California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

July 21, 2011

LOCATION:
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814
http://www.calepa.ca.gov/EPAbldg/location.htm

This facility is accessible by public transit. For transit information, call (916) 321-BUSS, website: http://www.sacrt.com
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July 21, 2011
9:00 a.m.

DISCUSSION ITEMS:
Note: The following agenda items may be heard in a different order at the Board meeting.

Agenda Item #

11-5-1: Public Meeting to Consider the Approval of the Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2011-12

Staff will present to the Board the proposed Air Quality Improvement Program (AQIP) Funding Plan for Fiscal Year 2011-12, which provides staff's recommendations for allocating the $40 million of AQIP project funding in the Governor's proposed budget. Staff recommends directing most of the AQIP funding to continue incentives for the purchase of new hybrid trucks and buses and zero-emission passenger cars. The remaining funding would be allocated to advanced technology demonstration projects. AQIP, created under Assembly Bill 118 (2007), provides incentive funding through 2015 for clean vehicle and equipment projects.

11-5-3: Public Hearing to Consider the Approval of Proposed State Implementation Plan (SIP) Revisions for 8 Hour Ozone and Minor Technical Revisions to the PM 2.5 SIP Transportation Conformity Budgets

Staff will present for Board consideration proposed revisions to the South Coast and San Joaquin Valley Ozone State Implementation Plans for submittal to the United States Environmental Protection Agency. These plans were originally submitted in 2007. The proposed revisions are limited to an updated calendar of the Air Resources Board rulemaking, adjustments to transportation conformity budgets, and revisions to reasonable further progress tables and associated reductions for contingency purposes for the South Coast and San Joaquin Valley.

11-5-4: Public Meeting to Present the 2010 Haagen-Smit Clean Air Awards

The recipients of the 2010 Haagen-Smit Clean Air Awards will be announced. The Board annually presents the Haagen-Smit Clean Air Awards to individuals in the air quality community who have made significant contributions toward improving air quality and public health.

CLOSED SESSION – LITIGATION

The Board will hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation:

Pacific Merchant Shipping Association v. Goldstene, U.S. District Court (E.D. Cal. Sacramento), Case No. 2:09-CV-01151-MCE-EFB.

POET, LLC, et al. v. Goldstene, et al., Superior Court of California (Fresno County), Case No. 09CECG04850.

Rocky Mountain Farmers Union, et al. v. Goldstene, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09-CV-02234-LJO-DLB.

National Petrochemical & Refiners Association, et al. v. Goldstene, et al., U.S. District Court (E.D. Cal. Fresno) Case No. 1:10-CV-00163-AWI-GSA.

Association of Irritated Residents, et al. v. California Air Resources Board, Superior Court of California (San Francisco County), Case No. CPF-09-509562.

Association of Irritated Residents, et al. v. U.S. E.P.A., 2011 WL 310357 (C.A.9), (Feb. 2, 2011).

California Dump Truck Owners Association v. California Air Resources Board, U.S. District Court (E.D. Cal. Sacramento) Case No. 2:11-CV-00384-MCE-GGH.

Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2010-00082774.

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

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OFFICE: (916) 322-5594
1001 I Street, Floor 23, Sacramento, California 95814
ARB Homepage: www.arb.ca.gov

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- Una acomodación razonable relacionados con una incapacidad.

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SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

LOCATION:
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CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO CONSIDER THE APPROVAL OF THE PROPOSED AB 118 AIR QUALITY IMPROVEMENT PROGRAM FUNDING PLAN FOR FISCAL YEAR 2011-12

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider approval of the *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2011-12* (FY 2011-12 Funding Plan).

DATE: July 21, 2011

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a one-day meeting of the Board, which will commence at 9:00 a.m., July 21, 2011. Please consult the agenda for the meeting, which will be available at least ten days before July 21, 2011, to determine the order of agenda items.

Background:

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill (AB) 118, Statutes of 2007). AQIP provides funding through 2015 for clean vehicle and equipment projects which reduce criteria pollutant and air toxics emissions, often with concurrent climate change benefits. AQIP expands ARB's portfolio of air quality incentives, providing the opportunity to fund projects not covered under its other incentive programs which focus on near-term emission reductions. AQIP is ARB's only incentive program structured to enable investments in technology advancing projects which also provide immediate emission reductions.

AQIP investments to date support the deployment of hybrid trucks, zero-emission passenger cars, and other advanced technologies critical to meeting California's long-term air quality and climate change goals. These investments are an important first step in the fundamental transformation of the California vehicle fleet to one with widespread use of zero- and near-zero emission vehicles.

The Governor's proposed FY 2011-12 State Budget provides $40 million for AQIP projects. ARB's regulatory guidelines governing implementation of AQIP require that

the Board approve an annual Funding Plan describing how AQIP funds appropriated to ARB in the State Budget will be spent. The proposed FY 2011-12 Funding Plan outlines: (1) ARB priorities for the funding cycle; (2) funding allocations by project category; (3) project category descriptions, including refinements based on public input and evaluation of previous years' project implementation; and (4) contingency provisions to address uncertainties in available funding levels.

Description of the FY 2011-12 Funding Plan:

The proposed FY 2011-12 Funding Plan builds on the successes of projects funded in previous years. For the FY 2011-12 funding cycle, ARB staff proposes to focus most of AQIP funding on the two largest project categories from previous years – the Hybrid Truck and Bus Voucher Incentive Project (HVIP) which targets commercial vehicle applications and the Clean Vehicle Rebate Project (CVRP) which provides consumer rebates for zero-emission and plug-in hybrid passenger cars. Demand for funding has been strong in these projects, and both hybrid truck and electric vehicle technologies are at a key point where public incentives can help them penetrate the California marketplace and become mainstream choices. These projects are working as envisioned, and their streamlined design has made them accessible to consumers. Staff is proposing several refinements aimed at making ARB's limited funding go further and encouraging broader program participation. Staff also proposes to continue a small allocation for advanced technology demonstrations. These are an important part of the AQIP because successful demonstration projects can potentially lead to new deployment project opportunities.

Table 1 presents ARB staff's proposed FY 2011-12 project category allocations along with the estimated number of vehicles that these funding levels would support. The table shows two separate funding targets. The $40 million target reflects the funding level for AQIP projects in the Governor's proposed State Budget. The $28 million target is a conservative estimate of the total funding that may be available based on actual AQIP revenues over the past two years, which have been 25-30 percent lower than the appropriated amount. To manage the uncertainty regarding available funding, ARB staff proposes to initially issue solicitations for the lower funding targets shown in Table 1 with provisions to scale up funding if revenues are higher. The contingency provisions to address revenue uncertainty are described in greater detail in the proposed Funding Plan.

Table 1: Proposed FY 2011-12 Project Category Funding Targets

Project Category	$28 Million Plan based on recent revenues		$40 Million Plan proposed Budget appropriation	
	Proposed Allocation	Vehicles Funded	Proposed Allocation	Vehicles Funded
Clean Vehicle Rebates (CVRP)	$15 M	5,600	$21 M	7,800
Hybrid Truck & Bus Vouchers (HVIP)	$11 M	500	$16 M	700
Advanced Technology Demonstration/Testing	$2 M	N/A	$3 M	N/A

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

ARB staff will present the *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2011-12* at the meeting. Copies of the report may be obtained from ARB's Public Information Office,1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990 at least 30 days prior to the scheduled meeting on July 21, 2011. The report may also be obtained from ARB's website at http://www.arb.ca.gov/msprog/aqip/aqip.htm.

SUBMITTAL OF COMMENTS

Interested members of the public may present comments orally or in writing at the meeting and may be submitted by postal mail or by electronic submittal before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, July 20, 2011,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

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Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request. Additionally, this information may become available via Google, Yahoo, and any other search engines.

ARB requests that written and email statements on this item be filed at least ten days prior to the meeting so that ARB staff and Board members have additional time to consider each comment. Further inquiries regarding this matter should be directed to Mr. Andrew Panson, Staff Air Pollution Specialist, at (916) 323-2881, or Ms. Meri Miles, Air Pollution Specialist, at (916) 322-6370.

SPECIAL ACCOMMODATION REQUEST

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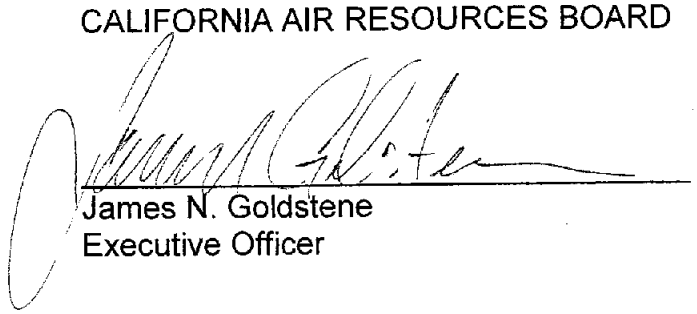
CALIFORNIA AIR RESOURCES BOARD



James N. Goldstene
Executive Officer

Date: June 20, 2011

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 at www.arb.ca.gov.

California Environmental Protection Agency

Air Resources Board

PROPOSED AB 118 AIR QUALITY IMPROVEMENT PROGRAM FUNDING PLAN FOR FISCAL YEAR 2011-12

Release Date: **June 20, 2011**
Board Consideration: **July 21, 2011**

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Executive Summary

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill (AB) 118, Statutes of 2007). AQIP provides funding through 2015 for clean vehicle and equipment projects which reduce criteria pollutant and air toxics emissions often with concurrent climate change benefits.

AQIP expands the Air Resources Board's (ARB or Board) portfolio of air quality incentives, providing the opportunity to fund projects not covered under its other incentive programs which focus on near-term emission reductions. AQIP is ARB's only incentive program structured to enable investments in technology advancing projects which also provide immediate emission reductions.

AQIP investments to date support the deployment of hybrid trucks, zero-emission passenger cars, and other advanced technologies critical to meeting California's long-term air quality and climate change goals. These investments are an important first step in the fundamental transformation of the California vehicle fleet to one with widespread use of zero- and near-zero emission vehicles. ARB staff proposes continuing these investments in the 2011 funding cycle. AQIP projects are working as envisioned, and their streamlined design has made them accessible to consumers. Staff is proposing several refinements aimed at making ARB's limited funding go further and encouraging broader program participation.

The Governor's proposed Fiscal Year (FY) 2011-12 State Budget provides $40 million for AQIP projects. ARB's regulatory guidelines governing implementation of AQIP require that the Board approve an annual Funding Plan describing how AQIP funds will be spent each fiscal year. The *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2011-12* (FY 2011-12 Funding Plan) outlines: (1) ARB priorities for the funding cycle; (2) funding allocations by project category; (3) project category descriptions, including refinements based on public input and evaluation of previous years' project implementation; and (4) contingency provisions to address uncertainties in available funding levels.

Summary of FY 2011-12 Funding Proposal

For the FY 2011-12 funding cycle, ARB staff proposes to focus most of AQIP funding on the two largest project categories from previous years – the Hybrid Truck and Bus Voucher Incentive Project (HVIP) which targets commercial vehicle applications and the Clean Vehicle Rebate Project (CVRP) which provides consumer rebates for zero-emission and plug-in hybrid passenger cars. Demand for funding has been strong in these projects, and both hybrid truck and electric vehicle technologies are at a key point where public incentives can help them penetrate the California marketplace and become mainstream choices. In developing AQIP, ARB staff envisioned that these project categories would receive funding for multiple years. Staff also proposes to continue a small allocation for advanced technology demonstrations. These are an

important part of AQIP because successful demonstration projects can potentially lead to new deployment project opportunities.

Table ES-1 presents ARB staff's proposed FY 2011-12 project category allocations along with the estimated number of vehicles that these funding levels would support. The table shows two separate funding targets. The $40 million target reflects the funding level for AQIP projects in the Governor's proposed State Budget. The $28 million target is a conservative estimate of total funding based on AQIP revenues over the past two years which have been 25-30 percent lower than the appropriated amount. To manage the uncertainty regarding available funding, ARB staff proposes to initially issue solicitations for the lower funding targets shown in Table ES-1 with provisions to scale up funding if revenues are higher. The contingency provisions to address revenue uncertainty are described in greater detail in the Funding Plan.

Table ES-1: Proposed FY 2011-12 Project Category Funding Targets

Project Category	**$28 Million Plan** based on recent revenues		**$40 Million Plan** proposed Budget appropriation	
	Proposed Allocation	Vehicles Funded	Proposed Allocation	Vehicles Funded
Clean Vehicle Rebates (CVRP)	$15 M	5,600	$21 M	7,800
Hybrid Truck & Bus Vouchers (HVIP)	$11 M	500	$16 M	700
Advanced Technology Demonstration/Testing	$2 M	N/A	$3 M	N/A

ARB staff proposes tripling the funding for CVRP relative to last year's $5 million allocation in anticipation of a substantial increase in the number of zero-emission vehicles (ZEVs) and plug-in hybrid passenger cars being offered for sale in California over the next year. This is a key phase in the California ZEV rollout as vehicle sales are projected to transition from the hundreds to thousands over the next year. Staff also proposes cutting per vehicle rebate amounts in half to increase the number of available rebates in an effort to meet projected demand.

The $11 million proposed for HVIP would provide funding for about 500 new hybrid trucks and buses which staff believes will adequately support the continuing deployment of hybrid technology into the California fleet. Several refinements to HVIP voucher amounts are proposed with a goal of encouraging additional fleets to purchase hybrid and ZEVs. Staff also proposes a $2 million allocation to continue funding for advanced technology demonstrations.

Recommendation

Staff recommends the Board approve the proposed FY 2011-12 Funding Plan which builds on the success of the first two years of AQIP.

I. Introduction

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill (AB) 118, Statutes of 2007). AQIP provides funding for clean vehicle and equipment projects which reduce criteria pollutant and air toxics emissions often with concurrent climate change benefits. AQIP expands the Air Resources Board's (ARB or Board) portfolio of air quality incentives, providing the opportunity to fund projects not covered under its other incentive programs which focus on near-term emission reductions.

AQIP is ARB's only incentive program structured to allow for investments in technology advancing projects which also provide immediate emission reductions, and ARB has chosen to use AQIP funds for this purpose. AQIP investments to date support the deployment of hybrid-electric vehicles, zero-emission vehicles (ZEV), and other advanced technologies critical to meeting California's post-2020 air quality and climate change goals.

The Governor's proposed Fiscal Year (FY) 2011-12 State Budget provides $40 million for AQIP projects. ARB's regulatory guidelines governing implementation of AQIP require that the Board approve an annual Funding Plan describing how AQIP funds will be spent each fiscal year prior to spending ARB's annual appropriation. The *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2011-12* (FY 2011-12 Funding Plan) outlines: (1) ARB priorities for the funding cycle; (2) funding allocations by project category; (3) project category descriptions, including refinements based on public input and evaluation of previous years' project implementation; and (4) contingency provisions to address uncertainties in available funding levels.

The remainder of this introductory chapter provides background on AQIP. The next chapter contains a summary of the FY 2011-12 funding proposal, descriptions of the project categories and contingency provisions. For more background on AQIP, please refer to the *2010 Biennial Report to the Legislature on the AB 118 Air Quality Improvement Program* available at http://www.arb.ca.gov/msprog/aqip/leg_reports.htm.

A. Implementation of AQIP

Program Purpose

AQIP provides funding through 2015 for clean vehicle and equipment projects, subject to annual appropriations by the Legislature. Funding for AQIP is provided by Department of Motor Vehicle fees. As with other ARB incentive programs, statute requires that emission benefits from AQIP be surplus to what is already required by local, state and federal regulation. The AB 118 statute allows for a range of eligible AQIP project categories, which can be divided into three general project types:

- *Commercial Deployment*. These projects include the next generation of advanced technology vehicles and equipment just reaching commercialization.

Consumer incentives are needed because these products generally cost more than their traditionally powered (e.g., gas or diesel) counterparts, which can be a significant deterrent to their purchase. Incentives will accelerate consumer acceptance and have the immediate benefit of reducing criteria pollutants, air toxics, and greenhouse gas emissions. Incentives help drive economies of scale by reducing production and sales costs as volume increases, and accelerating technology transfer to other sectors. Most AQIP funding awarded to date has been directed to commercial deployment projects.

- *Advanced Technology Demonstration:* ARB's goal in funding demonstration projects is to help demonstrate the viability of new, cleaner technology. AQIP funds are used to accelerate advanced technology vehicles, equipment or emission controls which are on the cusp of commercialization. The demonstration projects funded now could become deployment projects several years from now if the technology proves successful. ARB has included a small allocation for advanced technology demonstration projects in each AQIP Funding Plan.

- *Research and Workforce Training*: Statute allows AQIP to fund research on the air quality impacts of alternative fuels, research to increase biofuel production, and workforce training related to advanced technologies. These project types provide the information and training necessary to develop the advanced fuels and vehicles most effective in reducing air pollution. To date, ARB has not directed AQIP funding to research and workforce training categories because there are already large investments being made by other agencies. For example, the California Energy Commission (Energy Commission) has already directed $16 million to advanced technology work force training projects through its AB 118 program and is considering an additional $6.5 million investment in the upcoming funding cycle. Accordingly, ARB staff again proposes deferring AQIP funding for these project categories.

Guiding Principles for AQIP

The Board established overarching implementation priorities and guiding principles for AQIP funds as part of the FY 2009-10 Funding Plan and reaffirmed the guiding principles in the FY 2010-11 Funding Plan. Staff believes these guiding principles continue to be appropriate and used them to identify projects for this funding year. Broad principles include:

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

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

The Federal Clean Air Act includes a provision that allows SIPs for areas with the worst air quality (the extreme ozone nonattainment areas – the South Coast and San Joaquin Valley) to rely on advanced, yet to be developed, technologies (also known as the "black box" commitment). Investing now in the next generation of vehicles, equipment, and emission controls is essential if California hopes to meet this commitment because of the time needed for significant fleet turnover.

Meeting the 2050 greenhouse gas emission reduction goal will require a fundamental transformation of the vehicle fleet, with zero-emission and hybrid vehicles making up a significant fraction of the fleet. Specifically, the 2007 *State Alternative Fuels Plan* envisions a 2050 vehicle fleet where 40 percent of California's transportation fuel is electricity or hydrogen. AQIP investments are an important early step in this transformation.

For deployment projects, guiding principles also include:

- Accelerating deployment of proven advanced technologies to support significant penetration by the 2024 extreme ozone nonattainment area attainment date (i.e., focusing on new, commercialized technologies on the cusp of widespread deployment).

- Modifying consumer choice to buy cleaner vehicles, which may not have occurred without a monetary incentive.

Demonstration project guiding principles focus on projects that:

- Demonstrate the potential to provide cost-effective emission reductions.

- Show the potential to be economically viable without subsidy.

- Will be ready for commercialization within three years following demonstration.

- Have potential for use in the California marketplace.

B. Program Benefits

California's air quality challenges require the development and widespread deployment of zero- and near-zero-emission technologies, and ARB's goal for AQIP is to spur widespread use of these technologies. Accordingly, AQIP has a different focus than the Carl Moyer Program and the Goods Movement Emission Reduction Program, whose main objectives are near-term emission reductions with the ancillary benefit of technology advancement. Through these programs, about $2 billion is already being invested in near-term emission reductions. By comparison, AQIP is a modest down payment on the advanced technologies needed to meet California's long-term air quality goals.

AQIP projects provide both immediate emission reductions from the vehicles directly funded and, more importantly, set the stage for greater, indirect reductions in the future by accelerating large-scale penetration of these advanced technologies. These longer-term program benefits accrue from:

- Reducing production costs through economies of scale so the technologies become more cost-competitive and self-sustaining in the future.

- Accelerating technology transfer to other sectors, such as promoting the transfer of zero-emission and hybrid technologies from on-road vehicles to off-road equipment and marine vessels.

- Promoting consumer acceptance so that advanced technologies become mainstream consumer choices.

AQIP investments in advanced technologies also help position the State for green job growth over the next decade. Some of the vehicles or vehicle components funded under AQIP are manufactured in California, and these vehicles and equipment are distributed through extensive local dealership networks.

C. Coordination with the California Energy Commission

The Energy Commission receives about $100 million annually under AB 118 to fund alternative and renewable fuel and vehicle technology projects to reduce greenhouse gas emissions. There is overlap between the vehicle projects that can be funded in each program because many advanced technologies achieve both greenhouse gas and criteria pollutant reductions. For example, AB 118 statute lists hybrid and zero-emission technologies as eligible categories in both programs. ARB and the Energy Commission staff are closely coordinating on implementing AB 118 programs to ensure their respective investments complement one another.

AB 118 statute does not authorize ARB to fund vehicle fueling infrastructure through AQIP. That authority resides with the Energy Commission in its AB 118 program. The Energy Commission's investments in vehicle charging and fueling infrastructure complement ARB's incentives for clean vehicle deployment. These investments are important in ensuring a successful California ZEV rollout. Staff from both agencies coordinate to match fueling infrastructure needs with advanced vehicle deployment projections.

The Energy Commission has also taken a lead in funding workforce training. It has already directed $16 million to workforce training projects and is considering an additional $6.5 million investment in the FY 2011-12 funding cycle. ARB is working closely with the Energy Commission to ensure that these training investments support the technologies ARB is funding through AQIP.

ARB and the Energy Commission are jointly funding projects for categories where demand exceeds each agency's available funds. Such pooling of resources is much more efficient than each agency independently providing funding for the same types of projects. In February 2011, the Energy Commission directed $2 million of its AB 118 funding to ARB's Clean Vehicle Rebate Project (CVRP) to help meet the expected demand for ZEV rebates through the middle of the year. In May 2011, the Energy Commission also directed $4 million to ARB's Hybrid Truck and Bus Voucher Incentive Program (HVIP) to provide increased incentives for zero-emission truck purchases. The Energy Commission staff has proposed including provisions in its draft FY 2011-12 Investment Plan that would allow it to again direct clean vehicle funding to ARB if demand warrants. ARB staff plans to write its AQIP grant solicitations and grant awards with the flexibility to receive any additional Energy Commission funding that may be directed to AQIP.

D. Coordination with Other Local, State, and Federal Incentive Programs

ARB is implementing AQIP in a coordinated manner with other local, state, and federal air quality programs. Staff has tried to design AQIP projects with as much flexibility as possible to allow AQIP funds to be combined with other incentives that may become available. For example, AQIP vouchers for the purchase of a new hybrid school bus can be combined with Lower Emission School Bus Program funding. In addition, ARB encourages local air districts to coordinate their funding with AQIP if they are interested. To date, two local air districts – the South Coast Air Quality Management District (AQMD) and Sacramento Metropolitan AQMD – have made investments in hybrid voucher programs following the hybrid voucher model established in AQIP. These local investments further leverage the State's investment and will bring additional clean vehicles to California.

As new opportunities unfold, staff will evaluate ways to leverage AQIP funds – either as a match to obtain federal funds to augment California's air quality programs or through opportunities to fold other local, state, or federal funding into AQIP.

E. Status of Air Quality Loan Program for Trucks

The FY 2008-09 State Budget included a one-time appropriation from AQIP fund to implement a heavy-duty vehicle air quality loan program to assist smaller truck fleets affected by ARB's In-Use Truck and Bus Regulation and the Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation. Under this appropriation, $35 million is available for a financial assistance program referred to as Providing Loan Assistance for California Equipment (PLACE). Since the program started in 2009, ARB has successfully implemented two distinct but complementary loan program components to provide affordable financing to eligible small business owners for the purchase of cleaner trucks, exhaust retrofits, and SmartWay technologies that improve vehicle aerodynamics to reduce greenhouse gas emissions.

The first program component is a loan guarantee program developed in partnership with the California Pollution Control Financing Authority (CPCFA) within the State Treasurer's Office. Launched in April 2009, this component builds on CPCFA's highly successful California Capital Access Program (CalCAP), which provides a stable financing structure enabling lenders to provide competitive-rate loans to small businesses that fall just outside of conventional underwriting standards. Demand for this component increased substantially in early 2010 as a result of statutory changes expanding lender eligibility to include lenders such as truck manufacturers' financing divisions. In the second program component, ARB successfully demonstrated a pilot revolving loan/lease-to-own program administered by Cascade Sierra Solutions, a non-profit organization dedicated to saving fuel and reducing emissions from heavy-duty diesel vehicles. The pilot launched in 2009, and all funds were spent within a year. As of May 31, 2011, approximately $7 million in PLACE funds has been leveraged to provide over $45 million in financing for the purchase of 694 cleaner trucks and 331 exhaust retrofits.

In an effort to provide more financing options for truckers, ARB is augmenting PLACE by redirecting some of the loan guarantee funding to a new, direct loan program that will begin offering affordable financing to eligible borrowers later this summer. While sharing the same goals and targeting the same credit-challenged borrowers as the other PLACE components, this program differs in that ARB sets interest rates and other loan terms instead of commercial financial institutions. This program structure, implemented with the assistance of a contractor, expands ARB's ability to meet the financing needs of truck owners and may be used to sustain the loan fund thereby increasing ARB's ability to financially aid truckers.

ARB staff expects that the funding allocated to date will meet projected demand over the next year, so staff does not propose additional funding for PLACE in the proposed FY 2011-12 Funding Plan. Staff will reevaluate the need for additional funding in next year's Funding Plan.

F. Status of Previous Years' AQIP Projects

In the previous two funding cycles (FY 2009-10 and FY 2010-11), the Board approved Funding Plans based on the approximately $40 million appropriated for AQIP projects in each year's State Budget. However, available funding is dependent upon actual revenues in the Air Quality Improvement Fund which is funded by motor vehicle fees. In both years, revenues were about 25-30 percent lower than the appropriated amount. As a result, ARB had to scale back project funding in accordance to the contingency provisions in each year's Funding Plan. ARB awarded about $29 million in AQIP projects each year as shown in Table I-1, which lists the project categories, funding levels, and project status. In FY 2010-11, the Energy Commission supplemented ARB's awards by directing an additional $6 million to AQIP projects to meet additional demand bringing the total project funding to $35 million for the year.

ARB funded five project categories in the first year of AQIP – the largest two being vouchers for the purchase of hybrid trucks and buses through HVIP, and rebates for zero-emission or plug-in hybrid passenger cars through CVRP. Both hybrid truck and electric vehicle technologies are at a key point where public incentives can help them become mainstream choices. These AQIP investments are an important first step in the fundamental transformation of the California fleet to one with widespread use of hybrid trucks and ZEVs critical to meeting California's long-term air quality and climate change goals.

For the most part, ARB continued funding these same categories in the second year, with the addition of one new category, a pilot project to evaluate and deploy off-road hybrid equipment. ARB did not allocate additional funds to the agricultural utility terrain vehicle rebate project in FY 2010-11 because existing funds were sufficient to meet the projected demand. While at different points in expenditure and implementation, all projects with the exception of the agricultural utility terrain vehicle rebate project are working as envisioned, and the streamlined nature of the projects has enabled funds to be spent in a timely manner. In the case of the zero-emission agricultural utility terrain vehicles, the demand ARB staff anticipated has not materialized despite mid-course refinements to increase rebate levels.

Table I-1: Status of FY 2009-10 and 2010-11 AQIP Projects

Project Category	FY09-10 Award	FY10-11 Award	Project Status[1]
Hybrid Truck & Bus Vouchers (HVIP)	$20.4 M	$23 M[2]	Launched Feb 2010. ~$23 M spent; implementation ongoing.
Clean Vehicle Rebates (CVRP)	$4.1 M	$7 M[3]	Launched March 2010. ~$8 M spent; implementation ongoing.
Lawn & Garden Equipment Replacement	$1.6 M	$1 M	Launched spring 2010; 9 air districts running programs. ~$2.4 M spent; implementation ongoing.
Zero Emission Agricultural Utility Terrain Vehicle Rebates	$1.1 M	--	Launched April 2010. ~$140,000 spent; implementation ongoing.
Off-Road Hybrid Equipment Pilot	--	$2 M	Grantee selected June 2011; project kickoff July 2011
Advanced Technology Demonstrations	$1.85 M	$1.9 M	1st year funds awarded spring 2010; 4 projects ongoing. 2nd year funds awarded June 2011; 7 projects kickoff July 2011
Total Funding	**$29M**	**$35M**	

[1] Status as of May 31, 2011. Funds spent reflects vouchers/rebates in process and redeemed and administrative costs.
[2] Includes $4 million in funding from the California Energy Commission for zero-emission trucks.
[3] Includes $2 million in funding from the California Energy Commission.

II. Proposed Funding Plan for FY 2011-2012

For the FY 2011-12 funding cycle, ARB staff proposes to focus most of AQIP funding on the two largest project categories from previous years – HVIP and CVRP. There has been strong demand for funding in these areas, and both hybrid truck and electric vehicle technologies are at a key point where public incentives can help them penetrate the California marketplace and become mainstream choices. Staff also proposes to continue a small allocation for advanced technology demonstrations. These are an important part of the program because successful demonstration projects can potentially lead to new deployment project opportunities in the future.

ARB staff envisioned that these project categories would be funded for multiple years in order to maintain continuity and provide a larger overall impact on the selected technologies. Continuing investments in the next generation of vehicles, equipment, and emission controls is critical to meeting California's long-term air quality goals and will help start the transformation of the California fleet to one with widespread use of advanced technology hybrid and ZEVs.

ARB staff held four public workshops and three more detailed public work group meetings in developing the proposed Funding Plan. ARB staff also coordinated with the Energy Commission. As in previous years, ARB staff will hold additional public work group meetings through the year to update stakeholders on project implementation.

A. Summary of Funding Proposal

Table II-1 presents ARB staff's proposed FY 2011-12 project category allocations along with the estimated number of vehicles that these funding levels would support. The table shows two separate funding targets. The $40 million target reflects the funding level for AQIP projects in the Governor's proposed budget. The $28 million target is a conservative estimate of total funding based on AQIP revenues over the past two years, which have been 25-30 percent lower than the appropriated amount. To manage the uncertainty regarding the funding that will ultimately be available for AQIP projects, ARB staff proposes to initially issue solicitations for the lower funding targets shown in Table II-1 with provisions to scale up funding if revenues are higher.

Table II-1: Proposed FY 2011-12 Project Category Funding Targets

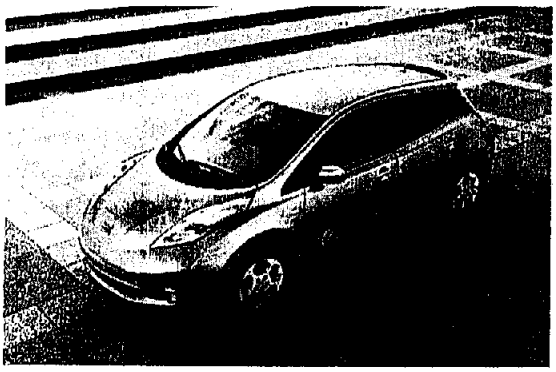
Project Category	**$28 Million Plan** based on recent revenues		**$40 Million Plan** proposed Budget appropriation	
	Proposed Allocation	Vehicles Funded	Proposed Allocation	Vehicles Funded
Clean Vehicle Rebates (CVRP)	$15 M	5,600	$21 M	7,800
Hybrid Truck & Bus Vouchers (HVIP)	$11 M	500	$16 M	700
Advanced Technology Demonstration/Testing	$2 M	N/A	$3 M	N/A

ARB staff proposes tripling the funding for CVRP relative to last year's $5 million allocation in anticipation of a substantial increase in the number of ZEVs and plug-in hybrid passenger cars being offered for sale in California over the next year. This is a key phase in the California ZEV rollout as vehicle sales are projected to transition from the hundreds to thousands over the next year. Correspondingly, staff is proposing to scale back the HVIP allocation from $19 million last year to $11 million, providing funding for about 500 new hybrid trucks and buses which staff believes will adequately support the continuing deployment of hybrid technology into the California fleet. Staff also proposes a $2 million allocation to continue funding for advanced technology demonstrations.

B. Description of Project Categories Proposed FY 2011-12 Funding

This section describes each project category proposed for funding in FY 2011-12. Each of the categories is a continuation of project funding in previous years, so an update on the current status of each project is also provided.

Clean Vehicle Rebate Project (CVRP)



Funding Target: $15 million

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

Project Benefits:

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

Funding Level

ARB staff proposes a $15 million initial funding target for CVRP. This target assumes total AQIP project funding of $28 million, a conservative estimate based on AQIP revenues over the past two years. If revenues are higher than this minimum level, CVRP funding would be scaled up to a maximum amount of $21 million as outlined in the contingency provisions section.

Overview

CVRP is designed to accelerate widespread commercialization of ZEVs and plug-in hybrid electric vehicles by providing consumer rebates to partially offset the higher cost of these advanced technologies. Zero- and near-zero emission vehicles are a key element of California's strategy for meeting health based air quality standards and climate change goals. The vehicle fleet will need to be fundamentally transformed to meet California's 2050 greenhouse gas emission reduction goal, with zero-emission and hybrid vehicles making up a significant fraction of the light-duty fleet.

The State's early investment in zero-emission and plug-in hybrid technologies will prime the market for the larger number of vehicles needed over the next decade and beyond to meet these ambitious targets as well as ensure the success of ARB's ZEV regulation. The Board envisioned the need for consumer rebates in the early years of the ZEV rollout because consumer acceptance is a critical early step towards widespread commercialization. The State's investment through CVRP – coupled with corresponding investments in vehicle charging and fueling infrastructure by the Energy Commission and federal government – is bringing more of these vehicles to California because manufacturers are choosing to focus early vehicle deployment in regions with the greatest local investments.

Project Status

In the first two AQIP funding cycles, ARB has allocated a total of $9.1 million for CVRP. The Energy Commission has also directed $2 million of its AB 118 funding to CVRP to help meet the expected demand for ZEV rebates through the middle of 2011. This brings the two year funding total for CVRP to $11.1 million which will provide rebates for about 2,000 full-function ZEVs.

CVRP offers vehicle rebates on a first-come, first-served basis for light-duty ZEVs, zero-emission motorcycles (ZEMs), and neighborhood electric vehicles (NEVs). About 20 different vehicle models are currently eligible. Additional vehicles are routinely added as manufacturers bring new models to market. CVRP is open to plug-in hybrid electric vehicles (PHEVs), and staff anticipates that eligible PHEV models will be added in the upcoming funding cycle. Rebate amounts range from $1,500 for ZEMs and NEVs to $5,000 for full functioning ZEVs.

Cumulative Statistics: Since the project's consumer launch in March 2010, rebates for nearly 1,400 vehicles totaling over $7 million have been issued. About 90 percent of the rebates have been issued to individual consumers and the remainder to businesses, non-profit organizations, or government fleets. Rebate demand has rapidly risen since the start of the year as more eligible vehicles become commercially available, and staff expects existing CVRP funds to be fully expended by July 2011. Table II-5 presents a summary of rebates by vehicle type, and Table II-6 shows the regional distribution.

Table II-5: Rebates Issued by Vehicle Type

Vehicle Type	Rebates Issued[1]	Total Rebate Amount
Light-Duty ZEVs	1,255	$6,257,000
Commercial Zero Emission Trucks[2]	49	$980,000
ZEMs	43	$63,000
NEVs	35	$47,000
TOTAL	**1,382**	**$7,348,000**

[1] Through May 31, 2011.
[2] Commercial zero emission trucks were in CVRP until February 2011; now part of the HVIP.

Table II-6: Regional Rebates Distribution

California Region	Number of Rebates Issued[1]
Bay Area	548
South Coast	416
San Diego	257
Sacramento Region[2]	45
Monterey	26
Ventura	25
San Joaquin Valley	18
Other	47
TOTAL	**1,382**

[1] Through May 31, 2011.
[2] Includes Sacramento, El Dorado, Placer, and Yolo/Solano Air Districts

Implementation: ARB has partnered with the non-profit California Center for Sustainable Energy (CCSE), selected via competitive solicitation in each of the last two funding years, to administer CVRP statewide. CCSE responsibilities include processing rebates, consumer outreach and education, project website development and maintenance, data reporting, and other duties associated with day-to-day implementation. ARB's responsibilities include program development and oversight, updating the Implementation Manual, evaluating and approving eligible vehicles, verifying consumer compliance with rebate terms, and contract management and administration. CVRP webpage, at https://energycenter.org/, provides a real-time accounting of rebate funds available to consumers, a downloadable rebate application and instructions, list of eligible vehicles, an online tutorial, and other project information.

Year Two Refinements: When FY 2010-11 CVRP funding became available in March 2011, ARB made several implementation refinements to clarify project requirements and improve project effectiveness. These include:

- *Provisions for Rental and Car Share Fleets*: These provisions allow rebates to rental and car share fleets that place eligible vehicles in California for a minimum of one year but less than three years for a reduced rebate amounts equaling 30 percent of a full rebate. ARB made this refinement because these fleets do not keep vehicles for three years as part for their normal business practice. ARB wanted to provide a mechanism for these fleets to participate in CVRP because they provide a unique opportunity to introduce many consumers to these advanced vehicles.

- *Maximum Rebates per Entity*: ARB set a cap at 20 CVRP rebates per entity in each calendar year with the exception of rental and car share fleets.

- *Waiting List*: These provisions establish a waiting list in the event FY 2010-11 funds are exhausted and new funds are not yet available. Rebates will be disbursed according to waiting list order, although ARB cannot guarantee funding until the Board approves next year's Funding Plan and the Legislature appropriates funding. All rebates for the waiting list are subject to the terms and conditions of FY 2011-12 CVRP, including revised rebate amounts.

Proposal for FY 2011-12

ARB staff proposes increasing CVRP funding allocation to $15 million in response to rapidly growing consumer demand. ARB staff projects a large increase in the number of ZEVs and plug-in hybrids available for purchase in California over the next several years based on discussions with vehicle manufacturers and stakeholders representing diverse consumer and industry interests. Anticipated demand is between 2,000 and 6,000 vehicles in 2011, between 6,000 and 15,000 vehicles in 2012, and more than 15,000 vehicles in 2013.

In conjunction with tripling CVRP allocation relative to the last funding cycle, ARB staff is proposing to cut per vehicle rebate amounts roughly in half which would enable

CVRP to provide rebates for about 5,600 full-function ZEVs or PHEVs. Added to the existing CVRP funding, this would meet the mid-range demand projections through the middle of 2012. Staff's proposal is intended to stretch available funding, while providing substantial enough rebates to influence consumer choice and draw vehicles to California. Even with this significant increase in allocation, funding may be insufficient to meet demand at the high end of the projected range.

Rebate Amounts: ARB staff proposes a reduction in the maximum rebate amount from $5,000 to $2,500 for full-function ZEVs, with step-down reductions for other vehicle types. The new rebate amounts would apply to all wait-listed rebates from the previous funding year. Table II-7 summarizes rebate amounts for each eligible vehicle type under the full (36-month) ownership period, and reduced (minimum 12-month) ownership period allowed for car share and rental fleets.

Table II-7: Proposed FY 2011-12 CVRP Rebate

Vehicle Type	Current Rebate	Proposed Rebate	Proposed Rebate Under Reduced Ownership Option[1]
ZEV			
Type II, III, IV, or V (range ≥100 miles)	$5,000	$2,500	$750
Type I.5 (range ≥75, <100 miles)	$4,000	$2,000	$600
Type I (range ≥50, <75 miles)	$3,000	$1,500	$450
PHEV	$3,000	$1,500	$450
NEV	$1,500	$900	$270
ZEM			

[1] Option allows rebates for rental car companies and car share fleet that commit to own or lease vehicles in California for at least one year but less than three years at a reduced rebate amount.

In addition to the CVRP rebate, consumers are eligible for a federal tax credit of up to $7,500 for a full functioning ZEV or PHEV. The proposed CVRP rebate amount combined with this tax credit would provide a total vehicle incentive of up to $10,000 for consumers. Other incentives (such as financial assistance for home-charging infrastructure, investments in public infrastructure, savings in off-peak energy use, and access to carpool lanes) complement CVRP rebates, providing a comprehensive incentive package to encourage consumers to purchase these vehicles and demonstrating California's support for ZEV roll out. The revised rebate amount for the NEVs and ZEMs was not quite cut in half, reflecting: (1) staff's assessment that rebates below a certain monetary level no longer serve to influence potential buyers; and (2) the expiration of the federal tax credit for these vehicles at the end of 2011.

Car Share Set-Aside: Car sharing provides a reliable and flexible alternative to car ownership, particularly in urban settings where it is part of a larger public transportation network. Staff is proposing to set aside 10 percent ($1.5 million) of CVRP funds for this purpose in recognition of this transportation model's benefits in reducing criteria pollutant and greenhouse gas emissions within the state. Staff would monitor the draw down throughout the fiscal year and remaining funds would roll back into the general CVRP account if unused.

Rebate Cap: Staff is proposing to continue the annual cap on the number of rebates a purchasing entity could claim. All fleets, except for rental and car share fleets, would be capped at 20 rebates per entity per year. Traditional rental car fleets would be capped at 50 vehicles per calendar year. Car share fleets would not be subject to a rebate cap, but rebated vehicles must be used exclusively for car share purposes, otherwise they would fall under a rebate cap.

Project Solicitation

Staff proposes to issue the FY 2011-12 CVRP Solicitation as soon as the State Budget is signed and the Board approves the Funding Plan. Staff hopes to have FY 2011-12 CVRP funds available to consumers before existing funding is exhausted. The same competitive process and eligibility requirements will be used from last funding cycle. The solicitation will be open to individuals, federal, state, and local government entities and agencies, and non-profit organizations with experience implementing a rebate program and general knowledge of statewide outreach and implementation. No major changes to the scoring criteria are proposed. Given the larger project funding amount compared to the previous two years, staff proposes reducing allowable costs for administration and outreach from 10 percent to 7 percent.

Future Funding Needs

Consumer demand for ZEVs and PHEVs is expected to increase by the tens of thousands in the next three years and beyond, as the hybrid and electric vehicle markets mature. As production volumes and model choices increase in the 2012 to 2014 timeframe, rebate demand will outstrip available AQIP funds. As noted earlier, ARB staff anticipates CVRP allocation in this proposed Funding Plan will meet demand through the middle of 2012. In developing next year's Funding Plan, ARB staff will need to evaluate how to structure CVRP to best continue supporting ZEV deployment and meet the ever growing projected demand. ARB will continue to seek partnering opportunities with other state and local agencies to augment vehicle incentive funding, and to promote both monetary and non-monetary incentives and infrastructure investments.

Hybrid Truck and Bus Voucher Incentive Project (HVIP)

Funding Target: $11 million

Synopsis: Consumer vouchers for ½ the incremental cost of a new hybrid truck. Zero emission trucks also eligible.

Project Benefits:

- Spur early production volumes, lower long-term production cost.
- Reduce criteria pollutants, advance technology to meet long-term SIP commitments.
- Reduce CO_2 emissions, help meet AB 32 emission reduction targets.

Funding Level

ARB staff proposes an $11 million initial funding target for HVIP. This target assumes total AQIP project funding of $28 million, a conservative estimate based on AQIP revenues over the past two years. If revenues are higher than this minimum level, HVIP funding would be scaled up to a maximum amount of $16 million as outlined in the contingency provisions section.

Overview

A hybrid-electric vehicle typically uses an electrical motor and a gasoline- or diesel-powered engine, which work in tandem to reduce emissions and fuel consumption. Hybrid vehicle technology reduces criteria pollutant, air toxic, and greenhouse gas emissions – particularly in urban delivery vehicles, refuse trucks, work trucks, buses, and other vehicles with high stop-and-go or idling duty cycles. Hybrid vehicles also provide significant fuel economy benefits and fuel cost savings to the fleet owner and therefore, have the potential to be self-sustaining with some reductions in the upfront vehicle cost. Large scale market penetration of hybrid trucks and buses will help California meet its long-term SIP and climate change goals.

The State's investment in HVIP at this time plays a critical role in accelerating early market penetration of hybrid technology with the goal of significant fleet penetration of these vehicles into California by 2020. Production capacity has substantial growth potential, but current low production volumes result in a $30,000 to $70,000 hybrid vehicle cost premium. ARB expects production costs to decline as hybrid driveline production volumes increase. When this occurs, the fuel economy payback period should shorten to the point where a hybrid truck purchase is economical without incentives and the technology is self-sustaining. ARB envisions the HVIP as a multi-year project to bridge this gap. At the federal level, the U.S. Environmental Protection Agency and the National Highway Traffic Safety Administration have proposed national

greenhouse gas and fuel efficiency standards for heavy-duty trucks for the first time, providing further impetus for investments in hybrid truck technology.

Project Status

First Year Success: HVIP is the nation's first program to directly reduce the up-front cost of a hybrid truck or bus, with fleets able to secure a voucher through their dealer as part of their vehicle purchase order. The voucher covers approximately half of the cost difference between a hybrid vehicle and a comparable, conventional diesel model. 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. HVIP first launched with $19.4 million in FY 2009-10 AQIP funds in February 2010. All available first year voucher funds were allocated to truck purchasers by August 2010, with a total of 667 vouchers issued at an average voucher amount of about $29,000.

HVIP has garnered national recognition and was named as the nation's top emerging energy efficiency program by the American Council for Energy Efficient Economy. The success of ARB's program has led some local air districts to make corresponding investments in hybrid voucher programs following ARB's model. The South Coast AQMD is providing an additional $1.4 million – implemented through HVIP – to help fleets purchase hybrid trucks and buses in the South Coast region. The Sacramento Metropolitan AQMD has started a $500,000 program to fund hybrid trucks and buses using HVIP voucher amounts and vehicle eligibility list. These local investments further leverage the State's investment and will bring additional hybrid vehicles to California.

Year Two Adjustments: The Board approved an additional $19 million for HVIP in the FY 2010-11 AQIP Funding Plan. ARB made modest changes to HVIP based on lessons learned in the project's first year. Voucher amounts were adjusted downward for the heaviest vehicles to reflect high first year demand and allow funding of more vehicles. Zero-emission commercial vehicles were shifted from CVRP to HVIP, and a new 8,501 to 10,000 pound (lb) weight class was added to allow for more effective funding of new promising technologies. Finally, $2 million was set aside specifically for public fleets to address challenges they may have in procuring vouchers on a first-come, first-serve basis. The Year 2 HVIP launched in February 2011.

Commercial Zero-Emission Vehicles: ARB continues to coordinate with the Energy Commission on our respective AB 118 programs and jointly fund projects in cases where demand may exceed each agency's available resources. In May 2011, the Energy Commission directed $4 million to HVIP to provide increased incentives for zero-emission truck purchases. These incentives will range from $10,000 to $30,000 (on top of existing HVIP voucher amounts) per vehicle, depending on gross vehicle weight. Zero-emission battery-electric vehicles that are manufactured or assembled in California will be eligible for an additional 20 percent bump-up on the Energy Commission incentive. ARB staff is working with the Energy Commission, HVIP Work Group, and other interested stakeholders to develop the necessary HVIP modifications to accommodate this new funding. In addition, ARB staff plans to write the FY 2011-12

HVIP grant solicitation and grant award with the flexibility to receive additional Energy Commission funding that may be directed to HVIP.

Cumulative Statistics: Since the program's first year launch in February 2010, California fleets have requested about $21 million in vouchers to purchase over 700 hybrid trucks and buses. This represents over 10 percent of the hybrid trucks on the road nationwide, showing the direct impact HVIP is having. The high demand for vouchers thus far is likely due to willingness of California fleets to invest in these fuel-saving technologies as the up-front cost declines, as well as the relative simplicity of the voucher funding model. HVIP vouchers are now available for over 50 hybrid and zero-emission truck and bus vehicle makes and models from multiple truck and bus manufacturers. Table II-2 identifies vehicle HVIP vouchers issued thus far by vocation, and Table II-3 shows the regional distribution of hybrid and zero-emission truck vouchers.

Table II-2: HVIP Vouchers by Vehicle Vocation

Vehicle Vocation	Number of Vouchers[1]	Total Voucher Amount	Average Voucher Amount
Beverage Delivery	320	$11.1 M	$34,600
Package Delivery	147	$3.0 M	$20,600
Uniform and Linen Delivery	108	$2.7 M	$25,100
Food Distribution	106	$2.5 M	$23,900
Other Truck	36	$0.9 M	$23,900
Liquid Propane Delivery	22	$0.6 M	$25,900
Urban or Shuttle Bus	9	$0.3 M	$37,800
TOTAL	**748**	**$21.1 M**	**$28,200**

[1]Through May 31, 2011.

Table II-3: Regional Voucher Distribution

California Region	Number of Vouchers Issued[1]
South Coast	369
Bay Area	256
Sacramento Region	47
San Joaquin Valley	38
San Diego	25
Ventura	6
Other	7
TOTAL	**748**

[1]Through May 31, 2011.

Implementation: ARB partnered with Calstart, selected via competitive solicitation, to implement HVIP in both FY 2009-10 and FY 2010-11. Calstart leads day-to-day project implementation, while ARB has overarching responsibility for project development and oversight. Calstart's duties include training of vehicle dealers and fleets, development of HVIP website, processing of vouchers, and coordinating with and reporting to ARB. Over 95 percent of HVIP funds are for direct vehicle vouchers; with less than five percent going toward project administration. HVIP webpage, at

http://www.californiahvip.org, identifies remaining voucher funds, participating truck and bus dealerships, eligible vehicles, and other information.

Proposal for FY 2011-12

ARB staff proposes HVIP funding allocation be reduced to $11 million because of the competing need for additional CVRP funds in FY 2011-12. This total would provide funding for about 500 new trucks which staff believes will adequately support the continuing deployment of hybrid technology into the California fleet. ARB staff proposes keeping the project's successful structure in place while providing an extra incentive to encourage additional California fleets to purchase hybrid trucks and buses for the first time. Staff's proposed modifications are also geared towards making limited project funding go further. These and other proposed modifications, described below, are based on lessons learned in HVIP's first two years.

Vehicle Voucher Amounts: Strong demand for HVIP vouchers thus far suggests existing voucher amounts are generating interest from California fleets to invest in hybrid trucks and buses. ARB staff proposes two updates to the vehicle voucher amounts as shown in Table II-4.

Table II-4: Eligible Truck and Bus Voucher Amounts

Gross Vehicle Weight in Pounds (lbs)		Base Vehicle Incentive[1]		
		1 to 30 vehicles[2]	31 to 65 vehicles	66 to 100 vehicles
8,501 – 10,000 lbs[3]	Plug-in Hybrid	$10,000	$8,000	$6,000
	Zero-Emission	$15,000	$12,000	$10,000
10,001 – 19,500 lbs[4]		$15,000	$12,000	$10,000
19,501 – 33,000 lbs		$20,000	$15,000	$12,000
33,001 – 38,000 lbs		$25,000	$20,000	$15,000
> 38,000 lbs		$30,000	$25,000	$20,000

[1] An ARB-certified hybrid vehicle above 14,000 lbs is eligible for an additional $5,000 voucher. See School Buses section (below) for information regarding school bus voucher amounts.

[2] The first three HVIP-eligible vehicles purchased by a fleet are eligible for an additional $10,000 voucher (or $5,000 for vehicles 19,500 lbs and less).

[3] Only plug-in hybrid and zero-emission vehicles are eligible in this weight category.

[4] Zero-emission commercial vehicles in this weight class receive a $20,000 voucher for the first 30 vehicles purchased by a fleet, $15,000 for vehicles 31 through 65, and $10,000 thereafter.

- *Scaled Voucher Amounts:* As in previous funding years, fleets would continue to be eligible to receive up to 100 vouchers in the FY 2011-12 HVIP. However, the voucher amount would decline by about 20 percent at the 30 and 65 voucher thresholds. Thus, fleets that have embraced hybrid technology and typically request many vouchers may continue to do so at slightly lower funding levels.

- *Additional $10,000 for First Three Hybrid Vehicles:* To encourage fleets – particularly small fleets – to invest in hybrid technology, an additional $10,000 incentive would be provided for the first three vouchers received by a fleet. (For vehicle weight classes 19,500 lbs and less, this extra incentive would be $5,000

because the incremental cost is lower for these vehicles.) Staff hopes to draw more small fleets and early adopters into HVIP by further reducing the incremental cost for small purchases.

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 to clean-up the school bus fleet.

While public school districts may combine local Lower-Emission School Bus Program funds with HVIP voucher funds to pay for most of the cost of a new hybrid school bus, no HVIP vouchers for hybrid school buses have been requested as of May 2011. Because reducing emissions from school buses continues to be an ARB priority, ARB staff proposes increasing voucher amounts for HVIP-eligible hybrid public school buses by $10,000 above the funding levels identified in Table II-4. This would enable HVIP to provide a $20,000 base vehicle incentive for a 26,000 lb hybrid school bus, plus a $10,000 school bus bump-up, and $10,000 for the first three HVIP vouchers for a total $40,000 voucher for the first three hybrid or electric school buses purchased by a public school district. If the Lower Emission School Bus Program provides $140,000 towards the cost of a typical $200,000 hybrid bus, the combined public funds provide 90 percent of the total bus cost. Other funding, such as federal or local air district funds, could be used to pay for the remaining cost.

Hybrid Vehicle Manufacturer Diversity: As of May 2011, 13 different vehicle manufacturers have vehicles on HVIP eligible vehicle list. The large number of participating manufacturers should help hybrid vehicle technology become sustainable more quickly. To ensure continuing diversity in the marketplace, ARB staff proposes setting a limit so no more than 50 percent of FY 2011-12 HVIP funding could be spent on any single manufacturer's vehicles. To date, voucher funding has been broadly distributed with no more than one-third of the vouchers going to any single manufacturer's vehicles, so staff does not envision this would limit any vehicle manufacturer's participation.

Public Fleets: Demand for HVIP vouchers has been largely driven by private fleets, with public agencies accounting for less than five percent of vouchers requested to date. Stakeholders from public agencies have indicated that budgetary challenges have deterred participation in HVIP. Others have indicated that public agencies may have difficulty accessing vouchers on a first-come, first-served basis given the procurement process requiring competitive bid, and the timing of when purchasing decision are made. To address this second issue, ARB set aside $2 million in FY 2010-11 HVIP for public fleets for six months to encourage their program participation.

Over the next several months, ARB will evaluate the success of the public fleet set-aside. If it proves successful in bringing more public fleets into to HVIP, ARB will again

set aside up to 10 percent of FY 2011-12 HVIP funds for public fleets. Staff will work with HVIP Work Group to identify improvements to the public fleet set-aside as needed. ARB will also evaluate opportunities to leverage match funds from interested air districts or other entities to further buy-down public fleet vehicle costs.

Project Solicitation

ARB staff proposes to issue the FY 2011-12 HVIP Solicitation in fall 2011 and expects voucher funds will be available to vehicle purchasers in early 2012. Similar to last year, the solicitation will be open to individuals, federal, state, and local government entities and agencies, and organizations with California heavy-duty vehicle, vehicle incentive, or air quality experience. Solicitations will be evaluated using scoring criteria similar to last fiscal year, and the grantee will be responsible for outreach and implementation of HVIP statewide. Due to the decrease in total funding amount and increased complexity in project implementation, staff proposes increasing the maximum allowable costs for project administration and outreach to up to 8.5 percent of the project award.

Advanced Technology Demonstration Projects

Funding Target: $2 million

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

Project Benefits:

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

Funding Level

ARB staff proposes a $2 million initial funding target for advanced technology demonstration projects. This target assumes total AQIP project funding of $28 million, a conservative estimate based on AQIP revenues over the past two years. If revenues are higher than this minimum level, demonstration project funding would be scaled up to a maximum amount of $3 million as outlined in the contingency provisions section.

Overview

ARB's goal in funding demonstration projects under AQIP is to help accelerate the next generation of advanced technologies to reduce emissions from mobile sources. AQIP funding would be used to demonstrate the viability of new technologies with the potential for commercialization within three years of demonstration and the ability to gain significant market penetration. To date, ARB has focused its limited demonstration project funds in the off-road sector. This complements the Energy Commission's AB 118 advanced technology demonstration funds which has focused primarily on on-road vehicles.

Current Project Status

For the FY 2009-10 funding cycle, ARB awarded funding for two projects to demonstrate advanced after-treatment on existing locomotives consistent with the priorities in its 2009 *Technical Options to Achieve Additional Emissions and Risk Reductions from California Locomotives and Railyards* report and a third project to demonstrate hybridization of an existing marine vessel. Implementation of these projects, described below, is ongoing.

- $500,000 to the Sacramento Metropolitan AQMD to demonstrate a particulate filter on a locomotive that operates in regional service between Oakland and Roseville.

- $350,000 to the Port of Los Angeles to demonstrate a particulate filter on a multiple engine switcher locomotive operating at an intermodal container transfer facility servicing the ports of Los Angeles and Long Beach.

- $1 million to the Port of Long Beach to demonstrate the use of hybrid technology to reduce emissions from marine vessels by converting an existing diesel tugboat to operate with a diesel-electric hybrid engine.

For the FY 2010-11 funding cycle, ARB issued three separate solicitations for advanced technology demonstration projects for the marine, locomotive, and off-road equipment categories identified as priorities in the Funding Plan. In June 2011, ARB award a total of $1.9 million in grant funding to the following projects:

- $800,000 to the Bay Area AQMD for two separate locomotive projects to demonstrate Tier 4 emissions levels on genset locomotive switchers operating in the San Francisco Bay Area.

- $439,000 to the South Coast AQMD to demonstrate an advanced emission reduction retrofit system on a tug boat operating at the ports of Los Angeles and Long Beach.

- $261,000 to the Bay Area AQMD to demonstrate advanced emission reduction retrofits on marine engines operating on the San Francisco Bay.

- $250,000 to the San Joaquin Valley Air Pollution Control District (APCD) to demonstrate cordless zero-emission commercial hedge trimmers and other lawn and garden equipment in non-residential applications.

- $100,000 to the South Coast AQMD demonstrate cordless zero-emission lawn mowers and other lawn and garden equipment in a non-residential application.

- $15,000 to the Mojave Desert AQMD to demonstrate cordless zero-emission commercial lawn and garden equipment in the Mojave Desert's extreme climate.

<u>Proposed FY 2011-12 Demonstration Project Categories</u>
ARB staff proposes at least three demonstration projects for FY 2011-12 funding cycle. Funding to demonstrate advanced emission controls for locomotives is proposed for the third consecutive year because reducing emissions and risk in and around railyards remains a priority for ARB. ARB staff also proposes a school bus demonstration project, another priority emission reduction category for ARB, and hybrid truck testing to complement HVIP.

- *Locomotives*: ARB staff is proposing up to $1 million for locomotive demonstration projects. Eligible projects would be selected based on the priorities in ARB's 2009 *Technical Options to Achieve Additional Emissions and Risk Reductions from California Locomotives and Railyards.*

- *School Bus*: ARB staff is proposing up to $1 million to demonstrate advanced hybrid technology in school buses. Staff had originally planned to fund this project in the FY 2010-11 funding cycle, but decided in consultation with school bus stakeholders to defer it to FY 2011-12. ARB staff will use the public work group process during the summer of 2011 to further define project parameters.

- *Hybrid Truck Testing*: To complement HVIP, ARB staff proposes allocating approximately $500,000 for testing of hybrid heavy-duty trucks to the U.S. Department of Energy National Renewable Energy Laboratory (NREL). The testing would consist of data logging hybrid vehicles in order to improve duty cycle classifications and characterization. The testing may also include complementary emissions testing of both hybrid and conventional vehicles. If possible, most of the testing would be done on HVIP funded vehicles on a voluntary basis. This testing would support ARB's investment in hybrid trucks through HVIP and updates to ARB's heavy-duty hybrid test procedures.

  As a federal government lab, NREL has proven programs for collecting and analyzing emissions reductions and fuel savings data from heavy-duty hybrid vehicles and working with a wide range of industry representatives to interpret those data. For this reason, ARB staff believes NREL is uniquely qualified to perform this work and proposes to contract with NREL for the hybrid testing. Directing AQIP funding into this established effort would leverage ARB's limited resources to the maximum extent. This testing is intended to fill in data gaps not duplicate other efforts, so ARB would closely coordinate with other ongoing programs such as Calstart's Hybrid Truck Users Forum and the California Hybrid, Efficient and Advanced Truck Research Center (CalHEAT) funded by the Energy Commission.

If additional demonstration project funding becomes available, ARB staff proposes to have the option of funding additional demonstration projects based on guiding principles, Board priorities, and needs identified from existing demonstrations. Additional projects would be vetted through AQIP Demonstration Project Working Group.

Project Solicitation

As in the two previous funding cycles, ARB staff proposes that grant solicitations for demonstration projects be open to local air districts and other public agencies. Public entities are encouraged to partner with one or more technology demonstrators and end users in their regions. At least 50 percent of each demonstration project's funds must be provided from a non-AQIP source, and at least 10 percent of this non-AQIP match must be in cash with the remainder allowed as in-kind contribution. The requirement of match funding leverages AQIP funds while encouraging grantees to be invested in successful completion of the projects. Up to 10 percent of the total project budget would be available for project administration consistent with previous funding cycles.

C. Other AQIP Project Categories

Last year's Funding Plan included three additional project categories: zero-emission agricultural utility terrain vehicle rebates, lawn and garden equipment replacement, and an off-road hybrid equipment pilot. A status update for these projects is provided below.

1. Agricultural Utility Terrain Vehicle Rebate Project

AQIP provides up to $1.1 million in rebates for purchases of new, zero-emission utility terrain vehicles used in the agricultural industry with funds appropriated in FY 2009-10. This is a first step in bringing advanced technology equipment into the agricultural sector. ARB has partnered with the San Joaquin Valley APCD, selected via competitive solicitation, to implement this statewide project. The project launched in April 2010. Only vehicles used in the agricultural industry are eligible for funding; recreational vehicles are not eligible.

As of May 31, 2011, 34 rebates have been issued accounting for about 10 percent of the available funding. Demand has been slower than ARB anticipated despite a mid-course adjustment to per vehicle rebate amounts. Infrastructure requirements, battery range and recharge time, combined with unfamiliar technology, higher purchase costs, and the downturn in the economy are likely contributing factors. Because project funding is still available to meet expected demand over the next year, no additional AQIP funding is proposed in this Funding Plan. ARB will continue to closely monitor progress of this project.

By statute, project funds appropriated in FY 2009-10 must be expended by June 30, 2012. If at least 60 percent of the Agricultural Utility Terrain Vehicle Rebate Project funds are not spent by January 1, 2012, the remaining funds will be reallocated under ARB's FY 2011-12 AQIP budget authority. ARB staff proposes that these funds be directed to CVRP or HVIP. Staff would evaluate the demand for funding in CVRP and HVIP at the time additional funding becomes available and direct the funds where there is the greatest need.

2. Lawn and Garden Equipment Replacement (LGER) Project

Over the past two funding cycles, AQIP provided a total of $2.6 million in funding for rebates to consumers who scrap old gasoline powered lawn mowers and replace them with zero-emission models. AQIP funds expand local air districts' lawn mower replacement programs. These district programs have been popular with consumers and successful in reducing emissions. To date, over 12,000 lawn mower replacements have been funded via AQIP. For future years, ARB staff is shifting zero-emission lawn mower replacement projects from AQIP to the Carl Moyer Program in part based on the success of AQIP LGER project. The Board approved this change in April 2011 as part of the 2011 revisions to the Carl Moyer Guidelines. Because it is now a Moyer-eligible category, no additional AQIP funding for consumer LGER rebates is proposed consistent with the Board-approved guiding principles for AQIP.

ARB is still interested in using AQIP to support the expansion of zero-emission technology from residential equipment to the commercial sector. Accordingly, ARB awarded $365,000 in grant funding to demonstrate advanced zero-emission commercial lawn and garden equipment utilizing FY 2010-11 AQIP funds.

3. Off-Road Hybrid Equipment Pilot Project

In March 2011, ARB released a $2 million competitive grant solicitation for a hybrid off-road construction equipment pilot project to encourage development and deployment of hybrid off-road construction equipment in California. In June 2011, the University of California Riverside College of Engineering-Center for Environmental Research and Technology was selected as the grantee to implement this project, and the project will kick off in July 2011. With the success of HVIP for on-road trucks, ARB is interested in extending AQIP hybrid funding to off-road equipment. This pilot project will help ARB evaluate emission benefits of this technology as typically operated in California. Because the pilot project is just starting, no additional AQIP funding is proposed in this Funding Plan. Next year, ARB will use data from this project to evaluate future funding for hybrid off-road equipment. If the pilot is successful, ARB will consider a more comprehensive off-road equipment hybrid voucher project to encourage broader use of this equipment.

D. Contingency Plans

The proposed Funding Plan is based upon the latest available information. However, circumstances may change between the time the Board approves the plan and the time project solicitations are issued or project funds awarded. This section describes staff's proposed contingency plans should mid-course corrections be needed to ensure that AQIP funds are spent expeditiously and efficiently. Under these provisions, the Board would grant the Executive Officer authority to make the necessary mid-course adjustments to address the cases described below.

Over the past two funding cycles, revenues in the Air Quality Improvement Fund have been nearly 30 percent lower than the amount appropriated in the State budget, so ARB had to scale back its AQIP project funding accordingly. As a result, ARB has awarded about $29 million in grants each year rather than the $40 million annual total included in each of the Board-approved Funding Plans. Based on this experience, ARB staff is proposing contingency provisions in the event revenues in FY 2011-12 are lower than the Budget appropriation.

The proposed Funding Plan includes a total AQIP project funding total of $40 million based on the Governor's proposed Budget. However, ARB is also establishing minimum allocations for each project category based on a $28 million revenue total. The $28 million total is a conservative estimate based on the revenues over the past two years. These allocations are presented in Table II-8.

Table II-8. Contingency Plan for Addressing Reduced Revenues

Project Category	Minimum Allocation[1] ($millions)	Allocation Based on $40 Million Budget[2] ($millions)
Hybrid Truck and Bus Voucher Incentive Project	11	16
Clean Vehicle Rebate Project	15	21
Advanced Technology Demonstration Projects	2	3
TOTAL	**28**	**40**

[1] Based on a conservative estimate of $28 million in revenues for AQIP projects.
[2] Based on Governor's proposed Budget; will be updated if final State Budget appropriation is different.

Establishing minimum targets for each category based on a conservative funding scenario reduces the risk of over-obligating funds beyond available revenues, and avoids disproportionally affecting projects that start later in the fiscal year if revenue projections are lowered. If revenues come in between the $28 million minimum allocation and the $40 million appropriated amount, funding for each project category would be scaled according to the targets in Table II-8 and an updated assessment of demand for funding in each project category. ARB staff plans to release initial grant solicitations based on the minimum allocations in Table II-8. However, the solicitations and grant agreements will be written with provisions to increase the awarded funding if there are sufficient revenues.

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 AQIP work groups that have been established to discuss the implementation details of each project. These changes would be within the Funding Plan parameters approved by the Board. Any allocation adjustments outside those specifically prescribed in the proposed Funding Plan would require Board approval.

E. FY 2011-12 Project Solicitations

Following Board approval of the proposed FY 2011-12 Funding Plan and after the final State Budget is signed, staff will release solicitations for each of the project categories in order to select a grantee to implement the projects in FY 2011-12. The solicitations will include all the programmatic details potential grantees need to apply for funds, in addition to the criteria upon which the applications will be evaluated and scored.

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

III. References

In developing the proposed Funding Plan, ARB staff relied on information from previous Board approved AQIP Funding Plans, AQIP Guidelines, and the Energy Commission's AB 118 Investment Plans . Links to this reference material are listed below:

Air Resources Board. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed AB 118 Air Quality Guidelines for the Air Quality Improvement Program and the Alternative and Renewable Fuel and Vehicle Technology Program, Released August 8, 2008.
http://www.arb.ca.gov/regact/2008/aqipfuels08/aqipfuels08.htm

Air Resources Board. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed AB 118 Air Quality Improvement Guidelines, Released March 6, 2009. http://www.arb.ca.gov/regact/2009/aqip09/aqip09.htm

Air Resources Board. Technical Options to Achieve Additional Emissions and Risk Reductions from California Locomotives and Railyards. August 2009.
http://www.arb.ca.gov/railyard/ted/ted.htm

Air Resources Board. Proposed AB 118 Air Quality Improvement Program Funding Plan For Fiscal Year 2009-10. Approved April 24, 2009.
http://www.arb.ca.gov/msprog/aqip/fundplan/aqip_FY09-10_approved.pdf
http://www.arb.ca.gov/msprog/aqip/fundplan/aqip_FY09-10_FP_appendix.pdf

Air Resources Board. Proposed AB 118 Air Quality Improvement Program Funding Plan For Fiscal Year 2010-11. Approved June 24, 2010.
http://www.arb.ca.gov/msprog/aqip/fundplan/AQIP_FP_JUNE%202010-FINAL.pdf

Air Resources Board. 2011 Biennial Report to the Legislature on AB 118 Air Quality Improvement Program. January 11, 2011.
http://www.arb.ca.gov/msprog/aqip/leg_reports.htm

California Energy Commission. Investment Plan for the Alternative and Renewable Fuel and Vehicle Technology Program, Commission Report. Publication # CEC-600-2009-008-CMF, April 2009.
http://www.energy.ca.gov/2009publications/CEC-600-2009-008/CEC-600-2009-008-CMF.PDF

California Energy Commission. 2010-2011 Investment Plan for the Alternative and Renewable Fuel and Vehicle Technology Program, Commission Report. Publication # CEC-600-2010-001-CMF, August 2010.
http://www.energy.ca.gov/2010publications/CEC-600-2010-001/CEC-600-2010-001-CMF.PDF

California Energy Commission. 2011-2012 Investment Plan for the Alternative and Renewable Fuel and Vehicle Technology Program, Committee Draft Report. Publication # CEC-600-2011-006-CTD, May 2011.
http://www.energy.ca.gov/2011publications/CEC-600-2011-006/CEC-600-2011-006-CTD.pdf

CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER THE APPROVAL OF PROPOSED STATE IMPLEMENTATION PLAN REVISIONS FOR 8-HOUR OZONE AND MINOR TECHNICAL REVISIONS TO THE PM2.5 SIP TRANSPORTATION CONFORMITY BUDGETS

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider the approval of proposed revisions to the California State Implementation Plan (SIP) for submittal to the U.S. Environmental Protection Agency (U.S. EPA). ARB's proposed 8-hour ozone SIP revisions are limited to updating the ARB rulemaking calendar for one measure, updating ARB's actions to identify and implement advanced emission control technologies, adjustments to transportation conformity budgets, and revisions to reasonable further progress tables including associated reductions for contingency purposes for the South Coast and the San Joaquin Valley Air Basins. ARB staff is also proposing minor technical revisions to the PM2.5 SIP transportation conformity budgets for the South Coast and San Joaquin Valley.

DATE: July 21, 2011

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item will be considered at a one-day meeting of the Board, which will commence at 9:00 a.m., July 21, 2011. Please consult the agenda for the meeting, which will be available at least ten days before July 21, 2011, to determine the order of agenda items.

Background

ARB and local air districts are responsible for developing clean air plans to demonstrate how and when California will attain the 8-hour ozone standard established under the federal Clean Air Act. In 2007, the South Coast Air Quality Management District (South Coast) and the San Joaquin Valley Air Pollution Control District (San Joaquin Valley) adopted comprehensive 8-hour ozone SIPs to meet this standard.

As part of these SIPs, ARB adopted the 2007 State Strategy to map out the actions it would take to reduce ozone precursor emissions to levels that will bring California regions into compliance with federal health-based air quality standards. The State Strategy includes a legal commitment by the State of California, enforceable in

federal court, to reduce emissions to specific levels. The 2007 State Strategy provides most of the emission reductions needed in the two regions.

In 2009, ARB adopted and submitted its first status report and revision to the 2007 State Strategy. The status report documented the progress made in implementing the State Strategy in terms of actions taken and emission reductions achieved since the 2007 State Strategy was adopted. The SIP revision also included a commitment to revise the SIP, as necessary.

In April 2011, ARB considered a second status report documenting actions taken since April 2009, and the Board's Executive Officer subsequently approved revisions to California's SIPs for PM2.5 that accounted for those recent actions. The PM2.5 SIP revisions included an updated calendar of ARB rulemaking, updates to reasonable further progress tables with associated reductions for contingency purposes, and adjustments to the transportation conformity budgets. ARB staff is now proposing similar updates for the 8-hour ozone SIPs for the South Coast and San Joaquin Valley Air Basins, including an update to the ARB rulemaking calendar for one measure, ARB's actions to identify advanced emission control technologies, reasonable further progress tables with associated contingency reductions, and transportation conformity budgets.

Proposed Action

ARB staff has produced a staff report entitled, "Proposed 8-Hour Ozone State Implementation Plans Revisions and Technical Revisions to the PM2.5 State Implementation Plan Transportation Conformity Budgets for the South Coast and San Joaquin Valley Air Basins" (Staff Report) supporting the following proposed revisions to the South Coast and San Joaquin Valley 8-hour ozone SIPs: adjustments to the transportation conformity budgets, updates to reasonable further progress tables with associated reductions for contingency purposes, an updated ARB rulemaking calendar for one measure, and a discussion of ARB's actions to identify advanced emission control technologies.

ARB is proposing to update the transportation conformity budgets applicable to the federal 8-hour ozone standard for the South Coast and San Joaquin Valley Air Basins. These updates are necessary to account for the Board's December 2010 action regarding amendments to the truck and bus regulation. ARB staff is also proposing to make minor technical revisions to the PM2.5 SIP transportation conformity budgets adopted in April for the South Coast and San Joaquin Valley. The Staff Report details the revisions to the SIP transportation conformity budgets.

The federal Clean Air Act requires SIPs to show that there will be steady progress in reducing emissions during the years leading to the attainment date, called reasonable further progress. Therefore, ARB staff is proposing updates to the reasonable further progress tables to reflect the current status of adopted measures and to account for changes due to the recession. These revisions are necessary to reflect

current forecast of emissions accounting for recently identified emission inventory improvements, the recession, and recent regulatory actions.

ARB staff is also proposing an update to ARB's rulemaking calendar for the 8-hour ozone SIPs. The Executive Officer approved amendments to ARB's PM2.5 rulemaking calendar adopted by the Board in April 2011. These amendments should also be reflected in ARB's rulemaking calendar for the 8-hour ozone SIPs with one additional modification, a change to the expected action date for cleaner in-use agricultural equipment. ARB proposes to change the action date for this measure to 2013, consistent with the updated calendar for the other ozone measures identified in the 2007 ozone SIP that are still under development.

Due to the severity of the ozone air quality challenges in the South Coast and San Joaquin Valley Air Basins, advanced technologies are necessary to attain the 8-hour ozone standard by the attainment date of 2024. In accordance with the requirements of the federal Clean Air Act, ARB staff is updating ARB actions to identify and implement advanced technologies needed to reach the 8-hour ozone standard as contained in the South Coast and San Joaquin Valley 8-hour ozone SIPs.

ARB staff will make an oral presentation at the hearing and will present the proposed SIP revision for Board action. Copies of the proposed SIP revision may be obtained from ARB's Public Information Office,1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990 beginning June 20, 2011. This document may also be obtained from ARB's website at:

http://www.arb.ca.gov/planning/sip/sip.htm.

Interested members of the public may present comments orally or in writing at the meeting and comments may be submitted by postal mail or by electronic submittal before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, July 20, 2011,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request. Additionally, this information may become available via Google, Yahoo, and any other search engines.

ARB requests that written and email statements be filed at least 10 days prior to the meeting so that ARB staff and Board members have time to fully consider each

comment. Further inquiries regarding this matter should be directed to Ms. Sylvia Zulawnick, Manager of the Particulate Matter Analysis Section at (916) 324-7163 or Mr. Jeff Lindberg, Air Pollution Specialist at (916) 322-2832.

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format (i.e., Braille, large print, etc.) or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia
- Documentos disponibles en un formato alterno (por decir, sistema Braille, o en impresión grande) o otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: June 20, 2011

Proposed 8-Hour Ozone State Implementation Plan Revisions and Technical Revisions to the PM2.5 State Implementation Plan Transportation Conformity Budgets for the South Coast and San Joaquin Valley Air Basins

Release Date: June 20, 2011
Hearing Date: July 21, 2011

California Environmental Protection Agency

Air Resources Board

Introduction

On April 28, 2011, the Air Resources Board (ARB or Board) considered revisions to the South Coast and San Joaquin Valley State Implementation Plans (SIPs) for PM2.5 that accounted for reductions of emissions that contributes to PM2.5 levels. The revisions were formally adopted by the Board's Executive Officer on May 18, 2011 when Executive Order S-11-010 was signed. The April 2011 PM2.5 SIP revisions accounted for recent regulatory actions and recessionary impacts on emissions that occurred after the South Coast and San Joaquin Valley PM2.5 SIPs were adopted in 2007 and 2008, respectively. Those revisions accounted for the impact the recession has had on emissions and the benefits of ARB's in-use diesel truck and off-road equipment regulations. The revisions updated the PM2.5 SIP's reasonable further progress (RFP) calculations, transportation conformity budgets, and ARB's rulemaking calendar.

ARB staff is now proposing corresponding revisions to the 8-hour ozone SIPs adopted by the South Coast and San Joaquin Valley Air Districts (Districts) in 2007. The same technical procedures used for the April 2011 PM2.5 SIP revisions were applied to estimate future emissions in 8-hour ozone SIP milestone years. Appendix A identifies the specific SIP revisions. Appendix B provides ARB staff's current estimate of remaining emissions after accounting for the impacts of the regulations and the recession and contains documentation for these estimates. Appendix C includes a description of the methodology used to calculate the proposed updated transportation conformity budgets for both the South Coast and San Joaquin Valley Air Basins. Appendix D provides the updated ARB rulemaking calendar, as adopted by ARB on May 18, 2011. Finally, Appendix E contains ARB staff's analysis of environmental impacts of the proposed SIP revisions.

Description of Proposed Revisions to the 8-Hour Ozone SIPs

Appendix A contains the proposed SIP revisions and is intended for submittal to U.S. EPA. The proposed 8-hour ozone SIP revisions update the RFP calculations and the transportation conformity budgets. Staff is also proposing to update ARB's rulemaking calendar for one measure, a revision to the calendar for cleaner in-use agricultural equipment. Appendix A also contains additional information on ARB actions to identify advanced emission control technologies in the South Coast and San Joaquin Valley.

Proposed Revisions to the 8-Hour Ozone SIP Reasonable Further Progress Calculations

ARB staff is proposing revisions to reflect the current estimate of remaining emissions in the RFP demonstrations for the South Coast and San Joaquin Valley. When ARB adopted the 2007 8-hour ozone SIPs for the South Coast and San Joaquin Valley, both regions demonstrated RFP in accordance with the Clean Air Act requirements. This continues to be true based on ARB staff's current estimate of remaining emissions in both the South Coast and San Joaquin Valley. In order to make this demonstration available to U.S. EPA for inclusion in the 8-hour ozone SIPs, ARB staff has recalculated the RFP demonstrations and contingency measure accounting using the current estimate of remaining emissions.

Proposed Revisions to the 8-Hour Ozone SIP Transportation Conformity Budgets

ARB is proposing to update the transportation conformity budgets applicable to the federal 8-hour ozone standard for the South Coast and San Joaquin Valley Air Basins that will ensure that on-road emissions will be consistent with the attainment demonstration in future years. These updates account for the action taken by the Board in December 2010 to amend the truck and bus regulations, new data, and to reflect the current rulemaking calendar.

ARB staff is also proposing to make minor technical revisions to the South Coast and San Joaquin Valley PM2.5 SIP transportation conformity budgets adopted by the Board in April of 2011.

Proposed Update to the 8-Hour Ozone SIP Rulemaking Calendar for Agricultural Equipment

When ARB adopted the recent revisions to the rulemaking calendar for California's PM2.5 SIPs, ARB only adopted revisions as they related to the PM2.5 SIPs. The updated rulemaking calendar now needs to be adopted for inclusion in the South Coast and San Joaquin Valley 8-hour ozone SIPs, with the following addition: ARB staff is proposing to revise the rulemaking calendar for the cleaner in-use agricultural equipment measure consistent with the updated calendar for the other remaining ozone measures identified in the 2007 SIP. This measure is included in the San Joaquin Valley 8-hour ozone SIP but not the PM2.5 SIP. The ARB adopted 2011 PM2.5 rulemaking calendar submitted to U.S. EPA is included in Appendix D.

An incentive program is also being implemented to achieve early reductions in ozone precursors from agricultural equipment, primarily tractors. To date, about $70 million has been allocated by the San Joaquin Valley Air District and federal agencies to modernize off-road agricultural equipment. Benefits from this incentive program will be incorporated into the 8-hour ozone SIP for the San Joaquin Valley as emission reductions are achieved and accounting is completed.

ARB staff proposes to bring an agricultural equipment measure to the Board for consideration in 2013. The final implementation schedule would be determined in the rulemaking process as described in the 2007 SIP. The specific revision to the rulemaking calendar for agricultural equipment is included in Appendix A.

Actions to Identify and Implement Advanced Technologies to Reduce Ozone-forming Emissions

While ozone air quality continues to improve in both the South Coast and San Joaquin Valley air basins, full attainment in these regions will require additional emission reductions. Advanced technologies are necessary in order to fully realize the emission reductions needed to attain the federal ozone standard by the attainment year of 2023. Appendix A summarizes ARB staff's proposal to augment the discussion

contained in the South Coast and San Joaquin Valley 8-hour ozone SIPs regarding actions ARB will take to identify and implement the advanced technology provisions in accordance with the requirements of section 182(e)(5) of the federal Clean Air Act.

Complete List of Appendices

- Appendix A: Proposed State Implementation Plan Revision
  - A-1: Proposed Revisions to the 8-hour Ozone SIP Reasonable Further Progress Calculations
  - A-2: Proposed Revisions to the 8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets
  - A-3: Proposed Revisions to the 8-hour Ozone SIP Rulemaking Calendar for Agricultural Equipment
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- Appendix B: Current Estimates of Remaining Emissions, Documentation and Methodology
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- Appendix D: Adopted PM2.5 Rulemaking Calendar
- Appendix E: Analysis of Environmental Impacts

Appendix A
State Implementation Plan Revision

- A-1: Proposed Revisions to the 8-hour Ozone SIP Reasonable Further Progress Calculations
- A-2: Proposed Revisions to the 8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets
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- A-4: Actions for Identifying and Implementing Advanced Technology Measures

A-1
Revisions to the 8-hour Ozone SIP
Reasonable Further Progress Calculations

South Coast
(Summer Season, tons per day)

	2002	2008	2011	2014	2017	2020	2023
Baseline ROG	880.5	632.0	579.9	535.2	519.8	513.9	513.4
CA MVCP/RVP Adjustment	0.0	56.1	73.0	86.6	93.7	98.3	101.6
RACT Corrections	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted 2002 Baseline ROG in milestone year	880.5	824.5	807.6	793.9	786.8	782.3	778.9
RFP commitment for ROG reductions from new measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Future Year ROG with existing and proposed measures		632.0	579.9	535.2	519.8	513.9	513.4
Required % change since previous milestone year (ROG or NOx) compared to 2002		18%	9%	9%	9%	9%	9%
Required % change since 2002 (ROG or NOx)		18%	27%	36%	45%	54%	63%
Target ROG levels		676.1	599.8	533.4	479.0	431.7	389.8
Apparent shortfall in ROG		-44.1	-19.9	1.7	40.8	82.2	123.6
Apparent shortfall in ROG, %		-5.3%	-2.5%	0.2%	5.2%	10.5%	15.9%
ROG shortfall previously provided by NOx substitution, %		0%	0.0%	0.0%	0.2%	5.2%	10.5%
Actual ROG shortfall, %		-5.3%	-2.5%	0.2%	5.0%	5.3%	5.4%
Baseline NOx	1024.1	728.3	591.2	532.1	478.8	428.2	378.4
CA MVCP Adjustment	0.0	64.7	80.6	93.0	98.3	102.4	105.9
Adjusted 2002 Baseline NOx in milestone year	1024.1	959.4	943.4	931.1	925.8	921.7	918.2
RFP commitment for NOx reductions from new measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in NOx since 2002		231.1	352.3	398.9	447.0	493.5	539.7
Change in NOx since 2002, %		24.1%	37.3%	42.8%	48.3%	53.5%	58.8%
NOx reductions since 2002 already used for RFP substitution and contingency through last milestone year, %		0.0%	3.0%	3.0%	3.2%	8.2%	13.5%
NOx reductions since 2002 available for RFP substitution and contingency in this milestone year, %		24.1%	34.3%	39.8%	45.1%	45.4%	45.3%
Change in NOx since 2002 used for ROG substitution in this milestone year, %		0.0%	0.0%	0.2%	5.0%	5.3%	5.4%
Change in NOx since 2002 available for contingency in this milestone year, %		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Change in NOx since 2002 surplus after meeting substitution and contingency needs in this milestone year, %		21.1%	34.3%	39.6%	40.1%	40.0%	39.9%
RFP Met?		YES	YES	YES	YES	YES	YES
Contingency Met?		YES	YES	YES	YES	YES	YES

A-1
Revisions to the 8-hour Ozone SIP
Reasonable Further Progress Calculations

San Joaquin Valley
(Summer Season, tons per day)

	2002	2008	2011	2014	2017	2020	2023
Baseline ROG	457.5	407.6	354.1	331.0	328.9	330.5	339.0
CA MVCP/RVP Adjustment	0.0	12.4	17.8	22.4	25.4	26.4	26.5
RACT Corrections	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adjusted 2002 Baseline ROG in milestone year	457.5	445.1	439.7	435.0	432.0	431.0	431.0
RFP commitment for ROG reductions from new measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Future Year ROG with existing and proposed measures		407.6	354.1	331.0	328.9	330.5	339.0
Required % change since previous milestone year (ROG or NOx) compared to 2002		18%	9%	9%	9%	9%	9%
Required % change since 2002 (ROG or NOx)		18%	27%	36%	45%	54%	63%
Target ROG levels		365.0	327.2	293.5	264.4	239.7	218.1
Apparent shortfall in ROG		42.6	26.9	37.5	64.5	90.9	121.0
Apparent shortfall in ROG, %		9.6%	6.1%	8.6%	14.9%	21.1%	28.1%
ROG shortfall previously provided by NOx substitution, %		0%	9.6%	9.6%	9.6%	14.9%	21.1%
Actual ROG shortfall, %		9.6%	-3.4%	-0.9%	5.4%	6.1%	7.0%
Baseline NOx	565.2	425.4	359.0	307.4	258.8	224.9	194.6
CA MVCP Adjustment	0.0	16.8	21.2	24.8	26.9	27.8	28.2
Adjusted 2002 Baseline NOx in milestone year	565.2	548.5	544.1	540.4	538.4	537.4	537.1
RFP commitment for NOx reductions from new measures	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in NOx since 2002		123.1	185.1	233.0	279.5	312.5	342.5
Change in NOx since 2002, %		22.4%	34.0%	43.1%	51.9%	58.1%	63.8%
NOx reductions since 2002 already used for RFP substitution and contingency through last milestone year, %		0.0%	12.6%	12.6%	12.6%	17.9%	24.1%
NOx reductions since 2002 available for RFP substitution and contingency in this milestone year, %		22.4%	21.4%	30.6%	39.4%	40.2%	39.7%
Change in NOx since 2002 used for ROG substitution in this milestone year, %		9.6%	0.0%	0.0%	5.4%	6.1%	7.0%
Change in NOx since 2002 available for contingency in this milestone year, %		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Change in NOx since 2002 surplus after meeting substitution and contingency needs in this milestone year, %		9.9%	21.4%	30.6%	34.0%	34.1%	32.7%
RFP Met?		YES	YES	YES	YES	YES	YES
Contingency Met?		YES	YES	YES	YES	YES	YES

A-2
Revisions to the 8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets

South Coast
8-hour Ozone SIP Transportation Conformity Budgets*
(Summer Season, tons per day)

	2011		2014		2017		2020		2023	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
South Coast Air Basin	172	328	136	277	119	224	108	185	99	140

*Budgets are rounded up to the nearest ton.

In addition, at the time the 2007 SIP was adopted, a 2008 budget year was a necessary MPO analysis year for federal transportation conformity purposes. Since 2008 has passed, it is no longer applicable as a conformity analysis year, and was therefore not included in these budgets.

San Joaquin Valley
8-hour Ozone SIP Transportation Conformity Budgets**
(Summer Season, tons per day)

County Subarea	2011		2014		2017		2020		2023	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Fresno	14.3	36.2	10.7	30.0	9.3	22.6	8.3	17.7	8.0	13.5
Kern (SJV)	12.7	50.3	9.7	42.7	8.7	31.7	8.2	25.1	7.9	18.6
Kings	2.8	10.7	2.1	8.9	1.8	6.7	1.7	5.3	1.6	4.0
Madera	3.4	9.3	2.5	7.7	2.2	5.8	2.0	4.7	1.9	3.6
Merced	5.1	19.9	3.7	16.7	3.2	12.4	2.9	9.9	2.8	7.4
San Joaquin	11.1	24.6	8.4	20.5	7.2	15.6	6.4	12.4	6.3	10.0
Stanislaus	8.5	16.9	6.4	13.9	5.6	10.6	5.0	8.4	4.7	6.4
Tulare	8.8	16.0	6.7	13.2	5.8	10.1	5.3	8.1	4.9	6.2

** Budgets are rounded up to the nearest tenth ton (0.1).

In addition, at the time the 2007 SIP was adopted, a 2008 budget year was a necessary MPO analysis year for federal transportation conformity purposes. Since 2008 has passed, it is no longer applicable as a conformity analysis year, and was therefore not included in these budgets.

South Coast
PM2.5 SIP Transportation Conformity Budgets*
(Annual Average, tons per day)

	2012			2014		
	ROG	NOx	PM2.5	ROG	NOx	PM2.5
South Coast Air Basin	154	326	37	132	290	35

*Budgets are rounded up to the nearest ton.

Per Section 93.124 of the conformity regulations, for transportation conformity analyses using these budgets in analysis years beyond 2014, a trading mechanism is established to allow future decreases in NOx emissions from on-road mobile sources to offset any on-road increases in PM2.5, using a NOx:PM2.5 ratio of 10:1. This trading mechanism will only be used, if needed, for conformity analyses for years after 2014. To ensure that the trading mechanism does not impact the ability to meet the NOx budget, the NOx emission reductions available to supplement the PM2.5 budget shall only be those remaining after the 2014 NOx budget has been met. Clear documentation of the calculations used in the trading should be included in the conformity analysis.

In addition, at the time the 2007 SIP was adopted, a 2009 budget year was a necessary MPO analysis year for federal transportation conformity purposes. Since 2009 has passed, it is no longer applicable as a conformity analysis year, and was therefore not included in these budgets.

San Joaquin Valley
PM2.5 SIP Transportation Conformity Budgets**
(Annual Average, tons per day)

County Subarea	2012		2014	
	PM2.5	NOx	PM2.5	NOx
Fresno	1.5	35.7	1.1	31.4
Kern (SJV)	1.9	48.9	1.2	43.8
Kings	0.4	10.5	0.3	9.3
Madera	0.4	9.2	0.3	8.1
Merced	0.8	19.7	0.6	17.4
San Joaquin	1.1	24.5	0.9	21.6
Stanislaus	0.7	16.7	0.6	14.6
Tulare	0.7	15.7	0.5	13.8

** Budgets are rounded up to the nearest tenth ton (0.1).

Per Section 93.124 of the conformity regulations, for transportation conformity analyses using these budgets in analysis years beyond 2014, a trading mechanism is established to allow future decreases in NOx emissions from on-road mobile sources to offset any on-road increases in PM2.5, using a NOx:PM2.5 ratio of 9:1. This trading mechanism will only be used, if needed, for conformity analyses for years after 2014. To ensure that the trading mechanism does not impact the ability to meet the NOx budget, the NOx emission reductions available to supplement the PM2.5 budget shall only be those remaining after the 2014 NOx budget has been met. Clear documentation of the calculations used in the trading should be included in the conformity analysis.

In addition, at the time the 2007 SIP was adopted, a 2009 budget year was a necessary MPO analysis year for federal transportation conformity purposes. Since 2009 has passed, it is no longer applicable as a conformity analysis year, and was therefore not included in these budgets.

A-3
Revisions to the 8-hour Ozone SIP
Rulemaking Calendar for Agricultural Equipment

ARB adopted revisions to the rulemaking calendar for California's PM2.5 SIPs on May 18, 2011. The updated rulemaking calendar is also intended for inclusion in the South Coast and San Joaquin Valley 8-hour ozone SIPs, with the following addition: the rulemaking calendar for the cleaner in-use agricultural equipment measure, has an action date of 2013 consistent with the updated calendar for the remaining ozone measures identified in the 2007 SIP. This measure is included in the San Joaquin Valley 8-hour ozone SIP but not the PM2.5 SIP. A copy of the PM2.5 SIP Rulemaking Calendar is included in Appendix D to this report for reference.

An incentive program is also being implemented to achieve early reductions in ozone precursors from agricultural equipment, primarily tractors. To date, about $70 million has been allocated by the San Joaquin Valley Air District and federal agencies to modernize off-road agricultural equipment. Benefits from this incentive program will be incorporated into the 8-hour ozone SIP for the San Joaquin Valley as emission reductions are achieved and accounting is completed.

Revisions to the 8-hour Ozone SIP Rulemaking Calendar for Agricultural Tractors

	Agency	Actions	Implementation
Off-Road Equipment			
Cleaner In-use Agricultural Equipment[1]	ARB	2013	See note

[1] The final implementation schedule would be determined in the rulemaking process as described in the currently adopted ozone SIP. This measure is included in the San Joaquin Valley 8-hour ozone SIP and not the PM2.5 SIP.

A-4
Actions for Identifying and Implementing Advanced Technology Measures

Commitment to Reduce Emissions via Long-Term Strategy

Consistent with section 182(e)(5) of the federal Clean Air Act, this SIP includes long-term commitments to achieve the last increment of emission reductions necessary to fully meet attainment goals in the South Coast and San Joaquin Valley. As the State agency charged with ensuring California's SIP compliance, the ARB is ultimately responsible for ensuring that measures are identified no later than 2020 (three years prior to the attainment year) and the emission reductions achieved by 2023.

No later than 2020, ARB and the two air districts will prepare a revision to the 8-hour ozone SIP that: (1) reflects any modifications to the 2023 emission reduction target based on updated science, and (2) identifies any additional strategies, including the implementing agencies, needed to achieve the necessary emissions reductions by 2023. In accordance with section 182(e)(5)(B) of the Clean Air Act, ARB will submit enforceable commitments to develop and adopt contingency measures if the advanced technology measures do not achieve planned reductions.

To implement the Long-term Strategy, ARB:

a) commits to share the results of its efforts to identify emerging emission reduction opportunities, promising technologies, and the progress made in developing long-term emission reduction measures with the public through periodic briefings to the Board, workshops, conferences, symposia, website postings, and other means;
b) commits to work to secure resources in the future for continuing research and development of new technologies; and
c) commits to develop schedules for moving from control technology research to implementation.

While the Clean Air Act establishes timelines well into the future, ARB recognizes the challenges presented are near enough that action is needed in order to bridge the attainment gap in the South Coast and San Joaquin Valley. While not exhaustive, the following section describes on-going activities to identify and deploy the technologies needed to attain the ozone standard in the South Coast and San Joaquin Valley and to fulfill ARB's commitment under section 182(e)(5) of the Clean Air Act.

Clean Air Technology Initiative

U.S. EPA, along with ARB, the South Coast and San Joaquin Valley Air Districts and the California Environmental Protection Agency, signed a memorandum of agreement (MOA) to commit to developing and testing new technologies to accelerate progress in meeting current and future national air quality standards. The goal of the MOA is to improve air quality by aligning agency research resources, where possible and appropriate, to evaluate innovative

technologies that have the potential to reduce emissions of pollutants and pollutant precursors, and to develop and assess new monitoring equipment that could improve the measurement of emissions from mobile and stationary sources of pollution.

As part of this agreement, the agencies intend to coordinate research efforts with other public and private stakeholders, including other federal departments and agencies and other State and local entities, in order to utilize the resources and capacities of a wide sector of government and the business community in projects to develop, demonstrate, and assess new technologies that can help achieve clean air goals.

A key element of the MOA was the creation of the Clean Air Technology Initiative, through which the partner agencies identify regionally important emission sources contributing to the region's attainment challenges. Both the South Coast and San Joaquin Valley Air Districts selected focus areas that are impacted by a mixture of mobile and stationary sources, especially sources representing major contributors to the SIP inventories and key air toxic exposures in the community. The partner agencies then coordinate actions to align local, State, and federal resources to accelerate the identification and implementation of advanced clean technologies. The technologies demonstrated are intended to achieve significant reductions for SIP purposes as well as reduce local air toxics exposure. Below is a brief description of the focus areas for the two regions.

South Coast Air Basin Focus Area

The City of San Bernardino has a large intermodal railyard with the highest health risk of all railyards in Southern California. This city is also impacted by goods movement activities that originate at the ports and move east via trucks and trains through San Bernardino and out of the State, as well as triggering new warehouse and distribution projects in inland areas. In addition, there are more than 1,000 stationary sources in the area holding South Coast Air District permits, such as autobody and automotive repair shops; transportation facilities; concrete and aggregate operations; military installations; printing and coating operations; and manufacturing facilities.

San Joaquin Valley Air Basin Focus Area

The southern San Joaquin Valley focus area houses 1.2 million residents, and frequently exceeds health-based air standards when regional pollutants are trapped by surrounding mountains and atmospheric inversion layers. The focus area straddles Kern and Tulare counties, with mobile source emissions from the goods movement corridor of Highway 99 and Interstate 5, and stationary source emissions from a variety of energy production facilities, farms, and agricultural processing operations. The focus area includes the city of Bakersfield with the Valley's highest wintertime particulate matter concentrations, and the city of Arvin, with some of the Valley's highest 8-hour ozone concentrations in the summer.

Co-Benefits of Climate Change Programs

California is committed to reducing the State's impacts on global climate change. California's major initiatives for reducing climate change or greenhouse gas (GHG) emissions are outlined in Assembly Bill 32 – the Global Warming Solutions Act of 2006 (AB 32). These efforts aim at reducing GHG emissions to 1990 levels by 2020 – a reduction of approximately 30 percent. Reducing emissions from combustion sources is at the core of California's program to meet the federal ozone standard and is also central to the AB 32 Scoping Plan for meeting the 2020 greenhouse gas emissions target. California's climate and criteria pollutant programs are complementary, and the AB 32 regulations ARB is adopting will provide emission reductions that will be incorporated into future air quality plans for ozone and fine particles.

Air Quality Improvement Program (AQIP)

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) creates the Air Quality Improvement Program (AQIP). This incentive program is administered by ARB to fund clean vehicle and equipment projects, research on biofuels production and the air quality impacts of alternative fuels, and workforce training. The AQIP expands California's portfolio of air quality incentives, providing the opportunity to fund projects that do not fit within the statutory framework of existing incentive programs such as the Carl Moyer Air Quality Standards Attainment Program (Carl Moyer Program), Goods Movement Emission Reduction Program, and Lower-Emission School Bus Program.

AQIP is ARB's only incentive program structured to allow for investments in technology advancing projects which also provide immediate emission reductions, and ARB is using AQIP funds for this purpose. AQIP investments support the deployment of hybrid-electric vehicles, zero-emission vehicles (ZEV), and other advanced technologies critical to meeting California's post-2020 SIP and climate change emission reduction goals. California must start placing these zero- and near-zero emission vehicles on its roadways today to achieve large-scale emission reductions in future decades because of the time it takes for significant fleet turnover. The cornerstone of the AQIP for FY 2009-10 is the $20.4 million Hybrid Truck and Bus Voucher Incentive Project (HVIP), aimed at accelerating California deployment of new hybrid medium- and heavy-duty vehicles. California's large funding commitment for hybrid truck technology not only provides emission benefits today, but is likely to enable heavy-duty hybrids to become commonplace in the near future, much the way hybrid cars have become commonplace in the light-duty sector. Hybrid technology for trucks is near a tipping point, and the State's investment over several years should help it become self-sustaining through production economies of scale.

AQIP is also funding vehicle purchaser incentives for other cleaner technologies – ZEV's and plug-in hybrid cars, electric lawnmowers, and demonstration projects for cleaner marine and locomotive engines. These projects are on track as well. In nearly all cases, demand for funding is meeting or exceeding ARB's expectations.

Annual Research Program

Annually, ARB adopts a research plan intended to provide timely scientific and technical information that will help the Board and local air pollution control districts to most effectively implement air pollution control programs in California. Specifically, this plan supports ARB's mission to protect public health based on a strong scientific understanding of health effects and exposures; continue developing and implementing strategies to reduce GHG emissions and energy consumption; develop effective strategies to safeguard health and welfare against adverse impacts of ambient air pollution; and support development of technologies and non-technological strategies that address multiple priorities related to air quality. The 2010/2011 research program identified 25 projects to receive more than $6.5 million dollars in research funding. Cumulatively, California has granted nearly $24 million dollars in research funds since the 2007 8-hour ozone SIPs were adopted.

South Coast and San Joaquin Valley Air District Efforts

South Coast

The South Coast Air District has been a leader in identifying and implementing strategies to improve air quality through the use of innovative strategies and advanced technologies. In order to meet the region's 2023 attainment goal, emissions of nitrogen oxides (NOx) will need to decline by an additional two-thirds by 2023. Achieving this goal will require a fundamental shift in business-as-usual to a clean-energy future. The South Coast Air District has identified a clean energy vision of the future that would guide the way as the region begins to recover from the economic recession that has affected the entire nation.

This vision would have local, State and federal government and business leaders focus on utilizing the cleanest, greenest technologies in their planned growth. In order to fully realize the vision, the region would need to change how people and freight are moved – using electrification and hybridization technologies to convert existing infrastructure to near-zero emissions. Land-use decisions would put people closer to their destinations and would empower people to choose energy efficient mass transit. Energy generation and use would be cleaner. Solar and fuel cell distributed generation would play a significant role in meeting the region's energy needs. Old inefficient power plants would be modernized with more efficient equipment. Building energy use would be improved and energy consumers would be given the tools needed to use energy more wisely.

San Joaquin Valley

The San Joaquin Valley Air District is also pursuing innovative strategies to reduce ozone-forming emissions, through the local "Fast Track" strategy. The Fast Track strategy focuses on using innovative strategies to reduce emissions from sources that cannot be regulated or have already been well controlled at the local level. Key long-

term elements of the Fast Track strategy include opportunities to reduce emissions from heavy-duty trucks by shifting goods movement to lower-emission alternatives. The San Joaquin Valley Air District has explored and advocated for the use of short sea shipping opportunities to shift goods movement from trucks to waterways. In 2010, the U.S. Department of Transportation awarded the Ports of Stockton, West Sacramento, and Oakland with a $30 million grant to move goods between Oakland and the two inland ports over the San Joaquin-Sacramento Delta.

The San Joaquin Valley Air District also recognizes the need for transformational changes in technology, and has adopted a Technology Advancement Program to support technological advancements through partnerships with universities, State agencies, and the federal government. The San Joaquin Valley Air District also established a Regional Energy Efficiency Strategy to support technology development and deployment in the Valley. The Regional Energy Efficiency Program lays out goals and measures that will guide the District's actions to reduce emissions caused by electricity and natural gas consumption in residential, industrial, and institutional organizations in the Valley.

Conclusion

Achieving the emission reductions needed to fully attain the federal 8-hour ozone standard in the South Coast and the San Joaquin Valley will require significant penetration of the cleanest technologies. ARB, the South Coast Air District and the San Joaquin Valley Air District have a long history of pursuing innovative strategies to bring low and ultra-low emission technologies into use. ARB staff will periodically update the Board on these efforts and will revise the SIP as appropriate when advanced technologies become viable emission control strategies. Additionally, ARB will revise the SIP if needed, as California addresses future air quality standards.

Appendix B
Current Estimates of Remaining Emissions, Documentation and Methodology

Appendix B includes additional documentation and data supporting this proposed SIP Revision. It includes additional detail regarding the emissions accounting methodology and information on how ARB staff accounted for the impacts of the recession. This methodology is consistent with the methodology described in Appendix A and Appendix E of the ARB staff report "Progress Report on Implementation of PM2.5 State Implementation Plans (SIP) for the South Coast and San Joaquin Valley Air Basins and Proposed SIP Revisions" which was released to the public on March 29, 2011.

Current Estimates of Remaining Emissions

South Coast Air Basin
Remaining NOx Emissions
(Summer Season, tpd)

Category	2002	2008	2011	2014	2017	2020	2023
Stationary & Areawide	89	82	73	71	68	68	68
On-road Mobile	652	422	327	276	224	185	140
Off-road Mobile	283	225	191	185	187	176	170
Total Inventory	1024	728	591	532	479	428	378

South Coast Air Basin
Remaining ROG Emissions
(Summer Season, tpd)

Category	2002	2008	2011	2014	2017	2020	2023
Stationary & Areawide	318	247	252	254	260	267	273
On-road Mobile	361	211	171	135	119	107	98
Off-road Mobile	202	174	156	146	141	140	142
Total Inventory	881	632	580	535	520	514	513

Current Estimates of Remaining Emissions

San Joaquin Valley
Remaining NOx Emissions
(Summer Season, tpd)

Category	2002	2008	2011	2014	2017	2020	2023
Stationary & Areawide	101	76	68	57	55	53	53
On-road Mobile	312	229	183	153	115	91	69
Off-road Mobile	152	120	108	98	89	80	73
Total Inventory	565	425	359	307	259	225	195

San Joaquin Valley
Remaining ROG Emissions
(Summer Season, tpd)

Category	2002	2008	2011	2014	2017	2020	2023
Stationary & Areawide	276	263	226	223	229	235	244
On-road Mobile	110	78	66	50	43	39	37
Off-road Mobile	71	67	62	59	57	57	57
Total Inventory	457	408	354	331	329	331	339

SIP Accounting

The Clean Air Act requires the use of air quality modeling to determine the "carrying capacity" or "SIP emissions target"; that is, the maximum allowable emission levels that the nonattainment area can accommodate while attaining the standard.

While the adopted SIP contains a list of category-specific measures with regulatory timelines and expected reductions, ARB's enforceable commitment is to meet the emission levels needed for attainment with sufficient aggregate emission reductions, including any from actual changes in emissions.

To track progress toward the emissions target, this report uses a simple emissions accounting approach that explicitly shows the impact of the recession and the benefit of the regulations ARB and the local air districts have approved since the ozone SIPs were adopted. The approach looks like:

(Emissions Inventory) – (Emission Reductions Achieved) = (Remaining Emissions)

Where:

Emissions Inventory	=	Amount of ozone precursor emissions in the SIP baseline
Emission Reductions Achieved	=	Amount of emissions that have been reduced either through adopted regulations or actual emission decreases due to the recession
Remaining Emissions	=	The ozone precursor emissions level that is forecast to be remaining in the attainment year with the impacts of both regulations and the recession.

This approach keeps the focus on meeting the ultimate goal of the emissions target derived from air quality modeling. This approach also has the advantage of explicitly showing the impacts of both the regulatory actions and the recession.

Assessing the Impacts of the Recession on Goods Movement Related Emissions

This section documents the methodologies used to account for the impacts of the economic recession on the emission inventories for trucks, in-use off-road equipment, ocean-going vessels, and cargo handling equipment. Links to more detailed information are provided.

General Methodology

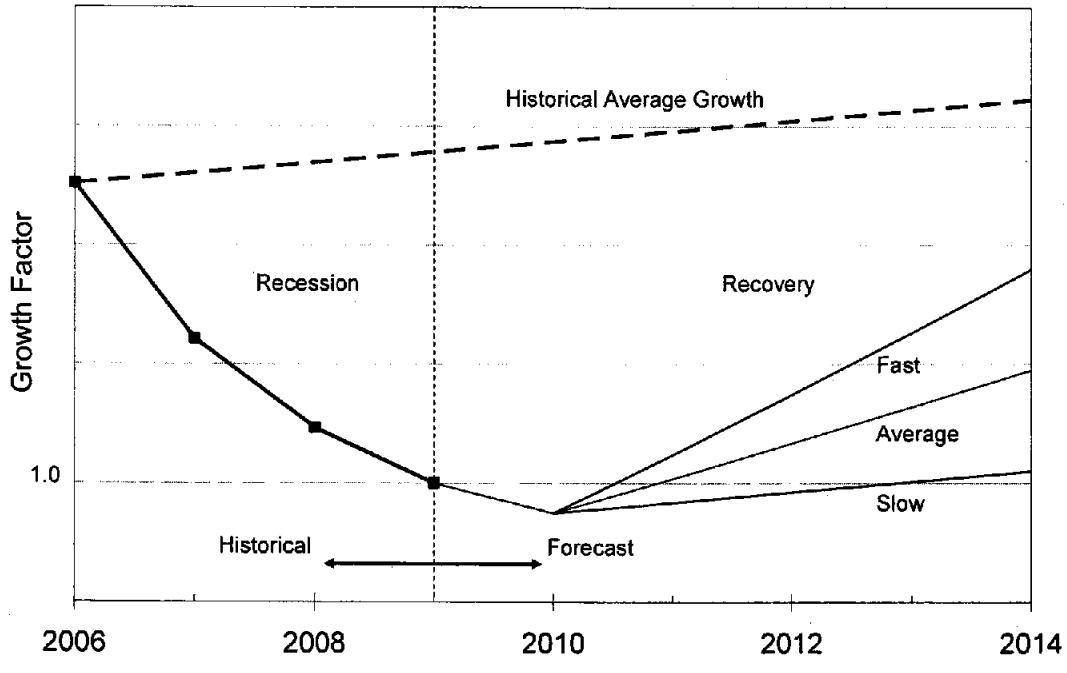
The economic recession officially started in December of 2007 and ended in June 2009. It was the most severe since the Great Depression and had a substantial impact on California industries. The emission inventories for trucks, in-use off-road equipment, ocean-going vessels, and cargo handling equipment have all been adjusted to reflect the recession's impact.

To adequately understand the impact of reduced activity on future emissions, staff developed both fast and slow recovery scenarios.

The fast recovery scenario assumes that total activity would return to projected historically average levels in 2017 and then grow at the historical average rate after that. This scenario is based on the Congressional Budget Office forecast which indicated that real gross domestic product at a nationwide level will converge with potential gross domestic product trends no later than 2015. Coupling this forecast with the assumption that California's recovery will lag the nation's by several years yielded the 2017 recovery date assumed for the fast recovery scenario.

In the slow recovery scenario, staff assumed that activity would be permanently depressed relative to historical levels, but continue to grow at the average historical growth rate beginning in 2011.

While the fast and slow scenarios provide reasonable bounds of possible recoveries, for rulemaking purposes and for this SIP update, a single forecast is needed. For that forecast, staff assumed an average recovery midway between the fast and slow recoveries. The chart below illustrates the two bounding scenarios and the assumed average used in this report. This is the same approach developed to provide economic relief through last year's regulatory amendments to the diesel trucks, buses, and off-road equipment rules.



In-Use On-Road Trucks & Buses

Staff updated the inventory for diesel trucks and buses to support ARB consideration of regulatory amendments to provide economic relief last December 2010. The update was comprehensive and included revised population estimates, new regional allocation factors, lifetime odometer assumptions, revised growth rates, forecasted vehicle age distributions to reflect the impact of the economic recession, and updated out-of-state vehicle activity. These changes are described in detail at:

http://www.arb.ca.gov/regact/2010/truckbus10/truckbus10.htm

This report required emission estimates for years and pollutants (ROG) that were not needed

for the 2010 rulemaking staff report. Staff used the same methodologies and principles used for the December 2010 regulatory inventory to develop estimates for the other years and pollutants in this report.

In-Use Off-Road Equipment

Just as for trucks and buses, staff completed a comprehensive revision to the inventory for off-road equipment to support ARB consideration in December 2010 of regulatory amendments to provide economic relief. Updates were made to the population of equipment, annual activity, load, and future equipment sales. These changes are described in detail at:

http://www.arb.ca.gov/regact/2010/offroadlsi10/offroadlsi10.htm

This report required emission estimates for years and pollutants (ROG) that were not needed for the 2010 rulemaking staff report. Staff used the same methodologies and principles used for the December 2010 regulatory inventory to develop estimates for the other years and pollutants in this report.

Ocean-Going Vessels (OGV)

The OGV inventory in the ozone SIP included vessel-specific data, an improved vessel traffic network, vessel-specific hoteling and anchorage times, and improved vessel speeds. Staff has refined that inventory since then to support rulemaking in 2008 on the sulfur content in fuel. Staff has further updated that 2008 inventory in anticipation of amendments to the same fuel rule later this year. That information is used in this report. In general, the updates include improved algorithms for vessel speed reduction (VSR), auxiliary engine power, and estimating low load adjustment factors. Recession impacts are based on container throughput statistics for the Ports of Los Angeles, Long Beach and Oakland. OGV activity was down about 25% for the combined Ports of Los Angeles and Long Beach and about 15% for the Port of Oakland between 2006 and 2009. More information is available at:

http://www.arb.ca.gov/ports/marinevess/ogv.htm

Cargo Handling Equipment (CHE)

An update to the cargo handling equipment (CHE) inventory is currently underway using new information about the population, equipment usage, impacts of the recession and fleet turnover. The new model is still under development and not available for use in this report; therefore, staff scaled the existing ozone SIP CHE emissions inventory to account for the new data.

The inventory used for the ozone SIP was based on population and activity values from a 2001 to 2004 survey. As part of the adopted regulation, equipment owners were required to report the population of their equipment to ARB. Additionally, between 2005 and 2009 the ports and rail yards have conducted their own emission inventories. This new information

indicates that the total State population is slightly higher than originally assumed. These same data sources include updates to activity and load factor. However, changes in activity and load factors offset these increases in the population.

To account for these changes, staff compared baseline 2006 emissions from the original inventory to the draft updated inventory baseline. As discussed in a recent February 2011 workshop, emissions for NOx are approximately 27 percent lower. For this report, staff assumed 2006 emissions were 27 percent lower than in the SIP. To forecast emissions forward from 2006, staff compared the original growth assumptions for CHE to the growth in port truck activity in the 2010 Truck and Bus Rule inventory model. Assuming that the CHE activity relates chiefly to the movement of shipping containers, staff reduced growth by approximately 20 percent. More information is available at:

http://www.arb.ca.gov/ports/cargo/cargo.htm

Commercial Harbor Craft

In 2007, ARB adopted a commercial harbor craft regulation and adopted amendments to the original rule in 2010. Updates were made to the population of equipment, annual activity, and regional allocation. These changes are described in detail at:

http://www.arb.ca.gov/ports/marinevess/harborcraft/hcdocuments.htm#regulatory

Emission Inventory Improvements for the San Joaquin Valley

Nature of Emissions Update

The San Joaquin Valley Air Pollution Control District (Valley Air District) initially adopted the 2007 8-hour ozone SIP in April 2007. At that time, the SIP reflected the best available emissions inventory estimates, technical calculations, and air quality modeling used to meet federal air quality planning requirements.

Since the San Joaquin Valley 2007 8-hour ozone SIP was adopted, both ARB and the Valley Air District have continued to evaluate and update emission inventory categories under their respective authority. As described earlier in this Appendix, ARB has identified emissions inventory improvements through the recent rulemaking process for trucks, in-use off-road equipment, ocean-going vessels, and cargo handling equipment. These ARB emission inventory improvements were submitted to U.S. EPA on May 18, 2011 as an update to the PM2.5 SIPs for the San Joaquin Valley and South Coast. The Valley Air District also identified emissions inventory and forecasting method improvements subsequent to the adoption of the 2007 8-hour ozone SIP that were incorporated into the San Joaquin Valley 2008 PM2.5 SIP. ARB staff briefed the Board on the improvements in November 2007, when staff presented the Board with the report entitled "ARB Staff Report to the Air Resources Board: Accelerating San Joaquin Valley Air Quality Progress."

The San Joaquin Valley Air District improvements included using the most recent transportation activity data provided by Valley Metropolitan Planning Organizations and updates to several categories subject to recent District rulemaking (including agricultural burning and residential wood combustion). Revisions were also made to an emissions inventory methodology from the early 1990's for a category identified as "unspecified" natural gas sources. This emissions inventory category labeled was "unspecified" because it was designed to estimate small emission sources potentially not identified in other emissions categories. A review of the methodology used to estimate and forecast this emission category showed that emissions were incorrectly calculated in the base year and a growth surrogate was applied which further increased the future year forecast. In the 2008 PM2.5 SIP, the San Joaquin Valley District revised this methodology to correct the inventory error. The 2008 methodology is also being used in this ozone SIP update.

In aggregate, the emission estimates based on ARB and San Joaquin Valley Air District improvements show a 12 percent reduction in baseline NOx emissions for 2002. The change in 2023 is relatively greater primarily because the "unspecified" natural gas emissions estimate was greater in 2023 than in 2002. The revised emission estimates are shown in Table B-1.

Relationship to SIP Emissions Target

The SIP attainment demonstration shows how the 2023 emissions target will be met through a combination of adopted measures, new SIP measures, and 182(e)(5) emission reductions. The SIP emissions target represents the maximum allowable emissions level that the nonattainment area can accommodate while attaining the standard. The attainment demonstration in the San Joaquin Valley 8-hour ozone SIP was based on air quality modeling which used procedures set by U.S. EPA. To assess whether the emissions inventory improvements would affect the 2007 attainment demonstration, a qualitative review of the SIP modeling results was conducted. This review relied on the previous modeling results because in the near term it is not feasible to conduct new SIP modeling. Developing new SIP modeling and revisiting the adopted attainment demonstration would be a multi-year process. However, as part of the planning effort to address the expected revision to the federal 8-hour ozone standard, ARB will include 2023 attainment modeling for the current standard along with the attainment demonstration for the revised standard. If new modeling for 2023 shows that the emissions target has changed to require additional reductions, ARB will submit a revised commitment to provide the reductions needed to meet the emission target.

Review of SIP Modeling Results

In accordance with U.S. EPA procedures, air quality models are used to predict the relative response to reductions in ozone-forming emissions for each site in the region. Two model runs are conducted. The first model run is for the reference year (in this case 2002) using a corresponding estimate of ozone-forming emissions in that year. The second model run is for a future year (in this case 2023) using forecasted emissions, including adopted controls, but no new SIP measures. This provides modeled ozone concentrations for 2002 and 2023. The

ratio of these two concentrations is termed a relative reduction factor (RRF). The RRF reflects the modeled decrease in ozone levels between 2002 and 2023. The RRF is then applied to an observed baseline ozone level calculated according to U.S. EPA guidance to project the expected ozone level in the attainment year. In the San Joaquin Valley this projected ozone level was above the federal 8-hour ozone standard, indicating additional emission reductions were needed.

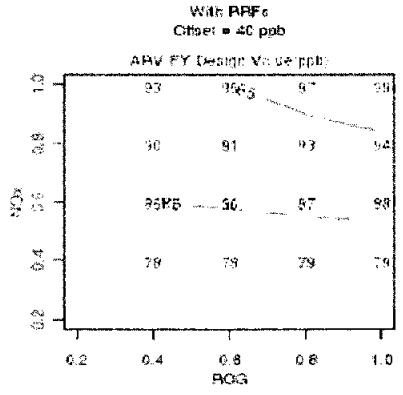
To determine how many additional reductions were needed an ozone response diagram was developed. The modeling analyses showed that Arvin was the most restrictive site in the San Joaquin Valley for attainment of the federal 8-hour ozone standard. The ozone response diagram for Arvin is shown in Figure B-1. To develop this diagram, further modeling simulations were conducted, each using incremental reductions of 20, 40, and 60 percent from the 2023 emissions forecast. From this information, the diagram provides the percent reduction needed to achieve an ozone concentration that meets the standard. This procedure established the SIP emissions target for the 2007 San Joaquin Valley ozone SIP. It is also apparent from Figure B-1 that the response to the NOx emission reductions is not linear. For example as you move down the diagram to greater NOx reductions, the rate of ozone improvement gets larger.

Determining an emission target based on revised emissions would require extensive new SIP modeling, following the process described above. However, to qualitatively assess the viability of the current attainment target, two pieces of information were key. First, as shown in Table B-1 the greater percent emission reductions resulting from the revised inventory would likely result in lower future ozone levels (a more responsive RRF). The diagram shows also that NOx reductions are the most effective precursor to control. Therefore, increasing amounts of NOx reductions result in a greater rate of air quality improvement. Taken together, these two pieces of information suggest that the existing emission targets are appropriate. The commitment to revisit the ozone modeling in the next San Joaquin Valley ozone SIP process will provide a timely review of the 2023 emissions target.

Table B-1
Comparison of Original and Revised NOx Emission Estimates
in the San Joaquin Valley

	2007 SIP NOx Emissions (tpd)	**2011 NOx Emissions (tpd)**
2002 Baseline	642	565
2023 Forecasted without SIP	295	225
Percent Change Between 2002 and 2023	54%	60%

Figure B-1
Arvin 2023 Ozone Response Diagram



Appendix C
Description of Technical Revisions to the 8-hour Ozone and PM2.5 SIP Transportation Conformity Budgets

8-hour Ozone SIP Transportation Conformity Budgets Methodology

ARB is proposing to update the transportation conformity budgets applicable to the federal 8-hour ozone standard for the South Coast and San Joaquin Valley that will ensure that the impact of on-road emissions will be consistent with the attainment demonstration in future years. These updates account for the action taken by the Board in December 2010 to amend the truck and bus regulations to include better data and improvements to the emissions inventory, and reflect the current rulemaking calendar. Appendix A provides the SIP revision.

The federal Clean Air Act requires metropolitan planning organizations (MPOs) to demonstrate that their regional transportation plans (RTPs) and transportation improvement programs (TIP) are consistent with progress toward and attainment of federal air quality standards. MPOs use modeling to estimate regional emissions based on projected motor vehicle travel on the region's road and transit facilities.

The level of emissions for on-road motor vehicles, such as cars, trucks, and buses, consistent with SIP progress and attainment, are called "Transportation Conformity Budgets." For conformity, projected emissions from highway and transit use must be less than or equal to the budget. Budgets are developed during the air quality planning process in consultation with ARB, regional air districts, U.S. EPA, the U.S. Department of Transportation, and MPOs and provide for public review and comment.

The conformity budgets use the SIP on-road mobile source inventory which includes an updated heavy duty diesel truck and bus inventory that reflects the 2010 truck and bus regulatory amendments. This adjustment reflects the difference between the baseline SIP on-road motor vehicle emissions inventory from EMFAC2007 and the new truck and bus inventory that incorporates the impacts of both the recession and final regulations. The ton per day change in emissions is incorporated as a line item adjustment to the updated transportation conformity budgets (see "State Strategy Adjustments" line item in Tables C-1 and C-2 below).

Methodologically, the State Strategy Adjustments line item is then subtracted from the baseline SIP on-road motor vehicle emissions inventory from EMFAC2007. Importantly, the SIP baseline emissions inventory used to develop the transportation conformity budgets continues to be based on the activity data (e.g. vehicle miles travelled) provided by the MPOs included in the SIPs.

This line item approach to account for State Strategy reductions is consistent with the approach used to develop the originally submitted budgets. The transportation conformity budget development worksheets are included in Tables C-1 and C-2 below, with the proposed SIP budgets found in Appendix A.

Line-Item Adjustments in 8-hour Ozone Conformity Budgets for South Coast and San Joaquin Valley

The following section describes the line-item adjustments used in the existing transportation conformity budgets (as adopted in 2007) as well as those in the revised budgets ARB staff is proposing today.

Line-Item Adjustments in the Existing 8-hour Ozone SIP Budgets
(Adopted 2007)

EMFAC2007 Baseline, covering 2008, 2011, 2014, 2017, 2020, and 2023 for South Coast and San Joaquin Valley

Line-Item Adjustments To Baseline For Measures Adopted Prior To December 2006
(Referred to as "Adjustments to Baseline" in Budgets, adjustments included in applicable years)

South Coast and San Joaquin Valley
- Heavy Duty Diesel Truck (HDDT) Chip Reflash
- HDDT Public Fleet and Solid Waste Rules
- HDDT Idling Rule
- AB 1493 GHG Standards
- On-Road Portion of Carl Moyer Program

San Joaquin Valley Only
- District Rule 9310 – School Buses

Line-Item Adjustments for Proposed SIP Measures
(Referred to as "State Strategy Reductions" in Budgets, adjustments included in applicable years)

South Coast and San Joaquin Valley

- All Smog Check Improvements (Low Pressure Evap, Cutpoints, Annual Insp. for Older, Annual Insp. for High Mileage, Motorcycles, Lt. Duty Diesels)
- HDDT In-Use Rule
- Reformulated Gasoline
- Expanded Vehicle Retirement

South Coast Only

- AB 923 High Emitter

San Joaquin Valley Only

- Indirect Source Rule

Line-Item Adjustments in the Proposed New Budgets

EMFAC2007 Baseline, covering 2011, 2014, 2017, 2020, and 2023 for South Coast and San Joaquin Valley

Line-Item Adjustments to Baseline for Measures Adopted Prior to December 2006
(Referred to as "Adjustments to Baseline" in Budgets, adjustments included in applicable years)

South Coast and San Joaquin Valley

- AB 1493 GHG Standards
- On-Road Portion of Carl Moyer Program

San Joaquin Valley Only

- District Rule 9310 – School Buses

Adjustments Now Included in New Heavy Duty Diesel Truck Model
(Included in "State Strategy Adjustments" in Budgets, adjustments included in applicable years)

South Coast and San Joaquin Valley

- New HDDT Inventory
- HDDT Recession Impacts
- HDDT In-Use Rule
- HDDT Chip Re-flash
- HDDT Public Fleet and Solid Waste Rules
- HDDT Idling Rule

Line-Item Adjustments for Adopted SIP Measures
(Included in "State Strategy Adjustments" in Budgets, adjustments included in applicable years)

South Coast and San Joaquin Valley

- Smog Check Improvements (Low Pressure Evap, Cutpoints, Lt. Duty Diesels, Smoke Test)
- Reformulated Gasoline

San Joaquin Valley

- Employee Based Trip Reduction Rule

Table C-1
South Coast Air Basin
Ozone Transportation Conformity Emission Budget Worksheets*
(Summer Season – tpd)

South Coast Air Basin	ROG					NOx				
	2011	**2014**	**2017**	**2020**	**2023**	**2011**	**2014**	**2017**	**2020**	**2023**
Baseline Emissions (EMFAC 2007 Default)	176.0	150.1	131.1	117.0	106.1	367.7	299.9	243.5	200.2	171.8
Adjustments for Adopted State and Local On-road Measures	-0.3	-0.6	-0.9	-1.1	-1.5	-1.4	-1.4	-1.0	-0.1	-0.1
State Strategy - On-road Reductions	-4.5	-14.2	-11.5	-8.5	-6.2	-38.9	-22.3	-18.8	-15.6	-31.9
SUM	171.2	135.2	118.8	107.4	98.4	327.5	276.3	223.6	184.5	139.8
Proposed Budget	172	136	119	108	99	328	277	224	185	140

*Budgets are rounded up to the nearest ton.

Table C-2
San Joaquin Valley Air Basin
Ozone Transportation Conformity Emission Budget Worksheets*
(Summer Season – tpd)

Proposed 2011 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	15.62	51.87	15.76	86.69	3.34	17.28	3.68	13.11	6.20	31.38	12.13	37.28	9.00	24.06	9.26	22.41
Existing Measures:																
Local Reductions	0.00	0.03	0.00	0.02	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.02	0.00	0.02
State Reductions	0.01	0.10	0.01	0.12	0.00	0.03	0.00	0.02	0.01	0.05	0.01	0.08	0.01	0.05	0.01	0.04
New/Proposed Measures:																
Local Reductions	0.15	0.05	0.10	0.04	0.02	0.01	0.02	0.01	0.04	0.02	0.12	0.04	0.09	0.03	0.07	0.03
State Reductions	1.20	15.51	3.01	36.29	0.57	6.62	0.36	3.85	1.14	11.45	0.95	12.57	0.46	7.15	0.41	6.42
Total	**14.27**	**36.17**	**12.63**	**50.22**	**2.74**	**10.62**	**3.30**	**9.23**	**5.01**	**19.85**	**11.06**	**24.56**	**8.45**	**16.81**	**8.77**	**15.90**
Budget*	**14.3**	**36.2**	**12.7**	**50.3**	**2.8**	**10.7**	**3.4**	**9.3**	**5.1**	**19.9**	**11.1**	**24.6**	**8.5**	**16.9**	**8.8**	**16.0**

*Budgets are rounded up to the nearest tenth ton (0.1).

Proposed 2014 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	13.04	40.67	13.56	70.77	2.75	13.53	3.04	10.53	5.07	24.61	10.19	30.08	7.54	18.71	7.76	17.84
Existing Measures:																
Local Reductions	0.00	0.05	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.02	0.00	0.05	0.00	0.03	0.00	0.03
State Reductions	0.01	0.10	0.01	0.12	0.00	0.03	0.00	0.02	0.01	0.05	0.01	0.08	0.01	0.05	0.01	0.04
New/Proposed Measures:																
Local Reductions	0.29	0.27	0.21	0.19	0.05	0.04	0.05	0.04	0.09	0.08	0.24	0.23	0.17	0.16	0.14	0.13
State Reductions	2.10	10.30	3.68	27.76	0.69	4.56	0.56	2.80	1.33	7.84	1.63	9.31	1.02	4.60	0.99	4.48
Total	**10.64**	**29.95**	**9.66**	**42.65**	**2.00**	**8.89**	**2.43**	**7.66**	**3.64**	**16.62**	**8.31**	**20.42**	**6.34**	**13.86**	**6.62**	**13.16**
Budget*	**10.7**	**30.0**	**9.7**	**42.7**	**2.1**	**8.9**	**2.5**	**7.7**	**3.7**	**16.7**	**8.4**	**20.5**	**6.4**	**13.9**	**6.7**	**13.2**

*Budgets are rounded up to the nearest tenth ton (0.1).

Proposed 2017 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	11.18	32.41	11.67	55.71	2.31	10.52	2.59	8.54	4.21	19.24	8.64	23.57	6.50	14.76	6.70	14.35
Existing Measures:																
Local Reductions	0.00	0.13	0.00	0.09	0.00	0.02	0.00	0.02	0.00	0.04	0.00	0.11	0.00	0.08	0.00	0.06
State Reductions	0.01	0.07	0.01	0.09	0.00	0.02	0.00	0.02	0.00	0.03	0.01	0.06	0.01	0.03	0.01	0.03
New/Proposed Measures:																
Local Reductions	0.20	0.22	0.14	0.16	0.03	0.04	0.03	0.04	0.06	0.07	0.18	0.19	0.12	0.13	0.10	0.11
State Reductions	1.68	9.42	2.85	23.78	0.51	3.83	0.45	2.68	1.01	6.72	1.27	7.70	0.81	4.01	0.81	4.09
Total	**9.29**	**22.57**	**8.66**	**31.60**	**1.76**	**6.62**	**2.10**	**5.79**	**3.13**	**12.38**	**7.18**	**15.51**	**5.56**	**10.51**	**5.79**	**10.06**
Budget*	**9.3**	**22.6**	**8.7**	**31.7**	**1.8**	**6.7**	**2.2**	**5.8**	**3.2**	**12.4**	**7.2**	**15.6**	**5.6**	**10.6**	**5.8**	**10.1**

*Budgets are rounded up to the nearest tenth ton (0.1).

Proposed 2020 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	9.64	25.94	10.36	44.65	2.00	8.49	2.28	7.22	3.63	15.70	7.49	18.57	5.70	11.86	5.96	11.88
Existing Measures:																
Local Reductions	0.00	0.11	0.00	0.08	0.00	0.02	0.00	0.02	0.00	0.04	0.00	0.10	0.00	0.06	0.00	0.05
State Reductions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
New/Proposed Measures:																
Local Reductions	0.27	0.18	0.19	0.13	0.04	0.03	0.04	0.03	0.09	0.06	0.24	0.16	0.16	0.10	0.13	0.09
State Reductions	1.15	7.96	2.01	19.39	0.36	3.20	0.34	2.55	0.70	5.79	0.89	5.94	0.58	3.34	0.60	3.68
Total	**8.21**	**17.69**	**8.16**	**25.06**	**1.60**	**5.24**	**1.90**	**4.62**	**2.84**	**9.82**	**6.36**	**12.38**	**4.96**	**8.35**	**5.23**	**8.05**
Budget*	**8.3**	**17.7**	**8.2**	**25.1**	**1.7**	**5.3**	**2.0**	**4.7**	**2.9**	**9.9**	**6.4**	**12.4**	**5.0**	**8.4**	**5.3**	**8.1**

*Budgets are rounded up to the nearest tenth ton (0.1).

Proposed 2023 Transportation Conformity Budgets

County Subarea	Fresno		Kern		Kings		Madera		Merced		San Joaquin		Stanislaus		Tulare	
	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx	ROG	NOx
Baseline EMFAC2007	9.08	22.89	9.44	37.62	1.81	7.29	2.13	6.49	3.32	13.80	7.20	16.67	5.23	10.19	5.44	10.24
Existing Measures:																
Local Reductions	0.00	0.10	0.00	0.07	0.00	0.02	0.00	0.02	0.00	0.03	0.00	0.09	0.00	0.06	0.00	0.05
State Reductions	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
New/Proposed Measures:																
Local Reductions	0.25	0.15	0.18	0.10	0.04	0.02	0.04	0.02	0.08	0.05	0.22	0.13	0.15	0.09	0.12	0.07
State Reductions	0.88	9.15	1.43	18.86	0.26	3.34	0.27	2.92	0.53	6.33	0.71	6.52	0.43	3.65	0.46	3.93
Total	**7.95**	**13.49**	**7.83**	**18.58**	**1.51**	**3.91**	**1.81**	**3.53**	**2.71**	**7.38**	**6.26**	**9.92**	**4.65**	**6.39**	**4.85**	**6.19**
Budget*	**8.0**	**13.5**	**7.9**	**18.6**	**1.6**	**4.0**	**1.9**	**3.6**	**2.8**	**7.4**	**6.3**	**10.0**	**4.7**	**6.4**	**4.9**	**6.2**

*Budgets are rounded up to the nearest tenth ton (0.1).

Minor Technical Revisions to the PM2.5 SIP Transportation Conformity Budgets

ARB has adopted the April 2011 revisions to the PM2.5 SIP transportation conformity budgets for the South Coast and San Joaquin Valley. ARB staff is now proposing the following minor technical revisions to the PM2.5 SIP transportation conformity budgets:

- Remove the benefits for indirect source review (ISR) from the adjustments to the San Joaquin Valley PM2.5 conformity budgets based on U.S. EPA's recent May 9, 2011 action regarding Rule 9510 in the San Joaquin Valley. The San Joaquin Valley Air Pollution Control District adopted Rule 9510 ISR, which was intended to regulate facilities which attract or may attract mobile sources of air pollution. The benefit that the Air District included from the rule in the 2008 PM2.5 SIP will be removed for the conformity budget calculation.

- Remove the benefits for AB 923 (Firebaugh, 2004) from the adjustments to the South Coast PM2.5 conformity budgets. AB 923 expanded the types of emissions covered by the Carl Moyer program to include additional emissions of particulate matter and reactive organic gases from defined covered sources in the State. The South Coast Air Quality Management District included benefits from AB 923 as one of the SIP strategy reductions in its 2007 Air Quality Management Plan. The Air District's latest SIP revision in April 2011 did not include the benefits from AB 923. ARB is adjusting the conformity budgets to be consistent with the Air District action.

- Correct data entry errors in the budget calculations for the South Coast and San Joaquin Valley.

The transportation conformity budget development worksheets are included in Tables C-3 and C-4, below.

Table C-3
South Coast Air Basin
PM2.5 Transportation Conformity Emission Budget Worksheets*
(Annual Average – Tons per Day)

South Coast Air Basin	2012			2014		
	ROG	NOx	PM2.5	ROG	NOx	PM2.5
Baseline Inventory	162.6	350.8	17.5	146.1	305.7	17.2
Re-entrained Road Dust (Paved)	--	--	18.8	--	--	19.0
Re-entrained Road Dust (Unpaved)	--	--	1.0	--	--	1.0
Road Construction Dust	--	--	0.2	--	--	0.2
State Strategy Adjustments	-8.7	-23.7	-1.4	-13.6	-15.1	-2.8
Adjustments to Baseline	-0.4	-1.4	-0.1	-0.6	-1.4	-0.2
Budgets	**154**	**326**	**37**	**132**	**290**	**35**

*Budgets are rounded up to the nearest ton.

Table C-4
San Joaquin Valley Air Basin
PM2.5 Transportation Conformity Emission Budget Worksheets*
(Annual Average – tpd)

County Subarea		2012		2014	
		PM2.5	NOx	PM2.5	NOx
Fresno	Baseline Inventory	1.82	47.82	1.65	40.60
	State Strategy Adjustments	0.36	11.99	0.56	9.07
	Adjustments to Baseline	0.01	0.16	0.02	0.22
	Budgets	**1.5**	**35.7**	**1.1**	**31.4**
Kern (SJV)	Baseline Inventory	2.98	81.58	2.63	70.28
	State Strategy Adjustments	1.14	32.46	1.44	26.29
	Adjustments to Baseline	0.01	0.23	0.01	0.28
	Budgets	**1.9**	**48.9**	**1.2**	**43.8**
Kings	Baseline Inventory	0.59	16	0.51	13.52
	State Strategy Adjustments	0.20	5.47	0.26	4.20
	Adjustments to Baseline	0.00	0.05	0.00	0.06
	Budgets	**0.4**	**10.5**	**0.3**	**9.3**
Madera	Baseline Inventory	0.5	12.30	0.46	10.62
	State Strategy Adjustments	0.12	3.14	0.17	2.55
	Adjustments to Baseline	0.00	0.05	0.01	0.07
	Budgets	**0.4**	**9.2**	**0.3**	**8.1**
Merced	Baseline Inventory	1.19	29.15	1.05	24.67
	State Strategy Adjustments	0.40	9.37	0.50	7.16
	Adjustments to Baseline	0.01	0.11	0.01	0.14
	Budgets	**0.8**	**19.7**	**0.6**	**17.4**
San Joaquin	Baseline Inventory	1.39	35.24	1.29	30.27
	State Strategy Adjustments	0.36	10.73	0.46	8.58
	Adjustments to Baseline	0.01	0.11	0.01	0.14
	Budgets	**1.1**	**24.5**	**0.9**	**21.6**
Stanislaus	Baseline Inventory	0.84	22.25	0.76	18.69
	State Strategy Adjustments	0.16	5.58	0.23	4.04
	Adjustments to Baseline	0.00	0.06	0.00	0.07
	Budgets	**0.7**	**16.7**	**0.6**	**14.6**
Tulare	Baseline Inventory	0.75	20.87	0.69	17.88
	State Strategy Adjustments	0.13	5.19	0.21	4.05
	Adjustments to Baseline	0.00	0.07	0.01	0.10
	Budgets	**0.7**	**15.7**	**0.5**	**13.8**

*Budgets are rounded up to the nearest tenth ton (0.1).

Appendix D
Adopted Rulemaking Calendar

(Note: This rulemaking calendar was included as Appendix D to the ARB staff report entitled, "Progress Report on Implementation of PM2.5 State Implementation Plans (SIP) for the South Coast and San Joaquin Valley Air Basins and Proposed SIP Revisions" and is included here unchanged for informational purposes.)

APPENDIX B: Rulemaking Calendar

Table B-1
Proposed Update to 2007 State Strategy: PM2.5 SIP Measures

	Agency	Actions	Implementation
Passenger Vehicles			
Smog Check Improvements	BAR	2007-2009	2008-2010; 2013[1]
Expanded Vehicle Retirement (AB 118)	ARB/BAR	2007	2009
Modifications to Reformulated Gasoline Program	ARB	2007	2010
Trucks			
Cleaner In-Use Heavy-Duty Trucks	ARB	2007, 2008, 2010	2011-2015
Goods Movement Sources			
Auxiliary Ship Engine Cold Ironing & Other Clean Tech	EPA/ARB/ Local	2007, 2008	2010
Cleaner Main Ship Engines and Fuel[2]		Fuel: 2008-2011	2009-2015
		Engines: 2008	2011
Port Truck Modernization	ARB, Local	2007,2008, 2010	2008-2020
Accelerated Intro. of Cleaner Line-Haul Locomotives[3]	EPA/ARB	2008	2012
Clean Up Existing Harbor Craft	ARB	2007, 2010	2009-2018
Off-Road Equipment			
Cleaner In-Use Off-Road Equipment[4]	ARB	2007, 2010	2009
Other Off-Road Sources			
New Emission Standards for Recreational Boats[5]	ARB	See notes	See notes
Expanded Off-Road Recreational Vehicle Emission Standards[5]	ARB	See notes	See notes
Enhanced Vapor Recovery for Above-Ground Storage Tanks	ARB	2008	2009-2016
Additional Evaporative Emission Standards[5]		2009	2010-2012
		See notes	See notes
Areawide Sources			
Consumer Products Program	ARB	2008	2010
		2009	2013-2014
		2011	2014
Pesticide Regulation	DPR	2008, 2009	2009

(Note: This rulemaking calendar was adopted in April 2011 as Appendix D to the ARB staff report entitled, "Progress Report on Implementation of PM2.5 State Implementation Plans (SIP) for the South Coast and San Joaquin Valley Air Basins and Proposed SIP Revisions" and is included here unchanged for informational purposes.)

[1]In 2010, the State Legislature improved the effectiveness of the Smog Check program (AB 2289), requiring the Bureau of Automotive Repair to direct older vehicles to high performing auto technicians and test stations for inspection and certification. This new program will be effective in 2013.

[2] In July 2008, ARB adopted a regulation that applies to ships operating within 24 nautical miles (nm) of the California Coastline and visiting California ports. These vessels must use less polluting marine distillate fuel for their main engines, auxiliary engines, and boilers instead of heavy fuel oil. The first phase of cleaner fuel for ship main engines took effect in 2009, with a second phase currently scheduled in 2012. By 2015, the International Maritime Organization's fuel sulfur requirements for the North American Emission Control Area will match ARB's phase 2 standards and extend out to 200 miles from California Coastline.

[3]In 2008, ARB awarded Prop 1B bond funds to upgrade line-haul locomotive engines not already accounted for by enforceable agreements with the railroads. Those cleaner line-hauls will begin operation by 2012.

[4]Reductions begin in 2014.

[5]Expected action in 2013, with implementation schedules to be determined in rulemaking process.

(Note: This rulemaking calendar was adopted in April 2011 as Appendix D to the ARB staff report entitled, "Progress Report on Implementation of PM2.5 State Implementation Plans (SIP) for the South Coast and San Joaquin Valley Air Basins and Proposed SIP Revisions" and is included here unchanged for informational purposes.)

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Appendix E
Analysis of Environmental Impacts

Analysis of Environmental Impacts

ARB prepared an environmental analysis for the State Strategy for California's State Implementation Plan (SIP) for the New Federal PM2.5 and 8-Hour Ozone Standards prior to its approval by the Board in September 2007 (State Strategy). The State Strategy mapped out the actions ARB would take to reduce emissions to levels designed to bring California into compliance with federal air quality standards. The State Strategy is available for review at:

http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm

and at ARB's offices at:

1001 I Street, Sacramento, California, Room 7-45

Various measures identified in the 2007 State Strategy have been adopted by the Board since that time, and separate, additional environmental analyses were also prepared by ARB prior to the adoption of each of these measures. As part of tracking the implementation of the State Strategy, this report quantifies the emission reductions that have been achieved since adoption of the 2007 State Strategy. The proposed SIP revisions do not change the emission levels of NOx and ROG that the Board committed to achieve by specific dates when it adopted the 2007 State Strategy.

The proposed SIP revisions include four components: (1) an update to ARB's rulemaking calendar for one measure, (2) updates to reasonable further progress (RFP) tables and associated reductions for contingency purposes, (3) updates to the transportation conformity budgets, and (4) updates to the actions ARB would take to identify and implement advanced technology control measures as allowed under section 182(e)(5) of the federal Clean Air Act (Act). The proposed revisions do not cause any change that has the potential to result in a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment, for the following reasons.

The updates to the rulemaking calendar reflect the current status of measures that have already been adopted, and changes to the expected dates by which emission reductions would be achieved for the agricultural tractor emission control measure. The update to the rulemaking calendar does not change the measure or its expected emission reductions identified in the 2007 State Strategy. They merely change the dates by which ARB staff will bring this measure to the Board for proposed action by the Board.

The updates to the RFP tables, contingency measure reductions and transportation conformity budgets are proposed accounting changes made to reflect the current status of adopted measures, better data, changes due to the recession, and methodological improvements to the emission inventory. These accounting changes do not change the strategies or commitments identified in the 2007 State Strategy to achieve specific emission reductions by specified dates. Because no changes have been made to the strategies or the underlying emission reduction commitments in the 2007 State Strategy, there is no potential for any of the proposed SIP revisions to cause any significant adverse environmental impacts. The revisions to the advanced technology discussion do not alter ARB's commitment to identify and implement emission reductions as required by section 182(e)(5) of the Act.

State of California
AIR RESOURCES BOARD

Staff Report: 2010 Haagen-Smit Clean Air Awards

Date of Presentation: July 21, 2011

I. INTRODUCTION AND BACKGROUND

Arie J. Haagen-Smit, a native of Utrecht in the Netherlands, was a leader in developing air quality standards based on his research efforts. Dr. Haagen-Smit, known by many as the "father" of air pollution control, was a graduate of the University of Utrecht and a biochemistry professor at the California Institute of Technology in Pasadena for 16 years before beginning his air pollution research in 1948. Through a series of experiments, he found that most of California's smog resulted from photochemistry - when exhaust from motor vehicles and industrial facilities react with sunlight to create ozone. This breakthrough is the foundation upon which today's nationwide air pollution standards are based. The National Medal of Science in the physical sciences discipline was presented to Dr. Haagen-Smit by President Richard Nixon at a White House ceremony on October 10, 1973. After serving for eight years as an original board member of ARB's predecessor, the Motor Vehicle Pollution Control Board, Dr. Haagen-Smit became ARB's first chairman in 1968. In 1977, he died of lung cancer two months after the ARB laboratory in El Monte was dedicated in his name. Dr. Haagen-Smit passed away 34 years ago, but his legacy lives on.

Since 2001, the Air Resources Board has sponsored the Haagen-Smit Clean Air Awards. The Awards are given to two or three people each year to recognize significant career efforts in at least one of several air quality categories, which are: research, environmental policy, science & technology, public education, or community service. Over the last ten years, 25 distinguished people have received the award. The selection committee considered 15 nominations for this year's awards.

This year's winners were chosen independently for their accomplishments though it turns out they all have something in common. All three winners have expertise in the area of diesel exhaust. In 1999, after years of intensive investigation and research, the California Air Resources Board declared diesel exhaust to be a Toxic Air Contaminant. The finding paved the way for a set of regulations to control particulate matter emissions from the state's one million diesel engines. In addition, diesels contribute significantly to the emissions inventory of oxides of nitrogen, precursors to ozone and secondary particulates.

The recipients of the 2010 Haagen-Smit Clean Air Award are:
Dr. Joan Denton – for her work in the area of environmental policy
Dr. Bradley Edgar– for his work in the area of science and technology
And
Dr. John Froines – for his work in the area of environmental health research

II. BACKGROUND AND BIOGRAPHY FOR EACH WINNER

Dr. Joan Denton is receiving this award for her dedication and hard work in the area of ***Environmental Policy.***

Dr. Denton has 29 years of professional experience and consistent accomplishment in environmental health programs through strong science, innovation, and regulatory work. She recently retired after 13 years as Director of the California Office of Environmental Health Hazard Assessment (OEHHA). During this time she was responsible for the performance of the scientific risk assessments for the regulation of chemicals in the environment, and for providing information about the health and environmental risks of chemicals to government agencies and the public. As Director she was also responsible for providing overall scientific guidance and consultation to the Secretary of the Environmental Protection Agency and oversight of activities by regulatory agencies within OEHHA and also oversaw the implementation of the Safe Drinking Water and Toxic Enforcement Act of 1986. Dr. Denton was appointed and re-appointed as Director of OEHHA by three different governors. During her tenure at OEHHA she was instrumental in the identification of diesel exhaust particulates, environmental tobacco smoke, and lead as toxic air contaminants. California's criteria air quality standards for ozone, nitrogen oxide, and particulate matter were revised to include effects on sensitive populations including children and infants. Prior to her serving as Director of OEHHA, Dr. Denton was a Senior Air Pollution Specialist and a Manager for the California Air Resources Board working on the state toxic air contaminant program and had the primary responsibility for evaluating the health effects of methyl tertiary butyl ether, or MTBE. She was awarded a Certificate of Merit in 1998 for her work in the Diesel Exhaust Particulate Toxic Air Contaminant Identification program. In 1991 and again in 1996, ARB presented her with the Outstanding Supervisory Performance Award.

Not only has Dr. Denton been an outstanding researcher and policy maker in her long career with the State, she has also been devoted to community service. She is a member of the Sierra Club, Environment California, American River Natural History Association, and the World Society for the Protection of Cruelty to Animals. She is a contributor to Coalition for Clean Air, California Native Plant Society, among others. And she volunteers each week for Homeward Bound Golden Retriever Rescue and Sanctuary.

Dr. Bradley Edgar is receiving this award for his dedication and hard work in the area of ***Science and Technology.***

Dr. Edgar is co-founder, the President, and Chief Technology Officer of Cleaire Advanced Emission Controls based in the San Francisco Bay Area. ARB's diesel regulations were technology forcing in that they called for retrofit technologies to be developed and a retrofit industry to be formed to address these issues. Over the last decade, Dr. Edgar has pioneered important breakthroughs in developing a steady stream of advanced technologies to reduce diesel particulates and oxides of nitrogen. Cleaire has emerged as a leader in the diesel retrofit market, having

received more than 10 Air Resources Board verifications for its products, and delivering more than 11,000 diesel retrofits into commercial use.

Dr. Edgar began researching and working in the field of mechanical engineering nearly 20 years ago and has been the inventor or co-inventor for 11 United States Patents related to emission control technology.

Dr. Edgar earned a reputation as an industry leader in programs that require addressing the diverse needs of many stakeholders in developing, engineering, manufacturing, and deploying the technology needed to keep not only California's air clean, but become a global leader in setting standards for diesel emission controls where diesel emissions pose health and environmental concerns. He has been inspirational as a leader of a local California company proving that it can solve environmental problems while also contributing to economic development and job growth.

In 2008, Cleaire was awarded the Clean Air Award for Technology and Research by Breathe California. They are awarded to businesses and people who have made positive impacts or initiatives to clean the air in the San Francisco region.

Dr. John Froines is receiving this award for his work in the area of ***Environmental Health Research.***

Dr. Froines has a long history in teaching and conducting research on air pollution related health effects. He holds several key positions in health sciences and toxicology programs. He is the Director of University of California, Los Angeles's Center for Occupational and Environmental Health Sciences, Chairman of the Scientific Review Panel for the Air Resources Board, Director of the Southern California Particle Center and Supersite, and Deputy Director of the National Institute for Occupational Safety and Health.

Dr. Froines' air pollution-related research includes: the health effects of particulate matter, lung cancer and non-cancer health effects attributable to air pollution, and the biochemical mechanism of the carcinogenicity of toxic air contaminants. His research was instrumental in listing diesel exhaust as a toxic air contaminant.

Dr. Froines' teaching and research is highly regarded for influencing public health policy and the understanding of toxic air contaminants. Through his involvement in community forums to educate local leaders, his participation in legislative hearings discussing public health related exposures of toxic substances, and his dedication to translating scientific information into formats that are useful for setting public health policy, he has had a tremendous impact in educating both policy makers and the public nationally and internationally. His work has led to substantial decreases in health risks from toxic air contaminants.

His strong commitment to outstanding research was recognized by the South Coast Air Quality Management District with a Clean Air Award in 2010 for his Promotion of Good Environmental Stewardship.