresponding rebate amounts.

There are two major categories of vehicles eligible for grant funding under the Public Fleet Pilot Project:
(a) light-duty zero-emission vehicles and (b) light-duty plug-in hybrid electric vehicles.

a. **Light-Duty Zero-Emission Vehicles (ZEVs)**
Vehicles in the ZEV category include electric-drive, all-battery electric vehicles (BEVs) and fuel-cell electric vehicles (FCEVs) up to 8,500 pounds gross vehicle weight rating (GVWR). For the purposes of the Public Fleet Pilot Project, ZEVs are categorized as defined in the California Zero-Emission Vehicle Regulation sections 1962 and 1962.1, Title 13, California Code of Regulations (CCR). The range extended battery electric vehicle (BEVx) is a regulatory vehicle category that was approved by the Board in January 2012 and was included as a zero-emission vehicle type in June 2012 as part of the FY 2012-13 AQIP Funding Plan approval. In the FY 2014-15 Funding Plan, the BEVx continues to be an approved zero-emission vehicle type for Public Fleet Pilot Project.

b. **Light-Duty Plug-in Hybrid Electric Vehicles (PHEVs)**
PHEVs are hybrid electric vehicles that have zero-emission vehicle range capability, an on-board electrical energy storage device, and an on-board charger, and are rechargeable from an external connection to an off-board electrical source. Rebate-eligible PHEVs include only those meeting Super Ultra Low Emission Vehicle (SULEV) tailpipe-emission standards, have a 15-year 150,000 mile warranty on emission-control components, and have zero evaporative emissions from its fuel system.

2. Vehicle Eligibility Criteria

Vehicles must meet the following criteria to be eligible for a rebate.

a. **New Vehicle Purchase:**
With the exception of vehicles described in section 2 (a)(i), the vehicle must be a new vehicle as defined in California Vehicle Code (CVR) section 430.[2] The Original Equipment Manufacturer (OEM) or its authorized licensee must manufacture the vehicle. Vehicles considered new vehicles solely for determination of compliance with state emissions standards pursuant to Health and Safety Code, Article 1.5, Prohibited Transactions, (sections 43150-43156) and CVC section 4000.2, Registration of Out-of-State Vehicles, are not eligible vehicles. If the vehicle is not new, is pre-owned, or has been transferred into California after previously having been registered out-of-state, the vehicle is not eligible for a rebate through the Public Fleet Pilot Project. If the required supporting documentation does not satisfactorily prove that the vehicle is new,

[2] Per section 430 of the California Vehicle Code, a "new vehicle" is a vehicle constructed entirely from new parts that have never been the subject of a retail sale, or registered with the California Department of Motor Vehicles, or registered with the appropriate agency or authority of any other state, District of Columbia, territory or possession of the United States, or foreign State, province, or country.

other documentation may be requested to satisfy this requirement, at the Administrator's discretion.

Vehicles previously used as dealership floor models and test drive vehicles are eligible for the rebate only if the vehicles have not been previously registered with the California Department of Motor Vehicles (DMV). The Administrator will use specific procedures when processing rebate applications for floor model, test drive, unwind and rollback vehicles.

i. **Rollback and Unwind Vehicle Provision**
A "rollback" occurs when a buyer purchases a vehicle then returns it shortly after purchase, or when a buyer's financing is disapproved. An "unwind" occurs when an Application for Registration of New Vehicle is completed, but the sale was not consummated and the buyer never took delivery. Vehicles determined by the Administrator to be unrebated rollback or unwind vehicles will be eligible to receive a rebate. However, additional documentation from the dealership may be required.

b. **ARB Approved/Certified**
The vehicle model must be certified by ARB as a new, zero-emission or plug-in hybrid electric vehicle as defined in the California ZEV Regulation, section 1962.1(d)(5)(A), Title 13, CCR for 2009 and subsequent model years. The manufacturer must also certify that the vehicle model complies with all applicable federal safety standards for new motor vehicles and new motor vehicle equipment issued by the National Highway Traffic Safety Administration (NHTSA). Federal Motor Vehicle Safety Standards are found in Title 49 of the Code of Federal Regulations (CFR) Part 571. If a written statement and documentation have been previously provided to ARB in the course of applying for the ARB certification of the vehicle model, no additional written statement is required.

c. **ARB Prescribed Performance, Emissions, and Service Thresholds**

i. **PHEVs** must meet the Transitional Zero-Emission Vehicle definition in the California ZEV Regulation section 1962.2(c) Title 13, CCR, including SULEV, evaporative emissions, onboard diagnostics, extended warranty, zero-emission Vehicle Miles Traveled (VMT), and advanced componentry Partial Zero-Emission Electric Vehicle (PZEV) allowance standards as defined in section 1962.1(c).

d. **Warranty Provisions**
The vehicle drive train, including applicable energy storage system or a battery pack, must be covered by a manufacturer warranty. Prior to approving a vehicle model for addition to the List of Eligible Vehicles, ARB may request that the manufacturer provide copies of representative vehicle and battery warranties and a description of the manufacturer's plans to provide warranty and routine vehicle

service. Warranty provisions must meet the following requirements:

i. **ZEVs** must have, at a minimum, a warranty of 36 months; the first 12 months of the coverage period shall be a full warranty. If the warranty for the remaining 24 months is prorated, the percentage of the battery pack's original value to be covered or refunded must be at least as high as the percentage of the prorated coverage period still remaining. For the purpose of this computation, the age of the battery pack must be expressed in increments no larger than three months.

ii. **PHEVs** must meet the extended warranty requirements applicable to PZEVs as described in section 1962.1(c)(2)(D), Title 13, CCR.

3. Development of List of Eligible Vehicle Models

The Public Fleet Pilot Project List of Eligible Vehicle Models will be periodically updated as manufacturers submit applications and vehicle models are approved. In order for a vehicle to be eligible for a rebate, the vehicle manufacturer must submit to ARB the Vehicle Eligibility Application and all supporting documentation. ARB will work with the vehicle manufacturer to ensure that all the required documentation is received and request any additional information needed to make an eligibility determination. If the vehicle meets the eligibility requirements set forth in Section B (2) of this Implementation Manual, then ARB will add the vehicle to the List of Eligible Vehicle Models, calculate the rebate amount, and provide the updated list to the Administrator. New model years of vehicles already approved for the Public Fleet Pilot Project eligibility can be rebated prior to the new model year being added to the List of Eligible Vehicle Models. All other new vehicle models purchased before being on the List of Eligible Vehicle Models are not rebate eligible.

4. Vehicle Rebate Amounts

ARB establishes a rebate amount for each eligible vehicle model up to the maximum rebate amount for that vehicle type listed in Table 2. Specific rebate amounts for each eligible vehicle model will be included in the List of Eligible Vehicle Models and available on the project website.

Table 2 summarizes the maximum per vehicle rebate amount.

Table 2: Public Fleet Pilot Project Maximum Rebate Amounts

Vehicle Type	Maximum Rebate Amount
ZEV	
• Fuel-Cell Electric Vehicle	$15,000
• All-Battery or Range-Extended Electric Vehicle	$10,000
PHEV	
• Plug-in Hybrid Electric Vehicle	$5,250

a. **Combining Vehicle Rebates with Other Incentives**

The Public Fleet Pilot Project rebate replaces the CVRP rebate. A single vehicle cannot receive both rebates. However, participation in the Public Fleet Pilot Project does not preclude a vehicle purchaser from combining rebates with other incentive opportunities. Rebates could be combined with federal, state, or local agency incentives to help further buy-down an eligible vehicle's cost.

5. Maximum Rebates per Entity

Public fleets are limited to 30 Public Fleet Pilot Project rebates per calendar year. ARB reserves the right to adjust rebate limits throughout the fiscal year to account for variable funding demand.

a. **Taxpayer Identification Number Requirements**

For the purposes of the Public Fleet Pilot Project, vehicles under common ownership or fiduciary control of a fleet – including, but not limited to, entities sharing a common Taxpayer Identification Number (TIN) – may be considered part of a single fleet even if they are part of different subsidiaries, divisions, or other organizational structure of an entity. All entities are required to disclose their TIN at the time of rebate application. ARB or its designee may seek financial reimbursement and/or civil and criminal penalties from a vehicle purchaser for non-disclosure or inaccurate disclosure of its TIN or other information relating to common ownership of fiduciary control of the purchasing entity. ARB and the Administrator reserve the right to make determinations on a case-by-case basis.

6. Distribution of Rebates

Vehicles must be purchased on or after July 1, 2014 in order to be eligible for Public Fleet Pilot Project rebates. The purchaser must submit a rebate application within six months after the transaction to be eligible for a rebate. For the purposes of the Public Fleet Pilot Project, the date of purchase is the day of sale. A sale is deemed completed when the purchaser of the vehicle has executed and signed a purchase contract or security agreement. Ownership of the vehicle will be demonstrated by providing documentation as approved by the Administrator.

Rebates will be distributed on a first-come, first-served basis contingent upon funding availability. Available rebate funds will be reserved by the Administrator following submission of an online application at the Public Fleet Pilot Project webpage or upon receipt of a mailed application. (Applicants without internet access can contact the Administrator in order to receive a rebate application by mail.) After an application is accepted by the Administrator, supporting documentation (outlined in Section C (4)) will be requested and must be submitted by the purchaser to the Administrator within 14 calendar days. The supporting documentation may be scanned and e-mailed to publicfleets@energycenter.org. Applicants without internet access may mail the supporting documentation to the Administrator.

The rebate for an approved application will be issued to the recipient in a single allotment. The distribution of this rebate will be made within 90 calendar days of application approval, contingent upon availability of funds. Rebate checks must be cashed within six months of the date on the check. Checks not cashed within this timeframe will be cancelled, and the rebate amount returned to the project.

C. VEHICLE PURCHASER DUTIES AND REQUIREMENTS

1. Vehicle Purchaser

The vehicle purchaser is responsible for submitting the rebate application and providing all required documentation to the Administrator. Eligible vehicle purchasers must accept the rebate directly – the Public Fleet Pilot Project does not provide an option to assign the rebate to a vehicle seller (i.e. vehicle dealer or manufacturer). To receive a Public Fleet Pilot Project rebate, a vehicle purchaser must:

a. Be a California public entity. A public entity is defined in California Government Code section 811.2 includes the State, the Regents of the University of California, the Trustees of the California State University and the California State University, a county, city, district, public authority, public agency, and any other political subdivision or public corporation in the State. Non-California public entities (e.g., federal, tribal, international) are not eligible to participate.

   i. Eligible vehicles may be purchased out-of-state, but must be registered as new vehicles with the California DMV. Any government owned vehicle not registered with the California DMV is still required to operate within California for 30 consecutive months immediately after the vehicle purchase date.

b. Purchase a new eligible vehicle as specified in Section B of this Implementation Manual on or after July 1, 2014. Leased vehicles are not eligible to participate.

c. Submit a Public Fleet Pilot Project application within six months of the vehicle purchase date and prior to exhaustion of available rebate funds.

d. Purchase an eligible vehicle before applying for a rebate, or certify documented

intent to purchase an eligible vehicle within 6 months of application. See Section C (3) for more details on pre-acquisition funding reservations.

e. Retain ownership of the vehicle in California for a minimum of 30 consecutive months immediately after the vehicle purchase date.

   i. Rebate recipients who do not retain the eligible vehicle for the full 30-month ownership period will be required to reimburse ARB all or part of the original rebate amount. See Section C (5).

   ii. Vehicle purchasers are required to notify the Administrator, by calling (858) 634-4733 or emailing publicfleets@energycenter.org, to arrange for early termination of vehicle ownership in advance of intent to sell or terminate ownership prior to the required 30-month ownership period.

f. Own and operate an eligible vehicle for the required 30 month ownership term, in accordance with the following criteria for benefiting a disadvantaged community,[3] a vehicle must: a) be domiciled at a facility within the boundaries of a ZIP code containing at least one disadvantaged community[3] census tract; or b) meet other criteria as defined by ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies (http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/535investments.htm).

   i. Rebate recipients must notify the Administrator within 6 months of any change in vehicle domicile location occurring during the required 30 month ownership term. If vehicles are moved to ineligible locations, a partial return of rebate funds may be required.

   ii. An eligibility screening tool and a list of qualifying ZIP codes will be provided through the Public Fleet Pilot Project webpage.

g. Register the new vehicle with the California DMV for a minimum of 30 consecutive months for use in California. Any government owned vehicle not registered with the California DMV is still required to operate within California for 30 consecutive months immediately after the vehicle purchase date.

h. Submit the signed application form and all required supporting documentation within 14 calendar days of the Administrator's request as specified in Section C (4) of this Implementation Manual.

[3] Disadvantaged community census tracts are identified by CalEPA and maps are available at: http://oehha.ca.gov/ej/ces2.html . For maps of ZIP codes containing disadvantaged community census tracts, please refer to: http://arb.ca.gov/auctionproceeds .

i. Not make or allow any modifications to the vehicle's emissions control systems, hardware, software calibrations, or hybrid system (Violation, CVC 27156).

j. Be available for follow-up inspection if requested by the Administrator, ARB, or ARB's designee for the purposes of project oversight and accountability.

k. Rebate checks must be cashed within six months of the date on the check. Checks not cashed within this timeframe will be cancelled.

l. Submit annual vehicle usage reports to the Administrator for all rebated vehicles for a period of at least 30 months. Required data may include but is not limited to mileage reporting, annual fuel use by fuel type and percentage of operation within disadvantaged communities.

The vehicle purchaser is responsible for ensuring the accuracy of the information on all rebate applications and required documentation submitted to the Administrator. ARB or its designee may recoup Public Fleet Pilot Project funds which were received based upon misinformation or fraud, or for which the dealership, manufacturer, or vehicle purchaser is in significant or continual non-compliance with this Implementation Manual or State law. ARB also retains the authority to prohibit any entity from participating in the Public Fleet Pilot Project due to non-compliance with project requirements.

2. Research Participation

In addition to required annual usage data, ARB reserves the right to request participation from rebate recipients in ongoing research efforts that support the Public Fleet Pilot Project and AQIP goals as well as ARB Research Division efforts. The Administrator may administer vehicle owner surveys to rebate recipients to collect data and other information pertaining to Public Fleet Pilot Project-eligible vehicle ownership. ARB will coordinate with the Administrator to identify survey parameters and determine the most effective mechanism for obtaining information. In receiving a rebate, recipients agree to participate in research.

3. Pre-Acquisition Application

The Public Fleet Pilot Project encourages qualifying public fleets planning to acquire an eligible vehicle to reserve project funds prior to purchasing a vehicle. In order to reserve funds prior to taking possession of a vehicle, applicants must show documented intent to purchase specified eligible vehicles for deployment in qualifying areas. Pre-acquisition applications will be available on the Public Fleet Pilot Project webpage at www.energycenter.org/PFP. Required documentation for pre-acquisition reservations will include the following:

a. If the vehicle has not been ordered, an official agency vehicle acquisition plan including specified eligible vehicles and/or a resolution from the applicant's governing body (i.e. City Council or County Board of Supervisors), or other

documentation signed by a duly authorized official with authority to make financial decisions, authorizing the submittal of the application. Documentation must either: a) indicate the planned vehicle domicile location to confirm that the disadvantaged community eligibility criteria will be met; or b) provide justification that meets other criteria as defined by ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies (see Section C (1)(f)).

If the vehicle has been ordered and/or paid for by the acquiring agency, a copy of the purchase order, invoice or other documentation confirming the vendor has received the order and/or payment. Documentation must either: a) indicate the planned vehicle domicile location to which the vehicle will be delivered; or b) provide justification that meets other criteria as defined by ARB's Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies (see Section C (1)(f)) to confirm that the disadvantaged community eligibility criteria will be met.

b. In either case, a Public Fleet Pilot Project pre-acquisition application form signed by an authorized representative of applicant agency will also be required.

Applicants who successfully pre-reserve funding must take physical possession of the vehicle(s) within six months of original application in order to receive reserved funds. Applicants must notify the Administrator and supply supporting documentation, as discussed in Section C (4), within 14 calendar days of vehicle delivery in order to receive a rebate disbursement. All funding reservations are provisional pending complete documentation proving the purchase of an eligible vehicle. Reserving funds does not obligate ARB or the Administrator to award a Public Fleet Pilot Project rebate if applicants are unable to meet all the requirements of the Public Fleet Pilot Project. If a vehicle does not meet the specific Public Fleet Pilot Project eligibility criteria, applicants have the option to transfer their application(s) to CVRP for standard CVRP rebate amounts. Public agencies not eligible for the Public Fleet Pilot Project may apply for CVRP (please note that CVRP does not allow pre-acquisition applications).

If vehicles are not acquired within six months of pre-acquisition application, the Administrator may choose to extend the acquisition deadline for up to three additional months or release reserved funds back into the funding pool. Applicants who have reserved funds and failed to acquire vehicles may be prohibited from further pre-acquisition applications at the discretion of ARB.

4. Supporting Documentation

After submitting a rebate application, the applicant will be contacted by the Administrator with an eligibility determination and appropriate supporting documents will be requested. If the applicant does not submit the required supporting documentation within 14 calendar days of the request, any reserved funds will be released back to the project and the purchaser will be required to submit a new rebate application. The supporting documentation may be scanned and e-mailed to

publicfleets@energycenter.org . Applicants without internet access may mail the supporting documentation to the Administrator. If mailed, submittal date will be determined by U.S. mail postmark. Initial requested documentation will depend on whether the vehicle has been acquired, ordered, or planned. Once vehicles have been acquired, applicants must supply, at a minimum, the following to qualify for final rebate disbursement:

a. A scanned copy of the submitted application signed by an authorized representative.

b. Proof of temporary or permanent vehicle registration with the DMV for the vehicle listed in the application. A copy of the Application for New Vehicle Registration submitted by the dealer to the DMV is acceptable proof of temporary vehicle registration if submitted within one year of sale. A copy of a temporary operating permit is acceptable proof of temporary registration if accompanied by a receipt of payment for DMV registration fees. A copy of the DMV file copy is not acceptable proof of registration.

c. A copy of the executed and signed sales contract with an itemization of credits, discounts, and incentives received, if applicable.

Once the Administrator has verified the documentation, a rebate check will be issued to the vehicle purchaser.

5. Vehicle Ownership Provisions

a. Vehicle purchasers participating in the Public Fleet Pilot Project are required to keep the vehicle and meet all applicable project requirements for a minimum 30-month period after the vehicle purchase date.

b. If a manufacturer defect or other unforeseen circumstances require the replacement of a Public Fleet Pilot Project rebated vehicle with another vehicle of the same technology type (FCEV, BEV, PHEV) or upgrade (e.g., replace PHEV with BEV), the Administrator, in conjunction with ARB, has discretion to allow updated information to be provided with no return of Public Fleet Pilot Project rebate funds.

c. Resale or return of a vehicle may be allowed within this 30-month period if necessitated by unforeseen or unavoidable circumstances. To employ this provision, contact the Administrator to initiate this process. If the vehicle is resold or returned, the vehicle purchaser must refund promptly to the Administrator a prorated portion of their rebate, in an amount equivalent to the original rebate amount divided by 30 months and then multiplied by the number of months remaining in the original 30-month period (rounded to the nearest month):

(Original Rebate Amount ÷ 30 Months) x (30 – months since vehicle purchase or date)

d. The Administrator will follow specific procedures when managing vehicles that received a rebate at the time of original sale and have since been sold or returned to the dealer (see Attachment A).

ARB verifies vehicle ownership through periodic checks of Vehicle Identification Numbers (VINs) in the California DMV database. If a vehicle purchaser sells or returns the rebated vehicle to the dealer and does not receive prior approval ARB, ARB or its designee reserves the right to recoup Public Fleet Pilot Project funds from the original vehicle purchaser identified on the rebate form and may pursue other remedies available under the law for unauthorized early termination of vehicle ownership.

D. DEFINITIONS

"ARB-certified" means a vehicle that has been certified as a ZEV or a Transitional Zero Emission Vehicle and issued an Executive Order by ARB in accordance with the provisions of the California ZEV Regulation (section 1962(e), Title 13, CCR).

"Battery Electric Vehicle (BEV)" means any vehicle that operates solely by use of a battery, or that is powered primarily through the use of an electric battery but uses a flywheel or capacitor that also stores energy to assist in vehicle operation.

"BEVx" means a vehicle powered predominantly by a zero emission energy storage device, able to drive the vehicle for more than 75 all-electric miles, and also equipped with a backup APU, which does not operate until the energy storage device is fully depleted, and meeting requirements in subdivision 1962.1(d)(5)(G), Title 13, CCR section 1962.1(i)(12).

"Fleet" means vehicles under common ownership or fiduciary control, including, but not limited to, entities sharing a common Taxpayer Identification Number (TIN). Vehicles may be considered part of a single fleet even if they are part of different subsidiaries, divisions, or other organizational structures of a government agency, or other entity. ARB and the Administrator reserve the right to make determinations on a case-by-case basis.

"Floor Model/Test Drive Vehicle" is provided by original equipment manufacturers to car dealerships for the purpose of test drives and other customer interactions. California dealerships may temporarily operate a floor model or test drive vehicle on public roads with "dealer" license plates for the purpose of test drives. Use of floor model or test drive vehicles on public roads with "dealer" license plates does not require vehicle registration with the California Department of Motor Vehicles (DMV).

"Fuel-Cell Electric Vehicle (FCEV)" means a vehicle that is powered by a group of individual fuel cells, known as a fuel-cell stack. The stack is designed to contain enough cells to provide the necessary power for the automotive application. A fuel-cell stack produces power as long as fuel is available, similar to a conventional engine, but

does so electrochemically rather than with combustion. The electricity generated by the fuel-cell stack powers the electric motor that propels the vehicle.

“Gross vehicle weight rating (GVWR)” means the vehicle weight described on the original manufacturer Line Setting Ticket provided to the vehicle dealer.

“Plug-in Hybrid Electric Vehicle (PHEV)” (in some cases referred to as an Extended Range Electric Vehicle, Transitional Zero-Emission Vehicle, or E-REV) means a hybrid electric vehicle which:

- has zero-emission vehicle range capability,
- has an on-board electrical energy storage device with useful capacity greater than or equal to ten miles of Urban Dynamometer Driving Schedule (UDDS) range on electricity alone,
- is equipped with an on-board charger, and
- is rechargeable from an external connection to an off-board electrical source.

“Public entity” as defined in California Government Code section 811.2 includes the State, the Regents of the University of California, the Trustees of the California State University and the California State University, a county, city, district, public authority, public agency, and any other political subdivision or public corporation in the State.

“Public fleet” means a fleet under ownership of a public entity.

“Rollback/Unwind Vehicle” is a vehicle returned to a dealership shortly after being purchased and operated by a buyer. Rollbacks can occur if a buyer’s financing is rejected. An unwind occurs when an Application for Registration of New Vehicle is completed, but the sale of the vehicle was not consummated and the buyer never took delivery.

“Zero-Emission Vehicle (ZEV)” means any vehicle certified to zero-emission standards.

Attachment A

Procedures for Authorizing Early Ownership Termination of a Rebated Vehicle

This document provides the necessary steps involved for the Rebate Administrator (Administrator) and the California Air Resources Board (ARB) to follow if notified of the resale or ownership termination of a Public Fleet Pilot Project rebated vehicle.

Step One: Notify the Administrator of Vehicle Resale/Ownership Termination Request

Public entity shall contact ARB for the vehicle resale or ownership termination request, ARB will contact the Administrator with the applicant's email and contact information and a brief description of the request for processing.

Step Two: The Administrator Documents Vehicle Resale/Ownership Termination Request

Once notified by a rebate recipient of interest in reselling/terminating ownership on a Public Fleet Pilot Project funded vehicle prior to the 30 month ownership requirement being met, the Administrator will gather the following information:

1. Applicant contact information
2. Date when the public entity applied for the Public Fleet Pilot Project
3. Original rebate amount received
4. Vehicle Identification Number
5. Reason for vehicle resale/ownership termination
6. Status of vehicle resale/ownership termination
7. Odometer reading on date of resale/ownership termination
8. Prorated rebate amount using the formula below:

(Original Rebate Amount ÷ 30 Months) x (30 – months since vehicle purchase date)

Step Three: Administrator Review and Rule on Vehicle Resale/Ownership Termination Request

The Administrator will review the resale/ownership termination request and any supporting documentation, and inform the public entity of their decision within 10 working days.

Step Four: The Administrator Notifies Applicant Ruling

The Administrator will communicate their decision to the public entity requesting resale/ownership termination, including instructions for refunding the prorated amount of the rebate to the Administrator if the resale/ownership termination request is granted. Refunded rebates will be added back into the rebate funding pool.

Step Five: The Administrator Notifies ARB of Applicant Refund or a Non-Responsive Rebate Recipient

Once the prorated rebate amount is refunded back to the Public Fleet Pilot Project, the Administrator will inform ARB, through program reporting. Additionally, the Administrator will provide monthly status reports until the refund is received. If a public entity requesting resale/ownership termination is unresponsive and fails to return the prorated rebate amount within 30 calendar days of initial ruling notification, the Administrator shall notify ARB and provide the public entity's information outlined in Step Two.

Step Six: Coordination with Enforcement of Public Fleet Pilot Project Ownership Terms

ARB program staff is responsible for coordination with staff conducting periodic VIN checks of the DMV database for ownership compliance. Public entities that received resale/ownership termination approval from ARB will not be in violation of the Public Fleet Pilot Project ownership terms.

Attachment B

Procedures for Floor Model/Test Drive and Rollback/Unwind Vehicle Eligibility

This document provides the steps necessary for the Administrator and the California Air Resources Board (ARB) to manage the Public Fleet Pilot Project rebate applications for floor model, test drive, rollback and unwind vehicles.

Step One: Definitions

Floor Model/Test Drive Vehicles

Floor model or test drive vehicles are provided by original equipment manufacturers to car dealerships for the purpose of test drives and other customer interactions. California dealerships may temporarily operate a floor model or test drive vehicle on public roads with “dealer” license plates for the purpose of test drives. Use of floor model or test drive vehicles on public roads with “dealer” license plates does not require vehicle registration with the California Department of Motor Vehicles (DMV).

Rollback/Unwind Vehicles

A rollback is a vehicle returned to a dealership shortly after being purchased and operated by a buyer. Rollbacks can occur if a buyer’s financing is rejected. An unwind occurs when an Application for Registration of New Vehicle is completed, but the sale of the vehicle was not consummated and the buyer never took delivery.

Step Two: Review of Vehicle Supporting Documents

The Administrator will review the supporting documents within the rebate application to ensure the application meets all program requirements. A California vehicle sales contract will indicate if a vehicle is new or used.

1. Floor Model/Test Drive Documentation: Per the California DMV’s Vehicle Registration Procedures Manual, a new vehicle operated as a floor model or test drive vehicle (referred to as “demonstrator” vehicles by the California DMV) is classified to be a used vehicle when subsequently sold to a retail buyer. However, when sold to the retail buyer, floor model or test drive vehicles must be registered with the California DMV as a new vehicle through the use of the *Application for Registration of a New Vehicle* (California DMV Form 397). The sales contract and the proof of temporary or permanent vehicle registration should reflect these DMV requirements.

2. Rollback/Unwind Documentation: Per the Califonia’s DMV’s Vehicle Registration Procedures Manual, rollback and unwind vehicles occur when they have been registered by the original purchaser through the use of the Application for

Registration of New Vehicle (California DMV Form 397). The Administrator requires documentation showing that the dealership is attesting to the fact that the car is either a rollback or unwind vehicle.

Step Three: Determining Vehicle Eligibility

Based on the supporting documents provided with the rebate application, the Administrator, with input from ARB, will determine whether the applicant is eligible for the Public Fleet Pilot Project rebate.

1. Floor Model/Test Drive Eligibility: A floor model or test drive vehicle which was not previously registered with the California DMV, and meets all other Public Fleet Pilot Project vehicle eligibility criteria, is eligible for the Public Fleet Pilot Project rebate.

   Per section 2(a) of the Public Fleet Pilot Project Implementation Manual, a floor model or test drive vehicle which has previously been registered with the California DMV does not meet the Public Fleet Pilot Project vehicle eligibility criteria, thus is not eligible for the Public Fleet Pilot Project rebate.

2. Rollback/Unwind Eligibility: A rollback or unwind vehicle has previously been registered with the California DMV; however, the sale was never completed. The vehicle was either returned or never delivered due to financing issues. These vehicles' eligibility will be determined on a case by case basis after reviewing the supporting documentation.

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Appendix E

HVIP
Implementation Manual

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IMPLEMENTATION MANUAL FOR THE HYBRID AND ZERO-EMISSION TRUCK AND BUS VOUCHER INCENTIVE PROJECT (HVIP)

<u>Effective Date:</u> June 1, 2016

California Environmental Protection Agency

Air Resources Board

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A. INTRODUCTION AND OVERVIEW

In 2007, Governor Schwarzenegger signed into law the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (AB 118, Statutes of 2007, Chapter 750). AB 118 created the Air Quality Improvement Program (AQIP), a voluntary incentive program administered by the Air Resources Board (ARB), to fund clean vehicle and equipment projects, air quality research, and workforce training.

As required in Health and Safety Code (HSC) Section 44274(a), the Board adopted regulatory guidelines in 2009 for AQIP. The Guidelines for the AB 118 Air Quality Improvement Program (Guidelines) define the overall administrative requirements and policies and procedures for program implementation based on the framework established in statute. Central to the Guidelines is the requirement for a Board-approved annual funding plan developed with public input. The funding plan is each year's blueprint for expending AQIP funds appropriated to the ARB in the annual State Budget. The funding plan focuses AQIP on supporting development and deployment of the advanced technologies needed to meet California's longer-term, post 2020 air quality goals.

HVIP is intended to encourage and accelerate the deployment of zero-emission truck and buses, vehicles using engines that meet the optional low NOx standard and hybrid trucks and buses in California. HVIP provides vouchers of up to $95,000 for California purchasers and lessees of zero-emission trucks and buses, and up to $30,000 for eligible hybrid trucks and buses on a first-come, first-served basis. In addition, HVIP provides increased incentives for fleets located in or serving disadvantaged communities. These fleets qualify for vouchers up to $110,000 for zero-emission trucks and buses. New to HVIP, trucks and buses that are outfitted with engines meeting the optional low NOx standard will be eligible for a $15,000 voucher.

HVIP benefits the citizens of California by providing immediate air pollution emission reductions while stimulating development and deployment of the next generation of zero-emission and hybrid commercial vehicles. It is administered and implemented through a partnership between ARB and a Grantee, selected via a competitive ARB grant solicitation.

The Implementation Manual, in conjunction with the Guidelines, and the Funding Plan identify the minimum requirements for implementing the program. The Implementation Manual may be periodically updated as needed to clarify project requirements and improve project effectiveness. The Implementation Manual, including any updates, will be posted on the Grantee's HVIP webpage at http://www.californiahvip.org/.

ARB has sole discretion to determine eligibility for HVIP funding. Definitions of key program parameters are located in Section G of this manual. Additionally, Table 1 clarifies which fiscal year coincides with the HVIP project year.

Table 1: Fiscal Year/HVIP Project Year

Fiscal Year	HVIP Project Year
FY 2009-10	Year 1
FY 2010-11	Year 2
FY 2011-12	Year 3
FY 2012-13	No HVIP
FY 2013-14	Year 4
FY 2014-15	Year 5
FY 2015-16	Year 6

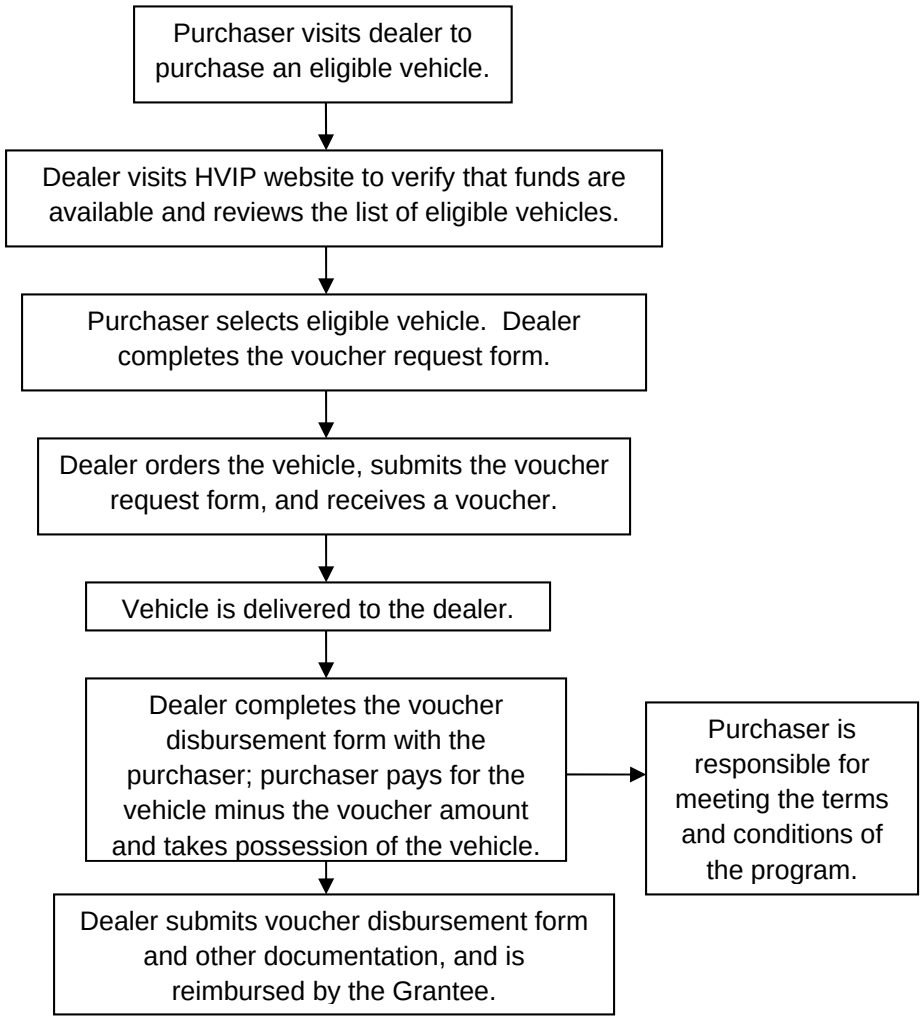
B. PROJECT OVERVIEW

1. Project Framework

Figure 1 illustrates a hypothetical vehicle dealer sale and voucher reimbursement transaction. HVIP provides a voucher for the incentive amount to a registered dealer, redeemable at the time of the vehicle or low NOx engine purchase.

The HVIP website includes a list of eligible trucks and buses, as well as the eligible voucher amount for each vehicle. The webpage includes a voucher request form for the dealer to complete with the purchaser and submit at the time a specific vehicle is ordered. A similar structure also applies to vehicles which are ordered directly from a truck manufacturer or a truck equipment manufacturer (TEM).

Figure 1: Example HVIP Truck or Bus Purchase Transaction



Key timelines for FY 2014-15 and FY 2015-16 HVIP development and implementation are identified in Table 2 (below).

Table 2: FY 2014-15 and FY 2015-16 HVIP Development and Implementation Timeline*

Action Item	Date or Time Period
HVIP Grantee selected.	April 30, 2015 and November 2015 for year two extension
HVIP Grantee maintains project webpage, conducts outreach and dealer training.	ongoing
Implementation Manual and voucher forms finalized.	January 2016
Funding available to redeem vouchers.	June 2015-April 2018 (or until depleted)

* The timeline may be changed at ARB's sole discretion.

C. VEHICLE TECHNOLOGY ELIGIBILITY

This section describes minimum criteria necessary for vehicles to apply for HVIP-eligibility. Once a vehicle becomes HVIP eligible, the vehicle must continually meet the minimum criteria as stated. If a vehicle fails to continually meet the minimum eligibility criteria, the vehicle will become ineligible and will be removed from HVIP.

1. **All Vehicles <u>(Except Vehicles Equipped with Low NOx Engines)</u>**
   For vehicles equipped with low NOx engines, please see Section C(8)

a. The vehicle engine (if applicable), drive train, and batteries/energy storage system(s) must be covered by a manufacturer warranty. Prior to approving a vehicle model for addition to the List of Eligible Vehicles (see Appendix A), ARB may request that the manufacturer provide copies of representative vehicle, engine and battery warranties and a description of the manufacturer's plans to provide warranty and routine vehicle service. The warranty must provide protection for a minimum of 3 years or 50,000 miles, whichever comes first, and provide full warranty coverage of at a minimum engine (if applicable) motor, drive train, battery, parts and labor.

b. A vehicle is not eligible for an HVIP voucher if the same vehicle make and model is receiving public incentive funding as a research or demonstration project.

c. The vehicle must be a commercial, non-profit agency, or public fleet vehicle. Personal passenger vehicles are not eligible for HVIP funding.

d. Vehicles that are approved for the Clean Vehicle Rebate Project (CVRP) are not eligible to participate in HVIP.

e. The chassis of any vehicle receiving an HVIP voucher must be titled and licensed in California, and the vehicle must be California-registered (if applicable).

f. The HVIP-eligible vehicle must be purchased from a vehicle dealer approved by the Grantee to participate in HVIP.

g. The vehicle must have at least one California-based service provider affiliated with the vehicle manufacturer and capable of vehicle service and repair.

h. No retrofits or other hardware or software modifications which significantly impact the vehicle's emissions characteristics are permitted.
(Violation, Vehicle Code 27156).

i. The vehicle must meet all applicable local, state, and federal laws, ordinances and requirements, including but not limited to all applicable safety and air quality regulations.

j. Telematics: All vehicles, except military vehicles, shall be equipped with a data acquisition system capable of collecting vehicle GPS data and vehicle mileage. For vouchers requested on or after April 1, 2016[1], each vehicle manufacturer shall be responsible for providing quarterly reports for the aggregated fleet of vehicles to the Grantee listing the following information:
   1. Hours and percentage of total time when the vehicles are operating (operating would mean vehicle is "key on") within a disadvantaged community or a zip code containing a disadvantaged community for the last quarter and cumulative.
   2. Location and time of first key on and last key off of the work day.
   3. Total miles and percentage of total miles when the vehicles are driving within a disadvantaged community or a zip code containing a disadvantaged community for the last quarter and cumulative.
   4. Vehicle manufacturers shall provide a minimum of three years of data for vehicles from the date of purchase.

   For mapping data files, please visit the ARB Maps to Support the Disadvantaged Communities Investment Guidelines website at:
   http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/535investments.htm

ARB is responsible for developing and updating the list of vehicles and Low NOx engines eligible for an HVIP voucher. Vehicle and low NOx engine make/models

[1] The first quarterly report will cover the period April 1, 2016 through June 30, 2016, and will be due to the Grantee no later than August 1, 2016. All subsequent quarterly reports will be due no later than 30 calendar days following the reporting period. ARB has sole discretion to change date, extend the reporting period or reporting deadline based on manufacturer hardship request.

identified in Appendix A are eligible for HVIP. HVIP vehicle and low NOx engine eligibility applications for new hybrid, and hybrid vehicle conversions, zero-emission, and zero-emission vehicle conversions, aerial boom vehicles with an ePTO, new vehicle equipped with low NOx engines, and low NOx engines used for repowers are found in Appendices B-1, B-2, B-3, B-4 and B-5 respectively. Application submittal instructions and an updated list of eligible vehicles are found at https://www.californiahvip.org/.

ARB has sole discretion to determine eligibility for HVIP funding. ARB is responsible for developing and updating the list of vehicles, and low NOx engines available for repowers that are eligible for HVIP vouchers.

2. New Hybrid Vehicles

a. The vehicle must be a new vehicle as defined in California Vehicle Code Section 430.[2]

b. For the purposes of HVIP, a new chassis that has been converted with aftermarket parts or equipment to create a hybrid vehicle is not considered a new vehicle, unless the completed hybrid vehicle has obtained ARB new vehicle certification. The HVIP-eligible vehicle (and vehicle chassis) must be new and not yet have been registered in any state or paid for by the purchaser (other than a vehicle down payment) in order to receive a voucher. Used vehicles (including vehicles used by dealers, manufacturers, or other entities or for demonstration purposes) are not eligible for HVIP.

c. Hybrid vehicle makes/models must fall into one of the following categories to apply to ARB for HVIP eligibility:

    i. A plug-in hybrid vehicle from 8,501 to 10,000 lbs gross vehicle weight rating (GVWR) which is ARB-certified to be sold in California. An ARB-certified plug-in hybrid commercial vehicle between 6,001 and 8,500 lbs may apply for HVIP eligibility; however, vouchers for these vehicles are provided on a case-by-case basis only if a vehicle purchaser can demonstrate the vehicle is for commercial (not personal) use only, and meets the intent of HVIP.

    ii. A hybrid vehicle from 10,001 to 14,000 lbs GVWR which is ARB-certified to be sold in California as an original, newly manufactured vehicle.

[2] Per section 430 of the California Vehicle Code, a "new vehicle" is a vehicle constructed entirely from new parts that have never been the subject of a retail sale, or registered with the California Department of Motor Vehicles, or registered with the appropriate agency or authority of any other state, District of Columbia, territory or possession of the United States, or foreign State, province, or country.

iii. A hybrid vehicle over 14,000 lbs GVWR which is ARB-certified (full vehicle certification) to be sold in California.

d. A hybrid vehicle over 14,000 lbs GVWR which is not ARB-certified that demonstrates, pursuant to the Hybrid Vehicle Eligibility Application (as shown in Appendix B-1) that the hybrid system is compatible with continued effective functioning of the vehicle exhaust after-treatment system. The hybrid vehicle shall complete one of the following in order to demonstrate the vehicle will achieve expected in-use emission benefits.

   i. Hybrid vehicle may become HVIP-eligible via voluntary full vehicle certification, utilizing the new optional Heavy-Duty Hybrid-Electric Vehicle Certification Procedures. Hybrid vehicle make/models that become ARB-certified would be eligible for vehicle voucher enhancement. See Section D(5)(c) for additional information regarding voucher enhancements.

   ii. A second option for a hybrid vehicle make/model to become HVIP eligible for hybrid manufacturers unwilling to pursue full vehicle certification is for manufacturers to conduct in-use (Portable Emissions Measurement System (PEMS) or chassis dynamometer emissions testing to ensure the hybrid vehicle does not result in increased NOx emissions compared to the equivalent baseline vehicle. The manufacture must notify ARB regarding which method of testing the manufacturer will use to test NOx emissions (dynamometer or PEMS). The emission testing of hybrid vehicle conversions and the comparable baseline vehicle following the same emission test method is referred to as A to B testing, and will be required with PEMS or chassis dynamometer testing. Manufacturers will be required to present a PEMS or chassis dynamometer testing plan that identifies duty cycle, testing parameters, and third-party or manufacture testing. ARB will review and approve the testing plan. Once testing is complete, the vehicle manufacture shall submit all test data along with a completed HVIP application to the ARB project liaison before HVIP eligibility is granted. See Appendix B-1 for more information.

e. The vehicle must use an ARB-certified engine. The engine must be appropriately matched for the intended service class of the hybrid vehicle in which it is used. Engines must meet the following criteria if used in vehicles not yet certified by ARB:

   i. A light heavy-duty engine may be used in a vehicle up to 23,000 GVWR.

   ii. A medium heavy-duty engine may be used in a vehicle up to 38,000 GVWR.

   iii. A heavy heavy-duty engine may be used in a vehicle up to 80,000 GVWR.

Engines may be used in vehicles above these weight limits only with the prior written consent of the ARB Project Liaison.

f. A vehicle must draw propulsion energy from onboard sources of stored energy that are both an internal combustion or heat engine using consumable fuel, and a rechargeable energy storage system. This definition does not exclude plug-in hybrid vehicles.

g. A vehicle must achieve at least a 30 percent fuel economy benefit relative to its equivalent baseline vehicle as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23, City Fuel Economy (www.irs.gov/irb/2007-23_IRB/ar08.html).

h. A hybrid vehicle engine must be new.

i. Modifications to engine performance (including changes in horsepower), emissions characteristics, engine emission components (not including repairs with like-original equipment manufacturers replacement parts), or any other modifications to the engine's emission's control function is not allowed. (Violation, Vehicle Code 27156).

j. Plug-in hybrid electric vehicles must demonstrate, at a minimum, a thirty-five mile all-electric range. If the vehicle is fast charge compatible, as defined in HVIP, then the vehicle must demonstrate a twenty mile all-electric range

k. Plug-in hybrid electric or hydraulic hybrid vehicles must demonstrate at least a 40 percent fuel economy benefit relative to their non-hybrid counterparts to be eligible for the additional incentive funding identified in Table 4.

3. New Zero-Emission Vehicles

Hydrogen fuel cell and battery electric-powered vehicle technologies have been proven to emit zero-emissions when powering medium- and heavy-duty vehicles, and are therefore potentially eligible for HVIP. Other technologies which emit zero-emissions when in operation may be considered for HVIP eligibility on a case-by-case basis.

a. The vehicle must be a new vehicle as defined in California Vehicle Code Section 430.[3]

b. For the purposes of HVIP, a new chassis that has been converted with

[3] Per section 430 of the California Vehicle Code, a "new vehicle" is a vehicle constructed entirely from new parts that have never been the subject of a retail sale, or registered with the California Department of Motor Vehicles, or registered with the appropriate agency or authority of any other state, District of Columbia, territory or possession of the United States, or foreign State, province, or country.

aftermarket parts or equipment to create a zero-emission vehicle is not considered a new vehicle, unless the completed zero-emission vehicle has obtained ARB new vehicle certification. The HVIP-eligible vehicle (and vehicle chassis) must be new and not yet have been registered in any state or paid for by the purchaser (other than a vehicle down payment) in order to receive a voucher. Used vehicles (including vehicles used by dealers, manufacturers, or other entities or for demonstration purposes) are not eligible for HVIP.

c. Zero-emission vehicle makes/models must fall into one of the following categories to apply to ARB for HVIP eligibility:

   i. Zero-emission vehicles from 5,001 to 14,000 lbs GVWR that are ARB-certified as Type I, I.5, II or III zero-emission vehicles as defined in the California ZEV Regulation (Section 1962(d)(5)(A), Title 13, California Code of Regulations (CCR) for 2003-2008 model year vehicles and Section 1962.1(d)(5)(A), Title 13, CCR for 2009 and subsequent model years). Those vehicles from 5,001 to 8,500 lbs GVWR may apply for HVIP eligibility; however, vouchers for this lightest vehicle class are provided on a case-by-case basis only if a vehicle purchaser can demonstrate the vehicle is for commercial (not personal) use only, and meets the intent of HVIP.

   ii. Zero-emission vehicles above 14,000 lbs GVWR that are ARB-approved. The manufacturer must also certify that the vehicle model complies with all applicable federal safety standards for new motor vehicles and new motor vehicle equipment issued by the National Highway Traffic Safety Administration. The Federal Motor Vehicle Safety Standards are found in Title 49 of the Code of Federal Regulations (CFR) Part 571. If a written statement and documentation have been previously provided to ARB in the course of applying for ARB approval/certification of the vehicle model, no additional written statement is required.

d. The vehicle must demonstrate a thirty-five mile all-electric range. If the vehicle is fast charge compatible, as defined in HVIP, then the vehicle must demonstrate a twenty mile all-electric range.

4. Hybrid Vehicle Conversions

For the purpose of HVIP, a hybrid vehicle conversion means installing a hybrid driveline and other advanced technology to a newly manufactured vehicle or chassis. No hybrid vehicle conversions of existing in-use vehicles except as stated in (a) below will be eligible due to uncertainty with durability, warranty, and continued emissions reduction performance. Initially, hybrid vehicle conversions will be required to have ARB aftermarket parts certification and free from additional conditions to be eligible for funding. If the Innovative Technology Regulation (ITR), currently under development by ARB, is adopted, hybrid vehicle conversion manufacturers will follow emission testing

requirements within that regulation for pathway to HVIP funding eligibility.[4] The proposed ITR will provide certification and aftermarket part approval flexibility for innovative heavy-duty engine and vehicle technologies.

a. All hybrid vehicle conversions must have ARB aftermarket parts certification and free from additional conditions. Hybrid vehicle conversions may be titled, licensed and registered to a fleet, but may not have travelled more than 3,500 miles. Vouchers for vehicles with more than 3,500 miles may be redeemed on a case-by-case basis with sole approval of the ARB Project Liaison with sufficient evidence or explanation justifying such mileage. A voucher will not be issued until the vehicle conversion is verified by the Grantee, ARB, or ARB's designee.

b. A hybrid vehicle conversion must achieve at least a 20 percent fuel economy benefit relative to its equivalent baseline vehicle as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23, City Fuel Economy (www.irs.gov/irb/2007-23_IRB/ar08.html).

c. The hybrid vehicle conversion may not emit more NOx emissions compared to the equivalent baseline vehicle.

d. Manufacturers must conduct in-use (Portable Emissions Measurement System (PEMS) or chassis dynamometer emissions testing to ensure the hybrid vehicle does not result in increased NOx emissions compared to the equivalent baseline vehicle. The manufacture must notify ARB regarding which method of testing the manufacturer will use to test NOx emissions (dynamometer or PEMS). The emission testing of hybrid vehicle conversions and the comparable baseline vehicle following the same emission test method is referred to as A to B testing, and will be required with PEMS or chassis dynamometer testing. Manufacturers will be required to notify ARB that they elect to either (1) conduct chassis dynamometer testing, or (2) submit a PEMS testing plan that identifies duty cycle, testing parameters, and third-party or manufacturer testing. ARB will review the PEMS testing plan, and testing may not begin until ARB approval is granted. Once testing is complete, the vehicle manufacturer shall submit all test data along with a completed HVIP application to the ARB project liaison before HVIP eligibility is evaluated. See Appendix B-1 for more information.

e. Although, voucher enhancements are available for new hybrid vehicles, no voucher enhancements will be available for hybrid vehicle conversions.

f. Refer to Tables 6 and 7 for specific hybrid vehicle conversion voucher amounts.

5. Zero-Emission Vehicle Conversions

[4] For more information on the Innovative Technology Regulation, see http://www.arb.ca.gov/msprog/itr/itr.htm

a. New or in-use vehicles with any fuel type that convert to zero-emission, including battery electric and fuel cell technologies.

b. For conversions of any type of vehicle to zero-emission, the aftermarket conversion kits must receive an exemption executive order (EO) from ARB.[5]

c. A voucher will not be issued until the vehicle conversion is verified by the Grantee, ARB, or ARB's designee.

d. The maximum chassis age for zero-emission vehicle conversions is ten years. ARB may consider chassis older than ten years on a case by case basis.

e. Refer to Table 5 for specific zero-emission vehicle conversion voucher amounts.

f. Proof of compliance with the all-electric range requirements identified in Section C(3)(d).

6. Aerial Boom Vehicles with ePTO

The following vehicle eligibility requirements apply to aerial boom vehicles with ePTO that do not otherwise meet criteria for hybrid or zero-emission vehicles defined in this Implementation Manual:

a. Only aerial boom vehicles over 26,000 lbs GVWR and with a boom working height of at least 50 feet are eligible for funding.

b. An ePTO system must use alternating current (AC) to power the electric motor and have a voltage of at least 40 volts. An ePTO system using direct current may be approved by the ARB Project Liaison on a case-by-case basis based upon evidence the system is robust and will not compromise workplace safety.

c. The vehicle ePTO system must demonstrate ability to charge from the battery manufacturer recommended minimum state-of-charge (i.e., the remaining battery voltage defined by the manufacturer at which the vehicle engine will turn on to recharge the ePTO battery) to fully charged within twelve hours when plugged in. The manufacturer recommended minimum state-of-charge utilized during the HVIP eligibility application ePTO demonstration may not be adjusted in-use for a minimum of three years from the vehicle's HVIP voucher redemption date.

d. When the ePTO system is engaged at the jobsite, heating, ventilation, and air conditioning (HVAC) cab comfort must be powered by the ePTO battery.

e. The vehicle must include a telematics device that electronically tracks the following:

[5] For more information, go to: www.arb.ca.gov/msprog/cihd/approvals/approvals.php

i. engine idle time

ii. battery charge time from engine

iii. battery plug-in charge time

iv. hours of boom operation (stationary)

v. hours of boom movement

f. Aerial boom vehicles with ePTO are deemed HVIP-eligible by ARB staff based on a demonstration that the vehicle engine does not idle to recharge the battery or to power the aerial lift during a typical work day. The vehicle must demonstrate completion of a typical duty cycle as shown in *Appendix B-3: Aerial Boom Vehicle with ePTO Eligibility Application* with ePTO power only.

Aerial boom vehicles using alternate (non-battery powered) zero-emission PTO systems may be approved by ARB on a case-by-case basis.

7. Exportable Power

HVIP eligible plug-in utility vehicles or vehicles below 10,000 lbs GVWR that are equipped with exportable power are eligible for an additional $2,000 voucher. To be eligible, the exportable power system must:

a. Be a new exportable power system that is fully integrated into the HVIP-eligible vehicle during the vehicle's original manufacture.

b. Provide a minimum of 3.0 kilowatts of auxiliary power (able to power electric tools, lighting and accessories at a job site or to take the place of a small electric generator).

c. Be covered by a minimum 3 year warranty for parts and labor.

Vehicle manufacturers must submit proof of an export power option meeting the above minimum criteria during HVIP vehicle eligibility application process. ARB reserves the right to deny approval of an export power voucher if export power usage on the proposed vehicle cannot be justified (i.e., the vehicle must be in a vocation in which export power is utilized). ARB may approve other HVIP-eligible vehicle types for the additional HVIP incentive on a case-by-case basis based upon evidence of export power commercial availability and utilization.

8. Requirements for Low NOx Engines

Below are the minimum criteria necessary for a vehicle equipped with or repowered with a low NOx engine. Once a vehicle is equipped with a low NOx engine, the vehicle must

continually meet the minimum criteria as stated. The telematics requirement (Section C(1)(j) does not apply to this section.

a. The low NOx engine must be covered by a manufacturer warranty. The warranty must provide protection for a minimum of 3 years or 50,000 miles, whichever comes first or 2 years or 250,000 miles, whichever comes first.

b. The low NOx engine and vehicle is not eligible for an HVIP voucher if the vehicle or engine is receiving public incentive funding as a research or demonstration project.

c. The vehicle equipped with a low NOx engine or vehicle repowered with a low NOx engine must be a commercial, non-profit agency, or public fleet vehicle. Personal passenger vehicles are not eligible for HVIP funding.

d. The vehicle equipped with a low NOx engine must be titled and licensed in California, and the vehicle must be California-registered (if applicable).

e. The HVIP-eligible vehicle or low NOx engine must be purchased from a dealer approved by the Grantee to participate in HVIP.
    a. If the engine is for a repower, the engine repower must be performed by an installer authorized by the engine manufacturer.

f. No retrofits or other hardware or software modifications which significantly impact the vehicle's emissions characteristics are permitted.
(Violation, Vehicle Code 27156).

g. The vehicle must meet all applicable local, state, and federal laws, ordinances and requirements, including but not limited to all applicable safety and air quality regulations.

h. No voucher enhancements will be available for vehicles equipped with or repowered with low NOx engines.

i. Refer to Table 8 for specific voucher amount.

D. VOUCHER REQUIREMENTS

An HVIP voucher shall only be provided for a specific vehicle on order or purchased by a specific customer. The dealer must work with the vehicle or low NOx engine purchaser to complete the HVIP voucher request form (available on the HVIP[6] webpage) for HVIP-eligible vehicles. Only vehicles listed as eligible on the HVIP

[6] https://www.californiahvip.org/

webpage may receive a voucher. The maximum voucher amount for each eligible vehicle will be provided on the HVIP webpage.

The Grantee shall, in coordination with ARB, develop/maintain a system for dealers to quickly, effectively, and transparently request and redeem vouchers. The HVIP webpage shall include all the information necessary for the dealer, in conjunction with the vehicle or low NOx engine purchaser, to complete and submit the voucher request. Only completed and accurate voucher request forms will be accepted. The Grantee will review the voucher request form for eligibility and provide vouchers on a first-come, first served basis until HVIP funds are depleted. Fleets that fail to submit annual vehicle surveys/questionnaires as required from any HVIP funding year are ineligible for additional HVIP vouchers while this information remains outstanding. Fleets that systematically fail to submit accurate and timely annual usage surveys/questionnaires may be prohibited from future HVIP participation. See Section E(2) for additional information regarding vehicle or low NOx engine purchaser responsibilities.

Voucher requests can be made electronically by participating dealerships at www.californiahvip.org. Voucher funds are reserved at the time of the electronic voucher request. **Submittal of a voucher request not associated with a real and completed vehicle or low NOx engine order is prohibited.** A completed voucher request form will be printed and signed by both the dealer and the vehicle or low NOx engine purchaser. The dealer will then submit the voucher request form, along with a vehicle or low NOx engine purchase order and copy of the purchaser's driver's license or other official identification with signature within two weeks of the electronic voucher request. The purchase order provided by the dealer must represent a real vehicle order. Dealers and participating fleets which provide false or misleading information may be barred from future participation in the HVIP or face other penalties**.**

Failure to provide this information within two weeks of the original voucher request will nullify the electronic voucher request. It is the Grantee's responsibility to notify the dealer that the voucher request has been rejected in writing within five business days of receipt of signed forms or vehicle documentation that disqualifies the vehicle and/or voucher request. Any rejections will include the reason for a rejected voucher request. Voucher requests will be accepted into the queue in the order in which they are received from the online request system. The Grantee will maintain a contingency list of vouchers requested once the initial voucher project funding has been subscribed. The contingency list will be used if vouchers are rejected (and funding unobligated) or if additional project funding becomes available.

The dealer must also provide the vehicle identification number (VIN) or a serial number that uniquely identifies the vehicle and the expected delivery date within thirty calendar days of the electronic voucher request. This information confirms that the dealer has made an order with the manufacturer. The order should be placed prior to, or in conjunction with, making a voucher request. The Grantee has the right to reject the voucher at this point if the VIN or serial number does not match the vehicle identified on the voucher request. Once all voucher request forms and information are received by the Grantee, a voucher will be issued within five business days. A voucher will only be

redeemed if the vehicle or low NOx engine purchaser and delivered vehicle or low NOx engine make/model and other defining information match that on the voucher request form.

1. Voucher Renewal

An HVIP voucher will be valid for three months from the time it is issued by the Grantee. A voucher may be renewed by the participating dealership at any point within those three months through the modification of the electronic voucher record online. Renewal of the voucher automatically reserves the eligible vehicle's and purchaser's voucher funding for an additional three months. A voucher which is not renewed within any three month period will be deemed expired and the voucher funds will be allocated to the next eligible HVIP participant. A voucher must be redeemed within one year (365 days) of the electronic voucher request. Request for voucher extensions beyond one year will be reviewed by the Grantee in consultation with ARB on a case-by-case basis. A decision regarding extension of the voucher reservation beyond one year shall be made by the Grantee in consultation with ARB, and shall be based upon factors, including but not limited to the projected vehicle delivery date, demand from other participants for remaining available HVIP funding, and the good faith efforts of the purchaser, dealer and manufacturer to complete the purchase and place the vehicle into service. The Grantee must maintain written documentation regarding approval of voucher reservations that are extended beyond a one year period for three years after voucher redemption. Vouchers must be redeemed by participating dealers no later than December 31, 2017. Vouchers not redeemed by this date may be deemed null and void.

2. Voucher Redemption

Once a vehicle has been delivered, purchased, and is ready to be placed into service the dealer must submit the voucher and required documentation to the Grantee for redemption. A voucher will only be honored if the vehicle and purchaser listed on the voucher match that in the completed purchase transaction. HVIP voucher redemption requests must also meet the following criteria:

a. An HVIP voucher can only be redeemed upon vehicle delivery, final payment to the dealer by the purchaser (less the voucher amount), and registration of the vehicle in California.

b. A copy of the delivery Bill of Lading, final vehicle invoice, temporary California Department of Motor Vehicle (DMV) registration or DMV tags for the purchased vehicle must be provided to confirm delivery and purchase specifications, and a copy of vehicle Line Setting Ticket (otherwise known as the Factory Build Sheet) must be provided to confirm vehicle GVWR. Documents must contain the vehicle identification number. ARB may approve HVIP vouchers for vehicles that are federally registered in lieu of being registered in California (such as military vehicles) on a case-by-case basis.

c. The Bill of Lading and final vehicle invoice must be signed and dated.

d. The final vehicle invoice must show that the voucher amount has been fully discounted from the vehicle or low NOx engine purchase price.

e. The vehicle GVWR as designated on the manufacturer Line Setting Ticket must be consistent with the vehicle's base vehicle incentive identified in Tables 3 through 7 in Section D(3).

f. Financial documentation identifying the method and date of final payment to the dealer must be provided prior to voucher redemption. This can be a copied check or transaction showing an electronic money transfer. If lease or financial arrangements involve a third party, they must also be identified with the title or lien-holder clearly indicated.

g. Digital inspection photos of the vehicle showing that it is ready to be placed into service must be provided prior to voucher redemption.

h. The vehicle must have no more than 3,500 miles at time of the vehicle inspection. Vouchers for vehicles with more than 3,500 miles may be redeemed on a case-by-case basis with sole approval of the ARB Project Liaison with sufficient evidence or explanation justifying such mileage. **This condition does not apply to a vehicle repowered with a low NOx engine.**

i. An original HVIP Vehicle Inspection Form signed by the HVIP approved and authorized dealer or a third-party designated by the dealer or ARB must be provided prior to voucher redemption.

j. A signed copy of the voucher redemption form must be provided prior to voucher redemption. Original dealer and purchaser signatures are required on this document and an original copy of this document must be sent in the mail to the Grantee (or its designee).

k. All documents that are submitted to the Grantee or its subcontractor for processing voucher redemption must clearly indicate the voucher number.

l. The dealer must submit all voucher redemption documentation within 60 days after vehicle delivery to fleet location. Failure to provide all the required documentation by this deadline will nullify the voucher.

It is the goal of HVIP to provide payment to the dealership within five business days from the time the eligible voucher redemption form and all associated documentation is received by the Grantee. If the voucher payment is delayed for more than ten business days from the time the eligible voucher redemption form and associated documentation is received, the Grantee must notify the dealership by phone or email at the earliest possible time of such delay.

Only completed and accurate voucher redemption forms will be accepted. A voucher shall only be redeemed if the vehicle and purchaser match that on the original voucher request form. ARB, the Grantee, and the HVIP are not responsible for payment of a voucher if the vehicle or purchaser do not match those described on the voucher request form. If the dealer has a new purchaser for a delivered vehicle and HVIP funds are still available, the dealer and new purchaser may request a new voucher.

If a voucher request or redemption is denied (and HVIP funds are not yet depleted), the Grantee shall provide the applicant with the reason for the denial in writing. Any applicants who feel that they have been unfairly denied a voucher may submit an appeal to the ARB Project Liaison. Such an appeal must be signed by the applicant and submitted in writing via postal mail within 30 days of the date shown on the written HVIP denial letter to:

ARB Project Liaison: Mr. Ryan Murano
Innovative Heavy-Duty Strategies Section
Post Office Box 2815
Sacramento, California 95812
Attn: HVIP Appeals

Appeals made by email, fax or phone will not be considered. The appeal shall contain all facts and documentation upon which the appeal is based. Failure to supply this information shall be grounds for rejection of the appeal. A written response to the appeal will be provided by the ARB Project Liaison within 60 days of receipt. ARB's decision shall be final and binding.

3. Vehicle Voucher Amounts

Eligible new zero-emission and new hybrid vehicles may receive an HVIP voucher for up to the funding amounts identified in the Base Vehicle Incentive column in Tables 3 and 4, respectively. Eligible zero-emission vehicle conversions may receive an HVIP voucher for up to the funding amounts identified in the Base Vehicle Incentive column in Tables 5. Eligible hybrid vehicle conversions may receive an HVIP voucher identified in the Vehicle Incentive column as specified in Tables 6, and 7. New vehicles equipped with or vehicles repowered with a low NOx engine are eligible for a voucher as stated in Table 8.

Table 3: Zero-Emission Truck and Bus Voucher Amounts

GVWR (lbs)	Base Vehicle Incentive		
	1 to 100 vehicles[1]		101 to 200 vehicles
	Outside DC[2]	Within DC[2]	
5,001 – 8,500	$20,000	$25,000	$12,000
8,501 – 10,000	$25,000	$30,000	$18,000
10,001 – 14,000[3]	$50,000	$55,000	$30,000
14,001 – 19,500	$80,000	$90,000	$35,000
19,501 – 26,000	$90,000	$100,000	$40,000
> 26,000	$95,000	$110,000	$45,000

1 - The first three vouchers received by a fleet, inclusive of previous funding years, are eligible for the following additional funding amount: $2,000/vehicle if below 8,501 lbs; $5,000/vehicle if 8,501 to 10,000 lbs; and $10,000/vehicle if over 10,000 lbs.
2 – 'DC' refers to a disadvantaged community.
3 - This weight range is not intended for vehicles utilizing a pick-up truck chassis/platform typically found in vehicles below 10,001 lbs GVWR. Vehicles at the lower end of the 10,001 to 14,000 lbs weight range will be evaluated on a case-by-case basis to determine eligibility for the full Base Vehicle Incentive.

Table 4: Eligible New Hybrid Truck and Bus Voucher Amounts

GVWR (lbs)[1]	Base Vehicle Incentive	
	1 to 100 vehicles[2]	101 to 200 vehicles
6,001 – 8,500 (plug-in hybrids only)[3]	$ 8,000	$ 6,000
8,501 – 10,000 (plug-in hybrids only)[3]	$10,000	$ 8,000
10,001 – 19,500	$15,000	$10,000
19,501 – 33,000	$20,000	$12,000
33,001 – 38,000	$25,000	$15,000
> 38,000	$30,000	$20,000

1 - Tractor trailers utilize Gross Combined Vehicle Weight for purposes of determining Base Vehicle Incentive.
2 - The first three HVIP vouchers received by a fleet, inclusive of previous funding years, are eligible for the following additional funding amount: $2,000/vehicle if below 8,501 lbs; $5,000/vehicle if 8,501 to 19,500 lbs; and $10,000/vehicle if over 19,500 lbs.
3 - Vehicle must be ARB-certified as an Ultra-Low Emission Vehicle. Voucher amount is increased by $2,000 for each of the following: ARB-certification as a Super Ultra Low Emission Vehicle and ARB-certification for zero-evaporative emissions.

Table 5: Eligible Zero-Emission Truck and Bus Vehicle Conversion Voucher Amounts

GVWR (lbs)	Base Vehicle Incentive		
	1 to 100 vehicles[1,2]		101 to 200 vehicles[2]
	Outside Disadvantaged Community	In Disadvantaged Community	
5,001 – 8,500	$15,000	$18,750	$ 9,000
8,501 – 10,000	$18,750	$22,500	$13,500
10,001 – 14,000	$37,500	$41,250	$22,500
14,001 – 19,500	$60,000	$67,500	$26,250
19,501 – 26,000	$67,500	$75,000	$30,000
> 26,000	$71,250	$82,500	$33,750

1-The first three vouchers received by a fleet, inclusive of previous funding years, are eligible for the following additional funding amount: $2,000/vehicle if below 8,501 lbs; $5,000/vehicle if 8,501 to 10,000 lbs; and $10,000/vehicle if over 10,000 lbs.
2- Zero-emission conversion funding amounts may cover up to 50 percent of the conversion cost but not to exceed the funding levels listed in Table 5. All voucher enhancements available for new zero-emission trucks and buses will apply to zero-emission vehicle conversions.

Table 6: Eligible Hybrid Truck and Bus Vehicle Conversion Voucher Amounts with No/Low Zero-Emission Operation

Gross Vehicle Weight Rating (GVWR) (lbs)1	Vehicle Incentive	
	1 to 100 vehicles	101 to 200 vehicles
6,001 – 8,500	$2,000	$1,500
8,501 – 10,000	$2,500	$2,000
10,001 – 19,500	$3,750	$2,500
19,501 – 33,000	$5,000	$3,000
33,001 – 38,000	$6,250	$3,750
> 38,000	$7,500	$5,000

1- Tractor trailers utilize Gross Combined Vehicle Weight for purposes of determining Base Vehicle Incentive.

Table 7: Eligible Hybrid Truck and Bus Vehicle Conversion Voucher Amounts with Significant Zero-Emission Range (Minimum of 35 Mile Zero-Emission Range)

Gross Vehicle Weight Rating (GVWR) (lbs)[1]	Vehicle Incentive	
	1 to 100 vehicles	101 to 200 vehicles
6,001 – 8,500	$ 4,000	$ 3,000
8,501 – 10,000	$ 5,000	$ 4,000
10,001 – 19,500	$ 7,500	$ 5,000
19,501 – 33,000	$10,000	$ 6,000
33,001 – 38,000	$12,500	$ 7,500
> 38,000	$15,000	$10,000

1-Tractor trailers utilize Gross Combined Vehicle Weight for purposes of determining Base Vehicle Incentive.

Table 8: Low NOx Engine Voucher Amount

Engine Manufacturer/Displacement	Executive Order	1 to 200 Vehicles/Engines
Cummins Westport/8.9 Liter	A-021-0629 A-021-0630 A-021-0646	$15,000

4. Criteria to Expand Fleet Participation

a. Increased Incentive Amount for First Three Vouchers per Fleet

Voucher enhancements of up to $10,000 per vehicle for the first three vouchers per fleet are intended to further encourage a diversity of fleets to purchase a hybrid or zero-emission truck or bus. To help extend limited HVIP funds and better serve new and smaller fleets, the first three vouchers per fleet *inclusive of all funding years* are eligible for this additional voucher enhancement. **Vehicles equipped with low NOx engines or hybrid vehicle conversions are not eligible for voucher enhancements**.

In addition, the above voucher enhancements of up to $10,000 per vehicle shall be applied for each discrete HVIP-eligible technology, since one purpose of this project is to encourage fleets to consider new, advanced technologies when buying a new truck or bus. These technologies are: aerial boom vehicle with ePTO; new hybrid-electric vehicle; plug-in hybrid-electric vehicle; hydraulic hybrid vehicle (achieving at least 30 percent fuel economy benefit); zero-emission battery-electric vehicle; and zero-emission fuel cell vehicle. For example, a fleet that had previously received voucher enhancements for its first three new hybrid-electric vehicles would still be eligible for the voucher enhancement for its first three vouchers for utility boom vehicles with ePTO; plug-in hybrid-electric vehicles; hydraulic hybrid vehicles (achieving at least 30 percent fuel economy benefit); zero-emission battery-electric vehicles; and zero-emission fuel cell vehicles.

b. Limit of 200 Vouchers Per Single Fleet

To maximize the number of fleets with access to limited HVIP funding, no single fleet may request or receive more than 200 vouchers per HVIP funding year.

c. Definition of a Single Fleet

For the purposes of HVIP, vehicles under common ownership or fiduciary control of a fleet--including but not limited entities sharing a common Taxpayer Identification Number (TIN) or California Carrier Identification Number (CA #)--are considered part of a single fleet even if they are part of different subsidiaries, divisions, or other organizational structures of a company, government agency, or other entity.

Appendix D provides additional information and examples regarding how common ownership or control is defined for the purposes of HVIP. ARB or its designee may seek financial reimbursement and/or civil and criminal penalties from a vehicle purchaser for nondisclosure or inaccurate disclosure of its TIN, CA #, or other information relating to common ownership or fiduciary control of the purchasing entity. The lessee is considered the vehicle purchaser for transactions in which the vehicle is purchased by a vehicle leasing agency and leased to an end-user for three or more years at the time of HVIP voucher redemption. Questions regarding common ownership or fiduciary control of an organization should be directed to the ARB Project Liaison, Ryan Murano, at ryan.murano@arb.ca.gov.

5. Voucher Enhancements

This section does not apply to vehicles equipped with low NOx engines or hybrid vehicle conversions.

Advanced technologies and vehicles that further promote ARB clean air policy goals may be eligible for higher voucher amounts, as identified in Tables 5 and 6. These vehicles have the potential to provide additional emission benefits, further advance vehicle technology, and protect public health.

Table 9: Vehicle Voucher Enhancements[1]

<table>
<tr><th>GVWR (lbs)</th><th>New Plug-in or Hydraulic Hybrid[2]</th><th>New Hybrid or Zero-Emission School Bus</th><th>ARB Certification (New hybrid vehicles only)</th><th>Zero-Emission Fast-Charge/Hydrogen Fuel Cell Vehicle</th></tr>
<tr><td>6,001 – 10,000
(plug-in hybrids only)</td><td rowspan="2">NA</td><td rowspan="2">$ 5,000</td><td rowspan="2">NA</td><td rowspan="4">$10,000/$20,000</td></tr>
<tr><td>10,001 – 14,000</td><td>$5,000</td></tr>
<tr><td>14,001 – 19,500</td><td rowspan="4">$10,000</td><td rowspan="4">$10,000</td><td>$10,000</td></tr>
<tr><td>19,501 – 33,000</td><td>$15,000</td><td>$15,000/$30,000</td></tr>
<tr><td>>33,000</td><td rowspan="2">$20,000</td><td rowspan="2">$20,000/$40,000</td></tr>
<tr><td></td></tr>
</table>

1 - Additional voucher enhancements for early compliance with ARB on-board diagnostic requirements are described in Table 10.
2 - Plug-in electric or hydraulic hybrid vehicles must demonstrate at least a 40 percent fuel economy benefit relative to their non-hybrid counterpart as part of their HVIP eligibility application.

a. New Plug-in or Hydraulic Hybrids

Plug-in electric hybrid vehicles and hydraulic hybrid vehicles that demonstrate at least a 40 percent fuel economy benefit relative to their baseline vehicle (non-hybrid) counterparts (typically as part of their HVIP vehicle eligibility application) may receive an additional $5,000 to $10,000 voucher, as shown in Table 9. These vehicles typically cost up to 30 percent more than traditional battery-electric hybrids, but have the potential for greater criteria pollutant and greenhouse gas emission reductions than traditional hybrids.

b. School Buses

Toxic emissions from diesel-fueled school buses are a serious public health concern, particularly for school age children who are more susceptible to their harmful health effects. School buses operate in close proximity to students and nearby neighborhoods. Because of these health concerns, California voters and the State Legislature have provided about $300 million over the past decade for the Lower-Emission School Bus Program (LESBP)[7] to clean-up the school bus fleet.

While public school districts may combine local funds with HVIP voucher funds to pay for the cost of a new zero-emission school bus, few HVIP vouchers for zero-emission school buses have been requested thus far. Because reducing emissions from school buses continues to be an ARB priority, an additional $5,000 to $10,000 is provided for school buses purchased by public school districts. See Appendix C for guidance regarding what qualifies as a public school district. This would enable HVIP to provide a $90,000 base vehicle incentive for a 26,000 lb zero-emission school bus, plus a $10,000 school bus bump-up and $10,000 for the first three buses purchased for a total $110,000 voucher. Other funding, such as federal or local air district funds, could potentially be used to pay for the remaining cost.

c. ARB-Certified Hybrids

A hybrid vehicle above 14,000 lbs. which has been ARB-certified through the Heavy-Duty Hybrid-Electric Vehicle Certification Procedures will be eligible for an additional $10,000 to $20,000 voucher amount, since ARB-certified vehicles' criteria pollutant emission reductions have been verified, and these vehicles meet additional warranty and durability requirements. This additional voucher amount will be reflected in the voucher received by the dealer when the hybrid vehicle is ordered. If a vehicle becomes ARB-certified while the vehicle is on order, but before the vehicle has been purchased, that vehicle will be eligible to receive the additional voucher amount if HVIP funding is still available. Vehicles below 14,000 lbs. GVWR are not eligible for this additional incentive for ARB certification since these vehicles are typically required to be certified to be sold in California.

[7] http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm

d. Battery-Electric Fast-Charge Compatible or Hydrogen Fuel Cell Vehicles

While only traditional battery-powered commercial vehicles have received HVIP zero-emission vehicle vouchers thus far, both fast charge-compatible and hydrogen fuel cell truck and bus technologies continue to mature. Both these technologies are edging closer to market commercialization, providing potentially unlimited daily range relative to traditional battery-electric slow-charge vehicles. As a result, both fast-charge and fuel cell technologies can potentially provide a zero-emission solution for a wider diversity of truck and bus vocations, including regional and long-haul trucks, and are a key component of California's strategy to attain both federal ambient air quality standards and the State's climate change goals. In order to reflect their much higher incremental cost, and to encourage initial market penetration of advanced technology zero-emission vehicles, HVIP provides higher voucher amounts for commercialized, HVIP-eligible zero-emission fast-charge compatible and fuel cell trucks and buses as identified in Table 9.

Battery-electric fast-charge compatible vehicles must: 1) be equipped to utilize direct current Level 3 fast chargers; 2) be capable of charging from 15 percent state-of-charge to 85 percent state-of-charge within one-half hour (.5hr); and 3) demonstrate that typical operating time is at least 8x typical charging time (i.e. a vehicle must be capable of operating for 8 minutes for each minute of charge time). As with other HVIP vehicle technologies, a vehicle is not eligible for an HVIP voucher if the same vehicle make and model is receiving public incentive funding as a research or demonstration project.

e. Aerial Boom Vehicles with ePTO

Aerial boom vehicles above 26,000 lbs GVWR that do not meet HVIP requirements for hybrid or zero-emission vehicles are HVIP-eligible as a new source category if equipped with ePTO. Aerial boom vehicles with ePTO powered by lithium ion batteries are eligible for the same voucher amount as hybrid vehicles between 19,501 and 33,000 lbs GVWR. Due to their lower cost, vouchers for aerial boom vehicles with ePTO powered by lead acid battery technology are discounted by $6,000 for the first 100 vouchers per fleet and $4,000 for vouchers 101 through 200. Vehicles whose PTO is powered by a different battery chemistry or other zero-emission technology will be considered for HVIP funding eligibility on a case-by-case basis, with voucher amounts dependent upon technology incremental cost, potential for technology transfer to other vehicle or equipment applications, and other criteria. Each vehicle in the HVIP is eligible for no more than one HVIP voucher (i.e. a vehicle must qualify as a hybrid vehicle, an electric vehicle, or an aerial boom vehicle with ePTO but cannot qualify in multiple vehicle categories.

f. Extended Warranties

Extended vehicle and component warranties provide fleets purchasing HVIP-eligible vehicles with additional assurances and certainty regarding vehicle reliability, maintenance costs, and battery life. HVIP allows vehicle manufacturers to apply for an extended warranty voucher enhancement of: $2,000 for warranty coverage of 6 years or

120,000 miles; $4,000 for 7 years or 140,000 miles; or $6,000 for 8 years or 160,000 miles (whichever comes first, years or mileage, for all 3 options). Manufacturers may only apply for the extended warranty voucher enhancement at the time of their HVIP eligibility application for each vehicle make, model and model year.
A manufacturer may not receive the warranty enhancement on just a subset of each HVIP-eligible make and model – all HVIP-eligible vehicles of the same make, model and model year must receive an identical extended warranty. To be eligible for the enhanced voucher amounts, extended warranties must cover the following for the full warranty period (unless otherwise denoted):

i) Extended Engine, Drivetrain (including Battery), and Hybrid or Zero-Emission Components: Provide warranty coverage against defects in material and workmanship for the engine (for hybrid vehicles, including engine fuel injectors, fuel supply pumps, and turbo), transmission, rear axle, and hybrid system components including battery. Gaskets and seals are not required to be included in warranty coverage.
   a. The battery warranty may be prorated after the first 60 months of coverage. If the battery warranty is prorated, the percentage of the battery pack's original value to be covered or refunded must be at least as high as the percentage of the prorated coverage period still remaining. For example, manufacturer warranty coverage of $8,000 and 7 years (84 month) for the battery prorated beginning in year 5 (60 months) must provide at least $6,000 coverage after 66 months, $4,000 coverage after 72 months, and $2,000 coverage after 78 months. For the purpose of this computation, the age of the battery pack must be expressed in intervals no larger than three months.

ii) Emissions: Provide warranty coverage for the vehicle emission control system as required by Title 13, California Code of Regulations, Section 2036.

iii) Frame Rails, Cross Members, and Cab: Provide warranty against structural cracks in the frame caused by defects in material workmanship and against corrosion perforation of the cab structure.

Warranties must be fully transferrable to subsequent vehicle purchasers for the full warranty coverage period.

g. Early OBD Compliance

In May 2009, ARB adopted *On-Board Diagnostic System Requirements for 2010 and Subsequent Model Year Heavy-Duty Engines* (California Code of Regulations, Title 13, Section 1971.1) that require 2010 model year (MY) heavy-duty vehicles be equipped with ARB-certified on-board diagnostics systems that monitor engine and vehicle after-treatment to ensure in-use vehicle emissions do not exceed a certain threshold. ARB adopted amendments to the regulation in August 2012 to provide additional time for hybrid heavy-duty vehicles – for which on-board diagnostics (OBD) poses additional complexities – to comply with these requirements.

In order to incentivize early compliance with the amended heavy-duty truck OBD regulation and encourage a growing and robust California hybrid truck market, HVIP offers the additional incentive amounts identified in Table 10 (below) for each HVIP-eligible hybrid truck or bus with an ARB-certified OBD system for the engine and powertrain combination.[8] The number of deficiencies for each OBD certified hybrid vehicle is determined pursuant to the procedures identified in ARB's amended *On-Board Diagnostic System Requirements for 2010 and Subsequent Model Year Heavy-Duty Engines.* For example, a hybrid truck whose 2013 MY engine's and hybrid system's OBD are ARB-certified with less than ten deficiencies would be eligible for an additional $16,000 for each voucher for a vehicle between 14,001 and 26,000 lbs and an additional $20,000 for each vehicle above 26,000 lbs.

Table 10: Voucher Enhancements for Hybrid Vehicles with ARB-Certified OBD

	Total Number of Deficiencies				
	2014 /2015 MY		**2016 MY**		
Vehicle GVWR	**10+**	**<10**	**9-14**	**5-8**	**≤4**
14,001 - 26,000 lbs	$12,000	$16,000	$8,000	$12,000	$16,000
26,001+ lbs	$16,000	$20,000	$12,000	$16,000	$20,000

Only OBD deficiencies related to the hybridization of the vehicle are counted for the purposes of determining the HVIP incentive amount. Deficiencies that exist on the engine independent of being in a hybrid application are not to be included for the purposes of determining HVIP incentives. The voucher enhancement amount for each ARB-certified OBD system are to be based upon the number of deficiencies the first time a system is certified for each model year. For example, if a 2014 MY engine's and hybrid system's OBD is originally ARB-certified with more than ten deficiencies, the voucher enhancement remain $12,000 or $16,000 (depending upon vehicle GVWR) for the entire 2014 engine MY, even if that engine and hybrid system are later ARB-certified with fewer deficiencies.

6. Disadvantaged Communities

Senate Bill (SB) 535 (De León, Chapter 830, Statute of 2012)requires that at least 25 percent of Greenhouse Gas Reduction Fund investments benefit disadvantaged communities, and at least 10 percent of Greenhouse Gas Reduction Funds be invested in disadvantaged communities[9]. The FY 2015-16 Funding Plan includes several strategies to increase vehicle deployments with a focus on disadvantaged communities,

[8] Vehicles and engines certified to Title 13, CCR Section 1971.1(d)(7.6) do not qualify for the voucher enhancement in Table 9.

[9] ARB's Interim SB 535 Guidance, Appendix A, contains the criteria for determining whether a project is located within a disadvantaged community or provides a benefit to a disadvantaged community. This Guidance is available at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/final535-interim-guidance-11-3-2014.pdf. Interactive maps that accompany this Guidance document can be viewed at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/535investments.htm

including higher zero-emission truck and bus voucher amounts, and an additional voucher enhancement for zero-emission vehicle deployments that benefit disadvantaged communities.[10]

7. Maximum Allowable Voucher Amount

The total voucher amount – including the HVIP Base Vehicle Incentive plus voucher enhancements identified in Tables 9 and 10– plus all other public incentives may not exceed 90 percent of the total vehicle cost (excluding applicable taxes and fees). The total vehicle cost is to be determined by ARB in consultation with the vehicle manufacturer, based upon the vehicle sale price, typical industry standard costs for that vehicle technology and type, and other factors. In addition, the HVIP voucher amount for hybrid or aerial boom vehicles with ePTO – excluding the voucher bump-up for the first three vehicles per fleet – may not exceed the vehicle incremental cost. The HVIP voucher for zero-emission vehicles is not restricted to vehicle incremental cost to help accelerate the market for this more advanced and costly vehicle technology.

Public fleet school buses and public transit buses are the exception to these requirements. For these two vehicle categories, the sum of HVIP and other public funding may not exceed the full vehicle cost (excluding taxes and fees). These exceptions are made for school buses due to health concerns associated with children's exposure to diesel exhaust, and for public transit buses due to the higher typical cost of this technology and its associated infrastructure, and their critical role in promoting sustainable transportation.

8. Example Calculations

HVIP is intended to allow vehicle or low NOx engine purchasers to augment HVIP funds with other sources of public funding. Examples of program funds that may be combined with HVIP funds include Lower Emission School Bus Program funds and local air district funding.

This section provides example calculations of the maximum allowable HVIP voucher amount, based upon assumptions regarding other potential funding sources. These examples are for illustrative purposes only. The actual maximum voucher amount will depend upon each specific circumstance.

> **EXAMPLE 1:** A local air district grant provides $75,000 to replace an old truck with a new $140,000 diesel truck of 35,000 lbs GVWR. HVIP augments this grant by providing a $25,000 voucher for the purchaser to upgrade to a $200,000 hybrid truck. The hybrid truck incremental cost is $60,000. The HVIP voucher amount (excluding any HVIP voucher enhancement for the first three vouchers

[10] California Air Resources Board, Fiscal Year 2014-15 and Fiscal Year 2015-16 Funding Plans for the Air Quality Improvement Program and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments, June 26, 2014 and June 25, 2015; www.arb.ca.gov/msprog/aqip/fundplan/fundplan.htm

per fleet) cannot exceed the incremental cost, and the sum of the district grant and HVIP voucher cannot exceed 90 percent of the hybrid vehicle purchase cost.

In this case, $25,000 HVIP voucher < $60,000 vehicle incremental cost
$75,000 district grant + $25,000 HVIP voucher = $100,000
$200,000 * 90 percent = $180,000
$100,000 total public funds < $180,000
The transaction can proceed without discounting the HVIP voucher.

EXAMPLE 2: A local air district grant of $45,000 for a non-ARB certified hybrid utility truck of 30,000 lbs. GVWR would cover most of that vehicle's $60,000 incremental cost. The hybrid vehicle total cost is $75,000. The HVIP voucher cannot exceed $15,000, plus any voucher enhancement for the first three vouchers redeemed by the fleet.

$60,000 full incremental cost
\- $45,000 air district grant
= $15,000 (plus $10,000 voucher enhancement for first three vouchers, if applicable)

In addition, the total of public incentives (including the voucher enhancement for the first three vehicles per fleet) cannot exceed 90 percent of the total vehicle cost. In this case, the total of public incentives (including any voucher enhancement for the first three vouchers per fleet) cannot exceed $75,000 * .90 = $67,500. If this were one of the first three vouchers for this fleet, the total HVIP voucher amount would have to be discounted from $25,000 ($15,000 + $10,000 for the first three vouchers for the fleet) to $22,500 to ensure the total of public incentives does not exceed $67,500.

EXAMPLE 3: Transit agencies receive an 80 percent grant from the FTA for most new vehicle purchases, including new zero-emission vehicle purchases. For example, suppose a public transit agency receives a $640,000 FTA grant towards the purchase of a new $800,000 battery-electric zero-emission transit bus of 45,000 lbs. GVWR. The transit agency also receives $20,000 in Congestion Mitigation and Air Quality (CMAQ) funding for the bus. Since it is a zero-emission public transit bus, the sum of the HVIP voucher and all other public incentives may not exceed the full vehicle cost. Therefore, the maximum allowable HVIP voucher could not exceed $140,000.

$640,000 FTA Grant
\+ $20,000 CMAQ Funding
=$660,000 Other Public Incentive Funds
HVIP voucher cannot exceed $140,000

The Base Voucher Incentive within a disadvantaged community is $110,000, and the Base Vehicle Incentive outside of a disadvantaged community is $95,000

(See Table 3). While the sum of the Base Vehicle Incentive plus voucher enhancements identified in Table 9 could theoretically exceed $140,000, the maximum allowable voucher amount (even with voucher enhancements) may not exceed $140,000 since the sum of all public incentives cannot exceed the full vehicle cost.

EXAMPLE 4: For public school district purchases, HVIP and other total local, state, or federal public incentives may not exceed the total school bus purchase price. For example, if a new $200,000 GVWR hybrid school bus of 28,000 lbs GVWR receives $140,000 in LESBP funding, and $25,000 in school district LESBP match funding, the maximum allowable HVIP voucher amount is calculated as:

	$200,000 full cost of new hybrid school bus
-	$140,000 LESBP grant
-	$25,000 district match
=	$35,000 maximum HVIP voucher

A hybrid school bus of this weight could potentially receive $20,000 Base Vehicle Incentive plus a $10,000 school bus bump-up plus $10,000 if it is one of the first of three vouchers received by the school district, for a total of $40,000 in HVIP funding. However, the HVIP voucher cannot exceed $35,000 since total grant funding may not exceed the total hybrid school bus purchase price (excluding applicable taxes or fees).

E. DUTIES AND REQUIREMENTS

1. Vehicle and Low NOx Engine Dealers

Truck and bus dealers play a central role in HVIP's success. The Grantee will work with ARB to develop/maintain a list of dealerships eligible to participate in HVIP, and to receive a written commitment from these dealers to comply with all applicable project requirements. The eligible dealership list will be used to streamline project access while ensuring project transparency and accountability. The following entities may be considered eligible vehicle dealers for the purposes of HVIP:

a. A truck or bus dealership which has a written agreement with a medium- or heavy-duty vehicle manufacturer, which has had a valid business license for the past two years, and which has an official dealer number.

b. A truck, van or bus vehicle manufacturer which manufacturers HVIP-eligible vehicles and sells those vehicles directly to fleets.

c. A truck or bus equipment manufacturer which has a written agreement with a medium- or heavy-duty vehicle manufacturer and has had a valid business license for the past two years.

d. An engine manufacturer which manufactures engines meeting any tier of the optional low NOx standard or dealer that offers low NOx engines for sale.

For the purposes of HVIP, a vehicle or low NOx engine dealer is defined as the vendor of the fully assembled and completed vehicle or vendor that sells and installs low NOx engines in existing vehicles, and not the vendor of the vehicle chassis. This definition will impact transactions where a dealer sells a chassis to a truck equipment manufacturer for final manufacture and the truck equipment manufacturer then sells the completed vehicle to the purchaser. In this case, the truck equipment manufacturer rather than the chassis vendor is considered the HVIP dealer.

The Grantee will work with vehicle manufacturers to maintain a list of dealerships authorized to receive HVIP vouchers. Hybrid vehicle dealerships have an important role in ensuring the success of HVIP. Dealer responsibilities include:

a. Becoming familiar with all HVIP requirements.

b. Participation in dealer training and registration.

c. Providing accurate information to vehicle or low NOx engine purchasers, the Grantee, and ARB.

d. Completing voucher request and voucher redemption forms, with the assistance of the vehicle or low NOx engine purchaser, and in supplying the necessary vehicle or low NOx engine purchase documentation.

e. Providing accurate and complete documentation of the vehicle or low NOx engine purchase to the Grantee.

f. Providing reasonable assistance to ARB or its designee to obtain updated purchaser information, inspect vehicles, and review HVIP-related records during the first three years after vehicle receipt and final payment by the purchasing fleet, whichever is later.

HVIP is intended to lower the vehicle price for the vehicle or low NOx engine purchaser by the full voucher amount. Vehicle dealers must deduct the full voucher amount from the vehicle or low NOx engine purchase price to be eligible for a voucher. Sales tax for the vehicle or low NOx engine purchase shall be based upon the pre-voucher cost of the vehicle. The invoices provided by the dealer as proof of purchase for voucher redemption must itemize all vehicle charges (e.g., price of the vehicle, delivery fee, all applicable taxes, etc.) and must show the deduction of the voucher amount.

The voucher request form and voucher redemption form both are legally binding and enforceable agreements to meet the requirements of the project. The dealer is responsible for ensuring the accuracy of the vehicle and dealership information on all voucher request or redemption forms it submits to the Grantee. Submission of false

information on any of these forms may result in cancellation of the voucher, recapture of funds, and removal from the dealership list. In addition, ARB may seek other remedies available under law.

Participating dealers must keep written records of sales transactions for vehicles funded with an HVIP voucher – including but not limited to the vehicle Bill of Lading, vehicle invoice, and proof of purchase -- for three years after the vehicle receipt and final payment by the fleet, whichever is later. A vehicle dealer must provide ARB (or its designee) with all requested information related to compliance with HVIP requirements or any vehicle(s) purchased with an HVIP voucher within ten days of ARB's written request for such information. Requested information may include but is not limited to purchase orders or agreements, delivery Bill of Lading, and vehicle payment information and related bank records. Dealers that submit false information to the Grantee or inflate the price of a funded hybrid vehicle may be required to return the full voucher amount to the Grantee or ARB, and may be excluded from future participation in HVIP. In addition, ARB may seek other remedies available under law.

2. Vehicle and Low NOx Engine Purchaser

The low NOx engine, truck or bus purchaser is responsible for completing the voucher request and redemption forms with the dealer and for paying the non-voucher portion of the vehicle cost. To receive an HVIP voucher, a vehicle or low NOx engine purchaser must:

a. Be an individual, business, non-profit, or government entity which is based in California or has a California-based affiliate. A truck or bus leasing/rental agency based outside of California is also eligible if the vehicle is leased/rented to an entity that will meet all HVIP operational, reporting, and other applicable requirements.

b. Vehicle manufacturers and dealers may, upon ARB case-by-case approval, submit voucher applications for no more than two vehicles in any 12 month period. This applies to vehicles the manufacturer produces and for vehicles the dealer makes available for sale. Vehicle manufacturers and dealers will be required to provide ARB additional information including, but not limited to, manufacturing costs and dealer invoice or acquisition costs. If a vehicle manufacturer or dealer chooses to purchase a vehicle they do not produce or sell, then this condition will not apply. Please see Section D(7) for maximum allowable voucher amount.

c. Maintain insurance as required by law. If the purchased vehicle is destroyed or otherwise permanently inoperable due to an accident or for any other reason, the vehicle or low NOx engine purchaser must notify the ARB Project Liaison in writing within two weeks after the vehicle becomes inoperable. (See Section D(2) for ARB Project Liaison mailing address.) The written notification must provide proof that the specific funded vehicle has become inoperable, including photographs of the inoperable vehicle with license

plates or other identifying markings, as well as any applicable insurance or police documentation.

d. Commit to operate the vehicle 100 percent within California for at least three years after the voucher redemption date. Vehicles registered in a California county that borders another state or Mexico and emergency response vehicles may be granted permission to accrue up to 25 percent of their mileage each year for the three year reporting period outside of California if requested and approved by the ARB in writing prior to the vehicle being deployed out of state. Requests must be made in writing to the ARB Project Liaison.

e. Not make or allow any modifications to the vehicle's emissions control systems, hardware, software calibrations, or hybrid system (Vehicle Code Section 27156).

f. Submit annual activity reports for three years. Activity reports will be provided by ARB for completion by the vehicle or low NOx engine purchaser. ARB reserves the right to bar a fleet which does not provide timely and accurate HVIP usage surveys/questionnaires as required from future HVIP participation.

g. Agree to Telematics requirements specified in Section C(1)(j), except vehicles equipped with low NOx engines.

h. Allow ARB, the Grantee, or their designee to verify the vehicle registration with the DMV.

i. Be available for follow-up inspection if requested by the Grantee, ARB, or ARB's designee.

j. Military vehicles are not subject to sections d, f, g, h above.

The vehicle or low NOx engine purchaser is responsible for ensuring the accuracy of the vehicle, low NOx engine and vehicle or low NOx engine purchaser information on the voucher request and redemption forms. Submission of false information on either of these forms may be considered a criminal offense and is punishable under penalty of perjury under the laws of the State of California.

Vehicle or low NOx engine purchasers must keep written records of the vehicle or low NOx engine purchase for vehicles or low NOx engines funded with an HVIP voucher – including the vehicle invoice, proof of purchase, and DMV records – for three years after the vehicle or low NOx engine purchase transaction. A vehicle or low NOx engine purchaser must provide ARB (or its designee) with all requested information related to any vehicle or low NOx engine purchased with an HVIP voucher within ten days of ARB's written request for such information. Requested information may include but is not limited to purchase orders or agreements, vehicle payment information and related

bank records, and purchaser fleet information. Vehicle or low NOx engine purchasers that submit false information to the Grantee or ARB may be required to return the full voucher amount to the Grantee or ARB, and may be excluded from future participation in HVIP. In addition, ARB may pursue other remedies available under the law.

3. Resale of Vehicles

Vehicle or low NOx engine purchasers participating in HVIP are expected to keep the vehicle and meet all applicable project requirements for a minimum three year period after the vehicle or low NOx engine purchase date. However, resale of a vehicle may be allowed within this three year period if necessitated by unforeseen or unavoidable circumstances. Resale of an HVIP-funded vehicle must receive ARB written approval prior to resale. A vehicle or low NOx engine purchased with an HVIP voucher may not be resold more than once within three years of the original purchase date.

For vehicles resold within three years of the original vehicle or low NOx engine purchase date (and after ARB provides written approval), the original vehicle or low NOx engine purchaser must inform the new purchaser in writing about the voucher rebate amount and applicable voucher project requirements. The new vehicle or low NOx engine purchaser must agree in writing to meet all applicable HVIP requirements of original vehicle or low NOx engine purchasers.

If the vehicle is moved out of the State or resold, and the new vehicle or low NOx engine purchaser does not agree in writing to meet all applicable HVIP requirements of the original vehicle or low NOx engine purchasers, the vehicle or low NOx engine purchaser or lessee must refund promptly to the Grantee a prorated portion of their voucher, in an amount equivalent to the original voucher amount divided by 36 months and then multiplied by the number of months remaining in the original 36 month period (rounded to the nearest month): (Original Voucher Amount ÷ 36 Months) x (36 – months since vehicle or low NOx engine purchase or lease date).

The original vehicle or low NOx engine purchaser must notify the ARB Project Liaison in writing of its intent to sell the vehicle at least seven calendar days prior to the vehicle resale. Within seven calendar days after the vehicle resale, the original vehicle or low NOx engine purchaser must notify the ARB Project Liaison that the vehicle has been resold and provide the mailing address, phone number and email (if any) of the purchaser as well as the vehicle resale price. Within thirty calendar days after the vehicle resale, the entity buying the vehicle from the original vehicle or low NOx engine purchaser must also provide the ARB Project Liaison with: 1) their mailing address, phone number and email (if any); 2) a copy of the new DMV title documenting of the vehicle resale; 3) a written commitment to meet the terms and conditions identified on the original voucher; and 4) a written commitment to complete and return the annual usage survey/questionnaire as required by the original voucher. ARB reserves the right to pursue all remedies available under the law for noncompliance with these requirements.

4. Vehicle Lease or Rental Agencies

For the purposes of HVIP, any fleet that enters into a rental or lease agreement of three or more years with a vehicle leasing or rental agency within six months of when the HVIP voucher is redeemed shall be considered the vehicle or low NOx engine purchaser. Conversely, any vehicle lease or rental entity that receives an HVIP-funded vehicle but does not enter into such an agreement within six months of voucher redemption/vehicle or low NOx engine purchase shall be considered the vehicle or low NOx engine purchaser. Any vehicle lease or rental entity that leases or rents a vehicle or low NOx engine purchased with an HVIP voucher within three years of HVIP voucher redemption date must disclose the voucher amount and voucher terms to the vehicle renter or lessee. The lease or rental agreement must include all commitments needed from the lessee or renter to ensure that 1) the vehicle operates 100 percent in California as required by the voucher redemption form and 2) all required annual activity reports will be submitted to ARB.

ARB or its designee reserve the right to review lease or rental agreements to confirm appropriate disclosures are made regarding the HVIP voucher amount received and vehicle activity and reporting requirements. Vehicle or low NOx engine purchasers must provide ARB (or its designee) all requested information related to any vehicle or low NOx engine purchased with an HVIP voucher (including lease or rental agreements) within ten days of ARB's written request for such information. The vehicle or low NOx engine purchaser (i.e. the leasee for lease agreements of three or more years as described above) is responsible for ensuring annual activity reports are accurate and are submitted as required. An HVIP voucher can be provided at time of vehicle or low NOx engine purchase only, and is not provided at the time a vehicle is leased or rented.

5. Battery Leasing

Arrangements in which a vehicle, with the exception of the battery, is purchased and the battery is leased to the vehicle purchaser may be allowed by the ARB Project Liaison on a case-by-case basis if the battery lease term is a minimum of three years.

F. OVERSIGHT AND ACCOUNTABILITY

Through administration of longstanding incentive programs such as the Carl Moyer Program, ARB has found that project evaluations and program reviews are essential to ensure that incentive program funds are run in accordance with statutory requirements and that State funds are spent transparently and efficiently. The Grantee is responsible for working closely with vehicle manufacturers, dealerships and ARB to safeguard HVIP funds from misuse as it implements HVIP. Vehicle dealers and purchasers participating in HVIP must provide ARB or its designee and the Grantee access to all requested files and relevant information related to vehicle or low NOx engine purchases involving an HVIP voucher.

ARB holds the overarching responsibility for HVIP fund oversight and project accountability and has final authority and sole discretion over all aspects of HVIP,

including applicant and vehicle eligibility, and all program requirements. As such, ARB is responsible for monitoring and reviewing the Grantee's implementation of HVIP. The Grantee shall allow ARB, the Bureau of State Audits, or their designated representative the right to review and to copy any records and supporting documentation pertaining to its development or implementation of HVIP. The Grantee must maintain such records for a possible audit for a minimum of three years after final payment from ARB. The Grantee must allow ARB or its designee access to such records during normal business hours and to allow interviews of any employees who might reasonably have information related to such records.

Responsibilities for HVIP oversight are as follows:

1. ARB has primary oversight responsibility for HVIP to ensure transparent and efficient implementation, and that AQIP funds are spent consistent with the requirements of statute, the AQIP Guidelines and Funding Plan, the HVIP solicitation and grant agreement with the Grantee, and this Implementation Manual. ARB reserves the right to conduct a site visit, evaluation, review, or audit HVIP for the life of the project grant.

2. If the Grantee detects any potentially fraudulent activity by a vehicle dealer or purchaser, they shall notify the ARB Project Liaison as soon as possible and work with ARB to determine an appropriate course of action.

3. ARB staff or its designees have primary responsibility for conducting project reviews and/or fiscal audits of HVIP administration and implementation.

4. Voucher recipients and the Grantee and its subcontractors shall allow ARB, the California Department of Finance, the California Bureau of State Audits, or any authorized designee access, during normal business hours, to conduct HVIP reviews and fiscal audits or other evaluations. Granting of access includes, but is not limited to, reviewing project records, site visits, and other evaluations as needed. Project evaluations or site visits may occur unannounced as ARB staff or its designee deems necessary.

Project Non-Performance

ARB or its designee has the authority to recoup HVIP funds which were received based upon misinformation or fraud, or for which the Grantee or its subcontractors, a dealership, manufacturer, or vehicle or low NOx engine purchaser is in significant or continual non-compliance with this Implementation Manual or State law. ARB also retains the authority to prohibit any entity from participating in HVIP due to non-compliance with project requirements.

G. DEFINITIONS

"ARB-Certified" for the purposes of HVIP means a vehicle that has been certified and issued an Executive Order by ARB in accordance with the provisions of *California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric and Other Hybrid Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes*, amended by ARB on October 21, 2014, or subsequent revisions (http://www.arb.ca.gov/regact/2013/hdghg2013/hdghgfrohybridinterimcp.pdf).

"ARB Project Liaison" for the purposes of this program is the ARB staff person named in this Implementation Manual that serves as the point of contact for coordination with the HVIP Grantee.

"Aerial boom vehicle" for the purposes of the program means an on-road vehicle equipped with a fully integrated, mounted bucket at the end of an on-board hydraulic system used to raise personnel to complete work at an elevated height.

"Commercial vehicle" for the purposes of this program means any vehicle used by a business, public or governmental agency, or non-profit to carry people, property, or hazardous materials.

"Common ownership or control" for the purposes of this program means being owned by the same person, corporation, partnership, limited liability company, or association. In addition, vehicles managed day to day by the same directors, officers, or managers, or by corporations controlled by the same majority stockholders are considered to be under common control even if their title is held by different business entities. See Appendix D of this Implementation manual for more information.

"Dealer" for the purposes of HVIP means the vendor of the fully assembled and completed vehicle (not the vendor of the vehicle chassis) or vendor that sells and installs low NOx engines in existing vehicles and includes dealerships, manufacturers, and TEMs that sell new medium- or heavy-duty vehicles directly to a vehicle purchaser.

"Disadvantaged Communities" for the purposes of this program are identified by the California Environmental Protection Agency (CalEPA).[11] To determine whether a project qualifies as benefiting a disadvantaged community, the Grantee must use the criteria in ARB's Interim SB 535 Guidance.[12]

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[11] The identified disadvantaged community census tracts are available at: http://www.calepa.ca.gov/EnvJustice/GHGInvest/ .

[12] ARB's Interim SB 535 Guidance, Appendix A, contains the criteria for determining whether a project is located within a disadvantaged community or provides a benefit to a disadvantaged community. This Guidance is available at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/final535-interim-guidance-11-3-2014.pdf

“Earned interest” for the purposes of this program means any interest generated from State AQIP funds provided to the Grantee and held in an interest-bearing account.

“Expend” for the purpose of this program means the payment of funds on an invoice for an eligible vehicle.

“Exportable power” for the purposes of the program means AC electrical power generated by a commercial plug-in vehicle, typically to power electric tools, lighting, or other accessories at a job site.

“Fleet” Fleet means vehicles traveling in California owned by a person, business, non-profit or government agency and consists of one or more vehicles. Vehicles under common ownership or control that share a common TIN or CA # are considered part of a single fleet even if they are part of different subsidiaries, divisions, or other organizational structures of a company or government agency.

“Grantee” for the purposes of this program means the entity selected by ARB via competitive solicitation to administer HVIP. The responsibilities of the Grantee are described in this Implementation Manual and in the grant agreement between ARB and the Grantee. The Grantee is responsible for ensuring it and its HVIP subcontractors meet all project requirements.

“Gross vehicle weight rating (GVWR)” for the purposes of this program means the vehicle weight described on the original manufacturer Line Setting Ticket provided to the vehicle dealer.

“Hybrid vehicle” for the purposes of this program means any vehicle that can draw propulsion energy from both of the following on-vehicle sources of stored energy: 1) consumable fuel, and 2) a rechargeable energy storage system.

“Hybrid vehicle conversions” for the purpose of this program means installing a hybrid driveline and other advanced technology to a newly manufactured vehicle or chassis.

“Hydrogen Fuel Cell Vehicle” for the purposes of this program means a ZEV that is fueled primarily by hydrogen, but may also have off-vehicle charge capability.

“Low NOx Engines” for the purposes of this program means any engine meeting the Optional Low NOx emission standards approved by ARB.

“Incremental cost” for the purposes of this program means the difference in cost between the new hybrid or zero-emission vehicle and the comparable new gasoline or diesel fueled vehicle that would be purchased to perform the same function. This cost is determined on a case-by-case basis based upon a manufacturer’s HVIP eligibility application submittal, HVIP voucher redemption data, discussions with fleets and other stakeholders, and other relevant data and information. The additional incentive of up to $10,000 for a fleet’s first three vouchers is not included in incremental cost calculations.

“In-kind services” for the purposes of this program means payments or contributions made in the form of goods and services, rather than direct monetary contributions.

“Line setting ticket” for the purposes of this program means the factory build or construction sheet created when the vehicle order is sent to the vehicle manufacturer. The Line Setting Ticket typically includes the new vehicle’s VIN, all the codes for standard equipment and options the salesman used to create this vehicle for his purchaser. After the factory assembles the vehicle and the vehicle is shipped and sold, the Line Setting Ticket identifies such things as the gross vehicle weight rating, engine type, transmission type, drive line, paint codes, gear ratio, and standard and optional equipment, specific to that vehicle.

“Match funding” for the purposes of this program, means those funds contributed by the Grantee directly to HVIP for the sole purposes of funding additional vehicles or increasing the vehicle voucher amount.

“Non-profit agency” for the purposes of this program means an agency or corporation that does not distribute corporate income to shareholders and is exempt from federal income taxes under Section 501 of the Internal Revenue Code (26 U.S.C.A. § 501).

“Plug-in hybrid electric vehicle” (also known as a Grid-connected HEV or GHEV) means a hybrid electric vehicle that has:

- zero emission vehicle range capability
- on-board electrical energy storage device with useful capacity equivalent to greater than or equal to ten miles of Urban Dynamometer Driving Schedule range on electricity alone
- is equipped with an on-board charger, and is
- rechargeable from an external connection to an off-board electrical source

“Public fleet” for the purposes of this program includes all federal, state, city and government fleets plus public universities, public airports, public school districts, California public ports and special districts such as water, utility, and irrigation districts.

“Public transit bus” for the purposes of this program means an on-road vehicle greater than 8,500 pounds GVWR normally powered by a heavy-duty engine fueled by diesel or alternative fuel, owned or operated by a transit agency, and which is not an urban bus.

“Manufacturer recommended minimum state-of-charge” for the purposes of this program means the minimum allowable battery capacity recommended by the battery manufacturer to ensure the most efficient and durable battery operation, as a percent of the maximum battery capacity.

“Repower” for the purposes of this program means the replacement of an existing engine with a new engine certified to any tier of the Optional Low NOx emission

standard approved by ARB instead of rebuilding the existing engine to its original specifications.

“Telematics” for the purposes of this program means a data acquisition system capable of collecting vehicle GPS data, vehicle mileage and hours of operation.

“Truck Equipment Manufacturer (TEM)” for the purposes of this program means a company that installs equipment on a truck or bus chassis. The TEM bears full responsibility for any vehicle defects under federal law and is responsible for certifying that the vehicle meets all applicable federal safety standards.

“UDDS” means urban dynamometer driving schedule as set forth Appendix I of title 40, Code of Federal Regulations, Part 86.

“Zero-emission power take-off (ePTO)” for the purposes of this program means a method for taking power from an on-vehicle source (typically a battery) that produces no emissions of pollutants (including carbon dioxide, carbon monoxide, hydrocarbons, oxides of nitrogen, and particulates) and which can be used to power to aerial boom.

“Zero-emission vehicle (ZEV)” means a vehicle that itself produces no emissions of pollutants (including carbon dioxide, carbon monoxide, hydrocarbons, oxides of nitrogen, and particulates) when stationary or operating.

“Zero-Emission Vehicle Conversions” for the purpose of this program means removing any type of existing propulsion system and replacing it with a zero-emission propulsion system, such as battery or hydrogen fuel cell powered electric drive train.

H. LIST OF ACRONYMS

AC	Alternating Current
AQIP	Air Quality Improvement Program
ARB	California Air Resources Board
CA #	California Carrier Identification Number
CCR	California Code of Regulations
CFR	Code of Federal regulations
CMAQ	Congestion Mitigation and Air Quality
DC	Disadvantaged Community
DMV	Department of Motor Vehicles
DOC	Diesel Oxidation Catalyst
DPF	Diesel Particulate Filter
ePTO	Electric Power Take-Off
FTA	Federal Transportation Authority
FY	Fiscal Year
GVWR	Gross Vehicle Weight Rating
HSC	Health and Safety Code
HVIP	Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project
JPA	Joint Powers Authority
LESBP	Lower-Emission School Bus Program
MY	Model Year
NOx	Oxides of Nitrogen
OBD	On-Board Diagnostics
SCR	Selective Catalytic Reduction
TEM	Truck Equipment Manufacturer
USC	United States Code
VIN	Vehicle Identification Number
VIP	Voucher Incentive Program
ZEV	Zero-Emission Vehicle

APPENDIX A: HVIP Vehicle Eligibility List

The current list of HVIP-eligible vehicles can be found on the California Air Resources Board website at:

https://www.californiahvip.org/

APPENDIX B: Vehicle Eligibility Applications

Vehicle Eligibility Application Submittal Instructions for Original Vehicle Manufacturers

Applications for original vehicle manufacturers to have hybrid or zero-emission trucks and buses approved by the California Air Resources Board (ARB) as eligible for HVIP vouchers should be mailed to:

Mr. Ryan Murano
California Air Resources Board
1001 I Street, P.O. Box 2815
Sacramento, CA 95812

Please notify Mr. Murano by e-mail at ryan.murano@arb.ca.gov when the application is mailed. There is no deadline for application submittal. Vehicle eligibility applications will be evaluated in the order hardcopies are received.

Questions regarding submittal of the vehicle eligibility application or application requirements should be directed to Mr. Murano at the above e-mail address or at tel: (916) 322-2383.

APPENDIX B1: NEW HYBRID VEHICLE/HYBRID VEHICLE CONVERSION ELIGIBILITY APPLICATION

This is an application for new hybrid vehicle/hybrid vehicle conversion manufacturers to have a hybrid vehicle make/model listed as eligible for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). This application must be completed and submitted to ARB, and the vehicle must receive written approval from ARB prior to the vehicle being eligible for a voucher.

The new hybrid vehicles/hybrid vehicle conversion vehicles identified in Appendix A of the HVIP Implementation Manual are eligible for HVIP. Other hybrid vehicle make/models must fall into one of the following five categories to apply for HVIP-eligibility. This application is for (check box below that applies):

- ☐ A hybrid vehicle which is a physically equivalent version of an existing ARB-certified or HVIP-eligible vehicle (and may have a newer engine and/or vehicle model year). This hybrid vehicle utilizes the same make/model engine, hybrid system, emission control strategies, and other key components as the existing ARB-certified or HVIP-eligible vehicle. (Complete Parts I, II, III, and VI only) Please also include copies of ARB Executive Orders for the engine used in the existing HVIP-eligible vehicle and the vehicle requested to become HVIP-eligible.
- ☐ A hybrid vehicle of greater than 14,000 lbs gross vehicle weight rating (GVWR) which is certified by the California Air Resources Board (ARB). (Complete Parts I, II, III and VI only)
- ☐ A hybrid vehicle over 14,000 lbs GVWR which falls in none of the categories identified above (Complete all parts of this application)
- ☐ A hybrid vehicle from 8,501 to 14,000 lbs GVWR which is ARB-certified to be sold in California. (Complete Parts I, II, III, and VI only)
- ☐ A hybrid vehicle conversion that has obtained an ARB aftermarket parts certification and free from additional conditions (Complete all parts of this application).

This application must be completed by the original vehicle manufacturer or its legal representative. An application must be submitted for each combination of vehicle engine and model years (i.e. a 2015 MY vehicle with a 2014 MY engine and one with a 2015 MY engine require separate applications) and for each distinct GVWR range identified in Table 4, Table 6 or Table 7 of the Implementation Manual (i.e. separate applications are required for a 14,001 to 19,400 lbs GVWR vehicle and a 19,501 to 26,000 lbs GVWR vehicle). ARB reserves the right to request additional information or clarification of responses provided in this application. ARB may require additional information from the vehicle manufacturer or Final Stage Vehicle Manufacturer before listing a vehicle as eligible for funding.

Part I: Original Manufacturer Information

1. Company Name/Organization Name/Individual Name:		
2. Contact Name and Title:		
3. Business Mailing Address and Contact Information Street:		
City:	State:	Zip Code:
Phone: ( )	E-mail:	

Part II: Vehicle Description

Please identify the hybrid vehicle and its baseline (non-hybrid) equivalent in Tables B-1 and B1-2, respectively. These vehicles must be of the same make, model, drive configuration (4 x 2 or 4 x 4), frontal area, and gross vehicle weight and use the same ARB-certified engine.

Table B1-1: Hybrid Vehicle Information

Vehicle MY	**Hybrid Vehicle Description** (vehicle type, vehicle model, engine model and MY, hybrid system)	**Gross Vehicle Weight Range**

Table B1-2: Baseline Vehicle Information

Vehicle MY	**Equivalent Non-Hybrid Vehicle Description** (vehicle type, vehicle model, and engine model and MY)	**Gross Vehicle Weight Range**

What is the typical California pre-tax cost of the hybrid vehicle (identified in Table B1-1) with normal dealer profit?

$_____

What is the typical California pre-tax cost of this equivalent baseline vehicle (identified in Table B1-2) with normal dealer profit?

$_____

<u>Potential Voucher Enhancements (hybrid vehicle conversions not eligible)</u>

a. Manufacturer requests approval of exportable power option (per Section C(7) of the HVIP Implementation Manual)? Yes/No
b. Manufacturer requests approval of extended warranty option (per Section D(5)(f) of the HVIP Implementation Manual)? Yes/No

Part III: Self-Certification of Hybrid Vehicle and Engine Parameters
Please check the box next to each statement if the statement is correct. **Do not check the box if the statement is not correct.**

☐ This vehicle utilizes an ARB-certified engine.

Engine Family:_____

Engine Model Year: _____ ARB Executive Order Number: _____

Engine type (check one):
__ Light-heavy duty engine
__ Medium-heavy duty engine
__ Heavy-heavy duty engine
__ Other (please describe):_____

☐ The vehicle draws propulsion energy from both of the following on-vehicle sources of stored energy: 1) consumable fuel, and 2) a rechargeable energy storage system.

☐ If the vehicle is a new hybrid vehicle (identified in Table 1), the vehicle must achieve at least a 30 percent fuel economy benefit relative to its equivalent baseline vehicle (identified in Table 2) as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23, City Fuel Economy (www.irs.gov/irb/2007-23_IRB/ar08.html).

☐ If the vehicle is a hybrid vehicle conversion (identified in Table 1), the vehicle must achieve at least a 20 percent fuel economy benefit relative to its equivalent baseline vehicle (identified in Table 2) as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23, City Fuel Economy (www.irs.gov/irb/2007-23_IRB/ar08.html).

☐ The vehicle complies with applicable air quality provisions of California and federal law.

☐ The vehicle complies with motor vehicle safety provisions of 49 USC Sections 30101 through 30169.

☐ The vehicle meets the original engine manufacturer's build requirements.

☐ The vehicle meets HVIP minimum 3 year warranty requirements, as described in Section C(1)(a) of the HVIP Implementation Manual.

☐ The vehicle manufacturer agrees to the telematics requirement as stated in Section C(1)(k) of the HVIP Implementation Manual.

☐ No modifications have been made to the engine hardware or after-treatment device(s).

☐ No modifications have been made to the engine's original software calibrations.

☐ The hybrid vehicle operation does not change the engine's certified regeneration cycles/events for emission control devices such as filters.

☐ The emission control sensors or signals to or from the engine control module haven't been modified.

☐ There is at least one service provider for the hybrid vehicle in California. Please provide name and city of primary service provider: _____

☐ This vehicle's electric drive or software calibrations shall be installed or modified at a Truck Equipment or Final Stage Manufacturer (TEM). If answer is "yes", please indicate:

Truck Equipment Manufacturer Name:			
Contact Name and Title:			
Street Address:		State:	Zip Code:
Phone: ( )	E-mail:		

Part IV: Application Attachments to be Provided by Original Vehicle Manufacturer

- If any of the statements in Part III are not true and correct (i.e., if any of the boxes above are not checked), please attach a narrative explaining why.
- For new hybrid vehicles over 14,000 GVWR, provide information that the vehicle is an ARB certified hybrid. If the vehicle is not ARB certified, then provide in-use or chassis dynamometer criteria testing data to ensure the hybrid vehicle does not result in increased NOx emissions compared to an equivalent baseline vehicle. Only vehicles for which the hybrid platform, engine, and after-treatment system continue to function as required will be approved. NOx emissions data resulting from in-use or chassis dynamometer testing must demonstrate no increase in NOx emissions compared to an equivalent baseline vehicle.
- If requesting HVIP approval of exportable power option, provide manufacturer's vehicle marketing flyer, including vehicle and exportable power specifications and justification for export power usage in proposed vehicle vocation.
- Minimum warranty provisions.
- After sales service provisions.
- MSRP price sheets.
- If requesting HVIP approval of extended warranty option, provide copy of warranty and originally signed letter on manufacturer letterhead committing to meet, at a minimum, warranty requirements identified in HVIP Implementation Manual Section D(5)(f).
- For plug-in hybrid vehicles only, provide proof of compliance with the all-electric range requirements identified in Section C(2)(j) of the HVIP Implementation Manual.
- Briefly describe what information is provided to hybrid vehicle dealers/purchasers regarding proper disposal of the hybrid vehicle battery and how this information is conveyed.

Part V: Minimum Requirements for Emissions Testing

New hybrid and hybrid vehicle conversion manufacturers unwilling to pursue full vehicle certification shall conduct in-use (Portable Emissions Measurement System (PEMS) or chassis dynamometer emissions testing to ensure the hybrid vehicle does not result in increased NOx emissions compared to the equivalent baseline (non-hybrid) vehicle. The emission testing of a hybrid vehicle and the comparable baseline vehicle following the same emission test method is referred to as A to B testing, and will be required using PEMS or dynamometer testing. Vehicles will be required to present a PEMS or chassis dynamometer testing plan that identifies duty cycle, testing parameters, and third-party or manufacture testing. ARB will review and approve the testing plan. Once testing is complete, the vehicle manufacture shall submit all test data along with a completed HVIP application to the ARB project liaison. Before HVIP eligibility is granted, ARB will review test data and will verify that no increase in NOx occurred and all HVIP requirements have been satisfied. For hybrid vehicles, achieving zero-emission range, emission testing must occur while the engine is running.

A. Portable Emissions Measurement System (PEMS) Testing

Manufacturers wishing to use PEMS testing for HVIP eligibility must propose a PEMS testing protocol to ARB for approval. The A to B emission testing of a hybrid vehicle and the comparable non-hybrid vehicle (also known as the baseline vehicle) following the same emission test method will be required. For the purposes of HVIP eligibility, the use of PEMS measurement instrumentation is an option in On-Road testing in lieu of Chassis Dynamometer screening for new hybrid and hybrid vehicle conversion manufacturers to demonstrate that vehicles will not increase NOx emissions compared to a comparable non-hybrid baseline. If a manufacturer would like to pursue Chassis Dynamometer A to B emission testing screening, please refer to Section 1 of the most recent amended version of the *CALIFORNIA INTERIM CERTIFICATION PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HYBRID-ELECTRIC AND OTHER HYBRID VEHICLES, IN THE URBAN BUS AND HEAVY-DUTY VEHICLE CLASSES* document. Only testing of NOx emissions are required.
The following test requirements will need to be addressed in the proposed testing protocol:

1. The manufacturer must determine, using good engineering judgement, the two defined routes for the two drive cycles (Urban Drive Cycle and Rural/Intracity Drive Cycle). Each drive cycle will require two runs of the hybrid vehicle and two runs of the baseline vehicle. The first test will require the hybrid and baseline vehicles to be fully loaded, and the second test will require the hybrid and baseline vehicles to be partially loaded as defined below. In total, four hybrid vehicle test runs and four baseline vehicle test runs per HVIP eligibility application will be required. All testing must occur on asphalt or concrete.
    1. <u>Urban Drive Cycle:</u> The Urban Drive Cycle represents activity of vehicles with lower vehicle miles traveled (VMT) and average speed with significant stop and start activities.

a) Speeds not to exceed 35 miles per hour (mph).
b) At a minimum, 20 stops with idling time of 5 minutes representing deliveries. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).
c) At a minimum, 15 stops representing stop signs, traffic lights and traffic. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).

2. Rural/Intracity Drive Cycle: Rural/Intracity Drive Cycle represents activity of vehicles with high VMT with higher average speed marked by a combination of urban and highway traffic.
   a) Vehicles must travel at 55 mph (±5 mph) for no less than 20 minutes.
   b) At a minimum, 10 stops with idling time of 5 minutes representing deliveries. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).
   c) At a minimum, 7 stops representing stop signs, traffic lights and traffic. If hybrid automatically turns off the engine during stop time, then allow for the engine to stop. Allow baseline engine to remain idling (unless equipped with idle shutdown timer).

2. Both test vehicles (hybrid and baseline) must accrue at least two hours of engine operation per drive cycle including vehicles with zero-emission range.
3. Both test vehicles (hybrid and baseline) must be fully loaded (100 percent of payload) for each drive cycle. After both drive cycles have been completed with the fully loaded vehicles, then both test vehicles (hybrid and baseline) must complete each drive cycle partially loaded (50 percent of payload).
4. The hybrid and baseline vehicles must follow the same pre-determined routes. A side-by-side (lead-following) comparison is preferable; thus, the same weather conditions will be observed for both vehicles. If a manufacturer cannot perform side-by-side testing, the manufacturer may present to ARB a justification explaining why side-by-side testing cannot be accomplished.
5. The PEMS must be properly calibrated, used and maintained, as required by 40 CFR Part 1065 Subpart J, and as recommended by the PEMS manufacturer.
6. In order to ensure test repeatability, consistency of results and data quality, weather conditions must be recorded (e.g., weather data collection, variation in weather conditions between tests and between test segments, etc.). The ambient temperature levels encountered by the test vehicles shall be no less than 40 º F and no greater than 100 º F, and shall change no more than 30 º F during a test. Ambient temperatures shall be recorded at the beginning and end of the test period. Testing can be conducted at any humidity level; however, an

optimal range is between 35 percent and 75 percent relative humidity. Testing shall occur when wind speeds are at or below 12 mph, with gusts no greater than 15 mph.

The data from all four test run pairs (hybrid and baseline vehicles) must be submitted to ARB. ARB will evaluate all four test runs. However, if one of the four test run pairs demonstrated that the hybrid vehicle produced more NOx over the baseline test vehicle, ARB will evaluate three of the four test run pairs and disregard the pair containing the hybrid that produced excessive NOx compared to the baseline vehicle. In order for the hybrid vehicle to be HVIP eligible, no increase of NOx may occur in three of the four test run pairs, and the vehicle must meet all other HVIP requirements as stated within the Implementation Manual.

At any time, ARB has sole discretion to modify these requirements.

B. Chassis Dynamometer Testing

Manufacturers that choose chassis dynamometer testing may perform A to B testing using Section 1 of the most recent amended version of the *CALIFORNIA INTERIM CERTIFICATION PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HYBRID-ELECTRIC AND OTHER HYBRID VEHICLES, IN THE URBAN BUS AND HEAVY-DUTY VEHICLE CLASSES* document or other ARB approved test procedure. Only testing of NOx emissions are required. Please refer to the following ARB website, Heavy-Duty Hybrid Electric Vehicle Certification Procedures for additional information (www.arb.ca.gov/msprog/onroadhd/hdhev/hdhevtesting/hdhevtesting.htm).

For A to B testing, manufacturers may elect to use the dynamometer testing performed for aftermarket parts certification as part of the test for hybrid vehicle conversions. The conventional vehicle must then be tested using the same drive cycles and test procedure used during certification.

Part VI: Applicant Signature

I hereby certify by penalty of perjury that all information provided in this application and any attachments are true and correct. Submission of false information on this form is punishable under penalty of perjury under the laws of the State of California.

Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:

APPENDIX B2: <u>NEW ZERO-EMISSION VEHICLE/ZERO-EMISSION VEHICLE CONVERSION ELIGIBILITY APPLICATION</u>

This is an application for new zero-emission and zero-emission vehicle conversion commercial vehicles to be included on the list of vehicles eligible for the HVIP. This application must be completed, submitted to ARB, and vehicle must receive approval prior to the vehicle being eligible for a voucher.

ARB reserves the right to request additional information or clarification of information provided in this application. This application applies to and must be completed by the original vehicle manufacturer or its legal representative.

Please check the box that applies:
☐ New zero-emission commercial vehicle
☐ Zero-emission vehicle conversion commercial vehicle

Part I: Vehicle Manufacturer Information

1. Manufacturer Name:		
2. Staff Contact Name and Title:		
3. Business Mailing Address and Contact Information Street:		
City:	State:	Zip Code:
Phone: ( )	E-mail:	

Please identify the zero-emission vehicle and its baseline (gasoline or diesel-powered) equivalent in Tables B2-1 and B2-2, respectively. These vehicles must be of the same make, model, drive configuration (4 x 2 or 4 x 4), frontal area, and gross vehicle weight.

Table B2-1: Zero-Emission Vehicle Information

Vehicle MY	Vehicle Make and Model	Gross Vehicle Weight Range

Table B2-2: Baseline Vehicle Information

Vehicle MY	Vehicle Make and Model	Gross Vehicle Weight Range

What is the typical California pre-tax cost of the zero-emission vehicle (identified in Table B2-1) with normal dealer profit? $_____

What is the typical California pre-tax cost of this equivalent baseline vehicle (identified in Table B2-2 with normal dealer profit $_____

Potential Voucher Enhancements

a. Manufacturer requests approval of exportable power option (per Section C(7) of the HVIP Implementation Manual)? Yes/No
b. Manufacturer requests approval of extended warranty option (per Section D(5)(f) of the HVIP Implementation Manual)? Yes/No
c. Manufacturer requests vehicle be identified as fast charge compatible vehicle (per Section D(5)(d) of the HVIP Implementation Manual)? Yes/No

Part II: Verification of Vehicle Eligibility

A. For vehicle models not currently on the list of eligible vehicles:

Please provide the following information as attachments to this form for each vehicle model listed in Table B2-1. ARB reserves the right to request additional information to complete the vehicle eligibility evaluation.

- ARB Executive Order(s) for new zero-emission commercial vehicles from 5,001 to 14,000 lbs GVWR
- ARB approval letter for new commercial zero-emission vehicles greater than 14,000 lbs GVWR
- For conversions of any type of vehicle to zero-emission, the aftermarket conversion kits must receive an exemption executive order (EO) from ARB[13]
- Warranty provisions
- After sales service provisions
- MSRP price sheets
- Proof of compliance with the all-electric range requirements identified in Section C(3)(d) of the HVIP Implementation Manual
- Briefly describe information provided to vehicle dealers/purchasers regarding proper disposal of both the propulsion and auxiliary vehicle battery and how this information is conveyed

B. For vehicle models currently on the list of eligible vehicles (addition of new model years):

Please check box below if the following statement is true.

[13] For more information, go to: http://www.arb.ca.gov/msprog/cihd/approvals/approvals.php.

☐ I certify that the vehicle(s) listed in Table B2-1 have not been modified from the vehicle(s) that were previously approved by ARB for inclusion on the List of Eligible Vehicles including warranty and after sales service provisions.

Please provide the following information for each vehicle model listed in Table B2-1.

- MSRP price sheets
- ARB Executive Order(s) for new zero-emission commercial vehicles from 5,001 to 14,000 lbs GVWR
- ARB approval letter for new commercial zero-emission vehicles greater than 14,000 lbs GVWR
- For conversions of any type of vehicle to zero-emission, the aftermarket conversion kits must receive an exemption executive order (EO) from ARB[14]
- If requesting HVIP approval of exportable power option, manufacturer's vehicle marketing flyer, including vehicle and exportable power specifications and justification for export power usage in proposed vehicle vocation
- If requesting HVIP approval of extended warranty option, provide copy of warranty and originally signed letter on manufacturer letterhead committing to meet, at a minimum, warranty requirements identified in HVIP Implementation Manual Section D(5)(f)
- If requesting vehicle be approved as a fast-charge compatible vehicle for the purposes of HVIP, provide documentation that vehicle meets minimum requirements identified in Section D(5)(d) of the HVIP Implementation Manual

I hereby certify that all information provided in this application and any attachments are true and correct. Additionally, the vehicle manufacturer agrees to the telematics requirement as stated in Section C(1)(j) of the HVIP Implementation Manual. Submission of false information on this form is punishable under penalty of perjury under the laws of the State of California.

Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:

[14] For more information, go to: http://www.arb.ca.gov/msprog/cihd/approvals/approvals.php.

APPENDIX B3: AERIAL BOOM VEHICLE WITH ePTO ELIGIBILITY APPLICATION

Part I: Original Manufacturer Information

1. Company Name/Organization Name/Individual Name:		
2. Contact Name and Title:		
3. Business Mailing Address and Contact Information Street:		
City:	State:	Zip Code:
Phone: ( )	E-mail:	

Part II: Vehicle Description

Please identify the vehicle and its applicable ePTO system proposed for HVIP eligibility in Tables B3-1 and B3-2, respectively.

Table B3-1: Aerial Boom Vehicle Information

Vehicle MY	(Vehicle Make and Model, engine model and MY)	ePTO Make and Model	Boom Maximum Working Height (ft)	Gross Vehicle Weight Range (lbs)*

* including ePTO system.

Table B3-2: ePTO Information

Battery Manufacturer	Battery Chemistry	Battery Capacity (kWh)	Battery Manufacturer Recommended Minimum State-of-Charge	Regenerative Braking? (y/n)

What is the typical California pre-tax cost with normal dealer profit of the truck identified in table B3-1 with traditionally powered PTO (i.e. vehicle engine idles to power bucket)?

$_____

What is the typical California pre-tax cost with normal dealer profit of the bucket truck identified in Table B3-1 when equipped with the ePTO system identified in Table B3-2?

$_____

Make and model of vehicle telematics system? _____

Potential Voucher Enhancements

a. Manufacturer requests approval of exportable power option (per Section C(7) of the HVIP Implementation Manual)? Yes/No

b. Manufacturer requests approval of extended warranty option

(per Section D(5)(f) of the HVIP Implementation Manual)? Yes/No

Part III: Self-Certification of Vehicle, Engine and ePTO Parameters
Please check the box next to each statement if the statement is correct. **Do not check the box if the statement is not correct.**

- ☐ The vehicle complies with applicable air quality provisions of California and federal law.
- ☐ The vehicle complies with motor vehicle safety provisions of 49 USC Sections 30101 through 30169.
- ☐ The vehicle meets the original engine manufacturer's build requirements.
- ☐ No modifications have been made to the engine hardware or after-treatment device(s).
- ☐ No modifications have been made to the engine's original software calibrations.
- ☐ The vehicle meets HVIP minimum three year warranty requirements, as described in Section C(1)(a) of the HVIP Implementation Manual.
- ☐ The vehicle manufacturer agrees to the telematics requirement as stated in Section C(1)(j) of the HVIP Implementation Manual.
- ☐ The ePTO battery is capable of recharging from the manufacturer specified battery cut-off voltage to full charge within twelve hours.
- ☐ The battery manufacturer recommended minimum state-of-charge for the ePTO make/model identified in this application equals that in the aerial boom vehicle provided for consumer purchase and intended for the vehicle in-use for a minimum of three years from date of voucher redemption.
- ☐ There is at least one service provider for the vehicle in California. Please provide name and city of primary service provider:

  _____
- ☐ The vehicle and ePTO system meet all the requirements of the HVIP, including those identified in this application and the HVIP Implementation Manual.

Part IV: Application Attachments to be Provided by Original Vehicle Manufacturer

- Warranty provisions.
- After sales service provisions.
- MSRP price sheets.
- Manufacturer's vehicle marketing flyer, including vehicle and exportable power specifications and justification for export power usage in proposed vehicle vocation (if requesting HVIP approval of exportable power option).

- If requesting HVIP approval of exportable power option, manufacturer's vehicle marketing flyer, including vehicle and exportable power specifications and justification for export power usage in proposed vehicle vocation.
- If any of the statements in Part III are not true and correct (i.e. if any of the boxes above are not checked), please attach a narrative explaining why.
- Briefly describe what information is provided to hybrid vehicle dealers/purchasers regarding proper disposal of the ePTO battery and how this information is conveyed.

Part V: Demonstration of ePTO System

The intent of the ePTO system demonstration is to verify that the ePTO will function entirely on battery power over the course of a typical work day. The ePTO demonstration consists of three steps:

1. The ARB Project Liaison or his designee approves in writing a vehicle and ePTO duty cycle that reflects a typical work day. The duty cycle must include the following parameters:

    a. At least 45 minutes of total boom movement with at least 175 lbs in the bucket, including a minimum of 22.5 minutes of vertical boom movement and 22.5 minutes of horizontal boom movement. Each boom movement must extend to maximum achievable boom left/right and up/down positions.

    b. At least five minutes of air conditioning, running at maximum capacity with the cab windows closed.

    c. Vehicles with a battery charge while driving feature may include up to one hour of driving as part of the duty cycle. Drive cycles will be considered by the ARB Project Liaison on a case-by-case basis, and must reflect a suburban driving environment (i.e. moderate speeds and number of stops).

The ARB Project Liaison is: Mr. Ryan Murano
Telephone: (916) 322-2383
ryan.murano@arb.ca.gov

2. The applicant provides an in-person demonstration for the ARB Project Liaison or his designee that the vehicle completes the approved duty cycle without need for the engine to recharge the battery (i.e. the battery manufacturer recommended minimum state-of-charge is not reached). The demonstration must be conducted within a 100 mile radius of ARB headquarters in Sacramento, California unless an alternate location is preapproved by the ARB Project Liaison. The ARB Project Liaison may forgo in-person duty cycle verification on a case-by-case basis for applicants for which ePTO duty cycles have previously been demonstrated in person. In these cases, the applicant would detail and confirm in writing completion of the approved duty cycle.

3. ARB provides the applicant with a vehicle approval letter indicating the vehicle make/model has been HVIP-approved.

Part VI: Applicant Signature

I hereby certify by penalty of perjury that all information provided in this application and any attachments are true and correct. Submission of false information on this form is punishable under penalty of perjury under the laws of the State of California.

Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:

APPENDIX B4: ELIGIBILITY APPLICATION FOR NEW VEHICLE EQUIPPED WITH LOW NOx ENGINE

This is an eligibility application for new vehicles equipped with low NOx engines. This application must be completed, submitted to ARB, and vehicle must receive approval prior to the vehicle being eligible for a voucher.

Do not use this application for an engine used for a repower.

ARB reserves the right to request additional information or clarification of information provided in this application. This application applies to and must be completed by the original vehicle/ engine manufacturer or its legal representative.

Part I: Vehicle Manufacturer Information

1. Manufacturer Name:		
2. Staff Contact Name and Title:		
3. Business Mailing Address and Contact Information Street:		
City:	State:	Zip Code:
Phone: ( )	E-mail:	

Please identify the vehicle equipped with a Low NOx engine and its baseline (powered with traditional natural gas engine) equivalent in Tables B4-1 and B4-2, respectively. These vehicles must be of the same make, model, drive configuration (4 x 2 or 4 x 4), frontal area, and gross vehicle weight.

Table B4-1: Vehicle Information with Low NOx Engine

Vehicle MY	Vehicle Make, Model and Engine Make, Model and EO#	Gross Vehicle Weight Range

Table B4-2: Baseline Vehicle Information (Traditional Natural Gas Engine)

Vehicle MY	Vehicle Make and Model. Engine Make, Model, Model Year and Executive (EO)#	Gross Vehicle Weight Range

What is the typical California pre-tax cost of the vehicle equipped with a low NOx engine (identified in Table B4-1) with normal dealer profit? $_____

What is the typical California pre-tax cost of this equivalent baseline vehicle (traditional natural gas engine identified in Table B4-2) with normal dealer profit
$_____

Part II: Verification of Vehicle Eligibility

A. For vehicle models not currently on the list of eligible vehicles:

Please provide the following information as attachments to this form for each vehicle model listed in Table B4-1. ARB reserves the right to request additional information to complete the vehicle eligibility evaluation.

- ARB low NOx engine Executive Order
- Warranty provisions for engine and vehicle
- After sales service provisions
- MSRP price sheets

B. For vehicle models currently on the list of eligible vehicles (addition of new model years):

Please check box below if the following statement is true.

☐ I certify that the vehicle(s) listed in Table B4-1 have not been modified from the vehicle(s) that were previously approved by ARB for inclusion on the List of Eligible Vehicles including warranty and after sales service provisions.

I hereby certify that all information provided in this application and any attachments are true and correct. Submission of false information on this form is punishable under penalty of perjury under the laws of the State of California.

Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:

APPENDIX B5: ELIGIBILITY APPLICATION FOR LOW NOx ENGINE USED FOR REPOWER

This is an eligibility application for low NOx engines used for repowers. This application must be completed, submitted to ARB, and the low NOx engine must receive approval prior to the low NOx engine being eligible for a voucher.

Do not use this application for a new vehicle equipped with a low NOx engine.

ARB reserves the right to request additional information or clarification of information provided in this application. This application applies to and must be completed by the original engine manufacturer or its legal representative.

Part I: Vehicle Manufacturer Information

1. Manufacturer Name:		
2. Staff Contact Name and Title:		
3. Business Mailing Address and Contact Information Street:		
City:	State:	Zip Code:
Phone: ( )	E-mail:	

Please identify the Low NOx engine(s) and its baseline (traditional natural gas engine) equivalent in Tables B5-1 and B5-2, respectively. The engine(s) must be of the same make, horsepower and displacement.

Table B5-1: Low NOx Engine Information

Engine MY	Engine Make, Model, Horsepower, Displacement and Executive Order Number

Table B5-2: Baseline Engine Information (Traditional Natural Gas Engine)

Engine MY	Engine Make, Model, Horsepower, Displacement and Executive Order Number

What is the typical California pre-tax cost of the low NOx engine (identified in Table B5-1) with normal dealer profit? $_____

What is the typical California pre-tax cost of this equivalent baseline engine (traditional natural gas engine identified in Table B5-2) with normal dealer profit
$_____

Part II: Verification of Engine Eligibility

A. For Engine models not currently on the list of eligible engines:

Please provide the following information as attachments to this form for each engine model listed in Table B5-1. ARB reserves the right to request additional information to complete the vehicle eligibility evaluation.

- ARB low NOx engine Executive Order
- Warranty provisions for engine
- After sales service provisions
- MSRP price sheets

B. For engine models currently on the list of eligible engines (addition of new model years):

Please check box below if the following statement is true.

☐ I certify that the engine(s) listed in Table B5-1 have not been modified from the engine(s) that were previously approved by ARB for inclusion on the List of Eligible Engines including warranty and after sales service provisions.

I hereby certify that all information provided in this application and any attachments are true and correct. Submission of false information on this form is punishable under penalty of perjury under the laws of the State of California.

Printed Name of Responsible Party:	Title:
Signature of Responsible Party:	Date:

APPENDIX C: Lower-Emission School Bus Program Mail Out #MSC 15-19

Air Resources Board

Mary D. Nichols, Chair
1001 I Street • P.O. Box 2815
Sacramento, California 95812 • www.arb.ca.gov

Matthew Rodriquez
Secretary for Environmental Protection

Edmund G. Brown Jr.
Governor

DATE: October 13, 2015 Mail-Out #MSC 15-19

TO: All Interested Parties

SUBJECT: THE LOWER-EMISSION SCHOOL BUS PROGRAM - USING ASSEMBLY BILL 923 FUNDS FOR ZERO-EMISSION SCHOOL BUS FLEET EXPANSIONS AND ALL-ELECTRIC SCHOOL BUS CONVERSIONS

Changes and clarifications to the Lower-Emission School Bus Program (LESBP) are being made via mail-out under the authority granted by the Air Resources Board (ARB or Board) during the March 25, 2010 Board Meeting (Resolution 10-19). In accordance with Resolution 10-19, this mail-out provides guidance to local air districts and eligible school bus owners participating in the LESBP. Guidance in this mail-out is provided for using local air district Assembly Bill 923 funds for allowing fleet expansion when purchasing any new zero-emission school buses and funding all-electric school bus conversions (AB 923, Stats 2004 Ch 707).

The primary goal of the LESBP is to reduce children's exposure to both cancer-causing and smog-forming pollution. Cleaner school buses, whether zero-emission or conversion to all-electric, are an important component of the LESBP, as school buses typically remain in service for extended periods of time. Zero-emission school buses and all-electric school bus conversions have no tailpipe emissions, resulting in significant and immediate emission reductions that benefit children's health.

Zero-Emission School Bus Purchases (Fleet expansion)

Current language in the LESBP Guidelines requires that only replacement school buses be funded when older, dirtier school buses are dismantled and does not currently allow for fleet expansion. Current language also requires a replacement school bus to have a gross vehicle weight rating (GVWR) of 14,001 pounds or greater. This mail-out allows fleet expansion for purchases of zero-emission school buses, including new zero-emission school buses and zero-emission school bus conversions using a new school bus chassis, and does not limit the new school bus to a GVWR limit.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: http://www.arb.ca.gov.

California Environmental Protection Agency

Printed on Recycled Paper

All-Electric School Bus Conversions

Effective January 1, 2012, Assembly Bill 470 (AB 470, Stats 2011 Ch 174) authorized using AB 923 funding for the purchase of new school buses, or retrofit of emissions control equipment for used school buses pursuant to the LESBP. ARB interprets this language as allowing the replacement of a fossil-fueled engine and drivetrain with an all-electric motor and drivetrain (all-electric school bus conversion). CHP requires engineering plans, certified by a California licensed engineer, to be able to safety certify a school bus. All-electric school bus conversions using technologies that have already been demonstrated on school buses and that have engineering plans are eligible for local air district AB 923 funding.

1. **Eligibility Requirements**

A. Eligible Applicants for School Bus Funding

Public school districts in California that own their own school buses are eligible to receive funding for zero-emission school bus purchases (fleet expansion) and all-electric school bus conversions. This includes public school districts that own their school buses but contract with a County Office of Education or private contractor for maintenance and operations. Where several public school districts have formed a Joint Powers Authority (JPA), and the JPA holds ownership of the school buses, then the JPA is also eligible to participate. Public charter schools that own their own school buses and County Offices of Education that own their school buses are also eligible to participate.

Private transportation providers that own their school buses and contract with public school districts to provide transportation services for public school children are also eligible to receive grant funding for zero-emission school bus purchases and all-electric school bus conversions.

B. School Buses Eligible for All-Electric Conversions

School buses with current California Highway Patrol (CHP) safety certifications qualify for all-electric school bus conversion funding if all other requirements in the LESBP Guidelines are met. There is not a gross vehicle weight rating requirement of over 14,000 pounds for an electric school bus conversion funded by local air district AB 923 funds.

2. **Project Life**

The zero-emission school bus and the school bus selected to be converted to all-electric with local air district AB 923 funding must be able to operate for at least a five-year project life.

3. **Additional Requirements**

The following documentation is required from the vendor (whether from a zero-emission school bus or an all-electric school bus) for new and converted school buses purchased under the LESBP with local air district AB 923 or other funds.

A. ARB Engine or Vehicle Certification (i.e. Executive Order) or ARB Approval Letter

Only zero-emission vehicles that are ARB certified or approved may be funded. For new zero-emission vehicles or conversions funded under the LESBP, an ARB approval letter is required. Information requested in the document "Information Required for Review of Requests for Approvals of Battery Electric / Hydrogen Fuel Cell Electric Heavy-Duty Vehicles" (http://www.arb.ca.gov/msprog/cihd/resources/content/approvals/approvals-hdelectric-checklist_20130506.pdf) must be submitted in order for ARB to verify that the vehicles do not emit any vehicle exhaust emissions or fuel-based evaporative emissions. Please submit the requested information to:

Attn: Annette Hebert, Division Chief
Emissions Compliance, Automotive Regulations and Science (ECARS) Division
9480 Telstar Avenue, Ste. #4
El Monte, CA 91731

B. Warranty Provisions

The vendor warranty must provide protection for a minimum of 60 months or 75,000 miles, whichever comes first, and provide full warranty coverage of, at a minimum, zero-emission or all-electric motor, drive train, batteries/energy storage system(s), parts and labor. Warranties must be fully transferrable to subsequent school bus purchasers for the full warranty coverage period.

Warranties must cover the following for the full warranty period (unless otherwise denoted):

- Extended Motor, Drivetrain (including Battery), and Zero-Emission Components: Provide warranty coverage against defects in material and workmanship for the motor, transmission, rear axle, and electric or zero-emission system components including the battery. Gaskets and seals are not required to be included under the warranty coverage.

- Frame Rails, Cross Members, and Cab: For new school buses, coverage extends to structural cracks in the frame caused by defects in material workmanship and against corrosion perforation of the cab. For school bus conversions, the all-electric school bus vendor is only responsible for damage or corrosion tied to, or resulting from, their workmanship on, or handling of, these parts.

- Battery Degradation Warranty: Provide warranty coverage against battery degradation below 80 percent of capacity.

C. Other Battery Information

The vendor must provide to the school bus owner documentation of the following battery information:

i. Type of battery pack(s)
ii. Size of battery pack(s)
iii. Expected life of battery pack(s)
iv. Type of battery
v. Size of battery (kilowatt-hour)
vi. Fast charge capability, if applicable

D. Service Provisions

The vendor must provide to the school bus owner a description of the plan to provide routine vehicle service.

E. Price Sheet

The vendor must provide a price sheet to the school bus owner for the new zero-emission school bus or all-electric school bus conversion.

F. Minimum Zero-Emission (i.e. All-Electric) Range

The vendor must demonstrate to purchaser that a minimum of 35 miles of zero-emission range can be traveled on a single charge on the route that will be traveled by the purchased vehicle.

G. Manufacturer's Information About Impacts to Zero-Emission Range

The vendor must provide to the school bus owner information from the manufacturer about operating conditions that can impact vehicle driving range and what those impacts are.

H. Temperature Range

The vendor must provide to the school bus owner the temperature range (ambient temperature conditions) needed for operating the zero-emission or all-electric school bus.

I. Proper Disposal of Batteries Description

The vendor must provide to the local air district a brief description of the information provided to the school bus owner regarding proper disposal of the vehicle battery and a description of how this information is conveyed to purchaser.

J. Documentation for CHP Safety Certification

The local air district must keep a copy of the CHP safety certification documentation in the project file that shows that the or zero-emission or all-electric school bus conversion has been inspected and signed off by CHP. The CHP safety certification documentation must be obtained by the school bus owner after the CHP has conducted a passing inspection. The school bus owner is required to provide documentation to the local air district that consists of a copy of a completed CHP form 343 – Safety Compliance Report/Terminal Record Update, OR a copy of a completed CHP form 343A – Vehicle/Equipment Inspection Report Motor Carrier Safety Operations or equivalent.

4. **Requirements Specific to All-Electric School Bus Conversions**

A. School Buses to be Converted Must be Ten-Years Old or Newer

This requirement is to help safeguard that all-electric school bus conversions are in good operating condition and remain in service through the required five year minimum project life.

B. Converted School Buses Must Have Certified Engineering Plans

The vendor performing the all-electric conversion must provide a set of engineering plans certified by a California Licensed Engineer to the CHP for the required safety certification inspection.

5. **Allowable Costs**

A. Purchase Costs for New Zero-Emission School Buses and All-Electric School Bus Conversions

Local air district AB 923 funds may be used to pay up to $400,000 of the purchase cost of the zero-emission school bus and all-electric school bus conversion. ARB anticipates conversion costs of about $200,000 per all-electric school bus conversion. However, the local air district may limit the amount of AB 923 funds spent on any school bus project.

B. Infrastructure Costs for New Zero-Emission School Buses and All-Electric School Bus Conversions

Local air district AB 923 funding for infrastructure necessary for powering zero-emission school buses and all-electric school bus conversions is allowed up to $20,000. AB 923 funding for vehicle to grid infrastructure costs is allowed up to 100 percent; however, the local air district may limit the amount of AB 923 funds spent on any school bus project.

6. **Maintenance Costs are Disallowable**

AB 923 funding may not be spent on maintenance costs for zero-emission school buses and all-electric school bus conversions.

7. **Contract Requirements (between the local Air District and School Bus Owner)**

A. Project Life

Successful applicants must make an enforceable commitment to own and operate the zero-emission school buses and all-electric school bus conversions for a minimum of five years (project life).

B. Pro-rating funds

Language included in the contract for all projects must stipulate that the school bus (including the chassis) must operate for the length of the project life or a pro-rated amount of the awarded funds must be returned to the local air district.

C. CHP Documentation of Safety Certification

Language must be included in the contract that stipulates that the vendor cannot receive payment until the school bus has been inspected by the CHP and the CHP has completed written documentation signifying that the school bus is safe to operate with children aboard.

8. **CHP Inspection Prior to Return to Service**

All school buses must pass a CHP safety inspection [per Title 13, California Code of Regulations section 1272(c)] every thirteen months and prior to its return to service. For all-electric school bus conversions, CHP requires engineering plans, certified by a California licensed engineer, of the converted school bus to conduct the required safety certification inspection.

9. **No Payment Prior to CHP Inspection**

All school buses must be safety certified by the CHP in order to receive payment with incentive funding. Copies of a completed CHP form 343 – Safety Compliance Report/Terminal Record Update, OR a copy of a completed CHP form 343A – Vehicle/Equipment Inspection Report Motor Carrier Safety Operations, or equivalent must be received by the local air district prior to payment to the conversion vendor.

If you have questions regarding this Mail-Out, please contact Lisa Jennings, Air Pollution Specialist, at (916) 322-6913 or via email at lisa.jennings@arb.ca.gov.

Sincerely,

/s/

Erik White, Chief
Mobile Source Control Division

cc: See next page

cc: Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

Lisa Jennings, Air Pollution Specialist
Mobile Source Control Division

APPENDIX D: Vehicles Under Common Ownership

If vehicles are under common ownership, for the purposes of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP) this means that they are owned by the same person, corporation, partnership, limited liability company, or association. In addition, vehicles managed day to day by the same directors, officers, or managers, or by corporations controlled by the same majority stockholders are considered to be under common control even if their title is held by different business entities.

The examples provided below are intended to further specify, for the purposes of the HVIP, the definition of common ownership, corporation, or other entity wishing to purchase or lease an HVIP-eligible vehicle.

Example 1 – Parent/Child Company

The George Corporation forms a new, wholly owned corporation, Sam's Transportation Services, and secures a different federal tax identification number for it. While the George Corporation and Sam's Transportation Services can report and comply separately with the regulation, because they are under common ownership, the total number of vehicles of both must be summed in order to determine the fleet size.

Example 2 – Common Ownership

The ABC Company and the 123 Company are wholly-owned subsidiaries of Alphabet Group Incorporated. They were acquired by Alphabet Group Incorporated in 1950 and 1970, respectively. Alphabet Group Incorporated is located in Nevada, however ABC Company and 123 Company are both located in California and each have their own Federal Tax Identification numbers. In addition, they each have unique motor carrier numbers. Both ABC and 123 are decentralized, with most of the decision making pushed down to the operating company level. However, the corporate office centralizes things like insurance, bonding, cash, and financial statement consolidation.

Because ABC and 123 are under common ownership, the total number of vehicles of this fleet must be determined by adding up all the vehicles for ABC and 123. However, ABC and 123 can report and comply separately with the regulation.

Example 3 – Common Control

Bill Brown owns Brown's Transportation and controls the day to day operation of his fleet. Bonnie Brown is the owner of Bonnie's Transportation, but her vehicles are controlled on a day to day basis by Bill Brown. Mr. Brown makes decisions regarding vehicle use, maintenance, purchases and sales, etc. Because Brown's Transportation and Bonnie's Transportation fleets are under the common control of Mr. Brown, all of the vehicles in both fleets must be summed to determine their fleet size. If, for example, the summed vehicles exceed three, neither could utilize the small fleet provision.

Example 4 – 50/50 Ownership

John Smith owns Company A, and Jane Doe owns Company B. John and Jane also each both own 50 percent of Company C. Because neither John nor Jane have a majority stake in Company C (neither have more than 50 percent), as long as Company C is not under common control with either Company A or B, neither John nor Jane must add Company C's vehicles to their own when determining fleet size. Each fleet - Company A, B, and C would report separately and determine its fleet size separately.

If, however, John controlled both the Company A and Company C fleet on a day-to-day basis (managing the vehicles use, maintenance, purchases and sales, etc.), then Company A and Company C's vehicles would need to be combined when determining fleet size.

ARB enforcement may use organizational documents of fleet owners (such as articles of incorporation) to validate fleet ownership.

Example 5 – Farming Business

Top Grade Dairy owns two dairies in Tulare with 100 milking cows at each location. John Smith, the owner, the president, and CEO of the company manages the day to day operations. Top Grade Dairy owns the land where the dairies are located and also owns 25 acres where sorghum is grown. Mr. Smith formed a limited liability company, where he is the only member, called Top Grade Silage, which is also managed by Mr. Smith, and only supplies silage to Top Grade Dairies. Each company has a different federal tax identification number.

Since Mr. Smith owns both companies, all the vehicles owned by both Top Grade Dairy and Top Grade Silage would be counted to determine fleet size.

For purposes of determining whether each company meets the definition of a farming business, each business entity must be examined separately. Top Grade Dairy clearly meets the definition of a farming business because it is involved in the operation of a farm as an owner. However, Top Grade Silage does not own the land and therefore does not meet the definition of a farming business. If Top Grade Silage had owned the land, or was a tenant, it would meet the definition of a farming business.

APPENDIX E: HVIP VOUCHER REQUEST AND TERMS AND CONDITIONS FORM

FUNDER + FY YEAR:_____

DATE RECEIVED:_____

Purchaser Information

Primary Contact:			
Company Name:	Parent Company:		
Mailing address:			
City:	State:	Zip Code:	
Phone:	Fax:		
Primary E-mail:			
TIN:	CA#: ☐Exempt	DOT#: ☐Exempt	
CA# Reason for exemption (if applicable):			
DOT# Reason for exemption (if applicable):			

Vehicle Operator Information

Operator:		
Street address:		
City:	State:	Zip Code:
Email:	Phone:	

Dealer Information

Dealer:	Company Name:	
Street address:		
City:	State:	Zip Code:
Email:	Phone:	

Vehicle Information

Vehicle Manufacturer:	Vehicle Model Year:
Engine:	Engine Model Year:
Engine Family #:	Executive Order #:
Vehicle Description:	
GVWR:	Preliminary Voucher Amount:
Number of Vouchers Requested*:	

*** NOTE: The fleet/operator location and vehicle type MUST be the same**. If you are purchasing the same vehicle for the same client, but is being used at a different fleet location, you must submit a new Voucher Request.

HVIP Voucher Request and Terms and Conditions Form– Purchaser/Lessee Terms and Conditions

Purchaser/Lessee:

As a condition for participating in the State of California, Air Resources Board (ARB) Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), purchaser/lessee must comply with the requirements below:

1. I have read, understand and agree to all provisions within the HVIP Implementation Manual;
2. I agree to register the vehicle in California with the Department of Motor Vehicles (DMV) Military vehicles are not subject to this requirement;
3. I agree to allow ARB, CALSTART, or their designee to verify the vehicle registration with the DMV;
4. I agree to maintain vehicle insurance as required by law;
5. I agree to never modify the vehicle's emission control system, engine, or engine software calibrations;
6. I agree to ensure plug-in vehicles purchased with an HVIP voucher, including plug- in hybrid vehicles, plug-in electric vehicles, and aerial boom vehicles with zero- emission power take-off, will be plugged in regularly as recommended by the vehicle manufacturer to ensure battery durability, efficiency, and reliability;
7. I understand that I must be in compliance and remain in compliance with all applicable federal, state, and local air quality rules and regulations;
8. I agree to own/lease and operate this vehicle 100 percent in California for a minimum of three years from the date of purchase/lease unless: 1) the vehicle is an emergency response vehicle which may be deployed out of state, or 2) the vehicle address identified in this form is in a county which borders Arizona, Nevada, Oregon or Mexico. In these two cases only, the vehicle may operate outside of California for up to 25 percent of its mileage if a written request to do so is included with this voucher request form and the request is approved by ARB, CALSTART, or their designee. Military vehicles are not subject to this requirement;
9. I agree to retain ownership/lease of the vehicle for at least three years from the date of purchase/lease, unless given explicit prior written approval to sell the vehicle from ARB;
10. I agree to keep written records of the vehicle or low NOx engine purchase/lease for three years after the purchase/lease date and provide ARB or its designee with these records within ten days of their request. These records include but are not limited to the vehicle invoice, proof of purchase, DMV records, vehicle payment information and related bank records, and purchaser/lessee fleet information;
11. I agree that the purchased/leased vehicle and emission reductions it generates shall not be used as marketable emission reduction credits, to offset any emission reduction obligation of any person or entity;
12. I agree to complete the annual usage survey and questionnaire for three years,

as requested by ARB. Military vehicles are not subject to this requirement;

13. I agree to the Manufacturers Terms and Conditions for usage of the vehicle's telematics device. Additionally, I agree to allow the Manufacturer to have access to the vehicle location and on/off data so the Manufacturer can report to ARB CALSTART, or their designee the aggregated vehicle operation within disadvantaged communities and zip codes containing disadvantaged communities. Vehicles equipped with low NOx engines, and military vehicles are exempt from this requirement;
14. I agree to be available for a follow-up inspection by the ARB, CALSTART, or their designee, if requested;
15. The information provided in this application is true and all supporting documentation is true and correct and meet the minimum requirements of the HVIP;
16. I have the legal authority to apply for incentive funding for the purchasing entity described in this agreement;
17. I agree that failure to comply with the terms of this agreement may result in repayment to ARB of voucher funds received; and
18. I understand that ARB reserves all rights and remedies available under the law to enforce the terms of this agreement.

.

By signing the HVIP Voucher Request and Terms and Conditions Form, I acknowledge that I have read and understand, and agree to be bound by, the terms and conditions as outlined above.

I certify under penalty of perjury that the information provided is accurate.

Name of Vehicle or Low NOx Engine Purchaser/Lessee: _____

Signature of Vehicle Purchaser/Lessee:_____Date: _____

City:_____ State: _____

HVIP Voucher Request and Terms and Conditions Form – Dealer Terms and Conditions

Dealer:

1. I have read, understand and agree to all provisions within the HVIP Implementation Manual;
2. The vehicle and vehicle order information identified on this form are true and correct;
3. I understand that this HVIP voucher request is only valid for this specific

vehicle or low NOx engine purchaser/lessee and vehicle, and that any voucher provided based on this voucher request will be null and void if the purchaser/lessee and vehicle identified herein change prior to voucher redemption or for noncompliance with applicable HVIP requirements;

4. I have the legal authority to participate in the HVIP for the Dealer described in this agreement;
5. I understand that ARB reserves all rights and remedies available under the law to enforce the terms of this agreement.

By signing the HVIP Voucher Request and Terms and Conditions Form, I acknowledge that I have read and understand, and agree to be bound by, the terms and conditions as outlined above.

I certify under penalty of perjury that the information provided is accurate.

Name of Dealer Representative: _____

Signature of Representative: _____

Date: _____

City:_____ State: _____

PLEASE RETURN SIGNED DOCUMENTS TO:
HVIP Voucher Processing c/o Tetra Tech
249 E. Ocean Blvd, Suite 325
Long Beach, CA 90802