

**Proposition 1B:
Goods Movement Emission Reduction Program
Update to Program Guidelines**

STAFF DRAFT CONCEPT PAPER

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California Environmental Protection Agency



Proposition 1B: Goods Movement Emission Reduction Program
Staff Draft Concept Paper for Update to Program Guidelines

DOCUMENT AVAILABILITY

Electronic copies of this document and related materials can be found at: <http://www.arb.ca.gov/gmbond>. Alternatively, paper copies may be obtained from the Board's Public Information Office, 1001 I Street, 1st Floor, Visitors and Environmental Services Center, Sacramento, California, 95814, (916) 322-2990.

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COMMENTS

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I. PURPOSE OF THIS CONCEPT PAPER

Air Resources Board (ARB or Board) staff developed this concept paper to aid public discussion of updates to the existing Proposition 1B: Goods Movement Emission Reduction Program (Program) – Final 2013 Staff Report and Guidelines for Implementation dated January 25, 2013 (Guidelines).

The concepts in this paper are part of a periodic process to revisit the Program requirements. The proposed updates include modifications to existing project options based on new information and incorporation of new project choices. This update further integrates the need for advanced technology, which is supported by ARB's Sustainable Freight: Pathways to Zero and Near-Zero Emission Discussion Draft.

This paper is written for those already familiar with the Program. For background information and an explanation of terms, please see the Guidelines and accompanying Staff Report adopted by the Board on January 25, 2013 and posted on the Program website. These materials provide a comprehensive discussion of Program structure, goals, and requirements.

Staff is seeking input on the concepts and details described here. Any changes must be consistent with the implementing legislation, Health and Safety code sections 39625 – 39627.5, which directs ARB to focus on projects that can achieve the greatest emission reductions per State dollar and to obtain the earliest possible health risk reduction in communities heavily impacted by freight transport.

Please provide comments to ARB staff as soon as possible so we may consider them in the development of the proposed update to the Guidelines. ARB expects to release the proposed update to the Guidelines and Staff Report in late May for Board consideration at a public hearing in June of 2015, in Sacramento.

II. BACKGROUND

The engines in trucks, locomotives, ships, harbor craft, and cargo handling equipment are major contributors to the State's pollution challenges. These sources account for nearly half of the statewide particulate matter (PM) emissions. PM is both a toxic air contaminant and a contributor to black carbon, a powerful short-lived climate pollutant. Near-source exposure to this particulate matter is associated with health risks, especially near distribution centers, railyards, and seaports, many of which impact disadvantaged communities. Emissions from freight transport also account for over one third of the statewide nitrogen oxides (NOx) that forms fine particles.

Together with our local and federal government partners, ARB has motivated and required extensive changes across the State over the last decade. Equipment owners have made substantial investments to transition their diesel-fueled freight equipment to cleaner models, while refineries retooled to produce cleaner fuels. We are seeing the real-world benefits of those investments—measurably cleaner air in communities near seaports, railyards, and freeways.

ARB has adopted a broad suite of regulations to characterize and reduce the impacts of air pollution from freight operations on nearby communities. Building on health risk assessments for major port and railyard facilities, ARB has adopted strategies to cut emissions from freight sources and increase the use of cleaner equipment and fuels. Key ARB regulations require: (1) the existing fleet of diesel trucks, harbor craft, and cargo handling equipment to accelerate the transition to low-emission models, (2) time limits on unnecessary truck idling, (3) the use of cleaner fuels in ships, harbor craft, and land-based sources, and (4) the use of shore-based electrical power for ships at dock instead of running the on-board diesel engines (i.e. shore power). In addition, ARB has commitments with railroads and has expanded enforcement activities to protect nearby communities and improve regional air quality.

A. Health Impacts from Freight Transport

California residents face serious health impacts from freight-related pollution. The equipment that moves freight is also a major cause of high regional ozone and fine particle levels that harm millions of Californians. Freight-related emissions are a public health concern at both the regional and community levels because they contribute to serious health effects, such as cardiac and respiratory diseases, increased asthma and bronchitis episodes, increased risk of cancer, and premature death.

B. Freight Transport System

The Sustainable Freight: Pathways to Zero and Near-Zero Emission Discussion Draft (Discussion Draft) draws upon ARB's knowledge of the State's changing freight system, new information about clean technology, and the economic, environmental and health objectives of the State. The Discussion Draft describes ARB's vision and levers to achieve a more efficient, cleaner freight system. It lays out four specific paths: immediate actions to deliver new emission reductions and reduce health risks in impacted communities in 2015, near-term measures for development beginning this year, a vision for the future that describes zero-tailpipe concepts, and broad-based measures, which include strategies for efficiency, infrastructure, land-use and new capping models.

The Discussion Draft defines the critical need for transforming the freight transport system to one powered with zero emission engines everywhere possible and near-zero engines everywhere else. To achieve the reductions needed, the Program must continue to bring special focus to the key areas of on-road and locomotive sectors. To meet California's overall toxic, air quality and climate objectives, the Program must also show support for advanced technologies, with the hope that robust offerings will speed commercialization of zero and near-zero equipment.

Staff proposes further changes outlined in this concept paper to provide ways in which the Program can help achieve ARB's air quality and climate goals as outlined in the Discussion Draft.

C. Program Authority and Scope

Proposition 1B (Prop. 1B), approved by voters in 2006, authorizes \$1 billion in bond funding to ARB to cut freight emissions in four priority trade corridors. Of the \$1 billion, \$980 million will be used for this Program and \$20 million has been set aside by the control agencies to cover bond issuance and oversight costs. To date, ARB has received approximately \$740 million for the Program. This leaves a balance of about \$240 million that ARB needs new cash to implement. The major sources eligible for funding include heavy-duty diesel trucks, freight locomotives, ships at berth, commercial harbor craft, cargo handling equipment, and infrastructure for electrification of truck stops, distribution centers and other places trucks congregate.

State law (HSC §39625 et seq.) directs ARB to administer the Program to maximize the emission reduction benefits while achieving the earliest possible health risk reduction in communities heavily impacted by freight transport. Executive Order S-02-07 on Bond Accountability provides further direction to ARB to ensure accountability and transparency in Program implementation.

The Program supplements regulatory actions and other incentives to cut diesel emissions by funding projects “not otherwise required by law or regulation.” The funds provide an incentive to equipment owners to upgrade to cleaner equipment and achieve early or extra emission reductions beyond those required by applicable regulations or enforceable agreements.

The Program is a partnership between ARB and local agencies (such as air districts) to reduce air pollution emissions and health risk from freight transport along California’s four priority trade corridors. ARB awards Program funds to local agencies; those agencies then use a competitive process to provide incentives to equipment owners to upgrade to cleaner technology.

D. Current Status

In the Program’s first four funding cycles, which were initiated in 2008, 2010, 2011 and 2013, ARB allocated a total of approximately \$740 million for local agency projects and ARB’s administration costs over multiple years. The majority of projects are operational and providing emission benefits. The local agencies are continuing to implement truck projects from the 2013 funding cycle and the remaining projects will be operational by the end of 2015.

Statute requires ARB to provide a semi-annual report to the Department of Finance on the status of the Program. The December 2014 status report explains the rollout of bond funds, and details the status of each local agency’s grant. The full report is posted on the Program website and the status of each grant is included as Appendix A to this concept paper.

E. Next Steps

Following the release of this Concept Paper, ARB will host three public workshops. Details are posted at <http://www.arb.ca.gov/bonds/gmbond/>. After taking input at the workshops, ARB staff will finalize concepts and present them to the Board. Currently, the item is scheduled for consideration in June 2015. If the Guidelines are approved, a Notice of Funding Availability, (NOFA) will be released. ARB will review applications submitted by local and State agencies in response to the NOFA and hold workshops to discuss the recommended awards, followed by Board consideration in fall 2015.

III. ELIGIBLE PROJECTS FOR NEW FUNDS

The specifications for eligible projects are an integral part of the update to the Guidelines. The Guidelines direct ARB staff to evaluate advances in technology, changes in equipment costs, regulatory actions, demand for Program funds in the prior funding cycle, and other new information that influences the design of project specifications.

Many regulations are now in effect and their compliance deadlines are taken into consideration with each update of the Guidelines. The effect of the regulations on the Program is that the eligibility for projects continues to change. The Program is continuing to focus on funding eligible projects with emission reductions that are “extra.” Additional reductions in diesel PM and air toxics are necessary to reduce localized health risks and protect public health. However, achieving these reductions will require a transition to zero and near-zero emission technologies.

In the 2013 update to the Guidelines, enhanced and new funding was provided for advanced technologies to encourage equipment owners to purchase the cleanest equipment. This update continues that transition by proposing to provide higher funding levels for zero and near-zero emission technologies and offer funding for a new source category and new project options. These proposed changes are needed to maximize the opportunities to support new technologies and new equipment types that support the air quality and climate needs and goals of the State.

This paper outlines concepts for eligible projects in each source category that could be funded with new monies. Local agencies can choose funding categories based on local priorities and would need to allow equipment owners to apply for all eligible project options in that funding category. In accordance with statute, funding awards are determined by a competitive process.

A. Trucks

1. *Summary of All Truck Equipment Project Options*

The proposed updates are targeted toward trucks subject to ARB's Statewide Truck and Bus Rule (Truck and Bus Rule), which defines the schedule to upgrade existing trucks to cleaner models. The Truck and Bus Rule was updated by the Board in December 2013. To determine which projects will be eligible for Program funds, staff reviewed the compliance deadlines under the Truck and Bus Rule to ensure that emission reductions would be "early or extra." Staff identified funding opportunities for both large and small fleets, provided the fleets maintain compliance with the Truck and Bus Rule requirements. This round of funding also focuses on zero and near-zero emission options. Consequently, the level of funding proposed for these project options has been substantially increased. Table 1 shows the project options staff is evaluating.

Table 1: Updated Equipment Project Concepts for Trucks

Eligible Equipment and Upgrade ¹		Maximum Program Funding					
		Proposed			Existing		
All Fleets		Class 6	Class 7	Class 8	Class 6	Class 7	Class 8
A	Replace with new MY2015+ engine optional low-NOx truck (0.02 only). ²	\$50,000	\$100,000	\$100,000	N/A	N/A	N/A
B	Replace with MY2015+ engine hybrid truck. ^{3,4}	\$45,000	\$80,000	\$80,000	\$25,000	\$35,000	\$50,000
C	Replace with new MY2015+ engine hybrid zero emission mile truck. ^{3,5}	\$65,000	\$100,000	\$100,000	N/A	N/A	N/A
D	Replace with new MY2015+ engine zero emission truck. ^{3,6}	\$100,000	\$200,000	\$200,000	\$25,000	\$35,000	\$50,000
E	Convert diesel engine to new MY2015+ zero emission engine. ^{6,7}	\$60,000	\$80,000	\$80,000	N/A	N/A	N/A
Small Fleets		Class 6	Class 7	Class 8	Class 6	Class 7	Class 8
F	Replace with used truck that has a MY2011+ engine.	N/A	\$30,000	\$35,000	N/A	\$35,000	\$40,000
G	Replace with new truck that has a MY2015+ engine.	\$25,000	\$35,000	\$50,000	\$25,000	\$35,000	\$50,000
H	Repower with a new MY2015+ diesel engine.	\$10,000	\$20,000	\$20,000	\$10,000	\$20,000	\$20,000

¹Diesel engines must meet the 2010 emission level of 0.20 g/bhp-hr or less NOx (FEL and CERT values) and 0.01 g/bhp-hr or less PM (CERT value). All engines must be approved by ARB to be sold in California.

²This funding option requires a contract for renewable fuel.

³Projects can be co-funded with Air Quality Improvement Program (AQIP) funds (\$12,000 - \$30,000 for hybrids and \$90,000-\$110,000 for zero emission).

⁴Hybrid truck is defined as a vehicle with an electric drive system powered by an on-board generator and approved for funding by AQIP.

⁵Hybrid zero emission mile truck is defined as a hybrid vehicle with some all-electric range.

⁶Zero emission truck is defined as a vehicle that emits no criteria pollutant, toxic or green house gas emissions at the tailpipe.

⁷Conversion is defined as an ARB-approved aftermarket conversion of a diesel powered truck to a zero-emission truck. Engines must have ARB approval as an aftermarket conversion to be sold in California.

2. Discussion of Truck Concepts for Change

This section describes the proposed updates for truck projects, along with a brief discussion of the basis for those changes. Under the combination of equipment project options, local agencies would evaluate all of the applications from truck owners and score each application based on the established criteria of emission reductions and cost-effectiveness to determine which trucks receive funding. The competitive ranking is quantitative based on emission reductions and a measure of cost-effectiveness that considers match funding. The calculation of emission reductions uses the Carl Moyer Program protocol of weighting combustion PM emissions (diesel PM) by a factor of 20 relative to other pollutants to account for the greater health impacts of PM per ton of emissions. This protocol helps target Program funding to the projects that will achieve the greatest reduction in health risk. Each truck competes independently, so there is no advantage or disadvantage based on fleet size. As in the previous funding cycle, zero emission trucks are given priority funding. Staff is also proposing that low-NOx (.02 NOx only) vehicles receive priority funding after zero-emission vehicles.

a. Project option – funding levels for truck replacement

Concept: Increase the funding level for replacement projects for optional low-NOx (0.02 NOx only), hybrid, and zero emission vehicles.

Basis: The cost of these vehicles over conventional diesel projects can be very high. Additionally, some vehicle types have limited commercial or no current commercial availability. However, there are promising new zero emission heavy duty vehicles that are in the concept and demonstration phase. Funding for low-NOx vehicles is a new option as staff believes that low-NOx engines in some engine sizes could be available within the next year.

Offering to pay a greater share of the cost for equipment to help offset the higher cost will provide a greater incentive for equipment owners to upgrade equipment beyond regulatory requirements. For those vehicles that are not commercially available now, we hope to help create early customer demand for the technology and accelerate availability from manufacturers.

Recognizing that some project options are not yet commercially available, Staff proposes to extend the time allowed for projects to be completed. See the Administration section for a discussion of the proposed change.

Applicants are eligible to obtain additional funding through AQIP for qualifying projects. These funds continue to be excluded from the cost-effectiveness and emission reduction calculation.

b. Project option –advanced technology truck replacements all fleets

Concept: Require replacement projects with advanced technology engines to purchase a new truck with a 2015 or later engine certified by ARB. Hybrid trucks must be on AQIP's list of eligible vehicles.

Basis: Support for new technology projects speeds the adoption of the cleanest available equipment and supports the State's goals to foster fuel diversity. New engines provide greater emission reductions than used engines meeting the MY2010 emission standard due to lack of deterioration and updated OBDII requirements. Requiring the newest equipment maximizes emission reductions and is consistent with the Program's goal to promote the cleanest certified available technology.

c. Project option – priority funding low NOx trucks

Concept: Expand priority funding on ranked lists to include optional low-NOx (0.02 NOx only).

Basis: Zero emission trucks are currently given priority on ranked lists to promote the transition to the cleanest technology. To continue to promote this transition, low-NOx trucks using renewable fuels that are expected to be close to zero emission should be given priority funding after zero emission trucks.

d. Project option – funding levels for used truck replacement – small fleets

Concept: Reduce the funding level to \$30,000 per Class 7, and \$35,000 per Class 8 truck for replacement with a used truck with an engine model year 2011 or later that meets the MY2010 emission standard.

Basis: It is expected that the cost of used trucks will be lower in 2016 (when projects are expected to be operational) and staff expects eligible truck owners will still receive a grant for about half the cost of the used truck.

e. Project option – diesel repower and replacements large fleets

Concept: Remove the diesel truck repower and replacement options for large fleets.

Basis: In order to meet federal health-based air quality standards and climate change goals, California must achieve significant reductions. Incentive funds are needed to accelerate deployment and provide strong market support for advanced technologies and increase the use of a diverse set of cleaner fuels to support this goal. Therefore, funding options available to large fleets are focused on advanced technologies.

f. Project Option – funding levels for truck conversion

Concept: Add a new project option to offer funding of \$80,000 per Class 7 or Class 8 truck, and \$60,000 per Class 6 truck to convert a diesel engine to a new (2015+) zero emission engine.

Basis: Cleaner truck technology is in development to reduce emissions significantly. By offering to pay a greater share of the cost for these engines, we hope to help create early customer demand for the technology and spur manufacturers to make them available sooner.

g. Eligibility requirement – compliance with Truck and Bus Rule

Concept: Allow eligibility of large fleets that are in full compliance with the Truck and Bus Rule without using any credits.

Basis: Large fleets must be fully compliant with the Truck and Bus Rule by the end of 2015. Some fleets have used credits towards compliance, which allows the fleet owner to delay upgrading equipment. Funds should be made available for trucks that have been upgraded to meet the PM filter requirement rather than to replace or upgrade trucks that have been granted additional time to operate.

h. Eligibility requirement – engine model year

Concept: Change eligibility requirements for Class 6 trucks to allow replacement of old trucks with 1998-2006 engines (previously 1996-2006).

Basis: Due to the compliance deadlines under the Truck and Bus Rule for Class 6 trucks there is no opportunity to achieve early or extra emission reductions.

B. Transportation Refrigeration Units for Trucks

1. *Summary of All Transportation Refrigeration Unit Project Options*

The latest models of commercialized transport refrigeration units (TRUs) have the option of being equipped with the ability to plug into electric infrastructure and in turn eliminate emissions from TRUs for up to several hours when parked. However, even with the latest hybrid electric and electric standby technology, many of these systems are not plugged into the grid due to lack of infrastructure at distribution centers.

In addition, staff acknowledges there are a limited number of commercialized TRU systems that achieve zero emission in operation today, and encourages TRU manufacturers to expand their product lines to include zero emission products in order to achieve substantial emission reductions. Table 2 shows the new project options staff is evaluating.

Table 2: New Equipment Project Concept for Distribution Centers/TRUs

Eligible Equipment		Equipment Upgrade	Maximum Program Funding	Project Life
A	Existing refrigerated distribution center that operates private fleet of trucks or trailers equipped with TRUs that regularly return to base.	Replace 5 existing TRUs with 5 zero emission TRUs (e.g. all-electric or fuel cell) or equivalent systems that eliminate emissions from TRUs (e.g. cryogenic transport refrigerators). Must demonstrate plan to install infrastructure.	Lower of 80 percent of eligible cost or \$200,000.	5 years
B	Existing refrigerated distribution center that operates private fleet of trucks or trailers equipped with TRUs that regularly return to base.	Install 10 electric power plugs that are compatible with electrically powered TRUs (e.g. all-electric, hybrid electric, or electric standby-equipped TRUs) at loading docks or parking areas of distribution centers.	Lower of 50 percent of eligible cost or \$30,000.	5 years
C	Existing refrigerated distribution center that operates private fleet of trucks or trailers equipped with TRUs that regularly return to base.	Install infrastructure for cryogenic refrigeration fueling and lease equipment for project life.	Lower of 50 percent of eligible cost or \$60,000.	5 years

2. Discussion of new Transport Refrigeration Units (TRU) Concepts

This section describes the proposed new project options for TRUs, along with a brief discussion of the basis for adding the project options.

a. Project option – Funding level for zero emission TRUs

Concept: Add a project option to offer funding up to \$200,000 or 80 percent of the project cost for the replacement of five existing conventional TRUs with five zero emission TRUs or equivalent systems that eliminate emissions from TRUs.

Basis: To encourage commercialization and customer interest in zero emission TRUs, which will help the State capture emissions benefits in and around distribution centers. Requiring a minimum of five TRU replacements per project promotes wider use, and may promote cost savings for the end user. Currently, limited zero emission TRU technology is available, but staff anticipates the proposed eligible equipment represents an operating profile that is a viable option for zero emission TRUs.

b. Project option – Funding level for infrastructure

Concept: Add a project option to offer funding of \$30,000 for the installation of ten electric power plugs for TRUs at loading docks or parking areas of distribution centers and subsequent replacement of TRUs.

Basis: Plug-in infrastructure will allow existing TRUs with the latest hybrid electric and electric standby technology to plug in while parked, which in turn will help the State capture emissions benefits at locations where plug-in refrigerated trucks and trailers park for extended periods. In addition, to deploy new TRU technology successfully, investment in fueling infrastructure is needed. Offering funding for plug-in infrastructure will help to make all-electric TRUs more widely available. Requiring a minimum of ten multi-outlet installations per project promotes wider use, decreases overall installation costs, and promotes cost savings for the end user. The proposed funding level is about 50 percent of the cost of installation per unit.

c. Project option – Funding level for cryogenic fueling infrastructure

Concept: Add a project option to offer funding of \$60,000 for the installation of cryogenic fueling infrastructure.

Basis: To further the deployment of zero-emission cryogenic transport refrigerators (TRs), investment in fueling infrastructure is needed. These systems use cryogenic liquid cooling to transport refrigerated goods. Cryogenic TRs eliminate emissions by replacing the need for a conventional TRU. Offering funding for cryogenic fueling infrastructure may encourage the transition from conventional diesel TRUs to these zero-emission systems. The proposed funding level is about 50 percent of the cost of installation and leasing of equipment for the five year project life.

C. Locomotives and Railyards

1. *Summary of All Locomotive Equipment Project Options*

ARB staff is proposing updates to the project options for switchers, medium horsepower, and line-haul locomotives. Concepts include greater funding for early introduction of locomotives meeting the U.S. Environmental Protection Agency (U.S. EPA) Tier 4 emission standard, modification of operational and eligibility requirements involving fuel usage and time in California with increased funding for early projects. Tables 3a and 3b show the project options staff is evaluating.

Table 3a: Updated Equipment Project Concepts for Locomotive Equipment

Eligible Equipment		Equipment Upgrade	Maximum Program Funding Scrapped Engine ¹			Project Life
			Operational in 2016	Operational in 2017	Operational in 2018 or later	
A	Switcher (1,006 2,300 hp) Uncontrolled through Tier 2 ² locomotives diesel freight locomotive.	Replace, repower OR rebuild with new engine OR install alternative technology to meet U.S. EPA Tier 4 ³ or lower emission standards for both NOx and PM.	90 percent to 100 percent CA Operation			15 years
			Lower of 75 percent eligible cost or \$1.875M.	Lower of 70 percent eligible cost or \$1.75M.	Lower of 60 percent eligible costs or \$1.50M.	
B	Medium-horsepower locomotive (2,301-4,000 hp) Uncontrolled through Tier 2 ² diesel freight locomotive.	Replace, repower OR rebuild with new engine OR install alternative technology to meet U.S. EPA Tier 4 ³ OR lower emission standards for both NOx and PM.	90 percent to 100 percent CA Operation			15 years
			Lower of 75 percent eligible cost or \$2.25M.	Lower of 70 percent eligible cost or \$2.10M.	Lower of 60 percent eligible costs or \$1.80M.	
C	Line-haul locomotive (4,001 hp or higher) Uncontrolled through Tier 2 ² diesel freight locomotive.	Replace, repower OR rebuild with new engine OR install alternative technology to meet U.S. EPA Tier 4 ³ or lower emission standards for both NOx and PM.	90 percent to 100 percent CA Operation			15 years
			Lower of 85 percent eligible cost or \$2.55M.	Lower of 80 percent eligible costs or \$2.40M.	Lower of 75 percent eligible costs or \$2.25M.	
			75 percent CA Operation			
			Lower of 70 percent eligible cost or \$2.1M.	Lower of 65 percent eligible costs or \$1.95M.	Lower of 60 percent eligible costs or \$1.80M.	
			50 percent CA Operation			
			Lower of 45 percent eligible cost or \$1.35M.	Lower of 40 percent eligible costs or \$1.2M.	Lower of 35 percent eligible costs or \$1.05M.	
			30 percent CA Operation			
Lower of 25 percent eligible cost or \$750,000.	Lower of 20 percent eligible cost or \$600,000.	Lower of 15 percent eligible cost or \$450,000.				

¹Banning the old engine is allowed but the proposed funding amount will be reduced by 20 percent.

²References to engine "Tier" mean the applicable emission standards established by the U.S. EPA.

³Tier 4 is defined as 1.3 g/bhp-hr or lower NOx and 0.03 g/bhp-hr or lower PM and must have ARB verification.

⁴Locomotive projects applying for less than 100 percent California operation funding must have an active GPS device on both the old (if not scrapped) and new equipment, and report data annually as per Guideline requirements.

Table3b: Updated Equipment Project Concepts for Locomotive Infrastructure

Eligible Equipment		Equipment Upgrade	Maximum Program Funding	Project Life
D	Existing freight railyards.	Install infrastructure for a locomotive emissions capture and control system (a.k.a. hood or bonnet) that achieves a minimum control effectiveness of 85 percent for NOx and 85 percent for PM.	Lower of 50 percent eligible cost or a level with a cost-effectiveness of 0.15 lbs/State \$ or higher.	10 years

2. Discussion of Locomotive Concepts for Change

The changes under consideration would help implement the cleanest locomotive options and help achieve ARB’s toxic, air quality and climate goals. Using the combination of existing project options, a local agency would evaluate all of the applications from locomotive owners and railyard operators, then score each application based on the established criteria of emission reductions and cost-effectiveness to determine which projects receive funding.

a. Project option – funding level

Concept: Update the current project options to include a higher funding level for replacement, repower, and rebuild projects that meet Tier 4 emission levels (1.3 g/bhp-hr or less NOx, and 0.03 g/bhp-hr or less PM).

Basis: Tier 4 emission standards significantly reduce PM and NOx emission and apply to new locomotives manufactured beginning in 2015. When the Guidelines were updated in 2013, staff anticipated that Tier 4 engines would be available in the timeframe to receive funding. However, this has not been the case as Tier 4 locomotives are not yet commercially available. Staff believes that Tier 4 locomotives will be available starting in 2016 based on current demonstration projects. Staff is proposing that Prop. 1B pay a greater share (percentage and dollar amount) of the cost for these engines to encourage adoption of the cleanest technology locomotives in California as early as 2016.

b. Project option – funding level scrapped engines

Concept: Provide higher funding levels for locomotive projects when the engines are scrapped. Projects with engines that are banned will receive 20 percent less funding than the amounts listed in Table 3.

Basis: Recognizing that locomotives have very long useful lives, the Program allows equipment owners to choose to scrap or ban the engine from California. Staff proposes to continue to allow banning but include a new option for scrapped engines at a higher funding amount to incentivize equipment owners to scrap the engine.

c. Operating requirement – California operation

Concept: Allow applicants upgrading line-haul locomotives to select a lower percentage of time operating in California with a corresponding lower level of funding.

Basis: Current Guidelines require applicants of line-haul locomotive projects to operate at least 90 percent of the time in California. Typically, line-haul locomotives spend considerably less time in California as they are used to move freight across the United States. Staff is proposing to add funding options that recognize the lower time spent in California while expediting the introduction of Tier 4 line haul locomotives into California. This proposed change will provide an additional incentive for equipment owners to participate in the Program while still maintaining reasonable cost-effectiveness. This proposed change does not apply to switcher or medium-horsepower locomotives.

d. Eligibility requirement – Tier 2

Concept: Expand eligible equipment to include existing Tier 2 switcher and medium-horsepower locomotives to be eligible for funding.

Basis: Tier 2 line-haul locomotives are currently eligible for funding. By including Tier 2 locomotives to be eligible to upgrade to Tier 4, the projects can provide up to 80 to 85 percent reduction in NOx and PM with corresponding health risk reductions in nearby communities. It will also encourage the adoption of Tier 4 engines.

e. Operating requirement – CARB diesel fuel usage

Concept: Modify the current Program requirement to “commit to the funded locomotive using only California ARB diesel fuel” to “commit to the funded locomotive using California ARB diesel fuel where applicable.”

Basis: Due to CARB diesel fuel regulations, all locomotives operating primarily in the State, such as switchers and medium-horsepower locomotives must be refueled with CARB diesel fuel, except those at BNSF Barstow. BNSF railroad has an exemption for this facility, which allows it to use the fuel available at Barstow, which is not 100 percent CARB diesel fuel.

D. Ships at Berth/Shore Power

1. Summary of All Shore Power Equipment Project Options

ARB’s Ocean-Going Vessels At-Berth Rule (Shore Power Rule) began to phase in emission control requirements between 2010 and 2014; there are no remaining opportunities for early reductions. The focus for this source category continues to be on achieving extra reductions, beyond those required under the Shore Power Rule, by providing funding for berths that service ships not covered by the regulation (e.g. vehicle carriers, bulk ships, and tankers). Changes introduced in the 2013 Guidelines revision

addressed current needs and staff is not proposing any changes to project options shown in Table 4.

Table 4: Existing Equipment Projects Offered for Ships at Berth/Shore Power

Eligible Equipment		Equipment Upgrade	Maximum Program Funding	Project Life	Other Conditions (partial description)
A	Existing cargo ship berth that receives visits by ships not subject to the Shore Power Rule.	Install grid-based shore power (landside infrastructure to berth).	Lower of: 50 percent of eligible cost or \$2.5M.	10 years	Ship visits must result in a cost-effectiveness of 0.10 lbs/State \$ or higher.
B	Existing cargo ship berth or terminal that receives visits by ships not subject to the Shore Power Rule.	Install non-grid-based shore power (zero emission system or natural gas engine with selective catalytic reduction).	\$200,000 per megawatt.	5 years	Ports of Los Angeles and Long Beach: 1,500 hrs/yr (2015 onwards). Other ports: 1,000 hrs/yr (2015 onwards).
C	Existing cargo ship berth or terminal that receives visits by ships not subject to the Shore Power Rule.	Install an emissions capture and control system (a.k.a. hood or bonnet) that achieves a minimum control effectiveness of 85 percent for NOx and 85 percent for PM. ¹	Funding level that provides a cost-effectiveness of 0.10 lbs/State \$ or higher.	10 years	Ports of Los Angeles and Long Beach: 1,500 hrs/yr (2015 onwards). Other ports: 1,000 hrs/yr (2015 onwards).

¹The hood or bonnet technology requires a 5 year warranty.

E. Commercial Harbor Craft

1. Summary of All Commercial Harbor Craft Equipment Project Options

ARB’s Harbor Craft Regulation requires specific vessel types to upgrade to cleaner technology over time. Staff is proposing to update the existing project options for the repower, replacement, and/or upgrade to cleaner systems, of regulated and not regulated commercial harbor craft. New concepts under consideration include expanding the eligible tiers of both baseline and replacement options, offering funds for recently introduced technologies, creating more flexibility in grant structure according to local agency judgment, allowing participation of some freight support vessels, offering funding for eligible auxiliary engines and reducing required project life and territory requirements. The other changes being proposed relate to updates in funding levels. Table 5 shows the project options staff is evaluating.

Table 5: Updated Equipment Project Concepts for Commercial Harbor Craft

Eligible Equipment		Equipment Upgrade ¹	Maximum Program Funding ²	Project Life
A	Regulated in-use: Diesel-powered tugboats, towboats with existing Tier 0, Tier 1 or Tier 2 propulsion and/or auxiliary engine(s).	Repower propulsion and/or auxiliary engine(s) OR replace vessel with new Tier 3 engine.	50 percent of eligible cost OR up to \$175/hp of old engine; funding level must provide a cost-effectiveness of 0.10 lbs/State \$ or higher.	5 years
B	Regulated and non-regulated freight support vessels: Diesel-powered work or pilot boats, marine spill response boats, oil boom boats, dive vessels supporting marine construction, shipyard work boats or commercial fishing vessels with existing Tier 0, Tier 1 or Tier 2 propulsion and/or auxiliary engine(s).	Repower propulsion and/or auxiliary engine(s) OR replace vessel with new Tier 3 engine.	85 percent of eligible cost OR up to \$300/hp of old engine; funding level must provide a cost-effectiveness of 0.10 lbs/State \$ or higher.	5 years
C	Diesel-powered tugboats, towboats, pilot or work boats, crew and supply, marine spill response boats, oil boom boats, dive vessels supporting marine construction, shipyard work boats or commercial fishing vessels with existing Tier 2 or Tier 3 propulsion and/or auxiliary engine(s).	Retrofit to hybrid power system OR replace vessel with new hybrid powered vessel achieving at least 30 percent PM and NOx reductions.	85 percent of eligible cost OR up to \$380/hp of old engine; funding level must provide a cost-effectiveness of 0.10 lbs/State \$ or higher.	5 years
D		Repower propulsion and/or auxiliary engine(s) OR replace vessel with new Tier 4 engine.	85 percent of eligible cost OR up to \$450/hp of old engine; funding level must provide a cost-effectiveness of 0.10 lbs/State \$ or higher.	5 years

¹Regulated vessels upgrades must be operational at least 2 years before the applicable compliance date.

²Funding would be pro-rated based on California operation.

2. Discussion of Commercial Harbor Craft Concepts for Change

This section describes the concepts for proposed changes to commercial harbor craft projects and the basis for those changes. Under the equipment project options a local agency would evaluate all of the applications from harbor craft owners and score each application based on the established criteria of emission reductions and cost-effectiveness to determine which projects receive funding.

a. Project option – funding levels

Concept: Increase the funding level for most project options and allow the local agency the discretion to choose between two grant levels (see Table 5 above).

Basis: The proposed increased funding levels reflect the higher cost of newer engines. Tier 4 engines in tug/tow-size applications have already been certified for use. Offering a higher level of funding for all vessels could incentivize applicants to purchase Tier 4 if available and encourage the development of Tier 4 technologies for all vessel types. Additionally, allowing local agencies to choose between a funding cap based on equipment cost, or a grant amount per unit horsepower provides flexibility to deal with market changes; previous cost-effectiveness requirements remain in place.

b. Eligibility requirement – freight-related vessels, auxiliary engines and baseline Tier 2

Concept: Provide funding for more freight-related harbor craft projects with potential emissions benefits.

Basis: The transport of freight in California waters necessitates the presence of many vessels and engines that do not explicitly propel freight. The Program already offers funding for some types, pilot vessels, and work boats. Staff is proposing to expand funding for freight support vessels including: marine spill response boats, oil boom boats, dive vessels supporting marine construction, and shipyard work boats. Funding will also be offered for auxiliary engines, which are a necessary part of the marine freight movement fleet. In addition, baseline Tier 2 vessels seeking to upgrade to cleaner-than-required engines will be offered funding; this change will capture cost-effective, extra emissions reductions from existing Tier 2 harbor craft and encourage adoption of Tier 3 and Tier 4 engines.

c. Eligibility requirement – California operation

Concept: Reduce the requirement for the existing vessel to have two years of at least 75 percent operation in California waters to 51 percent.

Basis: ARB staff has received requests to allow vessels that operate for less than 75 percent of their time in California waters to apply for funding. Demand for commercial harbor craft projects has been minimal due in part to the minimum operation requirement. Allowing for lower operation of the existing vessel to apply for pro-rated funding still achieves cost effective emission reductions. An active GPS device is required for operation of less than 100 percent in California waters.

d. Operating requirement – California operation

Concept: Offer equipment owners the option to operate the upgraded vessel a minimum of 51 percent in California waters, at a reduced (pro-rated) funding level.

Basis: ARB staff has received requests to allow vessels that cannot commit to operating at least 90 percent of their time in California waters to apply for funding. Demand for commercial harbor craft projects has been minimal due in part to the minimum operation. Allowing for lower operation of the upgraded vessel with pro-rated funding still achieves

cost effective emission reductions. An active GPS device is required for operation of less than 100 percent in California waters.

e. Operating requirement – project life

Concept: Reduce project life (and contract commitment) from eight years to five years for all project options.

Basis: California's strict emissions requirements for harbor craft mean that the cleanest vessels will operate in California waters throughout their useful life. Shorter contract requirements would reduce some of the administrative burden on local agencies and may be more appealing to equipment owners.

F. Cargo Handling Equipment

1. *Summary of All Cargo Handling Equipment Project Options*

The emission reductions from Program-funded upgrades cannot be used to comply with ARB's Regulation for Mobile Cargo Handling Equipment at Ports and Intermodal Rail Yards (CHE Regulation). Since the Board adopted the CHE Regulation in December 2005, most of the compliance deadlines have passed. Therefore, the upgraded equipment must move towards zero emission technology to provide "extra" emission reductions. The CHE regulation requires equipment to meet current engine emission standards and be equipped with a diesel particulate filter if it does not meet Tier 4 off-road engine emission standards for all new equipment. The rule is even more stringent for yard trucks by requiring 2007 or newer on road engines or Tier 4 off road engines. Given that the previous Guideline requirements also envisioned the pursuit of zero emission technology, staff is proposing minimal changes to existing project options. Table 6 shows the project options staff is evaluating.

Table 6: Updated Equipment Project Concepts for Cargo Handling Equipment

Eligible Equipment		Equipment Upgrade	Maximum Program Funding	Project Life
A	Existing rubber-tired gantry crane.	Repower OR replace a diesel engine RTG with a zero emission powered system.	Lower of 50 percent of eligible cost or \$500,000.	15 years
B	Existing diesel-powered yard truck.	Replace a diesel powered yard truck with a zero emission yard truck other than fuel cell powered yard truck.	Lower of 80 percent of eligible cost or \$100,000.	7 years
C	Existing diesel-powered yard truck.	Replace a diesel powered yard truck with fuel cell powered yard truck.	Lower of 80 percent of eligible cost or \$200,000.	7 years
D	Existing diesel-powered yard truck.	Repower a diesel powered yard truck with a zero emission yard truck other than fuel cell powered yard truck.	Lower of 80 percent of eligible cost or \$80,000.	7 years
E	Multi-unit battery chargers with the purchase or repower of 3 yard trucks.	Replace or repower 3 yard trucks with zero emission yard trucks (other than fuel cell powered) and funding for a multiple charge battery station.	Lower of 80 percent of eligible cost or \$100,000 (replacement) or \$80,000 (repower) per yard truck plus the cost of a multi-unit battery charger up to the lower of \$35,000 or 50 percent of the eligible cost.	7 years

¹Program funded equipment cannot be used to comply with the regulatory requirement for replacing non-compliant equipment with electric or zero-emission equipment associated with obtaining third and/or fourth years of “No VDECS Available” compliance extension.

²Program funded equipment is not eligible to be counted towards compliance for a two-year period.

1. Discussion of Cargo Handling Concepts for Change

This section describes the concepts for revisions to the cargo handling equipment projects. A local agency would evaluate all of the applications from cargo handling equipment owners, combined with applications for ships at berth/shore power projects that are part of the same funding category, and score each application based on the established criteria of emission reductions and cost-effectiveness to determine which projects receive funding.

a. Project option – funding level

Concept: Increase the funding of zero emission yard trucks (other than fuel cell) to the lower of 80 percent OR \$100,000.

Basis: When the Guidelines were updated in 2013, staff anticipated that zero emission yard trucks would be commercially available in the funding timeframe. However, this has not been the case as these vehicles are still in the demonstration phase. It is anticipated that the cost of a zero emission yard truck will be in the range of \$200,000 to \$275,000, depending on battery power. An increase in funding will provide a greater incentive for equipment owners to upgrade equipment beyond the regulatory requirements and to incentivize the introduction of equipment on a broader basis.

b. Project option – zero emission repowers

Concept: Add a new project option to offer funding of the lower of 80 percent of the cost OR \$80,000 to repower a diesel powered yard truck with a zero emission yard truck other than fuel cell.

Basis: Currently, technology to convert diesel yard trucks to zero emission trucks is in the demonstration phase. By offering a new project option we hope to create customer demand for the technology and spur manufacturers to make them available sooner.

c. Project option – fuel cell powered zero emission yard trucks

Concept: Add a new project option to fund zero emission fuel cell yard trucks at the lower of 80 percent or \$200,000 per yard truck.

Basis: To accelerate the commercialization of fuel cell powered zero emission yard trucks, staff proposes an increase in the partial funding to account for the significant cost difference between traditional diesel and fuel cell powered trucks. The funding amount assumes fuel cell powered yard trucks cost at least double the amount of conventional diesel yard trucks.

d. Project option – multi-unit battery charger

Concept: Add a new project option that funds three or more replacement or repowered zero emission yard trucks at the lower of 80 percent or \$100,000 per yard truck replacement or \$80,000 per yard truck repower in addition to partially funding the cost of a multi-unit battery charger at lower of \$35,000 or 50 percent of eligible cost.

Basis: To incorporate zero emission equipment successfully for use at ports and intermodal yards, the necessary infrastructure with reliable electrical infrastructure must be available. By supporting the development of a multi-unit station, the program incentivizes the further development of the terminals' infrastructure for zero emission powered equipment. Multi-unit charging stations range from \$50,000 to \$70,000 for two and three port chargers.

e. Project option – extending project life

Concept: Extend the project life from five years to seven years for yard trucks.

Basis: Since the funding amount was substantially increased for zero emission yard trucks, the project life needs to be extended to ensure that the emission reductions are cost-effective.

IV. ADMINISTRATION

Based upon experience from prior grants and input from the local agencies implementing the Program, ARB staff is developing updates to the administration requirements within the Guidelines. These changes will continue to improve implementation while still maintaining the integrity of the Program. These administrative updates include:

- **Liquidation Deadlines.** Staff is proposing project options under some source categories where the engines are not yet commercially available and/or certified by ARB. In response, ARB staff is proposing to extend the liquidation deadlines from 18 months up to 36 months for heavy duty truck, TRU, and yard truck projects where ARB has determined that the engines are not commercially available and/or certified. Local agencies will execute contracts with equipment owners thereby reserving the funds until the equipment becomes available.

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APPENDIX A

TABLE 1 PROJECTS BY TRADE CORRIDOR

Trade Corridor (Local Agency)		Award	PM 2.5 (lbs)	NOx (lbs)	Operational Projects	Projects in Process
Los Angeles/Inland Empire	South Coast Air Quality Management District	\$385,631,095	2,169,000	98,859,000	3,192 other trucks 1,601 drayage trucks 25 ships at berth 4 locomotives	1,905 other trucks 6 locomotives
	Port of Long Beach	\$3,550,000	57,000	609,000	67 drayage trucks	NA
Central Valley	San Joaquin Valley Air Pollution Control District	\$144,916,231	1,210,000	39,223,000	2,218 other trucks	723 other trucks
	Sacramento Metropolitan Air Quality Management District	\$31,508,368	370,000	6,765,000	393 other trucks 15 locomotives	82 other trucks
Bay Area	Bay Area Air Quality Management District	\$90,446,624	472,000	19,073,000	647 other trucks 1,449 drayage trucks 12 ships at berth	320 other trucks
San Diego/Border	San Diego Air Pollution Control District	\$28,127,061	122,000	3,532,000	378 other trucks 98 drayage trucks 1 harbor craft	134 other trucks 2 harbor craft
	Imperial County Air Pollution Control District	\$17,114,391	87,000	3,093,000	251 other trucks	121 other trucks
Statewide - Loan Assistance ¹		\$10,300,000				
Statewide - Truck Filter Substrate Replacement Program		\$6,300,000				
ARB Administration		\$21,400,000				
TOTAL		\$739.3 million	4,487,000 lbs or 2,244 tons	171,154,000 lbs or 85,577 tons	7,079 other trucks 3,215 drayage trucks 37 ships at berth 1 harbor craft 19 locomotives	3,285 other trucks 2 harbor craft 6 locomotives

¹The \$5.3 million awarded at the July 2013 Board Meeting is not needed due to project fallout; ARB will reallocate the funds in 2015.

TABLE 2 PROJECTS BY SOURCE CATEGORY

Funding Category	Award	PM 2.5 (lbs)	NOx (lbs)	Operational Projects	Projects in Process
Other Trucks	\$485,029,178	2,831,000	118,794,000	7,079	3,285
Drayage Trucks	\$114,928,891	871,000	18,695,000	3,215	NA
Ships at Berth	\$82,395,415	459,000	29,283,000	37	NA
Harbor Craft	\$915,286	3,000	43,000	1	2
Locomotives	\$18,025,000	323,000	4,339,000	19	6
ARB Loan Assistance ¹	\$10,300,000				
ARB Truck Filter Substrate Replacement Program	\$6,300,000				
ARB Administration	\$21,400,000				
TOTAL	\$739.3 million	4,487,000 lbs or 2,244 tons	171,154,000 lbs or 85,577 tons	7,079 trucks 3,215 drayage trucks 37 ships at berth 1 harbor craft 19 locomotives	3,285 trucks 2 harbor craft 6 locomotives

¹The \$5.3 million awarded at the July 2013 Board Meeting is not needed due to project fallout; ARB will reallocate the funds in 2015.

TABLE 3 LOS ANGELES/INLAND EMPIRE TRADE CORRIDOR – South Coast AQMD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
Other Trucks	Replace old dirty trucks with newer clean models. 13GML01/G11GMLT1	\$96,275,784	151,000	33,588,000	District has signed contracts to upgrade 2,079 trucks. 307 trucks have been scrapped and replaced with much cleaner trucks.
Year 3					
Priority Drayage Trucks	Replace old dirty trucks with newer clean models serving ports and railyards. G11GMLP1	\$3,302,250	1,000	973,000	Grant complete. 105 old trucks have been scrapped and replaced with much cleaner trucks.
Year 2					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G11GMLT1/G08GMLT1	\$90,363,736	478,000	14,171,000	Grant complete. 1,513 trucks have been scrapped and replaced with much cleaner trucks. 385 trucks have been retrofitted with soot filters.
Ships at Berth	Eliminate or reduce emissions from ships at berth. G08GMLS1	\$59,973,125	343,000	21,841,000	District is in the process of completing the grant. Construction and installation of shore power equipment for 25 berths (12 for Port of Long Beach, 10 for Port of Los Angeles, 3 for Port of Hueneme) is complete with ships plugging into the grid starting in January 2014.
Locomotives	Replace old dirty locomotives with newer clean models. G08GMLL1	\$4,635,000	27,000	315,000	District has signed a contract to upgrade 6 locomotives and expects the projects to be operational by December 2014.

TABLE 3 (continued) LOS ANGELES/INLAND EMPIRE TRADE CORRIDOR – South Coast AQMD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 1					
Drayage Trucks	Replace old dirty trucks serving the Ports of Los Angeles and Long Beach with newer clean models. G07GMLP1	\$6,930,000	66,000	1,104,000	Grant complete. 132 old trucks have been scrapped and replaced with much cleaner trucks.
	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models serving the rail yards. G07GMLP2	\$2,625,000	31,000	577,000	Grant complete. 50 old trucks have been scrapped and replaced with much cleaner trucks. 2 trucks have been retrofitted with soot filters.
	Replace old dirty trucks serving the Ports of Los Angeles and Long Beach with newer clean models. G07GMLP3-03	\$68,539,800	511,000	10,177,000	Grant complete. 1,312 old trucks have been scrapped and replaced with much cleaner trucks.
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMLT1	\$6,877,500	96,000	1,638,000	Grant complete. 131 old trucks have been scrapped and replaced with much cleaner trucks.
	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMLT2	\$43,018,900	440,000	13,295,000	Grant complete. 823 old trucks have been scrapped and replaced with much cleaner trucks. 33 trucks have been retrofitted with soot filters.
Locomotives	Replace old dirty locomotives at rail yards with newer clean models. G07GMLL1	\$3,090,000	25,000	1,180,000	Grant complete. 4 locomotives have been repowered with much cleaner engines.

TABLE 3 (continued) LOS ANGELES/INLAND EMPIRE TRADE CORRIDOR – Port of Long Beach

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
<i>Year 1</i>					
Drayage Trucks	Replace old dirty trucks serving the Ports of Los Angeles and Long Beach with newer clean models. G07GMLP3	\$3,550,000	57,000	609,000	Grant complete. 67 old trucks have been scrapped and replaced with much cleaner trucks.
Corridor Total		\$389,181,095	2,226,000	99,468,000	

TABLE 4 CENTRAL VALLEY TRADE CORRIDOR – San Joaquín Valley APCD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
Other Trucks	Replace old dirty trucks with newer clean models. 13GMC01/G11GMCT1	\$39,519,385	51,000	9,183,000	District has signed contracts to upgrade 515 trucks. 151 trucks have been scrapped and replaced with much cleaner trucks.
Year 2					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G11GMCT1/G08GMCT1	\$59,689,926	495,000	14,357,000	Grant complete. 1,058 old trucks have been scrapped and replaced with much cleaner trucks. 105 trucks have been retrofitted with soot filters.
Year 1					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMCT1	\$4,882,500	104,000	1,364,000	Grant complete. 93 old trucks have been scrapped and replaced with much cleaner trucks. 10 trucks have been retrofitted with soot filters.
	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMCT3	\$40,824,420	560,000	14,319,000	Grant complete. 789 old trucks have been scrapped and replaced with much cleaner trucks. 12 trucks have been retrofitted with soot filters.

TABLE 4 (continued) CENTRAL VALLEY TRADE CORRIDOR – Sacramento Metropolitan AQMD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
Other Trucks	Replace old dirty trucks with newer clean models. 13GMC02/G11GMCT2	\$8,054,846	15,000	1,310,000	District has signed contracts to upgrade 159 trucks. 102 trucks have been scrapped and replaced with much cleaner trucks.
Year 2					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G11GMCT2/G08GMCT2	\$8,409,901	43,000	1,568,000	Grant complete. 178 old trucks have been scrapped and replaced with much cleaner trucks. 15 trucks have been retrofitted with soot filters.
Year 1					
Other Trucks	Replace old dirty trucks with newer clean models. G07GMCT2	\$102,847	1,000	27,000	Grant complete. 2 old trucks have been scrapped and replaced with much cleaner trucks.
	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMCT4	\$4,640,774	40,000	1,016,000	Grant complete. 96 old trucks have been scrapped and replaced with much cleaner trucks.
Locomotives	Replace old dirty long-haul locomotives with new clean models. G07GMCL1	\$10,300,000	271,000	2,844,000	Grant complete. 15 locomotives have been repowered with much cleaner engines and are expected to routinely travel between the Central Valley and the Los Angeles/Inland Empire trade corridors.
Corridor Total		\$176,424,599	1,580,000	45,988,000	

TABLE 5 BAY AREA CORRIDOR – Bay Area AQMD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
Other Trucks	Replace old dirty trucks with newer clean models. 13GMB01/G11GMBT1	\$14,545,593	16,000	2,506,000	District has signed contracts to upgrade 213 trucks. 60 trucks have been scrapped and replaced with much cleaner trucks.
Year 3					
Priority Drayage Trucks	Replace old dirty trucks with newer clean models serving ports and railyards. G11GMBP1	\$10,311,000	1,000	2,678,000	Grant complete. 357 old trucks have been scrapped and replaced with much cleaner trucks.
Year 2					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G11GMBT1/G08GMBT1	\$18,178,650	84,000	2,580,000	Grant complete. 348 old trucks have been scrapped and replaced with much cleaner trucks. 28 trucks have been retrofitted with soot filters.
Ships at Berth	Eliminate or reduce emissions from ships at berth and/or cargo equipment at ports and intermodal railyards. G08GMBS1	\$20,000,000	98,000	6,278,000	District is in the process of completing the grant. Construction and installation of shore power equipment for 9 berths at the Port of Oakland is complete with ships plugging into the grid starting in January 2014.

TABLE 5 (continued) BAY AREA CORRIDOR – Bay Area AQMD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 1					
Drayage Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMBP1	\$14,526,891	175,000	1,897,000	Grant complete. 203 old trucks have been scrapped and replaced with much cleaner trucks. 889 trucks have been retrofitted with soot filters.
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMBT1	\$10,462,200	80,000	1,970,000	Grant complete. 198 old trucks have been scrapped and replaced with much cleaner trucks. 13 trucks have been retrofitted with soot filters.
Ships at Berth	Install grid-based shoreside electrical power at 3 berths at the Port of Oakland so ships can plug in and turn off their engines while docked. G07GMBS1	\$2,422,290	18,000	1,164,000	Grant complete. Shore power has been installed at 3 ship berths.
Locomotives	Replace old dirty locomotives at rail yards with newer clean models. G07GMBL1	\$0	0	0	Grant terminated and funds transferred to the existing drayage truck grant G07GMBP1, at the District's request.
Corridor Total		\$90,446,624	472,000	19,073,000	

TABLE 6 SAN DIEGO/BORDER TRADE CORRIDOR – San Diego APCD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
Other Trucks	Replace old dirty trucks with newer clean models. 13GMS01	\$9,011,061	9,000	647,000	District has signed contracts to upgrade 149 trucks. 54 trucks have been scrapped and replaced with much cleaner trucks.
Commercial Harbor Craft	Replace old dirty engines in harbor craft with newer clean engines. 13GMS01	\$800,000	2,000	32,000	District is in the process of signing contracts with equipment owners to upgrade 2 harbor craft vessels.
Year 2					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G11GMST1/G08GMST2	\$11,376,764	69,000	1,830,000	Grant complete. 222 old trucks have been scrapped and replaced with much cleaner trucks. 70 trucks have been retrofitted with soot filters.
Commercial Harbor Craft	Replace old dirty engines in harbor craft with newer clean engines. G08GMSH1	\$115,286	1,000	11,000	Grant complete. 1 harbor craft vessel has been upgraded.

TABLE 6 (continued) SAN DIEGO/BORDER TRADE CORRIDOR – San Diego APCD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 1					
Drayage Trucks	Retrofit or replace trucks serving the Port of San Diego. G07GMSP1	\$0	0	0	Grant terminated and funds transferred to the drayage truck grant G07GMSP2, at the District's request.
	Replace old dirty trucks serving the Port of San Diego with newer clean models. G07GMSP2	\$5,143,950	29,000	680,000	Grant complete. 98 old trucks have been scrapped and replaced with much cleaner trucks.
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMST2	\$1,680,000	12,000	332,000	Grant complete. 32 old trucks have been scrapped and replaced with much cleaner trucks.

TABLE 6 (continued) SAN DIEGO/BORDER TRADE CORRIDOR – Imperial County APCD

Funding Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
Other Trucks	Replace old dirty trucks with newer clean models. 13GMS02/G11GMST2	\$6,611,061	6,000	1,099,000	District has signed contracts to upgrade 61 trucks. 29 trucks have been scrapped and replaced with much cleaner trucks.
Year 2					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G11GMST2/G08GMST1	\$7,929,531	60,000	1,561,000	Grant complete. 147 old trucks have been scrapped and replaced with much cleaner trucks. 24 trucks have been retrofitted with soot filters.
Year 1					
Other Trucks	Retrofit trucks with soot filters and replace old dirty trucks with newer clean models. G07GMST3	\$2,573,799	21,000	433,000	Grant complete. 51 old trucks have been scrapped and replaced with much cleaner trucks.

TABLE 6 (continued) SAN DIEGO/BORDER TRADE CORRIDOR – Port of San Diego

Fiscal Year/ Category	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 1					
Ships at Berth	Install grid-based shore power at the Port of San Diego. G07GMSS1	\$0	0	0	Grant terminated and funds transferred to the San Diego District's drayage truck grant G07GMSP2, at the Port's request.
Corridor Total		\$45,241,452	209,000	6,625,000	

TABLE 7 STATE AGENCY – LOAN ASSISTANCE – Trucks Only

State Agency	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
ARB	Loan assistance to replace old dirty trucks with newer clean models.	\$5,300,000	TBD	TBD	ARB anticipated reallocating the funds to grants due to the initial demand from the 2013 Truck Solicitations. However, these funds will not be needed due to project fallout. ARB intends to reallocate these funds in 2015, as per statute and Guidelines.
Year 3					
ARB	Loan assistance to replace old dirty trucks with newer clean models serving ports and railyards.	\$5,000,000	Included in the Bay Area and South Coast Districts' FY2011-12 Priority Drayage Reserve Grants.		Loan assistance to help replace drayage trucks funded under the priority drayage reserve through the South Coast and Bay Area Districts. Loan assistance is improved access to financing through the California Capital Access Program with funds used for a loan loss reserve account if a truck owner defaults on their loan. 136 trucks projects have utilized the loan assistance program.

TABLE 8 MULTI-CORRIDOR TRUCK PROGRAMS

State Agency	Project Description	Grant Amount	Emission Reductions (pounds)		Current Project Status
			PM 2.5	NOx	
Year 4					
ARB	Truck filter substrate replacement	\$6,300,000	TBD	TBD	ARB will finalize the requirements to implement the program and will be working with a local agency to administer the program in 2015.