California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

Thursday, April 24, 2014 and Friday, April 25, 2014

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
(This facility is accessible to persons with disabilities.)

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO: http://www.arb.ca.gov/lispub/comm/bclist.php

Thursday
April 24, 2014
9:00 a.m.

CONSENT CALENDAR:
The following item on the consent calendar will be presented to the Board immediately after the start of the public meeting, unless removed from the consent calendar either upon a Board member's request or if someone in the audience wishes to speak on it.

Consent Item #

14-3-5: Public Meeting to Consider Appointment of a New Member to the Research Screening Committee

Staff recommend the appointment of Dr. Rashid Shaikh, of the Health Effects Institute to the Research Screening Committee to fill the vacancy left by the resignation of Dr. Irva Hertz-Picciotto from the University of California, Davis. The Board's Research Screening Committee consists of scientists, engineers, and others who are knowledgeable, technically qualified, and experienced in air pollution and climate change research.

DISCUSSION ITEMS:

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

Agenda Item #

14-3-1: Public Meeting to Update the Board on Health Effects of Air Pollution Exposure

Staff will provide a brief update to the Board on the adverse health effects associated with exposure to air pollutants.

14-3-2: Public Hearing to Consider Proposed Amendments to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants From In-Use Heavy Duty Diesel-Fueled Vehicles

(Spanish translation services will be provided for this Board item.)

Staff will present to the Board amendments to the regulation that would better ensure the air quality goals of the Truck and Bus Regulation are achieved by providing additional flexibility

to fleets to enable compliance. In developing these amendments, staff focused on three objectives: protecting emission reductions by providing lower cost compliance options to small fleets, low mileage fleets, and fleets that operate in rural areas with cleaner air; creating new opportunities for fleets to access public incentive funds; and recognizing fleets that made early investments to comply. The proposed amendments would continue to meet California's air quality obligations under the federal Clean Air Act and the goals of the Diesel Risk Reduction plan. As part of this presentation, staff will also present an update on the diesel particulate filter evaluation and field study.

Friday
April 25, 2014
8:30 a.m.

14-3-3: Public Hearing to Consider Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, including the Compliance Offset Protocol for Mine Methane Capture Projects

Staff will present to the Board proposed amendments to the Cap-and-Trade Regulation related to implementation, allocation, cost containment mechanisms, and other specific directions from the Board. Additionally, the proposed amendments will include a new offset protocol for mine methane capture projects. The amendments were first presented to the Board at the October 2013 public meeting, at which the Board directed staff to make a number of modifications to the proposed regulation. As part of this action, staff is also recommending, pursuant to the California Environmental Quality Act, that the Board approve staff's written responses to public comments received on the environmental analysis for the proposed amendments.

14-3-4: Public Meeting to Update the Board on Assembly Bill 118 Air Quality Improvement Program Clean Vehicle Rebate Project Waiting List Expansion

Staff will update the Board on the current status of the Assembly Bill 118 Air Quality Improvement Program, Clean Vehicle Rebate Project (CVRP) and the Fiscal Year (FY) 2013-14 CVRP rebate waiting list which is currently capped at $5 million. Due to a FY 2013-14 funding shortfall, FY 2013-14 CVRP rebate applicants are placed on a waiting list and, based on the availability of funds, will receive a rebate under current FY 2013-14 rebate amounts and eligibility criteria. Staff is proposing to expand the FY 2013-14 CVRP rebate waiting list by $25 million for a total of $30 million.

CLOSED SESSION

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, and as authorized by Government Code section 11126(a):

POET, LLC, et al. v. Corey, et al., Superior Court of California (Fresno County), Case No. 09CECG04850; plaintiffs' appeal, California Court of Appeal, Fifth District, Case No. F064045; California Supreme Court, Case No. S213394.

Rocky Mountain Farmers Union, et al. v. Corey, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09-CV-02234-LJO-DLB; interlocutory appeal, U.S. Court of Appeals, Ninth Circuit, Case Nos. 09-CV-02234 and 10-CV-00163.

American Fuels and Petrochemical Manufacturing Associations, et al. v. Corey, et al., U.S. District Court (E.D. Cal. Fresno), Case No. 1:10-CV-00163-AWI-GSA; interlocutory appeal, U.S. Court of Appeals, Ninth Circuit, Case Nos. 09-CV-02234 and 10-CV-00163.

Association of Irritated Residents, et al. v. United States Environmental Protection Agency, 2011 WL 310357 (C.A.9), (Feb. 2, 2011).

California Dump Truck Owners Association v. Nichols, U.S. District Court (E.D. Cal. Sacramento), Case No. 2:11-CV-00384-MCE-GGH; plaintiffs' appeal, U.S. Court of Appeals, Ninth Circuit, Case No. 13-15175.

Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2010-00082774; defendant's appeal, California Court of Appeal, Third District, Case No. C071891.

Truck and Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2013-00150733.

Alliance of Automobile Manufacturers v. California Air Resources Board; Sacramento Superior Court, Case No. 34-2013-00152974.

Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, San Francisco Superior Court, Case No. CGC-12-519554, plaintiffs' appeal, California Court of Appeal, First District, Case No. A138830.

California Chamber of Commerce et al. v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2012-80001313.

Morning Star Packing Company, et al. v. California Air Resources Board, et al., Sacramento Superior Court, Case No. 34-2013-800001464.

Delta Construction Company, et al. v. United States Environmental Protection Agency, U.S. Court of Appeals, District of Columbia Circuit, Case No. 11-1428.

City of Los Angeles through Department of Water and Power v. California Air Resources Board, et al., Los Angeles Superior Court, Case No. BS140620 (transferred to Sacramento Superior Court, Case No. 34-2013-80001451-CU-WM-GDS).

Alliance for California Business v. Nichols et al., Glenn County Superior Court, Case No. 13CV01232.

Dalton Trucking, Inc. v. United States Environmental Protection Agency, U.S. Court of Appeals, District of Columbia Circuit, Case No. 13-1283.

Owner-Operator Independent Drivers Association Inc. et al. v. Richard W. Corey et al., U.S. District Court, Case No. 1:13-CV-01998-LJO-SAB (Dec. 6, 2013).

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 that 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.

TO ELECTRONICALLY SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO:

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

(Note: not all agenda items are available for electronic submittals of written comments.)

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE CLERK OF THE BOARD:
1001 I Street, 23rd Floor, Sacramento, California 95814
(916) 322-5594
ARB Homepage: www.arb.ca.gov

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format 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 7 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia
- Documentos disponibles en un formato alterno u 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 envié un fax a (916) 322-3928 lo más pronto posible, pero no menos de 7 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.

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

California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

LOCATION:
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814

This facility is accessible by public transit. For transit information, call (916) 321-BUSS, website: http://www.sacrt.com
(This facility is accessible to persons with disabilities.)

INDEX

April 24 & 25, 2014

Agenda #		Pages
14-3-5	Public Meeting to Consider Appointment of a New Member to the Research Screening Committee	---
14-3-1	Public Meeting to Update the Board on Health Effects of Air Pollution Exposure	---
14-3-2	Public Hearing to Consider Proposed Amendments to the Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants From In-Use Heavy Duty Diesel-Fueled Vehicles	1-311
14-3-3	Public Hearing to Consider Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, including the Compliance Offset Protocol for Mine Methane Capture Projects	313-396
14-3-4	Public Meeting to Update the Board on Assembly Bill 118 Air Quality Improvement Program Clean Vehicle Rebate Project Waiting List Expansion	397-399

TITLE 13. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER THE PROPOSED AMENDMENTS TO THE REGULATION TO REDUCE EMISSIONS OF DIESEL PARTICULATE MATTER, OXIDES OF NITROGEN AND OTHER CRITERIA POLLUTANTS FROM IN-USE HEAVY-DUTY DIESEL-FUELED VEHICLES

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider the adoption of amendments to the "Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles" (Truck and Bus regulation), title 13, California Code of Regulations (CCR), section 2025. This notice summarizes the specific amendments being proposed. The staff report: Initial Statement of Reasons (ISOR) presents the proposed amendments and information supporting the amendments of the regulation in greater detail.

DATE: April 24, 2014

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 two-day meeting of the Board, which will commence at 9:00 a.m., April 24, 2014, and may continue at 8:30 a.m., April 25, 2014. This item may not be considered until April 25, 2014. Please consult the agenda for the hearing, which will be available at least ten days before April 24, 2014, to determine the day on which this item will be considered.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW PURSUANT TO GOVERNMENT CODE 11346.5(a)(3)

Sections Affected: Proposed amendments to CCR, title 13, section 2025, Truck and Bus regulation.

Background and Effect of the Proposed Rulemaking:

The Truck and Bus regulation was approved by ARB on December 12, 2008, to reduce emissions of diesel particulate matter (PM), oxides of nitrogen (NOx), and other criteria pollutants from about one million in-use diesel trucks and buses that operate in California. The regulation became effective in January 2010. In April 2010, due to the unanticipated economic recession that California and the nation were experiencing, the Board directed staff to update the emissions inventory from trucks to reflect the impact of the recession on emissions. The Board further directed staff to develop amendments to the Truck and Bus regulation that takes into account that emissions were lower as a

result of the recession while continuing to meet air quality goals and obligations. The amended regulation was adopted by the Board on December 17, 2010, and became effective on December 14, 2011.

Despite the amendments, many fleet owners may not have fully recovered from the recession, especially fleet owners in rural areas, smaller fleets, and lower mileage fleets affected by the significant reduction in statewide construction activity. In addition, on January 17, 2014, Governor Brown declared a drought emergency in California which has and will continue to affect many industries, particularly agriculture.

The existing Truck and Bus regulation applies to nearly one million diesel vehicles that annually operate in California with a manufacturer's gross vehicle weight rating (GVWR) greater than 14,000 pounds. The regulation requires newer heavier trucks and buses to meet PM filter requirements starting January 1, 2012, and to replace all older vehicles starting January 1, 2015. The emission reductions will be achieved through three principal means: (1) installing verified diesel emission control strategies (VDECS), also referred to as PM filters, on existing engines; (2) replacing vehicles with newer ones that have cleaner engines; or (3) repowering vehicles with newer, cleaner engines. These emission reductions are necessary to meet State and federal ambient air quality standards, to reduce premature deaths attributable to exposure to fine particulate matter ($PM_{2.5}$) emissions, and to reduce exposure to carcinogenic diesel PM in support of the Diesel Risk Reduction Plan (DRRP) adopted by the Board on September 30, 2000 (ARB, 2000).

Objectives and Benefits of the Proposed Regulation:

At the Board's October 2013 meeting, staff provided an update on the implementation of the Truck and Bus regulation. Stakeholders expressed concern regarding the ability of some fleets to make the needed upgrades to comply. These concerns specifically focused on small fleets, lower mileage fleets, and fleets in rural areas, all of which arguably continue to be impacted by the recession. Staff informed the Board that it intended to develop and propose amendments to the regulation that will help ensure that the air quality benefits originally envisioned by the regulation will be achieved, while providing the ability of these fleets with additional compliance flexibility.

In developing these amendments, staff focused on three objectives:

- Protecting emission reductions by providing lower cost compliance options to small fleets, low mileage fleets, and certain rural fleets.
- Providing new opportunities for fleets to access public incentive funds.
- Recognizing fleets that made early investments to comply.

Overall, these amendments would achieve about $400 million dollars in cost savings (a 20 percent reduction in overall regulatory cost) for those affected by the amendments, while:

- Starting in 2020, ensuring emissions would be at the same level as the existing regulation.

- Continuing progress in reducing statewide exposure to diesel PM from vehicles covered by the regulation by 85 percent, in support of the DRRP.
- By 2023, providing the NOx reductions from trucks necessary to meet State and federal air quality standards.

By 2023, the amended regulation would cumulatively achieve 93 percent of the PM2.5 and NOx benefits, and similar benefits to reduce premature deaths attributable to exposure to PM2.5 emissions, as was envisioned in 2010. On balance, staff believes the proposed new flexibilities are reasonable and consistent with a rebalanced compliance approach for fleets still suffering from the impacts of the economic recession.

Proposed Amendments

To achieve these objectives and benefits, staff is proposing amendments to the Truck and Bus regulation that include:

- A longer-phase-in period for PM requirements in certain rural areas while continuing to ensure compliance with diesel risk reduction program goals.
- Additional time and a lower-cost pathway for small fleets to achieve compliance with PM requirements, while re-opening opportunities for these fleets to apply for and receive public incentive funding.
- A compliance pathway for owners currently unable to qualify for a loan to finance compliance.
- A longer compliance timeline for low-use and certain vocational or work trucks that travel fewer annual miles and are not competitive in obtaining incentive funding.
- Recognition of fleets that took early action to comply by providing additional useable life for retrofit trucks.

Additional detail and examples of how the individual amendments would affect fleets and the rationale is discussed in more detail in the Initial Statement of Reasons in Chapter VIII.

Providing Relief in Rural Areas with Cleaner Air

Staff is proposing changes to the compliance options for vehicles that are operated in NOx Exempt Areas as defined in section 2025(d)(45) by expanding the regions that are in the definition and by extending compliance requirements contained in section 2025(p)(1) over a longer period of time. First, staff is proposing to amend the definition of NOx Exempt Areas" in section 2025(d)(45), to add the following counties: Amador, Butte, Calaveras, Eastern Kern, Inyo, Mariposa, Mono, Nevada, Northern Sutter, Tuolumne, and the portions of El Dorado and Placer that are within the Lake Tahoe Air Basin. These counties have made substantial progress towards cleaner air, hence creating an opportunity to provide additional time for realizing emission reductions. Second, staff is proposing to amend the compliance schedule for all vehicles, including out-of-state vehicles, that are operated solely within the NOx Exempt Areas (section 2025(p)(1)).

The initial compliance deadline would be extended by one year and the final compliance deadline would be extended four years per the proposed schedule shown in Table 1.

Table 1: Proposed Compliance Schedule for NOx Exempt Area Fleets

Compliance Deadline as of January 1	Existing PM Filter Phase-in Requirement	Proposed Revised Requirement PM Filter Phase-in
2014	33%	0%
2015	66%	25%
2016	100%	40%
2017		55%
2018		70%
2019		85%
2020		100%

Small fleets with three or fewer vehicles that operate in the NOx Exempt Areas would have the option to add PM filters according to the schedule in Table 2.

Table 2: Proposed Compliance Schedule for Small Fleets in NOx Exempt Areas

Number of Trucks	Existing Rule PM Filter Required January 1	Proposed Revised Rule PM Filter Required January 1
One Truck	2015	2017
Two Trucks	2014, 2016	2015, 2019
Three Trucks	2014, 2015, 2016	2015, 2017, 2019

Staff is also proposing to amend section 2025(p)(1)(D) to clarify that vehicles that use the NOx Exempt Area Extension may travel outside of the designated NOx exempt areas for emergency operations, as defined in proposed section 2025(d)(23).

Additional Time and Lower-Cost Pathway for Small Fleets in Non-Attainment Areas

For small fleets (section 2025(h)) not operated exclusively in NOx exempt areas, staff proposes to defer the compliance requirements for the second and third truck in a small fleet, such that the second truck must have a PM filter installed by 2016 and the third truck must have a PM filter installed by 2018. The existing subsections 2025(h)(2), (3), (4)

4

would be deleted because these sections refer to past reporting dates and are no longer needed. A new definition for "Small Fleet" would be added as amended section 2025(d)(54) for clarity, and the definition of "Fleet Size" in existing section 2025(d)(30) would be deleted because the fleet size definition is only needed to define small fleets. By providing this relief to the second and third trucks in small fleets, small fleet owners would be able to upgrade with lower-cost used trucks, and could be eligible for additional incentive funding.

Providing a Limited Compliance Extension for Owners that Cannot Currently Comply

Staff is proposing a new flexibility option through the addition of section 2025(p)(10) that waives the PM filter requirement for up to three vehicles in a fleet if they are upgraded to 2010 model year engines or newer by January 1, 2018. To qualify, fleet owners must have been denied a loan for purposes of compliance after July 1, 2013 and opt-in by reporting no later than January 31, 2015. This proposed amendment would help ensure air quality benefits will be achieved by providing a compliance pathway for any fleet that is unable to fully comply with regulatory requirements because they were unable to obtain a loan and in doing so may make trucks in those fleets newly eligible for incentive funding. The amendment also potentially reduces compliance costs for fleets because they will be able to defer the purchase of a PM filter, and instead upgrade directly to used compliant 2010 model year engine, which would also result in NOx reductions earlier than currently required.

Adjusted Compliance Timeline for Low-Use Work Trucks

Staff is proposing several amendments to spread out compliance requirements for fleets with lower-use vehicles and dedicated work trucks. These amendments would ensure that air quality benefits are achieved by providing additional time for these vehicles to comply and providing a temporary exemption for the lowest use vehicles.

- Work Truck Extension

Staff is proposing to add a new option for a wide range of low-mileage trucks that is broader than the existing low-mileage construction truck option. Staff is proposing to replace the existing low mileage construction truck extension of section 2025(p)(2) with new language that applies to work trucks and provides an extended compliance schedule for work trucks that travel less than a total of 20,000 miles per compliance year, regardless of its weight or where the truck is operated. The existing mileage limit for low mileage construction trucks is 20,000 miles per year for dump trucks and 15,000 miles per year for other construction trucks. The proposed schedule would phase-in the PM filter requirements for low-mileage work trucks from January 1, 2015 to January 1, 2018, as shown in Table 3 below.

Table 3: Proposed Schedule for Work Trucks

Compliance Date	Minimum PM Filters
January 1, 2015	40%
January 1, 2016	60%
January 1, 2017	80%
January 1, 2018	100%

With this change, the definition for Low-Mileage Construction Truck of existing section 2025(d)(40) would be deleted and replaced with a new definition for Low-Mileage Work Truck in amended section 2025(d)(62). This amendment would provide a lower-cost pathway to compliance for vehicles and equipment that are deployed in specific vocations that demand application-specific configurations with substantial added cost.

- Expanding the Low-Use Vehicle Exemption Until 2020

Staff is proposing to amend the existing "Low-Use Vehicle" definition in amended section 2025(d)(40) to include vehicles that operate fewer than 5,000 miles total per compliance year until January 1, 2020. The definition would also be revised to remove the annual hourly limit for vehicles that use power take off while stationary. This proposed amendment expands the low use exemption temporarily for the lowest use vehicles, and as a result both defers and reduces compliance costs for these vehicles and allows fleet owners to prioritize upgrades of higher use vehicles.

- Smoothing Phase-in Requirements for Low Mileage Agricultural Vehicles

Staff is proposing to amend section 2025(m)(2) to allow agricultural vehicles that operate more than 10,000 miles per year, but less than the mileage thresholds shown in Table 4, to continue using the extension past January 1, 2017.

Table 4: Existing Agricultural Vehicle Extension until January 1, 2017

Engine Model Year	Existing Annual Limit
2006 or newer	25,000 miles
1996 to 2005	20,000 miles
1995 and older	15,000 miles

The amendments would allow the extension to continue for vehicles that operate less than 15,000 miles per year from January 1, 2017 until January 1, 2020, and less than 10,000 miles per year from January 1, 2020 to January 1, 2023. Section 2025(m)(3) would be deleted to remove the requirement for a vehicle to continue to be covered by the extension and be able to operate past January 1, 2017, it must have operated less than 10,000 miles per year since 2011. Staff is also proposing to modify proposed section 2025(m)(6) and is proposing to add section 2025(m)(7) to clarify how eligibility is maintained when a vehicle is retired and how an extension may be used for a different

vehicle in the fleet. This proposed amendment would reduce the annual compliance burden for agricultural trucks by allowing compliance requirements to be phased-in over a greater length of time.

Staff is proposing to amend section 2025(m)(12) to allow log truck owners to make changes to the number of log trucks that are in the log truck phase-in option until January 31, 2015. This change would provide more flexibility to take advantage of other amended options that may be more favorable to the owner. In addition, staff is proposing to amend section 2025(m)(12)(B) by deleting the language about rounding that is already addressed in the regulation and replacing it with clarifying language on how log trucks that are counted towards the log truck phase-in option cannot be double counted when determining compliance with other compliance options.

- Providing Relief for Livestock Cattle Trucks

Staff is also proposing to amend existing section 2025(m)(11) to add livestock cattle trucks the specialty agricultural truck extension while deleting language that is no longer needed to limit the number of agricultural specialty truck extensions that were initially approved. The language regarding the limits on the number of specialty trucks that could be approved in 2011 is no longer needed because the number of specialty truck extensions in a fleet cannot be increased from year to year. Staff is also proposing to allow livestock cattle truck owners to claim the extension by reporting prior to January 31, 2015, without limiting the number of livestock cattle trucks that can be added provided the other criteria to use the extension are met. Section 2025(d)(55)(F) was added to provide a new definition of livestock cattle truck. Livestock cattle trucks are owned by ranchers and a limited number of haulers that drive seasonally in and out of California; however most of these miles are driven in rural areas with cleaner air. This proposed change would recognize that while in-state and out-of-state livestock cattle haulers typically operate more miles than are permitted under the low-mileage agricultural vehicle provisions, as provided in section 2025(m)(2), they are being significantly impacted by current market conditions, and that mileage from these trucks in California is likely to be significantly depressed for several years.

- Providing Flexibility for Heavy Cranes

Staff is proposing to add section 2025(n)(2) to provide a new compliance option for heavy cranes. A new definition for "Heavy Crane" is proposed in section 2025(d)(33). The proposed schedule would require heavy cranes to be upgraded to 2010 model year or newer engines at a rate of 10 percent of the heavy cranes in the fleet per year from January 1, 2018 to January 1, 2027. Staff is also proposing to provide credit for heavy cranes that are equipped with a retrofit or original equipment PM filter before January 1, 2018, by counting such cranes towards meeting the proposed 2010 engine requirement. This credit would recognize crane owners that have already retrofitted or upgraded to newer cranes. These cranes would also be exempt from the replacement requirement. This option would recognize the high cost of replacing heavy cranes and the added complexity for retrofitting existing cranes and meeting crane safety certification standards.

- Smoothing out Regulatory Compliance Requirements

Staff is proposing to amend section 2025(f) to allow lighter vehicles with a GVWR of 26,000 pounds or less to use the amended Phase-in option for vehicles operated exclusively in defined NOx Exempt Areas and the new Low-Mileage Work Truck Phase-in Option. Specifically, staff is proposing to amend section 2025(f)(3) to allow owners of lighter vehicles to use the amended "NOx Exempt Areas Phase-in Option" of section 2025(p)(1)(B) and the proposed "Work Truck Phase-in Option that is described in newly amended section 2025(p)(2). Staff is also proposing to delete the text of section 2025(f)(4) that is no longer needed and to replace it with language to add a new compliance option that would set an upper limit on the number of lighter vehicles that would need to be upgraded with a 2010 model year engine each year starting January 1, 2015. Staff is proposing similar changes for heavier trucks in a new section 2025(g)(7). These changes would provide additional compliance options for fleet owners that have a high percentage of older trucks, which tend to be lighter vehicles that would need to be upgraded in 2015.

Recognizing Early Actions Already Taken by Fleets to Comply

- Extending the Use of Existing PM Filter Retrofits

Staff is proposing to amend sections 2025(f)(2) and 2025(g)(4) to extend the compliance period from January 1, 2020 until January 1, 2023 for any engine that was retrofitted with a PM filter prior to January 1, 2014, provided that the owner reports by January 31, 2015 and the vehicle remains in the fleet. For clarity, the same language would be added in the Small Fleet Option section 2025(h) in a new subsection 2025(h)(7).

- Extending the use of Credits with the PM Filter Phase-In Option

Staff is proposing to amend the existing compliance option in section 2025(i) and associated sections in 2025(j) to extend the use of various compliance credits up to January 1, 2020. Staff is proposing to extend the use of fleet downsizing credits in existing section 2025(j)(1), credits for early PM retrofits in existing section 2025(j)(2)(A), and credit for early addition of original equipment PM filters in existing section 2025(j)(3) until January 1, 2018. Staff is also proposing to amend section 2025(j)(2)(B) to extend the credit for adding alternative fueled vehicles and pilot ignition engines until January 1, 2018, and to extend the use of credits until January 1, 2020 for "Advanced Technology Vehicles" that are newly defined in proposed section 2025(d)(4). The proposed changes would allow fleet owners that have not fully recovered from the recession to have more time to comply, would recognize the actions fleet owners took to comply early, and would continue to encourage owners to upgrade to alternative fueled or advanced technology vehicles.

- Extending Compliance for PM Filters that Are Recalled

Staff is proposing to add section 2025(q)(2)(C) to extend compliance for a retrofit PM filter that is recalled after the PM filter is installed and is not repaired or replaced by the manufacturer. The new section would allow vehicle owners that have installed a retrofit PM filter that becomes subject to a recall (as defined in Cal. Code Regs., tit 13, § 2701(a)(35)) to continue operating the vehicle in the appropriate configuration up to five years from the

date of the recall. This amendment would recognize the efforts of fleet owners to comply on time.

Minor Changes

Staff is proposing amendments to section 2025(d), to modify existing definitions and to define new terms that are associated with the amendments outlined above. Staff is also proposing to modify other sections to clarify existing requirements, improve enforceability of the regulation, and update reporting and recordkeeping requirements.

DETERMINATION OF INCONSISTENCY AND INCOMPATIBILITY WITH EXISTING STATE REGULATIONS

During the process of developing the proposed regulatory action, ARB has conducted a search of any similar regulations on this topic, and has concluded that these regulations are neither inconsistent nor incompatible with state regulations.

COMPARABLE FEDERAL REGULATIONS

- No Comparable Federal Regulations Exist

Under the federal Clean Air Act (CAA), the United States Environmental Protection Agency (U.S. EPA) does not have authority to adopt in-use emission standards relating to the control of in-use motor vehicles or engines or in-use nonroad (off-road) engines used in vehicles or equipment. Thus, there are no federal regulations comparable to the Truck and Bus regulation to reduce emissions from in-use on-road diesel vehicles or vehicles that use off-road engines that operate in California.

- Federal Waivers and Authorizations under the CAA

Section 209(a) of the CAA preempts states from adopting emission standards for new motor vehicles and engines. However, section CAA 209(b) provides that the Administrator of the U.S.EPA shall grant California a waiver of preemption, unless certain specified findings can be made. The regulations proposed for amendment do not establish emission standards for new motor vehicles and engines, and thus no issue of federal preemption exists. Additionally, CAA section 209(e)(2) allows California, upon obtaining authorization from U.S.EPA, to adopt and enforce emission standards and other requirements related to the control of emissions for new and in-use off-road engines not expressly preempted (i.e., as set forth in CAA section 209(e)(1), new off-road engines under 175 horsepower used in farm and construction equipment and vehicles and new locomotives and locomotive engines). The Truck and Bus regulation has requirements for off-road engines used in yard-goats (for agricultural operations) and auxiliary engines of 2 engine sweepers that require waiver authorization from U.S. EPA for California to be authorized to enforce requirements on those vehicles. With the exception of these 2 vehicle types, no other vehicle types subject to the regulation require an authorization. ARB requested that U.S. EPA grant authorization of a waiver for the 2 above-described types of vehicles on March 2, 2012, and on May 24, 2013 was granted the request for authorization of California's emission standards and accompanying enforcement procedures for in-use off-road yard trucks

and auxiliary engines used in 2 engine sweepers as described in the Truck and Bus regulation. To the extent that the proposed amendments affect the previously granted authorization, ARB may submit a follow-up request to U.S. EPA for authorization action.

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

ARB staff has prepared a Staff Report: ISOR for the proposed regulatory actions, which describes the basis of the proposed actions, and includes a summary of the economic and environmental impacts of the proposed amendments. The report is entitled: "Proposed Amendments to the Truck and Bus Regulation."

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulation, may be accessed on ARB's website listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990, on March 5, 2014.

Final Statement of Reasons Availability

Upon its completion, the Final Statement of Reason (FSOR) will be available and copies may be requested from the agency contact person in this notice, or may be accessed on the ARB's website listed below.

Agency Contact Persons

Inquiries concerning the substance of the proposed amendments to the Truck and Bus regulation may be directed to the designated agency contact persons, Ms. Beth White, Manager of the On-Road Compliance Assistance Section, at (916) 324-1704, or Ms. Jacqueline Johnson, Air Pollution Specialist, at (916) 323-2750.

Further, the agency representative to whom non-substantive inquiries concerning the proposed administrative action may be directed is Ms. Trini Balcazar, Regulations Coordinator, at (916) 445-9564. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

Internet Access

This notice, the ISOR, and all subsequent regulatory documents, including the FSOR, when completed, are available on ARB's website for this rulemaking at http://www.arb.ca.gov/regact/2014/truckbus14/truckbus14.htm.

10

DISCLOSURES REGARDING THE PROPOSED REGULATION

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulation are presented below.

Fiscal Impact / Local Mandate

Pursuant to Government Code sections 11346.5(a)(5) and 11346.5(a)(6), the Executive Officer has determined that the proposed regulatory action would not create costs or savings to any State agency or in federal funding to the State, costs or mandate to any local agency or school district, whether or not reimbursable by the State pursuant to Government Code, title 2, division 4, part 7 (commencing with section 17500), or other nondiscretionary cost or savings to State or local agencies.

Significant Statewide Adverse Economic Impact Directly Affecting Business, Including Ability to Compete

Pursuant to Government Code section 11346.5(a)(8), the Executive Officer has made an initial determination that the proposed regulatory actions covering the affected regulation would not have a significant Statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states. In accordance with Government Code sections 11346.5(a)(10) and 11346.3(b), the Executive Officer has further determined that the proposed regulatory actions will decrease the elimination of jobs within – as well as outside of – the State of California, and decrease the elimination of existing businesses within – as well as outside – the State of California.

The amendments to the Truck and Bus regulation would reduce the compliance obligations for most fleets and businesses, both in-state and out-of-state, affected by the regulation over the next three years, and for some, until 2023. The extensions and expanded provisions included in the amendments would provide more time for the economy to continue to recover and would reduce the total compliance investments required of affected businesses.

These modifications could have a negative economic impact on retrofit manufacturers and installers and firms that provide repowers in the short term because orders would be spread out over the next several years, and affected fleets may opt to replace their vehicle with a newer compliant vehicle rather than installing a retrofit or performing an engine replacement.

An assessment of the economic impacts of the proposed regulatory action and its effect on California businesses can be found in the ISOR.

Cost Impacts on Representative Private Persons or Businesses

The determinations of the Board's Executive Officer, pursuant to Government Code section 11346.5(a)(9), concerning the costs or savings necessarily incurred by representative private persons and businesses in reasonable compliance with the proposed amendments to the regulations are presented below.

Results of The Standardized Regulatory Impact Analysis/Assessment Prepared Pursuant to Gov. Code sec. 11346.3(c).

Effect on Jobs/Businesses:

The proposed amendments to the Truck and Bus regulation would reduce the overall cost of the regulation and would reduce the impact on employment by providing additional compliance options or by extending compliance periods that will reduce compliance costs for fleets. The amended regulation would defer some of the compliance costs for many vehicles for one to five years and would improve the ability of vehicle owners to raise the capital needed to make upgrades. This additional time would also give fleets additional opportunities to take advantage of declining used compliant truck prices and to apply for public incentive programs. The estimated costs of the amended Truck and Bus regulation would be about $400 million lower than the existing regulation over the next 10 years.

Benefits of the Proposed Regulation:

These amendments would achieve $400 million dollars in cost savings (a 20 percent reduction in overall regulatory cost) to those subject to these regulatory requirements, while achieving 93 percent of the PM2.5 and NOx benefits envisioned in 2010. Starting in 2020 emissions would be at the same level as the existing regulation.

The amendments do not result in any increase in emissions compared to existing environmental conditions and would continue to meet the goals that were established when the regulation was initially adopted. The regulation has already reduced diesel PM emissions by 39 percent and practically all trucks operating in California would still be equipped with a PM filter by 2020, meeting the goals of the DRRP. Staff also anticipates the amended regulations would achieve a 37 percent reduction in statewide NOx emissions in 2023, consistent with the current regulation. Table 5 compares the projected benefits of the existing regulation and the proposed amendments on key dates.

Table 5 - Statewide Emission Reductions of the Current Regulation Compared to the Proposed Amendments (tons per day)

Year	NOx Reductions		PM2.5 Reductions	
	Existing Regulation	Proposed Amendments	Existing Regulation	Proposed Amendments
2014	57	52	6.0	5.6
2017	83	62	6.1	5.0
2020	63	70	4.2	4.2
2023	95	94	2.9	2.9

Because the proposed amendments would defer and/or relax some requirements for businesses and some small fleets in the near term, staff projects there would be a temporary delay in emission benefits, until 2020, compared to emission benefits that may have been achieved absent the proposed amendments. Emissions of diesel PM, and NOx would continue to trend down from today and it would ultimately result in essentially the same projected emissions after 2020. A more detailed discussion of the effect on emissions is presented in the Initial Statement of Reasons, Chapter IV.

Please refer to "Objectives and Benefits of the Proposed Regulation" under the Informative Digest of Proposed Action and Policy Statement Overview Pursuant to Government Code 11346.5(a)(3) discussion earlier in this notice on page 2.

Effect on Small Business

Pursuant to Government Code section 11346.5(a)(7)(C), the Executive Officer has made an initial determination that the proposed regulatory action would have a net positive effect on small businesses that own trucks. The amendments reduce the impact on employment; however, the amendments could have a negative effect on businesses that aid in the making, distribution, cleaning, and maintenance of PM filters. Because the proposed amendments provide options to delay compliance with the PM requirements, the demand for retrofit PM filters will be extended longer and may ultimately be substantially lower if fleets chose to replace rather than retrofit their trucks. For some retrofit PM filter manufacturers and associated businesses that have invested capital based on original predictions of demand, there could be a delay in recovery of their capital investment, or an inability to fully recover that investment. However, the proposed modifications designed to ensure that fleets have an increased ability to comply could help mitigate potential impacts on retrofit businesses.

For the foregoing reasons, the Executive Officer has determined, pursuant to California Code of Regulations, title 1, section 4, that the proposed regulatory action would affect small businesses.

Housing Costs

The Executive Officer has also made the initial determination that the proposed regulatory action will not have a significant effect on housing costs.

Business Reports

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer has found that the reporting requirements of the proposed regulatory action which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Alternatives

Before taking final action on the proposed regulatory actions, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost effective to affected private persons and equally effective in implementing the statutory policy or other provision of law. Alternatives that staff considered are discussed in the ISOR.

Summary of any comments from Department of Finance on "major regulations" pursuant to Gov. Code sec. 11346.5(a)(10).

Summary of Comments from Department of Finance on Standardized Regulatory Impact Assessment (SRIA) Proposed Amendments to Truck and Bus Regulation and Air Resources Board Response to Comments

Department of Finance (DOF) conducted a review of the ARB's Standardized Regulatory Impact Assessment for the proposed amendments. DOF's comments are summarized and responded to below:

DOF Comment 1:

DOF concurred with the direct savings figure of at least $621 million during 2015 implementation year. This savings will be garnered by the regulated trucking businesses. DOF also agrees that the SRIA fulfills all the requirements set forth in Finance regulations, and therefore meets the guidelines promulgated by SB 617.

ARB Response: None needed

DOF Comment 2:

DOF commented that confusion may result from using discounted values and suggested a methodology of annual disaggregated impacts. DOF suggests

14

providing consistent numbers throughout the SRIA and other regulatory documents and/ or including both values indicated previously.

ARB Response: The SRIA was modified to include the following further explanation.

> ***"Expenditures Vs. Compliance Costs/Savings***
>
> Table 5 shows annual changes in expenditures and compliance costs associated with the proposed Amendments. Expenditures represent changes in total capital costs and on-going costs that occur in each year while compliance costs represent changes in annualized capital costs and on-going costs that occur in each year. Annual expenditures are estimated for the purpose of the economic modeling while compliance costs are calculated for the purpose of estimating the cost-effectiveness. Cost-effectiveness is a ratio of annual compliance costs to annual emissions reductions. Since emissions occur annually, compliance costs need to be estimated on annual basis too in order to make a meaningful comparison of the costs and benefits of a regulation.
>
> Compliance costs are estimated to spread out the costs that do not occur annually over the useful life of equipment using a capital recovery factor (CRF). For this amended regulation, we used a 7 percent discount rate and a useful life of 10 years to calculate the CRF). The 7 percent discount rate includes higher risk premium associated with affected businesses, which are 90 percent small business.
>
> As shown in Table 5, the total expenditures and compliance costs attributed to the amendments are about $406 and $420 million lower in 2014 dollars than the existing regulation."

DOF Comment 3:

DOF suggests modeling the alternatives with the same vigor as the regulation itself. Additionally, DOF suggests expanding the alternative analysis from the two alternatives that are less costly with less benefits to add an third alternative that has more cost and more benefits.

ARB Response:

> The more costly alternatives would fall under ARB taking no action to postpone some of the requirements of the original Regulation. Such alternatives were deemed unreasonable because it was apparent to the ARB that some flexibility was needed to assure the long-term success of the Truck and Bus Regulations. It would have been unreasonable to continue the requirements that could have put many of the small firms out of business because of economic hardship. The flexibility provides time to the regulated community to comply, and in a few short years, the foregone emission reduction due to the Amendments would be attained.

DOF Comment 4:

DOF suggests additional discussion of the health impacts of the proposed amendments, and that the health impacts of the original regulation be cross referenced.

ARB Response: The SRIA was modified to include the following further explanation.

> The proposed amendments also would have little impact on the overall emissions benefits achieved; therefore, the health impacts are not expected to change significantly and are within the margin of error of the mortality calculations. As an example, over the life of the regulation, the proposed amendments cumulatively achieve 93 percent of the PM2.5 and NOx benefits, providing similar reductions in premature mortality (approximately 3,500 fewer deaths statewide attributable to PM2.5 exposure) as envisioned in the 2010 amendments, valued at billions of dollars in reduced health care costs. The proposed amendments result in an insignificant change in emissions compared to today's existing environmental conditions and would continue to meet the goals that were established when the regulation was initially adopted.

Environmental Analysis

ARB, as the lead agency for the proposed regulatory action, has prepared an environmental analysis (EA) under its certified regulatory program (Cal. Code. Regs., tit 17, §§ 60000 through 60008) and the California Environmental Quality Act (Pub. Resources Code § 21080.5) to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed regulatory action. Staff has determined that the proposed regulatory action would not result in any significant adverse impacts on the environment. The basis for reaching this conclusion is provided in Chapter V of the ISOR. Written comments on the EA, submitted as described below, will be accepted during a 45-day public review period starting on **March 7, 2014,** and ending at **5:00 pm** on **April 21, 2014**.

WRITTEN COMMENT PERIOD AND SUBMITTAL OF COMMENTS

Interested members of the public may present comments relating to the proposed amendments orally or in writing at the hearing, and comments may be submitted by postal mail or by electronic submittal before the hearing. The public comment period for this regulatory action will begin on March 7, 2014. To be considered by the Board, written comments, not physically submitted at the hearing, must be submitted on or after March 7, 2014, and received **no later than 5:00 pm on** April 21, 2014, and must be 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

16

Please note that under the California Public Records Act (Gov. Code, § 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.

ARB requests that written and email statements on this item be filed at least 10 days prior to the hearing so that ARB staff and Board members have additional time to consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

AUTHORITY AND REFERENCE

This regulatory action is proposed under that authority granted in Health and Safety Code, sections 39002, 39003, 39500, 39600, 39601, 39602, 39602.5, 39650, 39656, 39658, 39659, 39665, 39666, 39667, 39674, 39675, 40000, 41511, 41513, 41752, 41754, 41755, 42400, 42400.1, 42400.2, 42402, 42402.2, 42410, 43000, 43000.5, 43013, 43016, 43017, 43018, 43018.2, 43023, and 43600. This action is proposed to implement, interpret, and make specific Health and Safety Code sections 39600, 39601, 39650, 39658, 39659, 39666, 39667, 39674, 39675, 40000, 41511, 41752, 41754, 41755, 42400, 42400.1, 42400.2, and 42402.2, 42410, 43013, 43016, 43018, 43023, and 43600.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action; in such event, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before it is adopted.

The public may request a copy of the modified regulatory text from ARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990.

At the Board meeting, the Board may direct staff to develop additional modifications to the regulation to be considered at a later Board hearing. If directed to do so, ARB will

prepare a separate notice of proposed rulemaking that will be published not less than 45 days before the scheduled hearing date.

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format 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.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alterno u 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 envié 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

Richard W. Corey
Executive Officer

Date: February 25, 2014

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

STAFF REPORT:
INITIAL STATEMENT OF REASONS FOR PROPOSED RULEMAKING

PROPOSED AMENDMENTS TO THE TRUCK AND BUS REGULATION

Mobile Source Control Division
Heavy-Duty Diesel Implementation Branch

March 2014

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

State of California
AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR PROPOSED RULEMAKING

PUBLIC HEARING TO CONSIDER ADOPTION OF THE PROPOSED AMENDMENTS TO THE TRUCK AND BUS REGULATION

Date of release: March 5, 2014

Scheduled for consideration: April 24, 2014, and may continue to April 25, 2014, at:

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

TABLE OF CONTENTS

I. INTRODUCTION AND BACKGROUND 1
A. SPECIFIC PURPOSE FOR THE AMENDMENTS 1
B. INTRODUCTION 1
C. BACKGROUND 1
D. SUMMARY OF EXISTING REGULATION 2
E. REGULATORY AUTHORITY 7
II. STATEMENT OF REASONS 9
A. DESCRIPTION OF PROBLEM PROPOSAL IS INTENDED TO ADDRESS 9
B. PROPOSED SOLUTIONS TO THE PROBLEM 9
C. RATIONALE SUPPORTING THE SOLUTIONS 10
III. SUMMARY OF PROPOSED ACTION 18
A. PROVIDING RELIEF IN AREAS WITH CLEANER AIR 18
B. ADDITIONAL TIME AND A LOWER-COST PATHWAY FOR SMALL FLEETS THAT OPERATE OUTSIDE NOX EXEMPT AREAS 19
C. PROVIDE AN OPTION FOR OWNERS THAT CANNOT CURRENTLY COMPLY 20
D. ADJUSTED COMPLIANCE TIMELINE FOR LOW-USE WORK TRUCKS 20
E. RECOGNIZING EARLY ACTIONS ALREADY TAKEN BY FLEET OWNERS TO COMPLY 24
IV. AIR QUALITY 26
A. NEED FOR EMISSION REDUCTIONS 26
B. IMPACT ON PM MORTALITY 28
C. IMPACT ON LOCALIZED RISK 28
D. ANALYSIS OF CLIMATE CHANGE CO-BENEFITS 29
E. EMISSIONS INVENTORY 30
F. CONCLUSION 38
V. ENVIRONMENTAL IMPACTS ANALYSIS 39
A. INTRODUCTION 39
B. ENVIRONMENTAL REVIEW PROCESS 39
C. PRIOR ENVIRONMENTAL ANALYSIS 39
D. PROPOSED AMENDMENTS 40
E. ENVIRONMENTAL IMPACTS 41
VI. ENVIRONMENTAL JUSTICE 43
VII. ECONOMIC IMPACTS ANALYSIS AND ASSESSMENT 44
A. SUMMARY OF COST IMPACTS OF PROPOSAL 44
B. ECONOMIC IMPACTS ASSESSMENT 44

C. Impact on Small Business 51
D. Significant Adverse Economic Impact 51
E. Major Regulations 51
F. Impacts on Incentive Funding 52
G. Reasonable Alternatives to the Regulation and the Reason for Rejecting those Alternatives 53
H. Justification for Adoption of Regulations Different from Federal Regulations Contained in the Code of Federal Regulations 54

VIII. Summary and Rationale for Each Regulatory Provision 55

A. Summary and Rationale for Each Regulatory Provision 55

IX. Public Process for Development of Proposed Ammendments 68

A. Public Workshops 68
B. Other Meetings 68
C. On-Going Outreach Efforts 69

X. Other Stakeholder Concerns and Update 72

A. Concerns with Diesel Particulate Filters 72
B. New and Used Truck Availability 74
C. Enforcement 74

XI. References 76

LIST OF TABLES

Table I-1: Engine Model Year Schedule for Lighter Trucks....3
Table I-2: Engine Model Year Schedule for Heavier Trucks....4
Table I-3: Phase-In Option for Heavier Trucks....4
Table I-4: Small Fleet Option....5
Table I-5: School Bus PM Filter Requirements....5
Table I-6: Low Mileage Construction Truck Phase-in Schedule....6
Table I-7: Existing Agricultural Vehicle Extension until January 1, 2017....6
Table I-8: NOx Exempt Area Phase-in Schedule....7
Table II-1: Statewide Emission Reductions of the Current Regulation Compared to the Proposed Amendments (tpd)....16
Table III-1: Proposed Compliance Schedule for NOx Exempt Area Fleets....19
Table III-2: Proposed Optional Compliance Schedule for Small Fleets in NOx Exempt Areas....19
Table III-3: Proposed Schedule for Low Mileage Work Trucks....21
Table III-4: Existing Agricultural Vehicle Extension until January 1, 2017....22
Table III-5: Proposed Heavy Crane Phase-in Option....23
Table IV-1: Reductions in Statewide NOx and PM Emissions from the Proposed Amendments (tpd)....33
Table IV-2: Statewide Reductions of the Current Regulation Compared to the Proposed Amendments (tpd)....34
Table VII-1: Comparison of the Total Number of In-State Registered Heavier Trucks Operating with OEM and Retrofit PM Filters....48
Table VII-2: Comparison of the Total Number of In-State Lighter Trucks Operating with OEM and Retrofit PM Filters....50
Table VII-3: Annual Difference in Costs of the Amended Regulation Compared to the Existing Regulation ($2014 millions)....51
Table VIII-1: Compliance Schedule for NOx Exempt Area Fleets....57
Table VIII-2: Compliance Option for Small Fleets in NOx Exempt Areas....58
Table VIII-3: Optional Schedule for Small Fleet PM Compliance....58
Table VIII-4: Proposed Schedule for Low-Mileage Work Trucks....61
Table VIII-5: Current and Proposed Low Use Vehicle Thresholds....62
Table VIII-6: Proposed Heavy Crane Phase-in Option....64

Table VIII-7: Proposed Extension of Compliance Credits 66
Table X-1: Retrofit Sales and Warranty Claims Overview 73

LIST OF FIGURES

Figure II-1: Estimated Number of In-State Vehicle Upgrades Required with the Current Regulation 15

Figure IV-1: 2010 Statewide Mobile Source Emissions (Diesel PM and NOx without Adopted Truck and Bus Regulations) 32

Figure IV-2: 2014 Statewide Mobile Source Emissions (Diesel PM and NOx with Adopted Truck and Bus Regulation) 33

Figure IV-3: Statewide Truck and Bus NOx Emissions* 35

Figure IV-4: Statewide Truck and Bus PM2.5 Emissions* 35

Figure IV-5: Number of Heavier Trucks to Be Retrofit or Replaced 37

Figure IV-6: Number of Lighter Trucks to Be Replaced 37

Figure VII-1: Vehicle Price for Conventional Truck without Sleeper in California 45

Figure VII-2: Estimated In-State Registered Heavier Vehicles Operating with OEM PM Filters 46

Figure VII-3: Estimated In-State Registered Heavy Vehicles Operating with Retrofit PM Filters 47

Figure VII-4: Expected Upgrades for Lighter Vehicles 49

Figure VIII-1: Existing and Proposed NOx Exempt Areas 56

APPENDICES

A. Proposed Regulation Order
B. Existing Regulation Summary
C. Assessing Compliance for Trucks Subject to the Regulation
D. NOx Exempt Area Maps for the Proposed Amendments
E. Compliance Examples for the Proposed Amendments
F. Emissions Analysis Methodology and Results
G. Alternatives Considered
H. Comments Received Before the 45 Day Comment Period
I. Regulatory Advisory (Mail-Out #MSC 13-28)
J. Standardized Regulatory Impacts Assessment, and Department of Finance Response

30

LIST OF ACRONYMS

AB	Assembly Bill
ARB	Air Resources Board
ATCM	Airborne Toxic Control Measure
BACT	Best Available Control Technology
BC	Black Carbon
Board	Air Resources Board
CAA	Clean Air Act
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CO_2	Carbon Dioxide
DMV	California Department of Motor Vehicle
GVWR	Gross Vehicle Weight Rating
GWP	Global Warming Potential
HSC	Health and Safety Code
$MMTCO_2e$	Million Metric Tons of CO_2 Equivalents
NAAQS	National Ambient Air Quality Standard
NOx	Oxides of Nitrogen
OEM	Original Equipment Manufacturer
PM	Particulate Matter
PM2.5	Particles up to 2.5 microns in diameter
PTO	Power Take Off
SIP	State Implementation Plan
TPD	Tons per Day
TRUCRS	Truck Regulation Upload and Compliance Reporting System
U.S. EPA	United States Environmental Protection Agency
VDECS	Verified Diesel Emission Control Strategy
VMT	Vehicle Miles Travelled

I. INTRODUCTION AND BACKGROUND

A. Specific Purpose for the Amendments

The proposed regulatory amendments are designed to ensure the air quality goals of the Truck and Bus regulation are achieved by providing additional flexibility for fleet owners to comply. More specifically, the proposed amendments are intended to:

- Protect the regulation's emission reductions by providing lower cost compliance options to small fleets, low mileage fleets, and certain areas with cleaner air
- Provide new opportunities for fleet owners to access public incentive funds
- Recognize fleet owners that made early investments to comply

B. Introduction

The Truck and Bus regulation requires the one million trucks that operate annually in California to meet particulate matter (PM) and oxides of nitrogen (NOx) emissions requirements to achieve California's air quality goals and obligations under the federal Clean Air Act. To comply with the regulation, fleet owners must transition from older higher emitting vehicles to newer lower emitting vehicles. In order to ensure emissions reductions are achieved, staff is proposing amendments that provide additional flexibility for fleet owners to enable compliance.

The Staff Report describes the proposed amendments and the rationale for each amendment. It also presents staff's analysis of impacts associated with the implementation of the proposed amendments, including costs, and economic and environmental impacts. The text of the regulation is set forth in the proposed regulation order in Appendix A.

C. Background

California faces many air quality challenges including attaining federal air quality standards and minimizing exposure to toxic diesel PM. Achieving these goals requires substantial emissions reductions from the many mobile sources that generate air pollution in California. ARB has adopted regulations focused on all mobile sources that operate within the state including ocean-going vessels, commercial harborcraft, cargo handling equipment, in-use off-road equipment, transportation refrigeration units, public fleets, solid waste collection vehicles, urban transit buses, and drayage trucks.

In 2010, heavy-duty trucks operating in California emitted 30 percent of all NOx emissions from mobile sources, which are the most important contributor to both federal ozone and fine particulate matter (PM2.5) air quality standard violations across California. These violations are most severe in the South Coast and San Joaquin Valley regions of California. The federal Clean Air Act (CAA) set attainment dates in these regions for the annual ambient PM2.5 standard in 2014, and for ozone in 2023.

Heavy-duty diesel trucks were also the largest source of diesel PM emissions in California. Diesel PM is a carcinogen and toxic air contaminant. Risks are particularly high in urban areas and along busy roadways where trucks operate. To protect public health, the Board approved the Risk Reduction Plan to Reduce Exposure to Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles (Diesel Risk Reduction Plan) on September 30, 2000, which set a target of an 85 percent reduction in statewide exposure to diesel PM by 2020. The Truck and Bus regulation is a major part of achieving this goal.

On December 12, 2008 the Air Resources Board (ARB or Board) approved the Truck and Bus regulation. The regulation applies to nearly one million diesel vehicles with a manufacturer's gross vehicle weight rating (GVWR) greater than 14,000 pounds that annually operate in California. This regulation was designed to reduce exposure to diesel PM and to provide NOx reductions to help achieve attainment with ambient PM2.5 and ozone air quality standards. On December 17, 2010, the Board approved amendments that restructured the regulation in light of the economic recession that had effectively reduced emissions from regulated trucks and buses through lower vehicle activity. Those amendments became effective on December 14, 2011. Since that time, the United States Environmental Protection Agency (U.S. EPA) approved the Truck and Bus regulation as part of California's Air Quality Plan to meet federal air quality standards (SIP).

The regulation requires trucks and buses to meet PM filter requirements starting January 1, 2012, and to upgrade to 2010 model year or newer engines (to reduce NOx emissions) starting January 1, 2015. Emissions reductions are achieved through: 1) the installation (retrofit) of verified diesel emission control strategies (VDECS or diesel PM filter) on existing engines, 2) by replacing older vehicles with newer vehicles equipped with cleaner engines, or 3) repowering vehicles with newer, cleaner engines. The regulation provides a variety of flexibility options tailored to fleets operating low use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks. These options were designed to provide more affordable compliance pathways for fleet owners. To assist in meeting these requirements, ARB and local air districts offer a variety of programs that provide grants and loans to help facilitate compliance. These programs are generally targeted towards smaller fleet owners.

The regulation provides substantial emissions reductions which are necessary to meet State and federal air quality standards, reduce premature deaths attributable to exposure to PM2.5 emissions and reduce exposure to diesel PM to meet the State's goals established in the Diesel Risk Reduction Plan.

D. Summary of Existing Regulation

The regulation applies to nearly all diesel fueled trucks and buses with a GVWR greater than 14,000 pounds that operate in California, regardless of their registration jurisdiction. It applies to all privately or federally owned trucks, and to privately and publicly owned school buses. Public fleet vehicles, solid waste collection trucks, and

transit buses are already subject to other regulations and are not part of the Truck and Bus regulation, Drayage trucks and utility-owned vehicles are subject to other regulations, but become subject to the regulation beginning January 1, 2021. A more detailed summary of the existing regulation is in Appendix B.

1. Requirements for Lighter Trucks and Buses

Lighter trucks and buses do not have compliance requirements until 2015. Table I-1 below lists the compliance dates, by engine model year for lighter trucks. Starting January 1, 2015, lighter trucks with engines that are 20 years or older need to be replaced with newer trucks that have 2010 model year or newer engines. Starting January 1, 2020, all remaining trucks and buses need to be replaced so that they have 2010 or later model year engines by 2023.

Table I-1: Engine Model Year Schedule for Lighter Trucks

Engine Year	Replacement Date
1995 and older	January 1, 2015
1996	January 1, 2016
1997	January 1, 2017
1998	January 1, 2018
1999	January 1, 2019
2003 and older	January 1, 2020
2004-2006	January 1, 2021
2007-2009	January 1, 2023

Fleet owners also have the option to install a retrofit PM filter on a lighter truck by January 1, 2014 to make the truck exempt from replacement until January 1, 2020.

2. Compliance Requirements for Heavier Trucks and Buses

Heavier trucks and buses with a GVWR greater than 26,000 pounds have two primary ways to comply. Fleet owners can follow a compliance schedule by engine model year or may use a phase-in option that is more flexible but requires fleet owners to report.

Starting January 1, 2012, heavier trucks are required to meet the engine model year schedule shown in Table I-2 below. Fleet owners that comply with the schedule must install a PM filter on 1996 model year and newer engines and must replace the vehicle 8 years later. Trucks with 1995 model year and older engines would be replaced starting 2015. By 2023, nearly all trucks and buses operating in areas that do not meet federal air quality standards must have 2010 model year or later engines, which reduce NOx and PM exhaust emissions by 90 percent relative to engines produced as recently as 2006.

Table I-2: Engine Model Year Schedule for Heavier Trucks

Engine Year	Requirement on January 1
Pre-1994	No requirements until 2015, then 2010 engine
1994-1995	No requirements until 2016, then 2010 engine
1996-1999	PM filter from 2012 to 2020, then 2010 engine
2000-2004	PM filter from 2013 to 2021, then 2010 engine
2005-2006	PM filter from 2014 to 2022, then 2010 engine
2007-2009	If PM filter equipped, no requirements until 2023, then 2010 engine
2010	Meets final requirements

In addition, there is a PM phase-in option that allows fleet owners to decide which vehicles to retrofit or replace, regardless of engine model year. To use this option, fleet owners must have reported information about all of their heavier trucks starting January 31, 2012. Fleet owners can comply by demonstrating they have met the percentage requirement each year as shown in Table I-3 below. Engines equipped with PM filters from the original equipment manufacturer (OEM) or that are retrofitted, count equally towards compliance. Any engine with a PM filter, regardless of model year, is compliant until at least 2020. Beginning January 1, 2020, all heavier trucks and buses need to meet the requirements specified in Table I-2 above.

Table I-3: Phase-In Option for Heavier Trucks

Compliance Date	Vehicles with PM Filters
January 1, 2012	30%
January 1, 2013	60%
January 1, 2014	90%
January 1, 2015	90%
January 1, 2016	100%

Fleet owners that use this option can also take advantage of credits. For example, any lighter vehicle (GVWR of 14,001 to 26,000 pounds) or heavier vehicle equipped with a PM filter retrofit prior to October 2011 also received a credit that would delay compliance for a heavier vehicle in the same fleet.

3. Small Fleet Option

Small fleets are defined as fleets of one to three diesel trucks and buses with a GVWR greater than 14,000 pounds. The small fleet option required small fleet owners with heavier trucks to begin meeting PM filter requirements starting January 1, 2014, and defers heavier truck replacements until January 1, 2020 or later (greater than 26,000 pounds). Lighter trucks continue to use the engine model-year schedule described above in Table I-1.

To use the small fleet option, heavier vehicles in the fleet must comply with the schedule shown in Table I-4.

Table I-4: Small Fleet Option

Small Fleet Option	Existing Schedule
First Truck	January 1, 2014
Second Truck	January 1, 2015
Third Truck	January 1, 2016

In areas that do not federal air quality standards, vehicle replacements begin January 1, 2020 on the same model year schedule as larger fleet owners. Small fleet owners may delay their heavier truck replacements until January 1, 2023 if all of their heavier vehicles were equipped with PM filters by January 1, 2014.

4. School Buses

Regardless of fleet size, all lighter and heavier school buses were required to meet PM filter requirements by 2014, according to the schedule shown in Table I-5, but are not required to upgrade to 2010 model year engines.

Table I-5: School Bus PM Filter Requirements

Compliance Date	Percent of School Bus Fleet
January 1, 2012	33%
January 1, 2013	66%
January 1, 2014	100%

5. Credits, Extensions and Exemptions

The regulation provides many opportunities for fleet owners to take advantage of various credits, extensions, and exemptions.

a) Credit Provisions

Fleet owners that report and use the phase-in option for heavier trucks can take advantage of credits to delay requirements for other heavier trucks in the fleet until 2017 for the following:

- Early installation of PM filter retrofits before 2012.
- Purchase of cleaner engines before 2012 (OEM PM filters).
- Reducing the number of trucks since 2006.
- Adding fuel-efficient hybrids or alternative fueled engines to the fleet.

b) Extensions

Low mileage construction trucks: Owners of low mileage construction trucks may choose to phase-in PM filters from 2014 to 2016 as shown in Table I-6. An owner with one low-mileage construction trucks would need to have a PM filter by January 1, 2016. Starting 2020, the trucks must be upgraded to meet the 2010 model year engine requirement as specified in the engine model year schedule for heavier trucks. Eligible

trucks include any dump truck operated for less than 20,000 miles per year, or any of the following trucks operated for less than 15,000 miles per year:

- Trucks owned by a licensed contractor.
- Concrete mixers, concrete pump trucks, water trucks, single engine cranes with a load rating of 35 tons or more, or tractors that exclusively pull low-boy trailers.

Table I-6: Low Mileage Construction Truck Phase-in Schedule

Compliance Date	PM Filter Phase-in
January 1, 2014	33%
January 1, 2015	66%
January 1, 2016	100%

This option for low-mileage construction trucks was added with the amendments in 2010 in recognition of the impacts of the recession. Dump trucks are directly associated with construction and were given a higher mileage threshold.

Log trucks: Log truck owners have the opportunity to opt-in to a compliance schedule by modernizing log trucks to 2010 model year or later engines at a rate of 10 percent of the log trucks in the fleet per year from 2014 to 2023.

Agricultural vehicles: The regulation provides specific flexibility for trucks and buses that are exclusively use for agricultural operations. These include agricultural vehicles such as trucks and buses owned by log harvest operations or farming businesses and certain trucks that are not farmer-owned but are dedicated to supporting agricultural operations.

Under this extension, vehicles that stay below the annual mileage limits shown in Table I-7 are eligible for an extension from the PM requirements until 2017, at which time they must be upgraded to comply with the engine model year schedule for heavier trucks. Vehicles that have operated less than 10,000 miles per year since January 1, 2011 can continue to use the extension until January 1, 2023.

Table I-7: Existing Agricultural Vehicle Extension until January 1, 2017

Engine Model Year	Existing Annual Limit
2006 or newer	25,000 miles
1996 to 2005	20,000 miles
1995 and older	15,000 miles

c) Exemptions

Low-Use: Any vehicle operating less than 1000 miles per year within California's borders and having less than 100 hours per year of power take-off (PTO) operation is exempt from PM filter or 2010 model year engine requirements.

NOx Exempt Areas: Fleet owners that operate trucks solely within certain areas with cleaner air quality (defined as "NOx Exempt Areas" in the regulation) may choose to phase-in PM filters on heavier trucks from 2014 to 2016, as shown in Table I-8, and are not required to make further upgrades. A map of the NOx exempt areas is shown in Figure VIII-1.

Table I-8: NOx Exempt Area Phase-in Schedule

Compliance Date	PM Filter Phase-in
January 1, 2014	33%
January 1, 2015	66%
January 1, 2016	100%

E. Regulatory Authority

ARB has been granted both general and specific authority under the Health and Safety Code (HSC) to adopt the proposed regulation. HSC sections 39600 (General Powers), 39601 (Standards, Definitions, Rules and Measures), and 39602.5 (Adoption of Rules and Regulations) confer on ARB, the general authority and obligation to adopt rules and measures necessary to execute the Board's powers and duties imposed by State law and to attain federal national ambient air quality standards in all areas by applicable attainment dates. HSC sections 43013 and 43018(a) provide broad authority to achieve the maximum feasible and cost-effective emission reductions from all mobile source categories, including both new and in-use on-road and off-road diesel engines used in motor vehicles.

Additionally, California's Air Toxics Program, established under California law by Assembly Bill (AB) 1807 (stats. 1983, ch. 1047, the Tanner Act) and set forth in the HSC sections 39650 through 39675, mandates that ARB identify and control air toxics emissions in California. Following the identification of a substance as a toxic air contaminant, HSC section 39665 requires ARB, with the participation of the local air pollution control and air quality management districts (local air districts), and in consultation with affected sources and interested parties, to prepare a report on the need and appropriate degree of regulation for that substance. Based upon the findings of the report, ARB is vested with authority under sections 39666 and 39667 to adopt and enforce airborne toxic control measures (ATCM) that will respectively achieve emission reductions using best available control technology (BACT) for non-vehicular and vehicular sources, the latter of which includes in-use on-road heavy-duty vehicles. ARB identified particulate matter emissions from diesel engines as a Toxic Air Contaminant by regulation (13 California Code of Regulations section 93000) in August 1998.

Under the CAA, U.S. EPA does not have authority to adopt in-use emission standards relating to the control of in-use motor vehicles or engines or in-use nonroad (off-road) engines used in vehicles or equipment. Thus, there are no federal regulations

comparable to the Truck and Bus regulation to reduce emissions from in use on road diesel vehicles or vehicles that use off-road engines that operate in California.

Section 209(a) of the CAA preempts states from adopting emission standards for new motor vehicles and engines. However, section CAA 209(b) provides that the Administrator shall grant California a waiver of preemption, unless certain specified findings can be made. The regulations proposed for amendment do not establish emission standards for new motor vehicles and engines, and thus no issue of federal preemption exists. Additionally, CAA section 209(e)(2) allows California, upon obtaining authorization from U.S. EPA, to adopt and enforce emission standards and other requirements related to the control of emissions for new and in-use off-road engines not expressly preempted (i.e., as set forth in CAA section 209(e)(1), new off-road engines under 175 horsepower used in farm and construction equipment and vehicles and new locomotives and locomotive engines). The Truck and Bus regulation has requirements for off-road engines used in yard-goats (for agricultural operations) and auxiliary engines of 2 engine sweepers that require waiver authorization from U.S. EPA for California to be authorized to enforce requirements on those vehicles. With the exception of these 2 vehicle types, no other vehicle types subject to the regulation require an authorization. ARB requested that U.S. EPA grant authorization of a waiver for the 2 above-described types of vehicles on March 2, 2012, and was granted the request for authorization of California's emission standards and accompanying enforcement procedures for in-use off-road yard trucks and auxiliary engines used in 2 engine sweepers as described in the Truck and Bus regulation on May 24, 2013. To the extent that the proposed amendments affect the previously granted authorization, ARB will submit a follow-up request to U.S. EPA for authorization action.

II. STATEMENT OF REASONS

A. Description of Problem Proposal is Intended to Address

At the October 24, 2013 meeting of the ARB, staff provided an update to the Board on the implementation of the Truck and Bus regulation. Stakeholders expressed concern regarding the ability of some fleet owners to make the needed upgrades to comply. These concerns specifically focused on small fleets, lower mileage fleets, and fleets in rural areas, all which arguably continue to be impacted by the recession. Staff informed the Board that it intended to develop and propose amendments that will help ensure that the air quality benefits originally envisioned by the regulation will be achieved with the objective of addressing concerns about the ability of these fleets to comply.

B. Proposed Solutions to the Problem

Staff is proposing regulatory amendments that preserve more than 90 percent of the emissions benefits of the regulation necessary to meet California's air quality obligations under the CAA and the goals of the Diesel Risk Reduction Plan while providing additional regulatory flexibility to small fleets, lower mileage fleets, and fleets in certain areas that have made substantial progress towards cleaner air. In developing the amendments, staff focused on three objectives:

- Protecting emission reductions by providing lower cost compliance options to small fleets, low mileage fleets, and fleets in areas with cleaner air that would result in greater levels of compliance.
- Providing new opportunities for fleet owners to access public incentive funds.
- Recognizing fleet owners that made early investments to comply.

To achieve these objectives and benefits, staff is proposing amendments to the Truck and Bus regulation that include:

- A longer-phase-in period for PM requirements for trucks operated exclusively in certain rural areas that have made substantial progress towards cleaner air while continuing to ensure compliance with diesel risk reduction program goals.
- Additional time and a lower cost pathway for all small fleet owners to achieve compliance with PM requirements, while re-opening opportunities for these fleet owners to apply for and receive public incentive funding.
- A compliance pathway for owners currently unable to qualify for a loan to finance compliance.
- Adjusted schedules for low-use vehicles, trucks use in certain vocations, and work trucks that travel fewer annual miles and are less competitive in obtaining incentive funding.
- Recognition of fleet owners that took action to comply by providing additional useable life for retrofit trucks and reducing near-term compliance obligations.

Additional detail and examples of how the individual amendments would affect fleet owners and the rational is discussed in more detail in Chapter VIII.

Overall, these amendments would achieve about $400 million dollars in cost savings, a 20 percent reduction in overall regulatory cost, for those affected by the amendments, while:

- By 2020, ensuring emissions would be at the same level as the existing regulation.
- Continuing progress in reducing statewide exposure to diesel PM from vehicles covered by the regulation by 85 percent, in support of the Diesel Risk Reduction Plan.
- By 2023, providing the NOx reductions from trucks necessary to satisfy State commitments associated with meeting State and federal air quality standards.

While the proposed amendments would lower the rate that risk from exposure to diesel PM is reduced, the amendments still represent the maximum feasible emissions reductions as required by HSC section 39666(c). By 2023, the amended regulation would cumulatively achieving 93 percent of the PM2.5 and NOx benefits, and similar benefits to reduce premature deaths attributable to exposure to PM2.5 emissions, as was envisioned in 2010. Staff believes the proposed amendments are appropriate as they provide additional flexibility to fleet owners that are still suffering from the impacts of the economic recession while preserving the overall benefits of the regulation.

C. Rationale Supporting the Solutions

1. Overview

At the October 24, 2013 Board meeting, staff updated the Board on the implementation of the regulation and on-going efforts to assist fleet owners with compliance. Staff also discussed potential amendments to the regulation that could provide additional flexibility to vehicle owners by ensuring a more successful compliance path, thereby better protecting the emission benefits of the regulation through greater levels of compliance. At the same time, some industry stakeholders and opponents expressed concerns about the economy and costs of compliance, the availability of incentive funding, the durability and performance of diesel PM filters, and the need to provide additional flexibility beyond what had been discussed by staff in the hearing. Public health, environmental, and other stakeholders advocated the need to continue to achieve emissions reductions to ensure attainment with air quality standards, and to reduce exposure to diesel particulate. They also expressed the viewpoint that the regulation has been effectively implemented for several years and that diesel PM filters have been successfully demonstrated in tens of thousands of trucks and other equipment. Good industry actors who have already invested to comply want no changes to the regulation. They argue that new flexibilities unfairly take away any reward for their early actions. The Board agreed that additional flexibility should be provided while considering the environmental and economic impacts of any changes, and staff committed to return with proposed amendments in April 2014.

Because the amendments could not be considered by the Board before the January 1, 2014, regulatory deadline, on November 13, 2013, ARB issued an advisory describing how fleet owners could receive additional time to meet 2014 PM requirements by making good faith efforts to comply and reporting those efforts to ARB. Those good faith efforts included:

- Entering into an agreement with an authorized installer for a diesel PM filter retrofit.
- Signing a purchase contract and ordering a replacement truck that is equipped with a PM filter (2007 model year engine or newer).
- Being approved or denied a loan or other financing for a diesel PM filter or replacement truck that is equipped with a PM filter.
- Being eligible and applying for public incentive funding for a cleaner replacement truck.

In addition, the advisory also allowed fleet owners to take advantage of some of the proposed amendments that are described in the Staff Report. A copy of the advisory is in Appendix I. Since releasing the advisory, truck owners reported more than 20,000 additional trucks into the system to use the provisions of the advisory.

2. Industry Concerns with the Current Regulation

In developing the proposed amendments, staff conducted a series of five public workshops in December 2013 in Redding, Sacramento, Diamond Bar, San Diego, and the San Joaquin Valley (Fresno, and via videoconference to Bakersfield and Modesto). Staff also held various meetings with affected stakeholders to solicit comments regarding the proposed amendments to the regulation. Industry concerns expressed in these workshops were consistent with concerns expressed in the October 2013 Board meeting, and focused in three general areas described below.

a) Current Economic Conditions and Compliance Costs

An overarching issue raised by stakeholders is that the regulation is not affordable, especially considering the slow recovery from the recession. The recession in 2008 and 2009 had a major impact on the trucking industry in California, as witnessed by a significant reduction in fuel use and vehicle activity between 2007 and 2010. In response, fleet owners typically adapted their management practices by reducing the size of their fleet and curtailing new and used vehicle purchases. During this period the average age of fleets increased significantly while business activity, as measured by annual vehicle miles traveled, declined. Due to this reduction in business activity, some fleet owners went out of business, which contributed to increased unemployment in California.

Today the economy is recovering, albeit at the lower end of the pace we anticipated in 2010. More importantly, the recovery is not uniform across the State. In particular, the Bay Area and many portions of the Los Angeles area are recovering much more quickly than rural areas such as the north State and San Joaquin Valley. Using employment

statistics as an illustrative example, rural areas currently have 7 to 14 percent unemployment (with Imperial County as high as 22 percent), while urban coastal areas have unemployment rates in the 5 to 10 percent range. In general, many fleet owners may not have fully recovered from the recession, especially fleet owners in rural areas, smaller fleets, and lower mileage fleets affected by the significant reduction in statewide construction activity. In addition, on January 17, 2014, Governor Brown declared a drought emergency in California which has and will continue to affect many industries, particularly agriculture (Bloomberg, 2014).

The cost of compliance for many fleet owners, especially small fleet owners, can be significant. Retrofit diesel PM filter systems generally cost in the $15,000 to $19,000 range. This includes taxes and installation but excludes annual maintenance. Current costs of a new Class 8 heavy-duty truck generally ranges between $90,000 and $170,000; however, used truck prices decline significantly with age and over time can become a more affordable option to comply. These costs do not reflect additional costs for work trucks with specialty body types (e.g., vacuum tank trucks) that can be significantly higher. Owners of these work trucks can transfer the existing body to another truck; however, this adds cost and takes a truck out of service to make the change. The uneven economic recovery has reduced the ability of some fleet owners to make the necessary investments to comply, and additional regulatory flexibility may be warranted to assist these fleet owners in achieving compliance, thereby protecting the expected emissions reductions.

The proposed amendments provide additional flexibility for many impacted fleet owners that could help ensure the emissions benefits envisioned by the regulation will be realized. The amendments will continue to meet the Board's air quality goals while providing additional economic relief to facilitate the ability for vehicle owners to comply.

b) Availability of Incentive Funding

Many stakeholders requested more public incentive money be made available to help facilitate compliance. ARB and local air districts provide a variety of grants and loan opportunities through the Carl Moyer Program, the Proposition 1B Bond Program, the Truck Loan Assistance Program, and others. Through prior regulatory development efforts, staff took steps to provide as much opportunity as possible for fleet owners to obtain access to this funding. However, these programs have strict eligibility requirements that must be met in order for funding to be provided, and there is not enough funding to pay for compliance across the industry, with funding particularly limited in rural areas. Today, with impending compliance requirements, many of the funding opportunities are closed and many stakeholders are ineligible for public incentive funding because they have an impending deadline, are out of compliance, or operate in rural areas with limited funding options.

The proposed amendments would provide additional time for small fleets and economically challenged fleet owners to comply, and this additional time could allow these fleet owners to be newly eligible for public incentive funding programs.

c) *Balancing the Needs of Compliant and Non-Compliant Fleets*

There are more than a million trucks subject to the regulation that are in fleets that operate annually in California. A sizeable majority of these trucks (625,000) are in fleets registered outside of California that transport freight between states and dispatch part of their fleet to California periodically during the year. Because of the high mileage, these long haul fleet owners commonly replace their trucks in three to 10 year cycles, most of these fleets have a sizeable fraction of compliant trucks and can in most cases dispatch these trucks to California to meet compliance requirements at little to no additional cost.

The situation is somewhat different for the more than 375,000 vehicles that operate exclusively within the State. These vehicles are generally registered in California whether the owner is in or outside California. Of these, about 150,000 are lighter trucks that do not have compliance requirements until January 1, 2015. Because fleets with trucks that are registered to operate solely in California typically operate fewer annual miles than interstate trucks, many fleet owners with heavier trucks have had to make substantial investments to comply. Staff estimates that at least 85 percent of these California-registered heavy trucks are in fleets that most likely comply with current regulatory requirements. Many of these trucks are compliant today because owners have taken advantage of flexibility provisions in the current regulation that postpone their clean-up requirements for several years; meaning many fleet owners will need to continue to make significant investments to reduce their emissions in the coming years.

With any proposed regulatory amendments there is a need to maintain clear compliance targets that ensure all Californians realize the emissions benefits originally envisioned by the regulation, and to ensure that a level playing field within the industry exists across the State. To those good actors that have already made investments to comply, providing additional flexibility can be viewed as unfair. However, many fleet owners remain challenged in meeting the compliance requirements of the regulation. In fact, about 4000 fleet owners reported 5,000 vehicles under the allowances of the good faith advisory as being in fleets where the owner was denied a loan and would likely not be able to fully comply.

In recognizing these challenges, it is critical to balance amendments that lower costs and provide additional flexibility against the costs that many compliant fleet owners have already incurred. Staff's proposed amendments strive to strike that proper balance, where the amendments afford relief equally to all fleet owners, regardless of their state of registration and target those fleet owners that would benefit from (and most need) additional flexibility, while also recognizing early actions already taken by fleet owners to comply with regulatory requirements.

3. Assessing Actions Taken to Comply, and Future Compliance Obligations

a) *Compliance with 2014 Requirements*

Reporting in TRUCRS is only required for fleet owners that take advantage of flexibility options in the regulation, and is not required for owners that comply with the engine

model year schedules. Vehicle registration data shows that there are more than one million trucks that are registered in California or that are in fleets that are authorized to travel in California and would be subject to the Truck and Bus regulation. As discussed above, more than 625,000 trucks are registered outside of California to fleets that report some travel in California, and these trucks most likely already meet 2014 compliance obligations.

Many California registered and non-California registered fleets have reported light and heavy trucks into ARB's reporting system, TRUCRS. As of January 31, 2014, there were nearly 178,000 compliant heavier trucks, and an additional 20,000 heavier trucks claiming good faith extensions that reported to ARB. Of this combined total about 58 percent of the trucks have or soon will be equipped with a diesel PM filter and about 42 percent are compliant because they are in fleets that have claimed flexibility options or good faith extensions and do not need a PM filter at this time. All of these trucks are owned by fleet owners that have taken action to comply. The first compliance requirements for lighter trucks start January 1, 2015; therefore, all lighter trucks are currently in compliance.

In order to better understand current compliance rates and future compliance obligations for vehicles that do not cross state lines, staff evaluated vehicle registration data from the Department of Motor Vehicles and ARB compliance reporting data at the fleet level. Staff used California vehicle registration data as of October, 2013 and compliance reporting data in TRUCRS as of January 31, 2014. Based on these data, staff estimates that at least 85 percent of all California-registered heavy trucks meet 2014 compliance obligations because they are in fleets that reported in TRUCRS and claimed compliance, or did not report to TRUCRS and are equipped with a diesel PM filter based on their reported vehicle model year in vehicle registration data.

Although vehicle registration data does not reflect truck replacements made after October 2013, it can be used to establish an upper bound estimate on the number of trucks that need to comply. Staff analysis suggests as many as 36,000 trucks that were registered with the DMV in October 2013 have not been reported to TRUCRS and may need to take steps to meet regulatory obligations in 2014 based on the registered vehicle model year and fleet composition. About half of these trucks are in small fleets. However, staff believes that many of these trucks may have already been replaced or may be able to comply by claiming flexibility options in the regulation. However, staff also expects that some may still need to meet PM requirements by installing a retrofit PM filter or upgrading their truck to come into compliance. To better understand how fleets that did not report to ARB came into compliances, staff will evaluate DMV registration date from April 2014 to determine what action fleet owners took to better understand compliance rates for 2014.

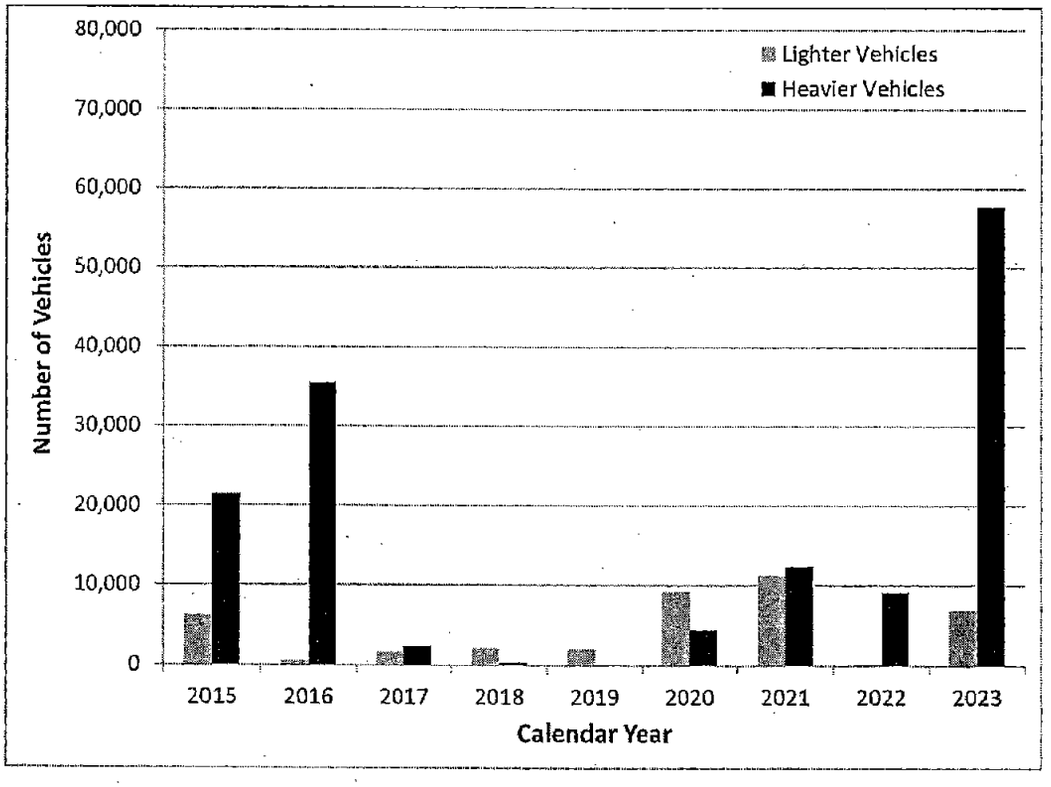
Overall, staff's analysis to date shows that most fleet owners have taken steps to meet compliance obligations and that at least 85 percent of trucks operating in California are compliant. However, staff's analysis also shows that as many as 15 percent of trucks may not be compliant, pending more up to date data. To address this, staff intends to

focus outreach and enforcement efforts on these fleets to assure the emissions benefits envisioned by the Truck and Bus regulation are achieved, and that a level playing field for compliant fleet owners is achieved. More details of the analysis are in Appendix C.

b) Compliance with Future Requirements

Looking ahead, in 2015 and 2016, fleet owners will need to take additional actions to meet compliance obligations for both light and heavy trucks. Using October 2013, registration and compliance reporting data, staff estimates there are as many as 53,000 light and heavy trucks that would need to comply in 2015, and another 28,000 light and heavy trucks in 2016 that may need to take steps to comply based on the engine model year. Again, these are upper bound estimates, because some of these trucks are expected to be replaced through normal attrition, while others would continue to be able to use some of the flexibility options in the regulation. The following Figure II-1 shows the estimated number of vehicles, based on the emissions inventory that would need to be brought into compliance from 2015 to 2023. These numbers are consistent with estimates made using recent registration and reporting data.

Figure II-1: Estimated Number of In-State Vehicle Upgrades Required with the Current Regulation



The analysis above suggests that a significant number of fleets will need to take action in the next several years to meet compliance obligations. The proposed amendments are intended to safeguard emissions reductions by providing compliance pathways to smaller fleets and those that are currently unable to comply. The additional time would

give more time for the economy to improve and would allow fleet owners to upgrade to a lower priced used truck with a 2010 model year engine or later in one step.

4. Benefits Anticipated from the Regulatory Action

The proposed amendments to the regulation would preserve to a large extent and better protect its environmental benefits. The proposed amendments continue to require all fleets operating in non-attainment areas to meet 2010 engine standard emission levels by 2023, which provides the NOx reductions necessary to help the State meet its commitment to achieve federal air quality standards. The proposed amendments would also achieve a major reduction in diesel PM emissions, helping to achieve California's goal of an 85 percent reduction in statewide exposure to diesel PM consistent with the Diesel Risk Reduction Plan. The proposed amendments do not result in any increase in emissions compared to today's existing environmental conditions, and over the life of the regulation, the proposed amendments cumulatively achieve 93 percent of the PM2.5 and NOx benefits. The proposed amendments preserve reductions in premature mortality (3,500 fewer deaths statewide attributable to PM2.5 exposure) as envisioned in the 2010 amendments, valued at billions of dollars.

Staff anticipates the amended regulation would achieve a 47 percent reduction in statewide PM2.5 emissions in 2020, and a 37 percent reduction in statewide NOx emissions in 2023, both consistent with reductions provided in the current regulation. Table II-1 compares the projected emission reductions of the existing regulation and the proposed amendments on key dates in tons per day (tpd). While this table is statewide, on a regional basis, the proposed amendments maintain the reductions required under California's U.S. EPA-approved SIPs to meet federal air quality standards in the South Coast and San Joaquin Valley federal nonattainment areas.

Table II-1: Statewide Emission Reductions of the Current Regulation Compared to the Proposed Amendments (tpd)

Year	NOx Reductions		PM2.5 Reductions	
	Existing Regulation	Proposed Amendments	Existing Regulation	Proposed Amendments
2014	57	52	6.0	5.6
2017	83	62	6.1	5.0
2020	63	70	4.2	4.2
2023	95	94	2.9	2.9

The proposed amendments would reduce the overall compliance costs of the regulation by over $400 million dollars, a 20 percent reduction in total costs of the regulation. These cost reductions are achieved by lengthening compliance requirements for small fleets, fleets operating in counties that have made substantial progress towards cleaner air, and certain lower use fleets. By lengthening compliance requirements, the amended regulation would defer some of the compliance costs for many vehicles for up to five years and would improve the ability of vehicle owners to raise the capital needed to make upgrades. The additional time also provides fleet owners additional

opportunities to take advantage of declining used compliant truck prices and public incentive programs. A more detailed discussion of the effect on emissions is presented in Chapter IV.

III. SUMMARY OF PROPOSED ACTION

Staff is proposing regulatory amendments that preserve the emissions benefits of the regulation necessary to meet California's air quality obligations under the CAA and the goals of the Diesel Risk Reduction Plan, by providing additional regulatory flexibility to small fleets, lower mileage fleets, and fleets in certain rural areas that have made substantial progress towards cleaner air. In developing the amendments, staff focused on three objectives:

- Protecting emission reductions by providing lower cost compliance options to small fleets, low mileage fleets, and fleets in certain areas with cleaner air that would result in greater levels of compliance.
- Providing new opportunities for fleet owners to access public incentive funds.
- Recognizing fleet owners that made early investments to comply.

While the loss of some original PM2.5 and NOx benefits will occur in the near term, on balance, staff believes the proposed new flexibilities are reasonable and consistent with a rebalanced compliance approach for fleet owners still suffering from the impacts of the economic recession. Additional detail on the individual amendments and the rationale is provided in Chapter VIII, and the Proposed Regulation Order is in Appendix A.

A. Providing Relief in Areas with Cleaner Air

Staff is proposing changes to the compliance options for vehicles that are operated in "NOx Exempt Areas" as defined in section 2025(d)(45) by expanding the regions that are in the definition and by extending compliance requirements contained in section 2025(p)(1) over a longer period of time. First, staff is proposing to amend the definition of NOx Exempt Areas" in section 2025(d)(45), to add the following counties: Amador, Butte, Calaveras, Eastern Kern, Inyo, Mariposa, Mono, Nevada, Northern Sutter, Tuolumne, and the portions of El Dorado and Placer that are within the Lake Tahoe Air Basin. These counties have made substantial progress towards cleaner air, hence creating an opportunity to provide additional time for realizing emission reductions. Second, staff is proposing to amend the compliance schedule for all vehicles, including out-of-state vehicles, that are operated solely within the NOx Exempt Areas (section 2025(p)(1)) when in California. The initial compliance deadline would be extended by one year and the final compliance deadline would be extended four years per the proposed schedule shown in Table III-1.

Table III-1: Proposed Compliance Schedule for NOx Exempt Area Fleets

Compliance Deadline as of January 1	Existing Regulation PM Filter Phase-in	Proposed Revised Regulation PM Filter Phase-in
2014	33%	0%
2015	66%	25%
2016	100%	40%
2017		55%
2018		70%
2019		85%
2020		100%

Small fleet owners with 3 or fewer vehicles that operate in the NOx Exempt Areas would have the option to add PM filters according to the schedule in Table III-2.

Table III-2: Proposed Optional Compliance Schedule for Small Fleets in NOx Exempt Areas

Number of Trucks	Existing Regulation PM Filter Required January 1	Proposed Revised Regulation PM Filter Required January 1
One Truck	2015	2017
Two Trucks	2014, 2016	2015, 2019
Three Trucks	2014, 2015, 2016	2015, 2017, 2019

Staff is also proposing to add a new section 2025(p)(1)(D) to clarify that vehicles that use the NOx Exempt Areas provision may travel outside of the designated NOx Exempt Areas for emergency operations, as defined in amended section 2025(d)(23).

B. Additional Time and a Lower-Cost Pathway for Small Fleets that Operate Outside NOx Exempt Areas

For small fleets (section 2025(h) in the existing regulation) that do not operate exclusively in NOx exempt areas, staff proposes to defer the compliance requirements for the second and third truck in a small fleet by one year and two years, respectively, such that the second truck must have a PM filter installed by January 1, 2016 and the third truck must have a PM filter installed by January 1, 2018. Staff is not proposing changes to the requirements for the first truck because the January 1, 2014 compliance date has passed and many small fleet owners have already complied. The existing subsections 2025(h)(2), (3), (4) would be deleted because these sections refer to past reporting dates and are no longer needed. A new definition for "Small Fleet" was added

as amended section 2025(d)(54) for clarity, and the definition of "Fleet Size" in existing number 2025(d)(30) was deleted because the fleet size definition is only needed to define small fleets. By providing this relief to the second and third trucks in small fleets, small fleet owners would be able to upgrade with lower-cost used trucks, and could be eligible for additional incentive funding. For truck owners with single truck who have not met the existing January 1, 2014 compliance deadline due to financial limitations, the amendment described in the next section could provide an alternative compliance pathway.

C. Provide an Option for Owners that Cannot Currently Comply

Staff is proposing a new flexibility option through the addition of section 2025(p)(10) that waives the PM filter requirement for up to three vehicles in a fleet if they are upgraded to 2010 model year engines or newer by January 1, 2018. To qualify, fleet owners must have been denied a loan for purposes of compliance between July 1, 2013 and December 31, 2014, and opt-in by reporting no later than January 31, 2015. This proposed amendment would help ensure air quality benefits will be achieved by providing a compliance pathway for any fleet that is unable to fully comply with regulatory requirements because they were unable to obtain a loan, and in doing so may make trucks in those fleet owners newly eligible for incentive funding. The amendment also potentially reduces compliance costs for fleet owners because they will be able to defer the purchase of a PM filter, and instead upgrade directly to an used compliant 2010 model year engine, which would also result in NOx reductions earlier than currently required.

D. Adjusted Compliance Timeline for Low-Use Work Trucks

Staff is proposing several amendments to spread out compliance requirements for fleet owners with lower use vehicles, dedicated work trucks, and certain specialized vehicles. These amendments would ensure that air quality benefits are achieved by providing additional time for these fleet owners to comply and providing a temporary exemption for the lowest use vehicles.

1. Work Truck Extension

Staff is proposing to add a new option for a wide range of low-mileage trucks that is broader than the existing low-mileage construction truck option. Staff is proposing to replace the existing low-mileage construction truck extension of section 2025(p)(2) with new language that applies to work trucks and provides an extended compliance schedule for work trucks that travel less than a total of 20,000 miles per compliance year, regardless of its weight or where the truck is operated. The mileage limit for the existing low-mileage construction truck option was added with the regulation amendments in 2010 and was set at 20,000 miles per year for dump trucks and 15,000 miles per year for other construction trucks. The proposed schedule would phase-in the PM filter requirements for low-mileage work trucks from January 1, 2015 to January 1, 2018 as shown in Table III-3 below.

Table III-3: Proposed Schedule for Low Mileage Work Trucks

Compliance Date	Existing Low-Mileage Construction Truck PM Filter Schedule	Proposed Low-Mileage Work Truck PM Filter Schedule
January 1, 2014	33%	33%
January 1, 2015	66%	40%
January 1, 2016	100%	60%
January 1, 2017		80%
January 1, 2018		100%
January 1, 2020	Subject to engine model year schedule	Subject to applicable engine model year schedule

With this change, the definition for Low-Mileage Construction Truck of existing section 2025(d)(40) would be deleted and replaced with a new definition for Low-Mileage Work Truck in amended section 2025(d)(62). This amendment would provide a lower-cost pathway to compliance for vehicles and equipment that are deployed in many vocations that demand application-specific configurations with substantial added cost.

2. Expanding the Low-Use Vehicle Exemption Until 2020

Staff is proposing to amend the existing "Low-Use Vehicle" definition in amended section 2025(d)(40) to include vehicles that operate fewer than 5,000 miles total per compliance year that would sunset January 1, 2020. The exemption would remain unchanged for vehicles that travel more than 5,000 miles per year, but can document that less than 1000 miles occurs in California. However, the existing definition would be revised to remove the annual hourly limit for vehicles that use PTO while stationary. This proposed amendment expands the number of trucks that can use the exemption temporarily for the lowest use vehicles, and as a result both defers and reduces compliance costs for these vehicles and allows fleet owners to prioritize upgrades of higher use vehicles. The sunset provision is necessary to meet the goals of the Diesel Risk Reduction Plan and mitigate impacts from continued use of engines with uncontrolled exhaust.

3. Smoothing Phase-in Requirements for Low Mileage Agricultural Vehicles

Staff is proposing to amend section 2025(m)(2) to allow agricultural vehicles that operate more than 10,000 miles per year, but less than the mileage thresholds show in Table III-4, to continue using the extension past January 1, 2017.

Table III-4: Existing Agricultural Vehicle Extension until January 1, 2017

Engine Model Year	Existing Annual Limit
2006 or newer	25,000 miles
1996 to 2005	20,000 miles
1995 and older	15,000 miles

The amendments would allow the extension to continue for vehicles that operate less than 15,000 miles per year from January 1, 2017 until January 1, 2020, and less than 10,000 miles per year from January 1, 2020 to January 1, 2023. Section 2025(m)(3) would be deleted to remove the requirement that for a vehicle to continue to continue to be covered by the extension and be able to operate past January 1, 2017, it must have operated less than 10,000 miles per year since 2011. Staff is also proposing to modify proposed section 2025(m)(6) and is proposing to add a new section 2025(m)(7) to clarify how eligibility is maintained when a vehicle is retired and how an extension may be used for a different vehicle in the fleet. This proposed amendment would reduce the annual compliance burden for agricultural trucks by allowing compliance requirements to be phased-in over a greater length of time.

4. Flexibility for Log Trucks

Staff is proposing to amend section 2025(m)(12) to allow log truck owners to make changes to the number of log trucks that are in the log truck phase-in option until January 31, 2015. This change would provide more flexibility to take advantage of other amended options that may be more favorable to the owner. In addition, staff is proposing to amend section 2025(m)(12)(B) by deleting the language about rounding that is already addressed in the regulation and replacing it with clarifying language on how log trucks that are counted towards the log truck phase-in option cannot be double counted with determining compliance in conjunction with other compliance options.

5. Providing Relief for Cattle Livestock Trucks

Staff is also proposing to amend existing section 2025(m)(11) to add cattle livestock trucks to the specialty agricultural truck extension while deleting language that is no longer needed to limit the number of agricultural specialty truck extensions that were initially approved. The language regarding the limits on the number of specialty trucks that could be approved in 2011 is no longer needed because the number of specialty truck extensions in a fleet cannot be increased from year to year. Staff is also proposing to allow cattle livestock truck owners to claim the extension by reporting prior to January 31, 2015, without limiting the number of cattle livestock trucks that can be added provided the other criteria to use the extension are met. A new specialty truck category for a cattle livestock truck is proposed to be added in amended section 2025(d)(55)(F). Cattle livestock trucks are owned by ranchers and a limited number of haulers that drive seasonally in and out of California; however, most of these miles are driven in rural areas with cleaner air. This proposed change would recognize that while in-state and out-of-state cattle livestock haulers typically operate more miles than are

permitted under the low mileage agricultural vehicle provisions, as provided in section 2025(m)(2), they are being significantly impacted by market conditions, and that mileage from these trucks in California is likely to be significantly depressed for several years.

6. Providing Flexibility for Heavy Cranes

Staff is proposing to add a new compliance option for heavy cranes in a new amended section 2025(n)(2). A new definition for "Heavy Crane" is proposed in section 2025(d)(33). The proposed schedule would require heavy cranes to be upgraded to 2010 model year or newer engines at a rate of 10 percent of the heavy cranes in the fleet per year from January 1, 2018 to January 1, 2027. The proposed schedule is shown in Table III-5. A crane owner with one heavy crane would have until 2022 to upgrade to a 2010 engine. Staff is also proposing to provide credit for heavy cranes that are equipped with a retrofit or OEM PM filter before January 1, 2018 by counting such cranes towards meeting the proposed 2010 engine requirement. This credit would recognize crane owners that have already retrofitted or upgraded to newer cranes. These cranes would also be exempt from the replacement requirement. This option would recognize the high cost of replacing heavy cranes and the added complexity for retrofitting existing cranes and meeting crane safety certification standards.

Table III-5: Proposed Heavy Crane Phase-in Option

Compliance Deadline as of January 1	Required Crane Fleet Upgrades to 2010 Model Year Engines			
	1 Crane Owner	2 Crane Owner	3 Crane Owner	4 or More Cranes
2018				10%
2019			1	20%
2020		1		30%
2021				40%
2022	1		1	50%
2023				60%
2024				70%
2025		1		80%
2026			1	90%
2027				100%

7. Smoothing out Regulatory Compliance Requirements

Staff is proposing to amend section 2025(f)(3) to allow owners of lighter vehicles to use the amended "NOx Exempt Areas Phase-in Option" of section 2025(p)(1)(B) and the proposed "Work Truck Phase-in Option that is described in newly amended section 2025(p)(2). Also, staff is proposing to delete the text of section 2025(f)(4) that is no longer needed and to replace it with language to add a new compliance option that

would set an upper limit of 25 percent on the number of vehicles in a fleet that would need to be upgraded with a 2010 model year engine in any given year starting January 1, 2015. Staff is proposing similar changes for heavier trucks in a new section 2025(g)(7). These changes would provide additional compliance options for fleet owners that have a high percentage of older trucks, which tend to be lighter vehicles, that would need to be upgraded beginning in 2015.

E. Recognizing Early Actions Already Taken by Fleet Owners to Comply

1. Extending the Use of Existing PM Filter Retrofits

Staff is proposing to amend section 2025(f)(2) and 2025(g)(4) to extend the compliance period from January 1, 2020 until January 1, 2023 for any engine that was retrofitted with a PM filter prior to January 1, 2014, provided that the owner reports by January 31, 2015. For clarity, the same language would be added in the Small Fleet Option section 2025(h) in a new subsection 2025(h)(7).

2. Extending the use of Credits with the PM Filter Phase-In Option

Staff is proposing to amend the existing compliance option in section 2025(i) and associated sections in 2025(j) to extend the use of various compliance credits until January 1, 2020. In addition, staff is proposing to extend the use of downsizing credits in existing section 2025(j)(1), credits for early PM retrofits in existing section 2025(j)(2)(A), and credit for early addition of engines with OEM PM filters in existing section 2025(j)(3) until January 1, 2018. Staff is also proposing to amend section 2025(j)(2)(B) to extend the credit for adding alternative fueled vehicles and pilot ignition engines until January 1, 2018, and to extend the use of credits until January 1, 2020 for "Advanced Technology Vehicles" that are newly defined in amended section 2025(d)(4). The proposed changes would better allow fleet owners that have not fully recovered from the recession to have more time to comply, would recognize the actions fleet owners took to comply early, and would continue to encourage owners to upgrade to alternative fueled or advanced technology vehicles.

3. Addressing Compliance for a PM Filter Retrofit that is Recalled

Staff is proposing to add a new section 2025(q)(2)(C) to extend compliance for a retrofit PM filter that is recalled after the PM filter is installed and is not repaired or replaced by the manufacturer. The new section would allow vehicle owners that have installed a retrofit PM filter that becomes subject to a recall (as defined in Title 13, CCR Section 2701 (a)(35)) to continue operating the vehicle in the appropriate configuration up to five years from the date of the recall. This amendment would recognize the efforts of fleet owners to comply on time.

4. Minor Changes

Staff is proposing minor amendments to section 2025(d) and to modify existing definitions and define new terms that are associated with the amendments outlined above. Staff is also proposing to modify other sections to clarify existing requirements

and improve enforceability of the regulation and update reporting and recordkeeping requirements.

IV. AIR QUALITY

This chapter describes how the proposed amendments continue to achieve needed emissions reductions, reduce localized risk from exposure to carcinogenic diesel PM, reduce impacts of diesel engine emissions on mortality and other health effects and meet SIP commitments to meet federal air quality standards.

A. Need for Emission Reductions

1. Reducing Risk Exposure

Diesel PM as a component of ambient PM2.5 is a significant public health concern throughout the state. In August 1998, the ARB identified particulate emissions from diesel-fueled engines as a toxic air contaminant. It is, by far, the largest contributor of known ambient air toxics cancer risk in California (ARB, 2009).

Following the identification process, in September 2000 the ARB approved the Diesel Risk Reduction Plan, paving the way for the development of control measures designed to reduce toxic diesel PM emissions. Through this plan, staff identified strategies including air toxics control measures and other regulations, to reduce statewide diesel emissions by 75 percent by 2010, and by 85 percent by 2020. The goal of each regulation is to make diesel engines as clean as possible to reduce PM emissions and their associated cancer risk. The regulation is a critical piece of the Diesel Risk Reduction Plan, heavy duty trucks are the largest source of diesel PM emissions in California. Failure to obtain substantial reductions in diesel PM from trucks and buses will likely mean the overall goals of the Diesel Risk Reduction Plan will not be met. The amended proposal would continue to meet these goals.

2. Meeting National Ambient Air Quality Standards

U.S. EPA has established health protective National Ambient Air Quality Standards (NAAQS or standards) for a number of criteria pollutants, including ozone and PM2.5. In 1979, U.S. EPA adopted a 1-hour ozone standard. In 1997, U.S. EPA adopted a set of PM2.5 standards, an annual and a 24-hour standard, plus an 8-hour ozone standard. U.S. EPA is required to periodically review the standards to ensure they are protective of public health. And as a result, based on more recent scientific information on the health impacts of ozone and particulate matter, U.S. EPA tightened the 24-hour PM2.5 standard in 2006, the 8-hour ozone standard in 2008, and the annual PM2.5 standard in 2012.

States with areas that do not meet these standards must develop SIPs with enforceable measure to meet the standards by specific deadlines. Two regions in California–the South Coast Air Basin (South Coast) and the San Joaquin Valley Air Basin (San Joaquin Valley) are designated nonattainment for both the annual and 24-hour PM2.5 standards and the 1-hour and both 8-hour ozone standards.

Both regions are required to attain the 1997 annual PM2.5 standard of 15 µg/m3 in 2014 and the 1997 8 hour ozone standard of 80 ppb in 2023. The South Coast must attain the more stringent 24-hour PM2.5 standard of 35 µg/m3 in 2014, and the San Joaquin Valley must attain this standard in 2019. In addition, the South Coast must attain the 1-hour ozone standard by 2022 and the San Joaquin Valley must attain the standard in 2017.

In 2007 and 2008, the State adopted SIPs for the 1997 PM2.5 and 8-hour ozone standards for both the South Coast and the San Joaquin Valley. U.S. EPA approved the PM2.5 SIPs in 2011 and ozone SIPs in 2012 (ARB, 2011). In 2013, the State adopted the South Coast and the San Joaquin Valley SIPs for the 2006 24-hour PM2.5 standard and updated SIPs for the 1-hour ozone standard. U.S. EPA action on these SIPs is pending. Development of SIPs for the most recent ozone and PM2.5 standards is underway now.

All of these plans, those SIPs that U.S. EPA has already approved as well as SIPs pending approval, rely on the emission reductions in each of the attainment years from the State's Truck and Bus regulation to meet the NAAQS. For the South Coast, the attainment years are 2014, 2022, and 2023. For the San Joaquin Valley, the years are 2014, 2017, 2019, and 2023.

3. Impact on NAAQS Attainment in South Coast and San Joaquin Valley

U.S. EPA has approved California's SIPs for the Couth Coast and San Joaquin Valley that rely on the emissions reductions from the current rule. Staff has therefore designed the proposed amendments to maintain the air quality benefits and satisfy the federally-enforceable SIP commitments for emissions reductions in these two regions while maximizing flexibility in rural areas of the State. As a result, so to comply with the approved SIPs, the emissions impacts in these two regions very limited.

The loss of emission benefits of the proposed amendments begin in 2014, increase modestly for several years, and then diminish to zero compared to the current regulation. With regard to the 2014 attainment year, there is a small increase in NOx truck and bus emissions, about 1 percent or about 1 tpd, in both areas with the proposed amendments compared to the current regulation. For PM2.5 in the same attainment year, the proposed amendments would increase emissions by less than 0.1 tpd in both South Coast and San Joaquin Valley compared to the current regulation. By the 2019 attainment deadline and through 2023, staff's analysis indicates that emissions with the proposed amendments are the same as with the current regulation.

Measured air quality data show that the South Coast already met the annual PM2.5 NAAQS in 2013, one year ahead of the deadline. The incremental increase in forecasted NOx and PM2.5 emissions for 2014 will not impact attainment of the annual standard in the South Coast since, even with this change, 2014 emissions will be below the 2013 levels when the region achieved the standard.

South Coast is also close to meeting the 24-hour PM2.5 standard. The limited increase in NOx and PM2.5 included in the amendments provides a more flexible regulatory approach, while still ensuring further improvement in ambient air quality and thereby maintaining the region's ability to achieve the standard in 2014. Further, the slight increase in emissions will be made up for within one year with fleet turnover and regulation implementation.

Weather conditions in the San Joaquin Valley this last December and January have been very conducive to PM2.5 formation and high levels above the standard have been measured frequently. As a result, for the region to attain the annual PM2.5 standard this year, the remainder of 2014 will need to be especially clean. The emissions impacts of the proposed amendments are small, less than 1 tpd of NOx and less than 0.1 tpd of PM2.5. In light of these recent conditions, the proposed amendments would not have any appreciable impact on whether or not measured PM2.5 levels for the remainder of the year are low enough for the 3-year average to meet the standard. However, the amendments represent the maximum emission increases that can be provided while still ensuring expeditious progress towards attainment.

The next critical SIP attainment deadline is 2017 for the 1-hour ozone standard in the San Joaquin Valley. With the proposed amendments, staff forecasts that NOx emissions will be approximately 5 tpd higher than with the current regulation. However, emissions would remain at or below the level that would provide for attainment by 2017. Therefore, there is no expected impact on 1-hour ozone SIP for the San Joaquin Valley.

Finally, by 2019 and beyond, emission levels with the current regulation and the proposed amendments are the same or lower. None of these changes in these latter years would have any impact on attainment, the SIPs for San Joaquin Valley 24-hour PM2.5 in 2019, South Coast 1-hour ozone in 2022, or either South Coast or San Joaquin Valley 8-hour in 2023.

B. Impact on PM Mortality

In the amendments adopted by the Board in 2010, staff estimated that 3,500 premature deaths (2,700 to 4,400, 95 percent confidence interval) would be avoided between 2010 and 2025 by implementation of the amended regulation. The proposed amendments also would have little impact on the overall emissions benefits achieved, and in fact would better ensure the anticipated reductions occur; therefore, the health impacts are not expected to change significantly and are within the margin of error of the mortality calculations.

C. Impact on Localized Risk

The proposed amendments continue to reduce PM emissions from trucks and buses by the maximum feasible amount, and would achieve significantly lower diesel PM emissions than baseline conditions without the regulation. The proposed amendments focus the greatest relief on small fleets operating in the more rural portions of California, while maintaining maximum near-term risk reduction in the most populated regions of

the State. The regulation ensures that by 2020 nearly every truck operating in California will have a PM filter, consistent with the goals of the Diesel Risk Reduction Plan to achieve the maximum feasible PM reductions.

D. Analysis of Climate Change Co-benefits

Black carbon (BC) – a major constituent of diesel PM – contributes to climate change, both directly by absorbing sunlight and giving off heat, and indirectly by depositing on snow and accelerating snow melt or by interacting with clouds and affecting cloud formation. Black carbon also causes regional climate change through its contribution to warming and its suppression of precipitation. California may be especially vulnerable to the climate effects of BC. Global warming affects summer water supplies in California that rely predominantly on runoff from mountain snowpack located within the State as well as in the Rocky Mountains (via the Colorado River). Furthermore, a warmer atmosphere over already dry regions, combined with less mountain runoff during the summer months, enhances conditions conducive for wildfires. This increase in the number and intensity of wildfires adds to the number of black carbon particles, further increasing the attendant climate impacts.

Unlike longer-lived greenhouse gases, BC has a very short atmospheric lifetime, only a week or two. Consequently, it has a strong correlation with regional emission sources and, correspondingly, its emission reductions have immediate climate and public health benefits (UNEP and WMO, 2011; Shindell, 2012). A recent review suggests that BC is the second most important human-caused emission in terms of its climate forcing in the present-day atmosphere; only carbon dioxide (CO_2) is estimated to have a greater climate forcing (Bond, 2013). Therefore, reducing diesel PM and the corresponding BC emissions provides immediate reductions in pollution exposure as well as near-term climate benefits, complementing efforts to reduce CO_2 emissions.

Since BC concentrations vary spatially, it is difficult to quantify its global warming potential (GWP), and there are significant variations in the GWP values for BC emissions assigned to different regions. Regional differences in atmospheric BC concentrations, and hence the warming effects of BC, depend upon the regional climate, radiation properties, and deposition pathways. (Bond, 2013) conclude that the GWP value varies by about ±30 percent between emitting regions.

Bond et al. recommend a global mean BC GWP of 900 for the 100-year time horizon commonly used in calculating CO_2 equivalent benefits (Bond, 2013). This should be considered a conservative estimate for fossil fuel BC forcing in California, as a 20-year time horizon (GWP of 3,200) gives a better perspective on the speed at which BC controls will impact the atmosphere relative to CO_2 emission controls.

The largest source of BC emissions in California is diesel exhaust (Chow, 2010). According to ARB estimates, annual emissions of elemental carbon (a surrogate for BC) in California decreased about 70 percent between 1990 and 2010, in direct proportion to declining DPM emissions. As the regulation is fully implemented, and given the

replacement of older heavy-duty diesel vehicles with newer and cleaner vehicles, California should continue to see a major decline in atmospheric concentrations of BC.

Converting diesel PM emission reductions to BC estimates requires BC/PM emission ratios derived from motor vehicle emission tests and on-road studies. The recommended BC/PM ratios for heavy-duty diesel trucks and buses are 0.60±0.05 for pre-2007 technologies and 0.15±0.05 for 2007 and later technologies. Combining with the BC GWPs previously discussed, the cumulative climate warming reduction of the existing Truck and Bus regulation for 2010-2025 is about 11.1 and 39.6 million metric tons of carbon dioxide equivalents ($MMTCO_2e$) for the 100-year and 20-year time horizons, respectively.

Estimates of the cumulative BC warming benefit for the newly proposed Truck and Bus regulation for 2010-2025 are about 10.3 and 36.6 $MMTCO_2e$ for the 100-year and 20 year time horizons, respectively. Therefore, the newly proposed amendments to the Bus and Truck regulation will not significantly impact the cumulative 2010-2025 climate benefits from the existing regulation, and are well within the more than 30 percent uncertainties for the calculations.

E. Emissions Inventory

1. Updates to Truck Emissions Inventory

The ARB heavy-duty truck and bus emissions inventory has evolved over time. A major revision to the inventory was made in 2010 in conjunction with previous amendments to the regulation. The revisions reflected the reduction in fuel use and activity, as well as changes to new vehicle sales patterns, which were the result of the 2008-2009 economic recession (ARB, 2010). Ultimately these updates were incorporated into ARB's current on-road mobile source emissions model, EMFAC2011. EMFAC2011 reflects trucking population, activity, and emissions in a variety of vehicle registration, body type, weight class and vocational categories (ARB, 2013). The emissions analysis methodology and results are described in Appendix F.

For this analysis, inputs to EMFAC2011 were updated, including fuel sales data, truck sales data, improved matching of engine and truck model years, and regulation compliance assumptions. Extended effects of the economic recession are evident in these data updates, which are summarized below.

a) Updated VMT Based on New Fuel Sales and Use Data

In the 2010 regulation inventory, staff used trends in historical fuel sales and use data as a surrogate for historical VMT trends and then forecasted VMT assuming the recovery would begin in 2010 and grow at a rate roughly consistent with forecasted transportation and warehousing employment that was published in several economic studies at that time. Since that time the growth rate in fuel use has been lower than projected. For this update, staff used trends in up-to-date (2013) fuel sales and use data published by the Board of Equalization, which show little or no growth in taxable diesel fuel sales since 2009. Staff used trends in the new data up to 2013 to represent

historical VMT growth, then, starting in 2014 and beyond, assumed the same economic recovery trend that was previously assumed in the 2010 regulation inventory.

b) Updated Fleet Age Distributions Based on New Vehicle Sales Data

New truck sales are used in the calculation of truck age distribution for each fleet. For this update, staff used the latest nationwide truck sales projected in the Annual Energy Outlook published by the U.S. Energy Information Administration (Annual Energy Outlook Projected Sales). Following the same approach used in the 2010 regulation inventory, staff used scalars based on the revised California VMT (above) to nationwide VMT as a California-specific adjustment to the nationwide truck sales data. The California specific sales data estimate was then used to develop California specific fleet age distributions.

c) Improved Matching of Engine and Truck Model Years

Truck populations in the emissions inventory are based on the analysis of California Department of Motor Vehicle (DMV) registration and International Registration Plan submittals. Both data sources provide vehicle information with vehicle model year. However, the data collected to develop emission rates was based on engine model year. Previously, staff made minor adjustments to account for the miss-match between vehicle model year and engine model year. However, the latest data collected through the Drayage Truck Registry indicates that engine model years are about 1 year older for the majority of late model year trucks and the existing adjustments do not adequately account for this difference, especially for trucks with combined diesel PM filter and selective catalytic reduction systems. To account for this issue in this update, staff shifted the truck model year by one year (older). This shift better represents engine model year emission factors in the calculation of emissions.

d) Updated Regulation Compliance Assumptions

When the regulation was amended in 2010, staff assumed the owners would choose to comply with the regulation by following the engine model year compliance schedule and few would use credits for downsizing or early diesel PM filter compliance. Over the past 2 years, information has become available on how truck owners are actually complying. In order to use phase-in options or take advantage of other flexibility provisions and credits, truck owners need to report to the Truck Regulations Upload and Compliance Reporting System (TRUCRS). Truck and fleet data collected in TRUCRS shows that owners are using credits and flexibility provisions to demonstrate compliance for as many as 50 percent of trucks in some fleet categories. For the 2010 inventory, staff assumed owners would choose to comply by retrofitting their existing trucks prior to 2015. However, this recent information indicates some owners prefer to replace their existing trucks with ones that have OEM PM filters rather than installing retrofits on their existing trucks.

In this revision, this new information about the fraction of trucks complying via credits or provisions and the fraction of trucks that have complied by purchasing 2007 engine trucks are reflected in the current regulation and proposed amendment.

2. Emissions Inventory Results

NOx and diesel PM2.5 emissions inventory results, including the updates described above, are provided below. NOx emissions contribute to ambient ozone concentrations while both NOx and directly emitted PM2.5 emissions contribute to ambient PM2.5 concentrations. The reduction in the relative contribution of trucks and buses to the mobile source NOx and diesel PM inventory between 2010 and 2014 is a result of implementation of the Truck and Bus regulation, and shows the importance of continuing to implement the regulation.

In 2010, prior to the implementation of the Truck and Bus and Drayage Truck regulations, trucks subject to these regulations were the single largest statewide contributors to mobile source emissions. As shown in Figure IV-1, the truck and bus fleets represent more than 40 percent of diesel PM and 30 percent of NOx from all mobile sources. With the implementation of the Truck and Bus and Drayage Truck regulations, and revisions to the inventory, in 2014 these vehicles are a smaller but still significant contributor to emissions. As shown in Figure IV-2, in 2014 trucks and buses represent 26 percent of all diesel PM2.5 emissions, while also contributing 22 percent of total NOx from all mobile sources.

Figure IV-1: 2010 Statewide Mobile Source Emissions (Diesel PM and NOx without Adopted Truck and Bus Regulations)

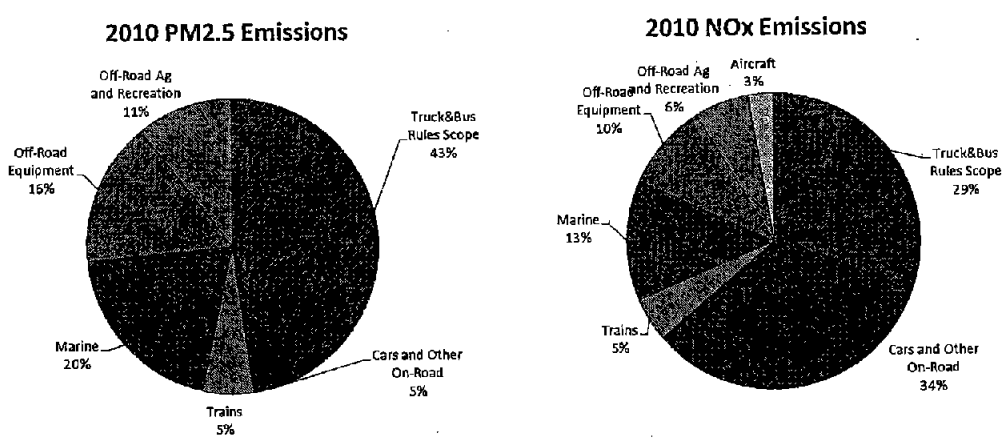
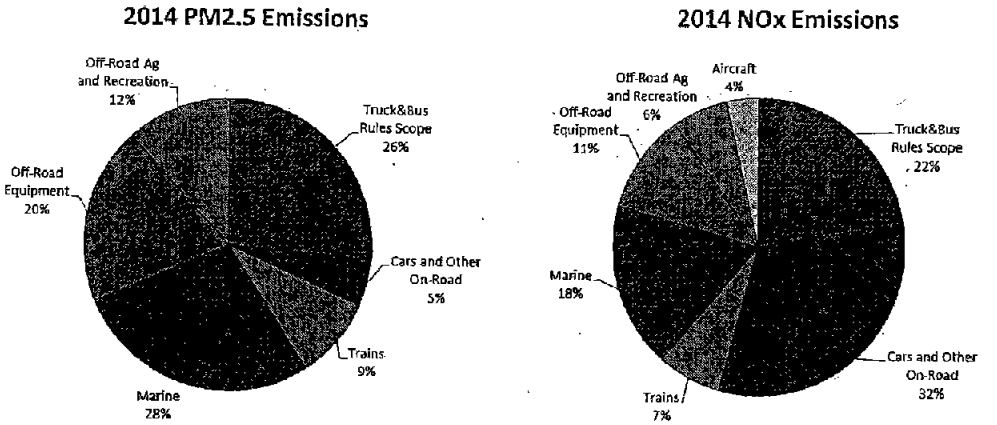


Figure IV-2: 2014 Statewide Mobile Source Emissions (Diesel PM and NOx with Adopted Truck and Bus Regulation)



3. Emissions Impacts from the Proposed Amendments

Staff anticipates the proposed amendments to the regulation will reduce diesel PM emissions by 39 percent from baseline (without the regulation) levels in 2014 and that practically all trucks operating in California will be equipped with a diesel PM filter by 2020. Staff also anticipates the amended regulation will achieve a 37 percent reduction in statewide NOx emissions in 2023. The revised baseline emissions (without regulation) and remaining emissions (with the proposed amendments) in the calendar years relevant to attainment of federal clean air quality standards are shown below in Table IV-1 (including the updates described in Section E-1).

Table IV-1: Reductions in Statewide NOx and PM Emissions from the Proposed Amendments (tpd)

Year	NOx Emissions			PM Emissions		
	Without Regulation	Proposed Regulation	Reductions	Without Regulation	Proposed Regulation	Reductions
2014	403	351	52	14.3	8.7	5.6
2017	330	268	62	10.9	5.9	5.0
2020	281	211	70	8.8	4.6	4.2
2023	250	156	94	7.4	4.5	2.9

Table IV-2 below compares the reductions of the current regulation as adopted in 2010 and the proposed amendments. Both scenarios reflect the updates described in Section E-1. As can be seen, the PM benefits of the proposed amendments are lower in 2014 and 2017. However, since most of the new provisions still require trucks to have diesel PM filters equipped by 2020 as in the current regulation, the reductions become identical in 2020.

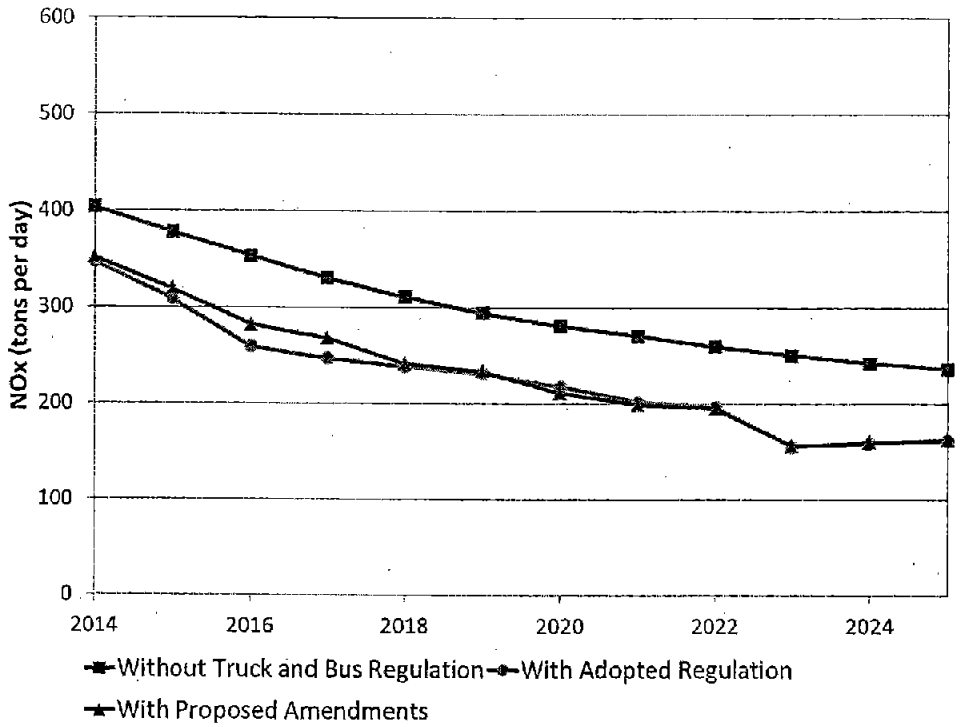
Table IV-2: Statewide Reductions of the Current Regulation Compared to the Proposed Amendments (tpd)

Year	NOx Reductions		PM Reductions	
	Existing Regulation	Proposed Amendments	Existing Regulation	Proposed Amendments
2014	57	52	6.0	5.6
2017	83	62	6.1	5.0
2020	63	70	4.2	4.2
2023	95	94	2.9	2.9

The NOx reductions of the proposed amendments are lower than the existing regulation in 2014 and 2017, are greater in 2020, and nearly identical in2023. The proposed amendments provide additional time between 2014 and 2017 which reduces PM emissions reductions. However, these trucks must still meet PM requirements and are much more likely to meet those requirements in 2020 by purchasing a 2010 truck. As a result, 2020 emission reductions are slightly greater in the proposed amendments. By 2023 emissions reductions for both scenarios are very similar because the existing regulation requirements in 2023 are unchanged by the proposed amendments.

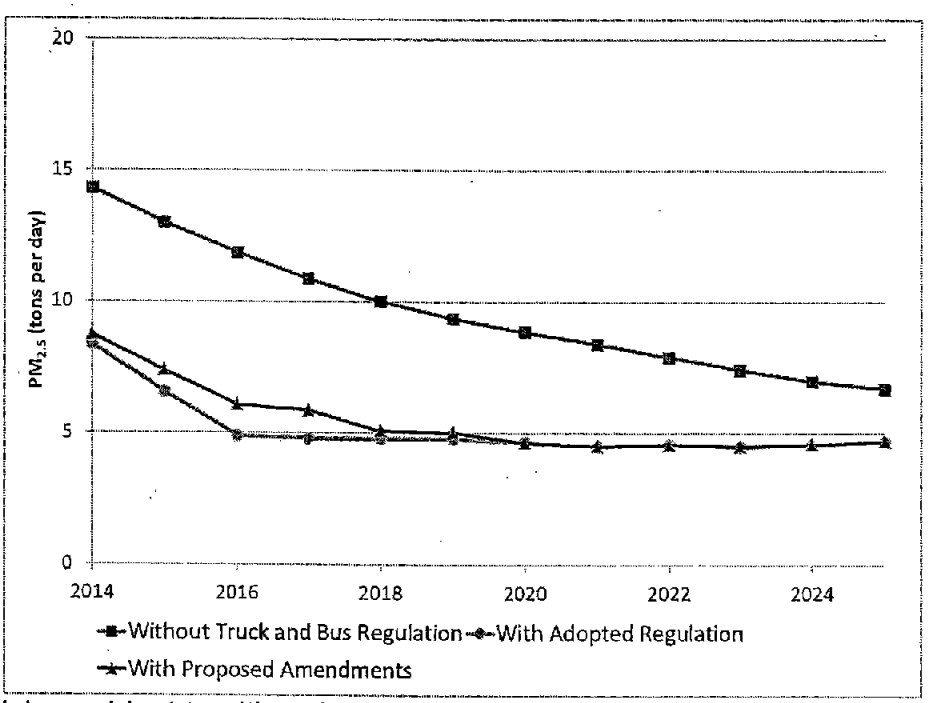
Figure IV-3 and Figure IV-4 below compare the statewide NOx and PM2.5 emissions trends without the regulation (baseline), with the current regulation, and with the proposed amendments. As shown in both the NOx and PM2.5 emissions comparison, the proposed amendments will achieve the same level of NOx remaining emissions around 2018, and PM remaining emissions in 2020. Overall the proposed regulation amendments achieve 93 percent of the PM and NOx emissions reductions originally envisioned in the 2010 amendments.

Figure IV-3: Statewide Truck and Bus NOx Emissions*



*Vehicles subject to the Truck and Bus and Drayage Truck regulations

Figure IV-4: Statewide Truck and Bus PM2.5 Emissions*



*Vehicles subject to either the Truck and Bus or Drayage Truck regulations

4. Estimated Number of Trucks to Be Upgraded

Figure IV-5 shows the number of heavier trucks from the inventory model that would be upgraded (retrofitted or replaced) each year to comply with the current regulation and the proposed amendments. The number of upgrades in both cases, excludes normal replacements that would have occurred with no regulation. The proposed amendments would defer the clean-up of vehicles in 2015 and 2016 and would spread out compliance more evenly each year until 2020. The increase in 2020 is a result of the replacement requirements that start for fleets that used the various flexibility options and the sunset of the 5000 mile low-use exemption. For a number of reasons, this would likely be lower because staff did not model the following:

- The proposed 25 percent cap on the number of replacements per year would spread out compliance.
- Fleet owners may upgrade trucks earlier than required
- A number of older trucks could be kept below the 1000 miles per year threshold.

Similarly the number of replacement for lighter trucks is shown in Figure IV-6. Lighter vehicles are not required to be retrofitted and until 2020, do not have requirements if the engine is less than 20 years old. Beginning January 1, 2015, a high fraction of these 20 year old or older trucks are expected to operate less than 5,000 miles per year and would also be able to use the low-use exemption. In 2020, the model year schedule requires more vehicles to be cleaned up than prior years, and the 5000 mile low-use exemption would sunset. The projected increase in 2020 would also be expected to be lower for the same reasons described for heavier vehicles.

The deferred timelines also increase the need for ARB to work with fleet owners, and local air districts to deploy cleaner trucks before they are required and in assisting fleet owners to understand their compliance options and to ensure compliance.

Figure IV-5: Number of Heavier Trucks to Be Retrofitted or Replaced

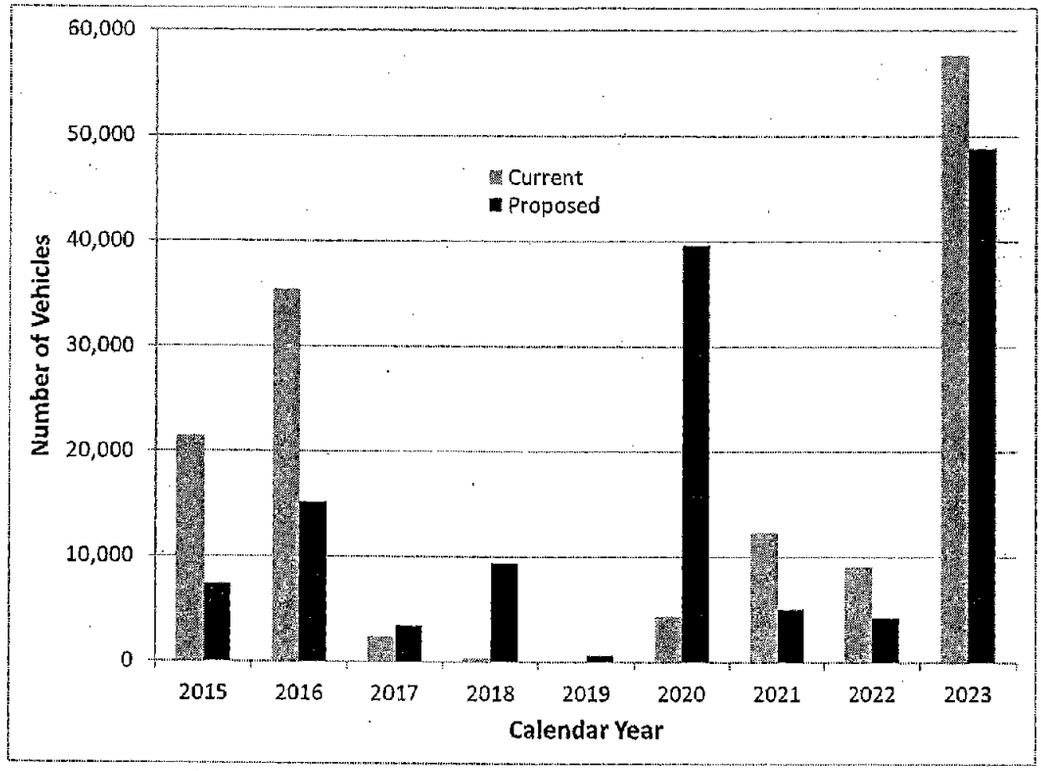
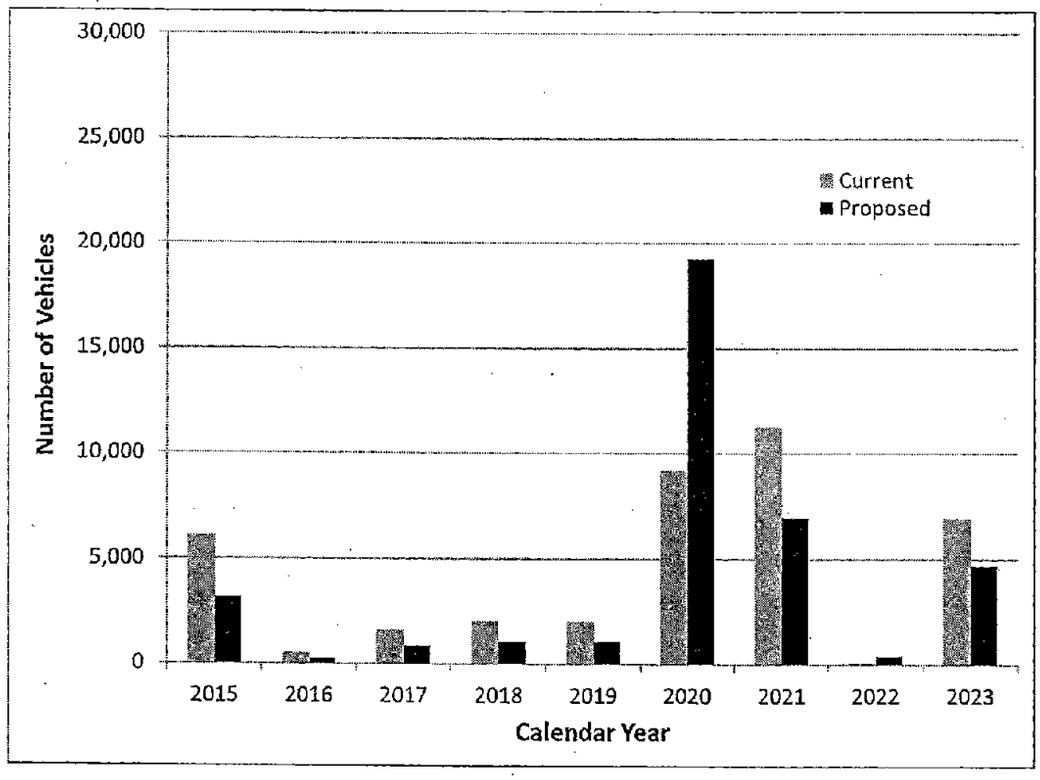


Figure IV-6: Number of Lighter Trucks to Be Replaced



F. Conclusion

The proposed amendments will protect the anticipated emissions reductions from the regulation, and provide four key benefits. First, the goals of the Diesel Risk Reduction Plan will continue to be met by reducing localized health risks associated with exposure to diesel PM. Second, the regulation will continue to provide NOx reductions necessary to meet State commitments associated with attaining state and federal air quality standards. Third, the amended regulation preserves the reduction in premature mortality caused by exposure to ambient PM2.5. Finally, the regulation continues provides significant climate change benefits by reducing black carbon emissions.

V. ENVIRONMENTAL IMPACTS ANALYSIS

A. Introduction

This chapter provides an environmental analysis for the proposed regulatory amendments. Based on ARB's review, staff has determined that implementing the proposed amendments to the regulation would not result in an adverse impact on the environment. This analysis provides the basis for reaching this conclusion. This section of the Staff Report also discusses environmental benefits associated with the proposed amendments (17 California Code of Regulations (CCR) 60005 (b)).

B. Environmental Review Process

ARB is the lead agency for the proposed regulatory amendments and has prepared this environmental analysis pursuant to its regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60000-60008). In accordance with Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA), public agencies with certified regulatory programs are exempt from certain CEQA requirements, including but not limited to preparing environmental impact reports, negative declarations, and initial studies (14 CCR 15250). ARB has prepared this environmental analysis to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed regulatory amendments as required by ARB's certified regulatory program (17 CCR 60005(b)). The resource areas from the CEQA Guidelines Environmental Checklist were used as a framework for assessing significant impacts (17 CCR 60005(b)).

If comments received during the 45-day public review period raise significant environmental issues, staff will summarize and respond to those comments in writing prior to final action on the proposed amendments (17 CCR 60007(a)). If the proposed amendments are approved, a Notice of Decision will be posted on ARB's website and filed with the Secretary of the Natural Resources Agency for public inspection after the regulations are finalized and submitted to the Office of Administrative Law (17 CCR 60007(b)).

C. Prior Environmental Analysis

ARB initially adopted the regulation in 2008 to, among other things, reduce the public's health risk exposure to diesel PM, an identified toxic air contaminant, and to meet the NAAQS established by U.S. EPA for PM2.5 and ozone by 2014 and 2023 respectively. The regulation requires diesel trucks and buses that operate in California to reduce emissions of diesel PM, NOx, and other criteria pollutants. The emission reductions are achieved through either of the following: 1) installation of VDECS or PM filters on existing engines, 2) replacing vehicles with newer ones having cleaner engines, or 3) repowering vehicles with newer, cleaner engines. These reductions are necessary to meet State and federal air quality standards, to reduce premature deaths attributable to exposure to PM2.5, and to reduce exposure to diesel PM in support of the Diesel Risk Reduction Plan adopted by the Board on September 30, 2000.

The regulation was amended in 2010 to respond to the economic recession that was not anticipated when the regulation was first adopted. The 2010 amendments, based on updated emissions inventories from trucks that reflected the impact of the recession on emissions, provided additional flexibility and economic relief to fleet owners, while continuing to meet the Board's air quality goals and objectives.

Chapter I of this Staff Report describes the regulatory background in more detail. The Staff Reports prepared for the original regulation and subsequent amendments did not identify any adverse environmental impacts.

D. Proposed Amendments

1. Description

The proposed amendments to the Truck and Bus regulation will provide additional flexibility for fleet owners that are adversely affected by the economy, while taking into account that emissions remain lower than originally expected as a result of the recession. As described in Chapter VIII, Section D of the Staff Report, the proposed amendments include the following changes:

- A longer-phase-in period for PM requirements for trucks operated exclusively in certain rural areas with cleaner air
  - Expand the number of regions defined as NOx exempt areas
  - Extend the compliance schedule
- Additional time and a lower cost pathway for all small fleet owners
  - Defer the clean-up of the second and third truck to 2016 and 2018
- A compliance pathway for owners currently unable to qualify for a loan to finance compliance
  - Allow up to three trucks to be replaced by January 1, 2018, with 2010 model year engines instead of fulfilling PM filter requirements.
- Adjusted schedules for low-use vehicles and certain vocational trucks
  - Expand the extension for construction trucks to include other work trucks that travel less than 20,000 miles per year.
  - Extend the use low-mileage agricultural vehicles to 2023 if the annual mileage is reduced to 15,000 starting January 1, 2017 and 10,000 starting January 1, 2020.
  - Allow cattle livestock trucks to be defined as specialty agricultural vehicles and be exempted from the PM filter requirement until 2023.
  - Expand the definition of low-use vehicles to include vehicles that operate a total of less than 5,000 miles per year and remove the PTO limit.
  - Allow heavy cranes to phase-in 2010 model year engines at a rate of 10 percent per year starting 2018.
- Recognition of fleet owners that took early action to comply
  - Extend certain current credit provisions for up to 2 years
  - Allowing a truck replacement extension to 2023 if retrofitted by 2014.

- Limit annual replacements with 2010 model year engines to two trucks or 25 percent of the vehicles in a fleet (whichever is higher).

2. Methods of Compliance

The methods of compliance with the proposed amendments are the same as those expected from the original regulation as amended in 2010; the proposed amendments do not impose any new requirements to retrofit or replace existing equipment beyond what is already required by the current regulation. In light of the recent recession and economic hardship experienced in California, the proposed amendments include provisions that would allow for additional flexibility and extend certain deadlines (further described in Chapter VIII, Section D of the Staff Report) that will ultimately facilitate compliance with this regulation and better ensure the environmental benefits of this regulation are met.

E. Environmental Impacts

1. Air Quality Benefits

The regulation, as amended by the proposed amendments, would result in incremental, temporary, changes to implementation of the regulation; nonetheless, the proposed amendments will ultimately result in the same air quality benefits projected for the regulation when amended in 2010.

Because the proposed amendments would provide an adjusted schedule and/or relax some requirements as described in Chapter VIII of this report, staff projects a temporary delay in some emission benefits in the near term (until 2020) compared to emission benefits that may have been achieved absent the proposed amendments. The impact of the expected delay in emission benefits is minimized by the fact that overall emissions continue to be lower than originally expected due to the continued effects of the economic downturn. The projected foregone emissions benefits are discussed in more detail in Chapter IV of this report.

The amendments only change the mid-term timing of clean-up of the truck fleet and, therefore, do not result in any increase in emissions compared to existing environmental conditions. Also, despite the projected near-term delay in some emissions benefits compared to what was originally projected to be achieved by the regulation, emissions of diesel PM, NOx, and other criteria pollutants will continue to drop from today's levels as a result of the regulation with the proposed amendments and it will ultimately result in the same projected air quality benefits.

The definition of "NOx exempt areas" would be expanded to include designated regions that are either in attainment or near attainment of federal standards but are expected to attain the standards in the next few years. Additionally, the PM filter requirements for vehicles operated exclusively in the existing and proposed "NOx Exempt areas" would be phased in over a longer period from 2015 to 2020. Although emissions would not decline as rapidly, in these regions, trucks that travel in these areas would continue to meet the full requirements of the regulation and both NOx and PM emissions will

continue to decline. Since there is no longer a need to substantially decrease NOx emissions in these attainment areas, no adverse impacts to air quality would occur with the adjustments to the "NOx exempt areas" vehicle provisions as proposed.

The amendments also potentially reduce compliance costs for fleet owners because they will be able to defer the purchase of a PM filter, would have more time to raise the capital needed, and could instead upgrade directly to an used compliant 2010 model year engine, which would also result in NOx reductions earlier than currently required.

Based on the foregoing analysis, staff concludes the proposed amendments do not result in any significant adverse impacts to air quality and the regulation as amended would result in substantial air quality benefits.

Please refer to Chapter IV of this Staff Report for a more detailed discussion of the air quality benefits provided by the Truck and Bus regulation.

2. Other Resource Areas with No Impacts

Staff concludes that the proposed amendments would not result in any significant adverse impacts to any other resource area. The Staff Reports prepared for the original regulation and subsequent 2010 amendments did not identify any adverse environmental impacts to any resource areas and the methods of compliance remain the same with the proposed amendments, other than the compliance flexibility provisions which would affect only the projected air quality benefits discussed above. The proposed amendments do not impose any new requirements to retrofit or replace existing equipment beyond what is already required by the current regulation, or any other new actions that affect the physical environment. The proposed amendments do not cause any changes to the existing truck and bus infrastructure in California or new development, modification to buildings, or new land use designations and do not involve any activity that would involve or affect aesthetics, agriculture resources, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, or utility and service systems. Because the amendments do not result in any action that could affect these resources, staff concludes the proposal would not result in any adverse impacts.

Since no significant adverse environmental impacts were identified, this environmental analysis does not include a discussion of mitigation measures or environmental alternatives (17 CCR 60006; 14 CCR 15252).

VI. ENVIRONMENTAL JUSTICE

The objectives of ARB's statewide regulatory programs are better air quality and reduced health risk for all residents throughout California. The Board has a policy that community health and environmental justice concerns be addressed in all of ARB's regulatory programs.

The proposed amendments to the regulation is consistent with the goals of the current regulation to reduce PM and NOx, as well as reduce the associated cancer risks and other health impacts over time statewide. This is consistent with the ARB's environmental justice policy of reducing exposure to air pollutants and reducing the adverse impacts from toxic air contaminants in all communities, including low-income and minority communities.

VII. ECONOMIC IMPACTS ANALYSIS AND ASSESSMENT

This chapter discusses the effect of the proposed amendments on individual fleet owners and businesses affected by the regulation.

A. Summary of Cost Impacts of Proposal

The proposed amendments would reduce compliance costs for many fleet owners. The proposed amendments would lengthen compliance requirements for some fleet owners and therefore distribute the costs incurred by these fleet owners over a longer period of time. This would allow fleet owners more time to make the required upgrades, thereby providing time for used compliant truck prices to naturally decline. Fleet owners that comply by replacing with used trucks in lieu of retrofitting with a diesel PM filter will therefore benefit from lower cost complaint used trucks. The reduction in costs for fleet owners varies based on the fleet size and fleet makeup. A detailed discussion is provided below in Section B.

B. Economic Impacts Assessment

1. Truck and Bus Regulation Cost Methodology

Staff estimated the cost savings associated with the proposed amendments by using the vehicle model year distribution and retrofits estimates from the EMFAC2011 emission inventory, applied on a statewide basis. Costs between the current regulation and the proposed amendments are a function of:

- Timing of expected costs for fleet owners to acquire 2010 and later model year trucks
- Retrofit PM filter costs
- Annual maintenance costs
- The number of retrofit PM filters expected versus OEM PM filters in heavier trucks
- The rate of introduction of PM filters in lighter trucks

The estimated cost savings were determined by comparing the costs of the existing regulation for upgrading to newer trucks and for retrofitting existing trucks to those of the amended regulation for each year from 2015 to 2025, including annual maintenance and reporting costs. The estimated cost of the amended regulation is over $400 million lower than the existing regulation.

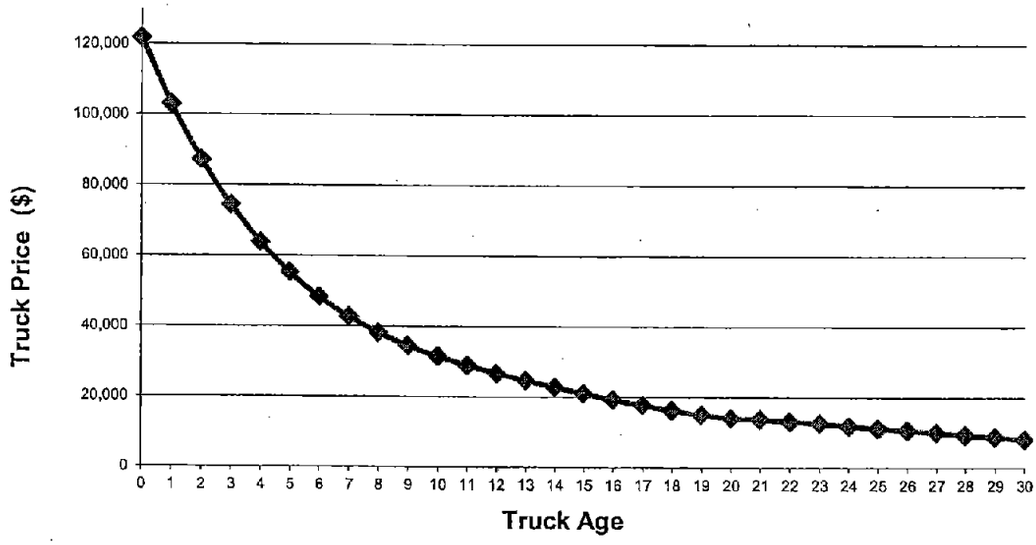
a) Heavier Vehicle Price and Replacement Costs

For truck replacements, staff used an empirical price curve for conventional tractor (without sleeper accommodations) for estimating the cost of replacing an older truck with a newer one. Figure VII-1 lists the example cost for a conventional truck base on for-sale truck price data from Truckpaper.com. As a simplification, staff did not separately account for the additional costs for trucks that have an attached body nor for

costs associated with purchasing a cab and chassis where the existing truck body could be moved to a replacement truck. This approach is somewhat conservative because these costs would be higher with the current regulation than with the amended regulation and would result in a greater cost reduction when compared to the proposed amendments.

Truck replacement costs were determined by comparing the expected number of trucks replaced each year. The costs for a truck replacement accounts for the total purchased price of a newer compliant vehicle and the residual value of the older vehicle and sales taxes at a rate of 8 percent. Annual costs for OEM filter maintenance and reporting costs are calculated separately.

Figure VII-1: Vehicle Price for Conventional Truck without Sleeper in California



Source: Truckpaper.com (2/4/2014)

b) Retrofit PM Filter Costs

For retrofit PM filter costs, staff used an average installed retrofit cost of about $18,000. This represents a typical installed cost of a passive retrofit PM filters, including tax. While active retrofit PM filters cost more, fewer than five percent of the retrofit PM filters that have been reported in TRUCRS, as of February 2014, are active retrofit PM filters; so staff did not use these filter costs as part of their assessment. This is conservative in that higher PM filter costs would increase the existing regulation costs more than with the proposed amendments; therefore, the cost savings associated with the proposed amendments would be slightly higher. The cost for retrofit PM filters is simply the differential (between the current and amended regulation) in the number of expected retrofit PM filters each year (primarily between 2015 and 2018) multiplied by the cost of the installed PM filter. The annual maintenance reporting costs are calculated below separately.

c) *Expected Changes in Costs for PM Filter Upgrades for Heavier Trucks*

The proposed amendments will change the expected timing and overall number of OEM and retrofit PM filters that will be installed to comply with the regulation. As shown in Figure VII-2, for in-state registered vehicles, both the existing regulation and amended regulation would increase the number of 2007 model year or newer trucks that have an OEM PM filter each year until 2023. By 2023, nearly all vehicles would have 2010 model year engines. However, because some of the PM filter requirements in the amended regulation are delayed, this is expected to result in fewer truck replacements prior to 2020. In 2020, the number of trucks expected to be replaced would be higher than the existing regulation because several extensions and exemption would expire and these trucks would need to be replaced. Out-of-state fleets that have trucks that operate locally, like fuel delivery, tow trucks, or vocational trucks, typically register their trucks in California, and would experience the same changes as California fleets. The changes in cost for these out-of-state owners are not separated and are included in the in-state registered truck estimates.

The proposed amendments treat all vehicles in the same market or vocation equally. Long-haul trucking fleets that are based in California or outside California do not compete in the same markets as vocational trucks and are affected differently because of their business model and type of truck used. Out-of-state fleets that are registered through the International Registration Plan and are based in other states are predominantly long-haul fleets that haul freight long distances. The impact of the changes on long-haul in-state and out-of-state fleets is discussed in the next section.

Figure VII-2: Estimated In-State Registered Heavier Vehicles Operating with OEM PM Filters

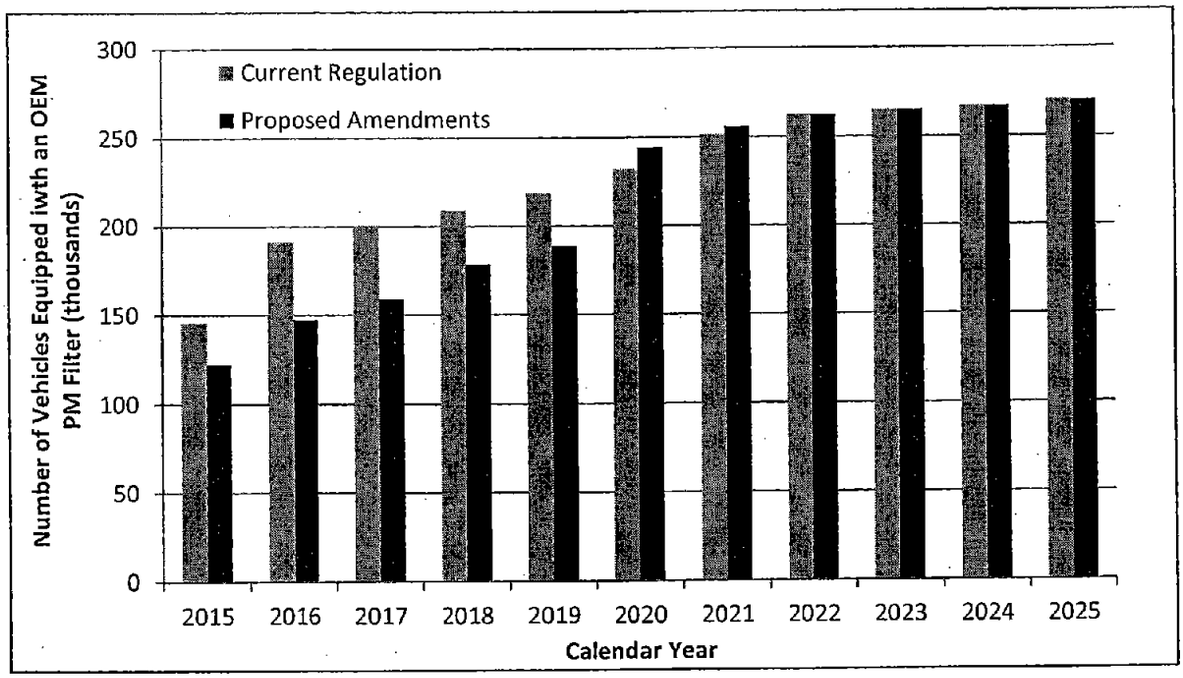
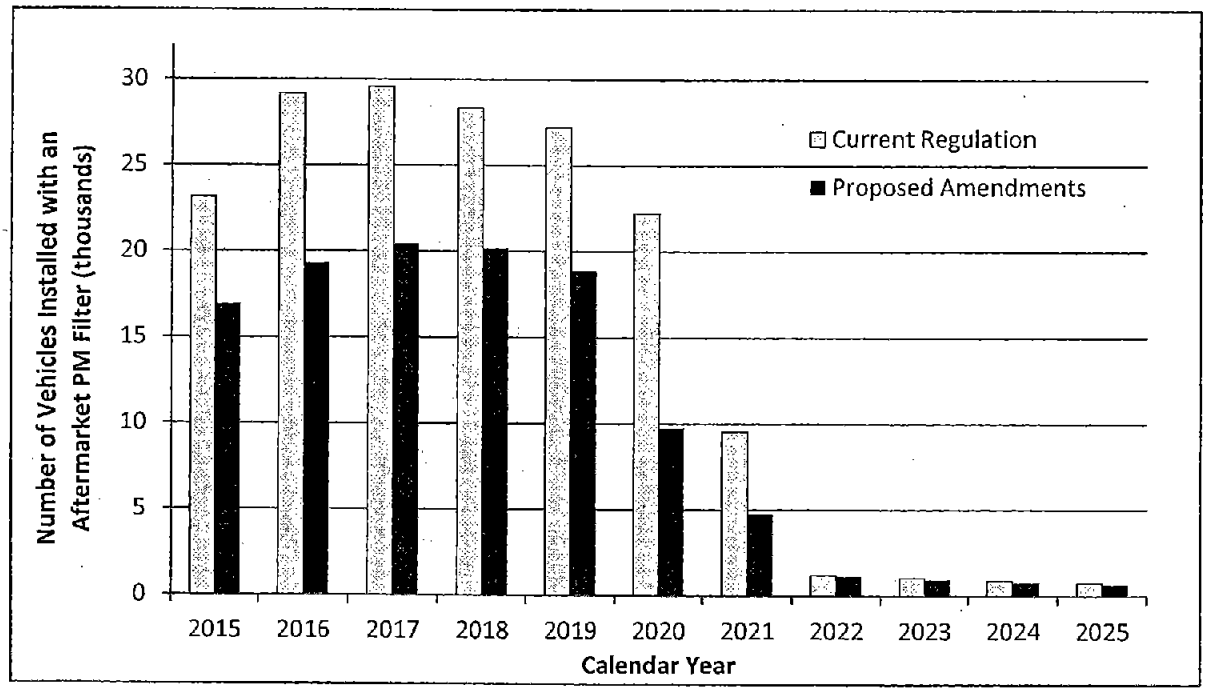


Figure VII-3 shows how the expected number of retrofit PM filters would change with the existing regulation compared to the amended regulations. While under the amended regulation the total number of retrofit PM filters in operation is expected to increase from 2015 to 2017, overall fewer total retrofits would be expected to be installed compared to the current regulation. After 2017, the number of PM filters decline as trucks get replaced to meet the 2010 model year engine requirements by 2023.

Figure VII-3: Estimated In-State Registered Heavy Vehicles Operating with Retrofit PM Filters



The difference in the expected number of retrofit PM filters and trucks with OEM PM filters each year was used to determine the capital and annual costs. The difference when comparing the existing regulation to the amended regulation for heavier trucks is shown in Table VII-1.

Table VII-1: Comparison of the Total Number of In-State Registered Heavier Trucks Operating with OEM and Retrofit PM Filters

Year	PM Filter Retrofits in Operation			OEM Filters in Operation		
	Current Regulation	Proposed Amendments	Retrofit Differential	Current Regulation	Proposed Amendments	OEM Filter Differential
2015	23,154	16,958	-6,196	145,669	122,561	-23,107
2016	29,186	19,320	-9,866	191,129	147,649	-43,480
2017	29,583	20,422	-9,162	200,027	159,341	-40,687
2018	28,350	20,173	-8,177	208,938	178,606	-30,331
2019	27,234	18,891	-8,343	218,588	189,008	-29,581
2020	22,219	9,749	-12,471	231,970	244,441	12,471
2021	9,547	4,751	-4,796	251,256	256,052	4,796
2022	1,217	1,151	-67	262,497	262,563	67
2023	1,053	966	-87	264,612	264,655	43
2024	899	809	-90	267,329	267,400	71
2025	772	684	-88	270,301	270,389	88

d) Changes in Costs for Long-Haul In-State and Out-of-State Fleets

High mileage fleets that travel more than 100,000 miles per year commonly replace their trucks within a 3 to 10 year replacement cycle as part of their normal business practice. Also, high mileage fleets based outside of California have the ability to comply by dispatching newer compliant trucks to California. As a result, most of these trucks will have been upgraded through normal business practices ahead of compliance obligations. For these fleets, regulatory costs and potential savings generated by proposed amendments will both be low.

Some higher mileage large fleets will need to take actions to comply. The proposed rule amendments benefit these fleets by deferring compliance obligations for small fleets, fleet owners that have acted early or have downsized, and owners that cannot afford to comply. For these limited fleets, regulatory costs and potential savings will both be more substantial.

All of the proposed changes apply equally to in-state and out-of-state long-haul fleets, and these fleets benefit equally when they compete in the same markets. The proposed expansion of the low-use exemption for trucks that travel less than 5,000 miles per year until 2020 is unlikely to be used by long-haul fleets because the mileage threshold is less than 1/20th of the typical miles travelled by these trucks in a year. It is possible that regional operators that travel in California, like less than truckload carriers, may use the exemption for back-up vehicles.

Some fleets compete in vocational markets such as construction and generally maintain captive fleets in the markets they serve. Most of these fleets register their trucks in California and would benefit from the proposed amendments as discussed in the prior

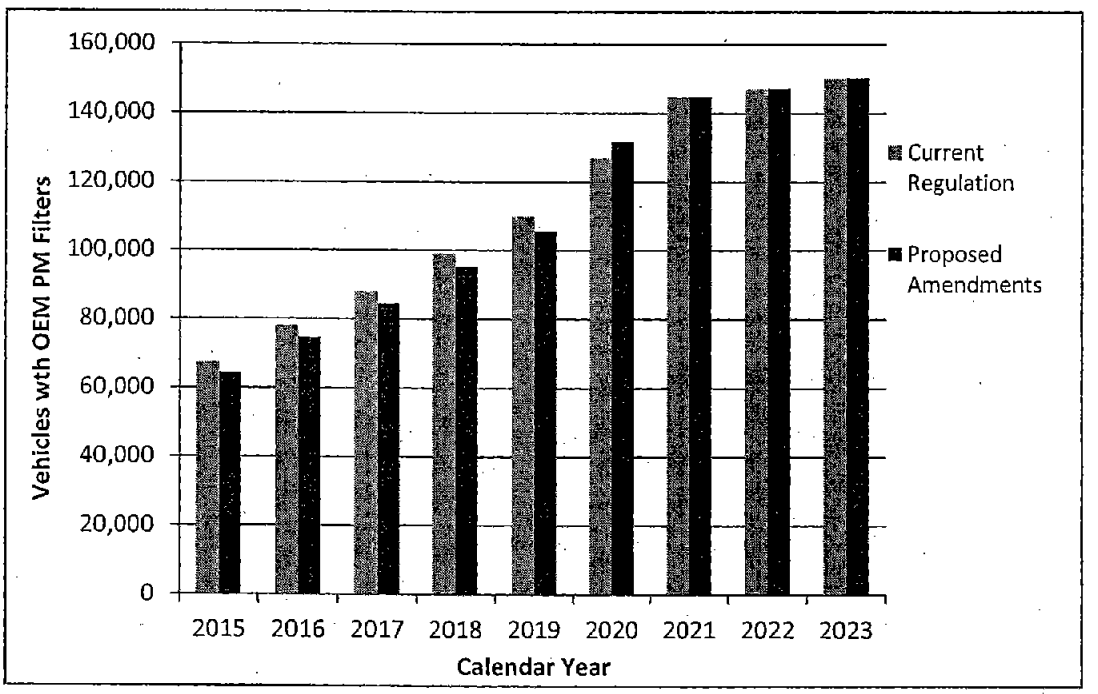
section. However, to the extent some vocational fleets register their trucks outside of California, the cost savings would be similar.

e) Changes in Costs for PM Filter Upgrades for Lighter Vehicles

Until 2020, the existing regulation does not require lighter vehicles to be upgraded if they are less than 20 years old, and retrofit PM filters are not required. The proposed amendments include new options to phase-in compliance for a relatively small number of homogenous fleet owners that have a high number of older engines, and staff expects that many older lighter trucks will use the proposed 5,000 mile low-use exemption and defer replacements until 2020.

Figure VII-4 shows the estimated expected number of lighter vehicles that would be equipped with an OEM PM filter under the existing regulation compared to the amended regulation.

Figure VII-4: Expected Upgrades for Lighter Vehicles



The difference in the expected number of lighter vehicles with OEM PM filters each year was used to determine the capital and annual costs. The difference when comparing the existing regulation to the amended regulation for lighter vehicles is shown in Table VII-2.

Table VII-2: Comparison of the Total Number of In-State Lighter Trucks Operating with OEM and Retrofit PM Filters

Year	Current Regulation	Proposed Amendments	OEM Filter Differential
2015	67,470	64,538	-2,932
2016	77,897	74,719	-3,178
2017	87,966	84,509	-3,457
2018	99,078	95,189	-3,889
2019	109,892	105,653	-4,239
2020	126,982	131,608	4,625
2021	144,587	144,770	183
2022	147,007	147,180	173
2023	150,081	150,238	157

f) Annual Operational and Maintenance Costs

Operational and maintenance costs associated with OEM and retrofit PM filters include annual filter cleaning expenses, fuel economy losses and costs associated with regeneration of active systems. The methodology and assumptions staff used for calculating the annual costs are the same as those described in Appendix J of October 2008 Technical Support Document for In-Use On-Road Diesel Vehicles (ARB, 2008).

The net annual PM Filter maintenance cost reduction, between 2015 and 2025, for in-state fleets resulting from the proposed amendments was estimated to be approximately $27 million.

g) Annual Reporting Costs

In general, reporting costs for affected fleet owners are expected to increase some because some of the added flexibilities in the proposed amendments would extend reporting periods and may newly include more fleet owners. Staff estimates that up to one third of the vehicle population would qualify for some type of mileage extension. The increase in mileage reporting activity would start in 2015 and taper off at 2020. Staff used the same methodology as used in 2010 Staff Report to estimate reporting costs. There would be no reporting cost change for fleet owners electing to use Model Year Schedule, as Model Year Schedule option has no reporting requirement. The total increase in ongoing reporting cost would be approximately $240,000 in 2014 dollars.

h) Total Cost Reduction for the Regulation with Proposed Amendment

The total costs attributable to the amendments for lighter and heavier trucks combined are associated with the savings from:

- Deferring retrofit or replacement costs to later years, with an assumed capital recover rate of 7 percent
- Lower annual ongoing costs

- Lower costs associated with upgrades to lower priced used trucks.

The total estimated cost savings attributed to the amendments are shown in Table VII-3. Total costs are more than $400 million lower in 2014 dollars than the existing regulation.

Table VII-3: Annual Difference in Costs of the Amended Regulation Compared to the Existing Regulation ($2014 millions)

Year	Change in Capital Costs	Change in Ongoing Cost	Change in Compliance Costs
2015	-$43	-$6	-$49
2016	-$105	-$11	-$116
2017	-$103	-$4	-$107
2018	-$70	-$1	-$71
2019	-$54	-$4	-$58
2020	-$9	$4	-$5
2021	-$2	-$4	-$5
2022	-$19	-$1	-$20
2023	-$4	$0	-$4
2024	$13	$0	$13
2025	$4	$0	$4
Total	-$393	-$27	-$420

C. Impact on Small Business

Compared to the current regulation, the proposed amendments would not impose any additional costs on small businesses, and should result in small businesses, many of them small fleets, being able to spread out the compliances costs over a longer period of time, thus, lowering their average yearly compliance costs. However, the amends could have a negative economic impact on retrofit manufacturers and installers and firms that provide repowers in the short term because orders would be spread out over the next several years, and affected fleets may opt to replace their vehicle with a newer compliant vehicle in the future rather than installing a retrofit or performing an engine replacement.

D. Significant Adverse Economic Impact

The proposed changes to the regulation will not have a significant adverse economic impact, as they provide for additional compliance time and flexibility, which will reduce compliance costs for many fleet owners, while recognizing fleet owners that are already compliant.

E. Major Regulations

The Regulation will exceed $50 million in economic costs through capital cost savings in the years 2016 through 2019 compared to the existing regulation; therefore, it is

considered to be a major regulation. The expected impact of the proposed amendments would be to reduce the overall cost of the regulation by over $400 million over its lifetime or about 20 percent lower than the existing regulation. None of the changes would make the regulation more stringent; therefore, it would not increase costs to any individual business. Additional detail on the annual expenditures and compliance costs are in Appendix J.

F. Impacts on Incentive Funding

State and local incentive funding programs play a complementary role to the state's regulatory emission reduction programs to help meet the state's SIP requirements and achieve California's air quality goals. California's portfolio of incentive funding programs includes the Carl Moyer Program (including the Truck Improvement/Modernization Benefitting Emission Reductions Program), on-road Voucher Incentive Program (including the California Hybrid Truck and Bus Voucher Incentive Project), the Goods Movement Emission Reduction Program, Lower Emission School Bus Program, and the AB118 Air Quality Improvement Program. ARB also provides a loan assistance program to offer financial opportunities to on-road heavy-duty vehicle owners. In addition, federal air quality financing programs are available to state and local governments.

1. Impact of Proposed Amendments on Funding Opportunities

Funding is provided to replace or retrofit older, high-polluting heavy-duty vehicles to achieve early or extra (surplus) emission reductions in excess of the requirements of the regulation. Eligibility depends on several factors, including fleet size, vocation, miles traveled, regulatory compliance dates, location of activity, and the percent of miles traveled in California. In addition, each funding program must be consistent with statutory requirements that vary by program. In general, the regulation compliance deadlines affect eligibility by establishing the end of the surplus emission reduction period (i.e., in most cases this means that the emission reductions must be realized several years ahead of any regulatory deadlines).

The rule was designed to provide maximum incentive funding opportunities to fleet owners. However, the ability of most fleet owners to access existing incentive programs is now severely limited or non-existent because of upcoming compliance dates. Because the proposed amendments provide additional time for many fleet owners, some truck projects may once again be eligible for incentive funding as they potentially would meet the surplus emission reduction requirements of the incentive programs. The proposed regulatory changes should enable some additional funding opportunities for fleet owners, and in particular smaller fleet owners, by allowing more time for applicants to apply for funding before the amended compliance dates. Staff will continue to work with local air districts to identify opportunities to assist fleet owners in deploying cleaner trucks while continuing to achieve surplus emission reductions.

2. Access to Funding for Vehicle Owners

Interested vehicle owners can obtain more information on many existing incentive programs by using any of ARB's outreach tools, including:

- The Truck Stop website at www.arb.ca.gov/truckstop.
- The diesel hotline at 866-6DIESEL (866-634-3735).
- Via email at 8666diesel@arb.ca.gov.

In addition, many local agencies have their own funding programs, as well as administer federal and state programs, so vehicle owners are encouraged to check with their local air quality management district for additional funding opportunities.

G. Reasonable Alternatives to the Regulation and the Reason for Rejecting those Alternatives

No alternative considered by ARB would be more effective in carrying out the purpose for which the amended regulation is proposed or would be as effective as or less burdensome to affected private persons than the proposed amended regulation. A discussion of the alternatives considered, and why they were rejected in favor of the proposed amendments, is described in Appendix G.

The proposed amendments were chosen as the best structure to protect the emission reductions expected by the regulation by providing the maximum flexibility for fleet owners to determine their own, most cost-effective combination of PM filters, engine repowers, retirements, and accelerated vehicle replacements to comply with requirements of the proposed regulation. They also allow fleet owners to make decisions concerning which vehicles they plan to keep for a long time versus those that are better candidates for replacement. It also recognizes fleet owners that complied early or use advance technology vehicles or alternative fueled vehicles.

1. Alternatives Considered

Throughout the regulatory amendment development process, staff worked with stakeholders and evaluated a number of suggested alternatives to the proposed amendments. The alternatives considered are provided below:

- Make no changes to regulation.
- Increase "low-use vehicle" threshold to 5,000 miles per year based on miles travelled in California and not on total miles.
- Delay compliance for construction trucks up to 65,000 miles per year.
- Replace PM filter requirements with opacity testing in attainment areas.
- Exempt heavier vehicles having 2007 – 2009 model year engines purchased before January 1, 2014 from upgrading to 2010 engine model year equivalent engines until 2027.
- Delay the replacement of 2007 to 2009 model year engines beyond 2023 with the purchase of engines that are certified below the current 2010 NOx emissions standard.
- Remove PM filter requirements for small fleets.

- Allow limited miles outside of NOx exempt areas.

H. Justification for Adoption of Regulations Different from Federal Regulations Contained in the Code of Federal Regulations

U.S. EPA does not have authority to adopt in-use emission standards relating to the control of in-use motor vehicles, and thus there are no federal regulations comparable to the regulation to reduce emissions from in-use on-road diesel vehicles that operate in California. Under the federal Clean Air Act, U.S. EPA has established NAAQS for pollutants considered harmful to public health, including PM2.5. Areas in the State that exceed the NAAQS are required by federal law to develop SIPs describing how they would attain the standards by certain deadlines. In September 2007, ARB adopted a SIP committing the State to develop measures to achieve emission reductions from sources under State regulatory authority, including in-use vehicles covered by the regulation.

U.S. EPA approved the Truck and Bus regulation, as amended in 2010, into the SIP in April 2012.

VIII. SUMMARY AND RATIONALE FOR EACH REGULATORY PROVISION

A. Summary and Rationale for Each Regulatory Provision

1. Summary of Proposed Regulation Amendment

The proposed amendments to the Regulation achieve staff objectives. As described below, the proposed amendments would provide the following:

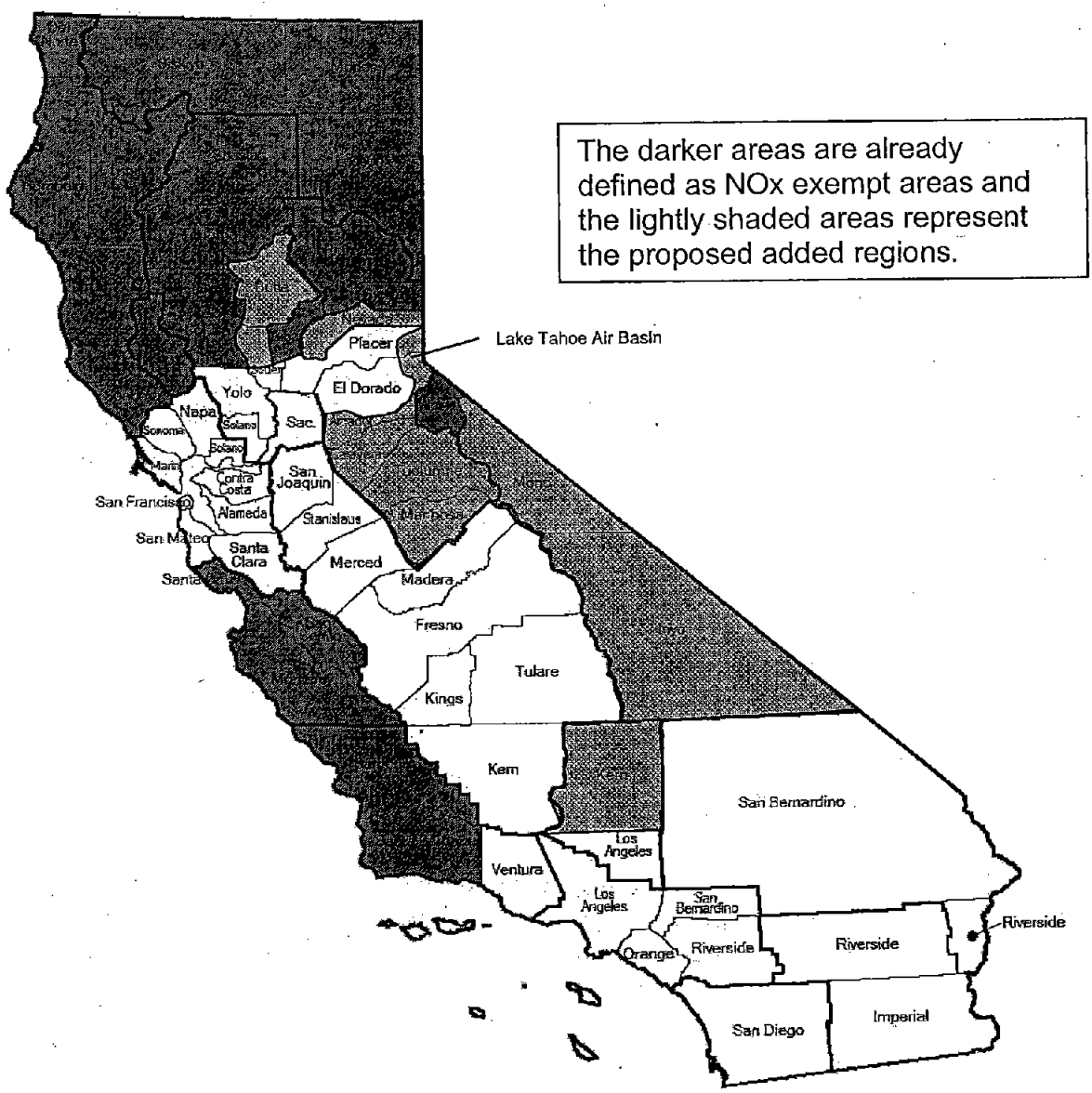
- A longer-phase-in period for PM requirements for trucks operated exclusively in certain rural areas that have made substantial progress towards cleaner air while continuing to ensure compliance with diesel risk reduction program goals.
- Additional time and a lower cost pathway for small fleet owners to achieve compliance with PM requirements, while re-opening opportunities for these fleet owners to apply for and receive public incentive funding.
- A compliance pathway for owners currently unable to qualify for a loan to finance compliance.
- Adjusted schedules for low-use and certain vocational and work trucks that travel fewer annual miles and are not competitive in obtaining incentive funding.
- Recognition of fleet owners that took early action to comply by providing additional useable life for retrofit trucks and reducing near-term compliance obligations.

2. Longer PM Filter Phase-in for Rural Areas that Meet Air Quality Standards

The existing regulation allows owners of heavier trucks that, while operating in California, are operated exclusively in NOx Exempt Areas to phase-in PM filters from 2014 to 2016. In addition, lighter and heavier vehicles that operate in the NOx Exempt Areas, unlike in nonattainment areas, do not need to upgrade to 2010 model year engines if the vehicles are equipped with a retrofit or OEM PM filter. Vehicle owners must report information about their vehicles and must label them to use the extension.

First, staff is proposing to change the NOx Exempt Areas provisions by expanding the number of regions that are included in the option. Figure VIII-1 shows the existing NOx Exempt areas in the darker shaded areas and the proposed additional areas are shown in the lighter shading. Detailed maps of partial counties that are included in the NOx Exempt areas are in Appendix D.

Figure VIII-1: Existing and Proposed NOx Exempt Areas



Existing NOx exempt areas include the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Northern Sonoma (as defined in title 17, CCR section 60100(e)), Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba.

Proposed additional areas would include: Amador, Butte, Calaveras, Inyo, Eastern Kern (that portion of Kern County within the Eastern Kern Air Pollution Control District), Mariposa, Mono, Nevada, Northern Sutter, Tuolumne and the Placer and El Dorado County portion of the Tahoe Air Basin.

The proposed additional NOx Exempt areas includes both regions that are in attainment of federal air quality standards, and regions that are near attainment of federal air quality standards and are expected to attain the standards in the next few years. Several areas of the state that contribute to the non-attainment status of other areas were not included in the proposed amendment.

Staff also considered whether to include Yolo, Solano, El Dorado, Placer, and portions of San Bernardino County in the NOx exempt area definition. These regions are classified as non-attainment for ozone and contain significant cities located in close proximity to interstate roadways including Vacaville, West Sacramento, Roseville, Placerville, Victorville, Barstow, and Hesperia.

The proposed amendments would also spread out PM filter requirements over a longer period of time by postponing their initial compliance date by one year and deferring their final compliance deadline by four years, per the proposed schedule shown in Table VIII-1. Additionally, staff is proposing to allow fleet owners having lighter trucks to use this schedule instead of the current engine model year schedule for their lighter trucks. Finally, language would be added clarifying that vehicles using the NOx Exempt Area provisions may travel outside of the designated areas to support emergency operations.

Table VIII-1: Compliance Schedule for NOx Exempt Area Fleets

Compliance Deadline as of January 1	Current PM Filter Phase-in	Proposed PM Filter Phase-in
2014	33%	0%
2015	66%	25%
2016	100%	40%
2017		55%
2018		70%
2019		85%
2020		100%

Small fleet owners with 3 or fewer vehicles that operate exclusively in NOx Exempt Areas, regardless of vehicle weight class, would have the option to comply with the schedule in Table VIII-2.

Table VIII-2: Compliance Option for Small Fleets in NOx Exempt Areas

Number of Trucks	Existing Regulation PM Filter Required January 1	Proposed Regulation PM Filter Required January 1
One Truck	2015	2017
Two Trucks	2014, 2016	2015, 2019
Three Trucks	2014, 2015, 2016	2015, 2017, 2019

Staff expects that even though the proposed amendments will defer PM and NOx emission reductions in some areas of the State, these regions will benefit over time as fleet owners upgrade their vehicles to meet PM filter requirements from trucks operating in the region. This is especially true for PM emission reductions, as all trucks operating in these regions would be required to have PM filters installed by 2020, consistent with the Diesel Risk Reduction Plan. Additionally, since NOx reductions in these regions from the regulation are not needed to attain or maintain federal air quality standards, no adverse impacts to air quality are expected.

3. Additional Time and a Lower Cost Pathway for Small Fleets that Operate Outside NOx Exempt Areas

For trucks that operate outside designated NOx Exempt Areas, the existing Small Fleet Option delays compliance for all owners with one to three trucks for two years compared to larger fleet owners. A single truck owner was required to retrofit the truck by January 1, 2014. For small fleet owners with two or three trucks, this option requires them to have a PM filter on their first truck by January 1, 2014, on their second truck by January 1, 2015 and (if applicable) on their third truck by January 1, 2016. Staff is proposing to extend the compliance schedule for all small fleet owners to allow them to upgrade the second and third truck in the fleet every other year.[1] Table VIII-3 lists the current and proposed compliance schedule.

Table VIII-3: Optional Schedule for Small Fleet PM Compliance

Small Fleet Option	Existing Schedule	Proposed Schedule
First Truck	January 1, 2014	January 1, 2014
Second Truck	January 1, 2015	January 1, 2016
Third Truck	January 1, 2016	January 1, 2018

This proposed amendment would provide additional time for small fleet owners to meet the PM requirements of the regulation, which is expected to improve the ability for small fleet owners to comply. While this deferral would result in delayed PM emissions reductions compared to the existing regulation, these trucks would still be equipped with PM filters by 2018, ahead of the goals of the Diesel Risk Reduction Plan. The deferral

[1] An out-of-state small fleet owner would only be required to bring those trucks that actually operate in California into compliance and not all trucks in the fleet.

provides additional opportunities for such owners to upgrade to a truck with a 2010 or newer model year engine because the owner would have more time to raise capital and to take advantage of declining used truck prices, as well as improve opportunities for two or three truck owners to take advantage of public funding programs. The deferral also creates the potential for additional NOx reductions between 2018 and 2023 if the owner upgrades to a vehicle meeting 2010 or later model year engine standards earlier than would be expected under the current regulation, rather than installing a retrofit PM filter.

While staff is not proposing to change the January 1, 2014 compliance date for the first truck in a small fleet, those fleet owners that did not meet that deadline due to financial challenges will be able to obtain relief through the proposed amendment discussed in Section 4.

4. Option for Owners Having Financial Compliance Challenges

Staff is proposing a new flexibility option that would defer compliance with the PM filter requirements for all owners that have experienced or are experiencing financial challenges in complying with the regulation. Staff's proposal would allow such owners to defer compliance with the PM filter requirements by committing to upgrade directly to a vehicle with a 2010 model year or newer engine by January 1, 2018. To best protect expected emission benefits, staff is proposing to limit this option to no more than three trucks in the fleet and to establish criteria to minimize competitive disadvantages for owners that have already complied.

The following are the proposed criteria for the owner to use the option:

- The vehicle to be replaced was owned by the participating owner prior to January 1, 2012.
- Between July 1, 2013 and December 31, 2014, the fleet owner was denied a loan to retrofit the vehicle with a PM filter, or to replace the vehicle with one that has a 2007 model year or later engine that is similar to the one being replaced.
- The owner must report to ARB by January 31, 2015, to claim the option.

The proposed amendment is intended to provide an option for all fleet owners that are unable to comply for financial reasons. Based on data reported into TRUCRS, as of January 31, 2014, about 3,000 small fleet owners and 1,000 large fleet owners reported that they were denied a loan needed to bring the fleet into compliance, and would likely not be able to meet the requirements of the regulation. Considering this, the proposed amendment better protects the expected emission reductions by providing a compliance pathway for fleets that are unable to fully comply with regulatory requirements; and in doing so potentially makes trucks in those fleets newly eligible for incentive funding. Finally, the additional time provided for compliance in 2018 would increase the likelihood that the owner will be able to afford a used truck with a 2010 later model year engine as used truck prices decline with each passing year from time of original manufacture; this creates the potential for additional NOx reductions between 2018 and

2023 as such fleet owners upgrade vehicles to a 2010 or later model year engine earlier than is required under the current regulation.

5. Maximum Replacement Requirement

Staff is proposing to add a new compliance option for lighter and heavier trucks that would set an upper limit on the number of vehicles within a fleet that would need to be upgraded with a 2010 model year engine in any given year starting January 1, 2015. The limit would be the greater or 25 percent of the vehicles in the fleet or 2 vehicles. The change would provide additional compliance flexibility for fleet owners that have a high percentage of older trucks that would need to be upgraded beginning in 2015, thereby better ensuring that fleet owners are able to fully meet all of their compliance requirements.

6. Adjusted schedules for low-use and vocational trucks

a) Work Truck Phase-in Option

Staff is proposing to replace the existing construction truck extension with a new work truck phase-in option. Currently, the low mileage construction truck definition applies only to heavier trucks and includes any truck owned by a licensed contractor, and a limited number of vehicle types regardless of who owns them. The latter group includes:

- Dump trucks (including tractor trailer combinations)
- Cranes with a 35 ton capacity
- Water trucks
- Concrete pump trucks
- Concrete mixers
- Lowboy tractor trailer combinations

Under the existing extensions, dump trucks can operate up to 20,000 miles per year and all other trucks are limited to 15,000 miles per year to be eligible.

Staff is proposing to delete the existing Construction Truck definition and add a new definition for Work Trucks. The definition would include all trucks except for tractor-trailer combinations that are not already included in the existing Low-Mileage Construction Truck definition. The new definition would also exclude truck and trailer combinations that are used to haul goods because these combination vehicles compete directly with similar tractor trailer combinations that have one or two trailers. Examples of excluded truck and trailer combinations are fuel tankers, flatbeds, and auto carriers. Buses would also not be included. The scope of vehicles covered by the proposed extension is closely tailored to minimize different fleets from being competitively disadvantaged.

Staff is proposing to set the annual mileage limit at 20,000 miles per year to have a single mileage threshold for all low-mileage work trucks. The proposed PM filter

compliance schedule is shown in Table VIII-4 below. By setting the mileage limit at 20,000 miles per year, this change would potentially defer compliance for 60 percent or more of heavy work trucks that represent about 35 percent of the emissions from all work trucks. The compliance requirements for higher mileage work trucks would not change.

Table VIII-4: Proposed Schedule for Low-Mileage Work Trucks

Compliance Date	Existing Low-Mileage Construction Truck PM Filter Schedule	Proposed Low-Mileage Work Truck PM Filter Schedule
January 1, 2014	33%	33%
January 1, 2015	66%	40%
January 1, 2016	100%	60%
January 1, 2017		80%
January 1, 2018		100%
January 1, 2020	Subject to engine model year schedule	Subject to applicable engine model year schedule

Currently, about 6,000 trucks are using the low-mileage construction truck extension, with 33 percent of the vehicles in these fleets having PM filters by January 1, 2014. The proposed schedule would extend the existing compliance schedule by an additional two years. Staff estimates that the proposed work truck definition would allow an estimated 20,000 to 30,000 other work trucks that did not qualify for the existing low-mileage construction truck extension to use this option for the first time.

Owners that are 1) utilizing the current phase-in option for heavier trucks, 2) are in compliance with the January 1, 2014 requirement (by upgrading 90 percent of their fleet to vehicles with PM filters), and 3) meet the eligibility requirements for this option, would be able to defer further action on the remaining vehicles in their fleet until January 1, 2018 (two years longer than is currently permitted).

Staff is also proposing to allow owners to comply with this option separately for lighter trucks in the fleet. All lighter trucks that operate less than 20,000 miles per year would meet the work truck definition except for buses. This option would allow a fleet owner that has a high percentage of older vehicles to spread out their compliance obligations over several years, while also allowing a single truck owner of a lighter truck to defer compliance until January 1, 2016.

Compared to tractors, many work trucks with specialized attached bodies have additional compliance costs associated with their replacement, and are not as widely available on the used truck market. For an owner that must replace such a truck to comply with the regulation, in many cases the existing body on the truck will need to be

moved onto the replacement truck chassis. Such a need can add between $2,000 and $5,000 to the overall cost of compliance. For some highly specialized truck bodies, these costs can be even higher. By providing additional compliance time, affected fleets in specific vocations that demand application-specific configurations may be able to obtain a used truck chassis for less cost, thereby lowering their overall compliance costs.

b) Expanding the Low-Use Vehicle Exemption Until 2020

The current regulation currently exempts vehicles that travel less than 1,000 miles per year within California's border from meeting the emission reductions requirements of the regulation. For vehicles that perform work while stationary, like drill rigs, boom trucks, or cranes, they are also limited in operating the engine or PTO no more than 100 hours per year. This exemption does not expire or sunset.

As shown in Table VIII-5 staff is proposing to expand the existing definition by including, until 2020, vehicles that annually travel fewer than 5,000 total miles per compliance year, regardless of where the vehicle is operated. Staff is also proposing to remove the annual 100 hour PTO limit for these vehicles. This amendment would improve the ability for fleet owners to continue operating back up vehicles, and for construction fleet owners to keep specialized equipment that have very little annual use. The extra time for low use vehicles allows owners to extend the useful life of existing vehicles and shifts the priority of compliance to higher use vehicles in the fleet.

Table VIII-5: Current and Proposed Low Use Vehicle Thresholds

Current Requirement	Proposed Requirement
<1,000 miles and <100 hours on PTO in CA (No sunset)	<1,000 miles in CA (no sunset, no PTO limit)
	<5,000 miles total on truck (sunset in 2020, no PTO limit)

The 5,000 mile threshold represents less than 5 percent of the annual miles travelled by heavier trucks. As such, the amendment would not be expected to result in a significant impact on local PM exposure risk because the eligible vehicles are generally distributed throughout the state, and the low mileage limit would indicate that they would not be a significant contributor to emissions in high traffic areas, like distribution centers and along roadways, where exposure to toxic diesel PM emissions are greatest. However, despite these lower annual miles, staff does not believe that the contribution to exposure risk from diesel PM is nonexistent; in fact, as the rest of the statewide fleet experiences reduced diesel PM emissions, emissions from these low mileage vehicles will become a larger fraction of overall diesel PM inventory. Therefore, staff believes the proposed 2020 sunset of the 5,000 mile limit is appropriate.

c) *Smoothing Requirements for Low Mileage Agricultural Vehicles*

To be considered an agricultural vehicle, a vehicle must meet the restrictive definition of the regulation, which was closely tailored to minimize different fleets from being competitively disadvantaged.

Currently, the existing agricultural vehicle extension delays compliance with the regulation's emission-related requirements for eligible vehicles that operate less than 15,000, 20,000, or 25,000 miles per year, depending on engine model year. These mileage thresholds are set to expire on January 1, 2017. After that date, only agricultural vehicles that did not exceed 10,000 miles per year, since 2011, as well as designated specialty agricultural vehicles, have an extension until 2023. Staff is proposing to 1) lengthen the limited mileage extension by several years while stepping down the mileage limit over time, 2) simplify how the regulation is implemented, and 3) include cattle livestock trucks in the specialty truck definition.

Lengthen the Limited Mileage Extension

Staff is proposing to lower the annual mileage threshold to a single threshold of 15,000 miles per year starting January 1, 2017 and dropping to 10,000 miles per year starting January 1, 2020. The extension would still expire on January 1, 2023. This change would phase out the extension as it is lowered over time, yet provides owners more flexibility to manage their fleet and distribute compliance for owners over several years rather than requiring them to upgrade nearly all of their vehicles all at once prior to 2017. Staff estimates there are about 5,000 agricultural trucks statewide that are currently using the extension that may be able to continue using the extension past 2017 as proposed.

Specialty Agricultural Vehicle Definition

Staff is proposing to add cattle livestock trucks to the definition of the "Specialty Agricultural Vehicle". Specialty agricultural vehicles are exempt from the emission reduction requirements of the regulation and do not have a mileage limit. The regulation currently places a limit on the total number of vehicles that can qualify for the extension. Staff estimates there are about 500 in-state and out-of-state cattle livestock trucks that operate in California, and that most of the miles traveled are outside the San Joaquin Valley. In addition, staff is proposing to remove the limit on the number of vehicles that can qualify for the extension because it is no longer needed, as the total number of specialty agricultural vehicles in the State and in the San Joaquin Valley did not exceed the limits imposed by the current regulation and the regulation does not allow fleet owners to increase the number of specialty truck extensions in their fleet from year to year.

Log Truck Phase-in Option

Staff is proposing to extend the opt-in period for log trucks using the phase-in option to January 31, 2015. This change is being proposed to allow log- truck owners to opt-out

of the log truck option if other amended options are more advantageous for the fleet owner.

d) Providing Flexibility for Heavy Cranes

Staff is proposing a new compliance option to address compliance issues with heavy cranes[2] in a fleet. Currently, heavy cranes are treated the same as any other vehicle covered by the regulation. However, replacement costs for heavy cranes can run in the hundreds of thousands to millions of dollars. As shown in Table VIII-6, the proposed amendment would include an adjusted compliance schedule for all heavy cranes that operate in California, which would allow fleets to comply by upgrading the cranes in the fleet to a 2010 model year or later engine at a rate of 10 percent per year starting on January 1, 2018. Staff is also proposing to provide credit for heavy cranes that are retrofitted before January 1, 2018 by counting any crane that has a PM filter before January 1, 2018 towards the 2010 engine requirement. Such cranes would also be exempt from the replacement requirement.

Table VIII-6: Proposed Heavy Crane Phase-in Option

Compliance Deadline as of January 1	Required Crane Fleet Upgrades to 2010 Model Year Engines			
	1 Crane Owner	2 Crane Owner	3 Crane Owner	4 or More Cranes
2018				10%
2019			1	20%
2020		1		30%
2021				40%
2022	1		1	50%
2023				60%
2024				70%
2025		1		80%
2026			1	90%
2027				100%

Heavy cranes without PM filters would continue to be counted as part of the fleet of vehicles that do not have PM filters so that the clean-up of other trucks in the fleet would not change. The amendment would minimize the impact on heavy crane fleet owners that have made upgrades to comply, and would allow more flexibility in meeting compliance requirements, and allow these cranes to operate for a 20 year useful life.

[2] "Heavy cranes" are on-road single cranes that are 1) certified as power-operated equipment that can hoist, lower, and horizontally move a suspended load, 2) are required to be operated by a licensed crane operator, and 3) the GVWR is 54,000 pounds or more.

A key rational for this proposed amendment is that modifications to heavy cranes require review and approval by the manufacturer or a registered professional engineer who is familiar with the equipment, and may require modifications to load charts, procedures, instruction manuals and other items as needed. In addition, due to the complexity of the crane design, the number of PM filters available for each heavy crane is limited, and assessments by the crane manufacturer or the registered professional engineer that is familiar with cranes would have to evaluate modifications on a case by case basis; so the proposed heavy crane extension recognizes the time required to evaluate heavy crane modifications incurred by PM filter installations. Staff estimates there are 500 to 800 cranes that may use the proposed phase-in option.

7. Smoothing out Regulatory Compliance Requirement

Staff is proposing to set an upper limit of 25 percent on the number of vehicles that would need to be upgraded with a 2010 or later model year engine each year starting January 1, 2015. This change would provide additional compliance options for fleet owners that have a high percentage of older trucks that would need to be upgraded after 2015.

8. Recognizing Actions Already Taken to Comply

Staff is proposing changes to provide additional compliance time for many fleet owners, which may benefit fleet owners that have not complied on time and could make it more difficult for already compliant fleet owners to recover the costs of their investments. Because of this, staff is proposing several changes that will provide additional credits, or extend the use of existing credits, for fleet owners that meet the requirements of the regulation.

a) Extending the use of retrofit PM filters

Staff is proposing to recognize owners that installed retrofit PM filters on their vehicles before January 1, 2014 by extending the compliance period for the truck until January 1, 2023. In most cases, this would postpone the requirement to upgrade to a 2010 model year or later engine by up to three years so long as the vehicle remains in the owner's fleet. This proposed amendment would not result in any change in PM emissions and would still provide the same level of NOx reductions by 2023. Staff estimates that this option would extend the useful life of about 12,000 trucks.

b) Extending early compliance credits

The existing regulation has a number of credits intended to encourage vehicle owners to make early upgrades by retrofitting heavier vehicles, adding vehicles with OEM PM filters earlier than required, or by upgrading to advanced technology or alternative fueled vehicles. These credits can be used by any fleet that complies with the PM filter phase-in option of the regulation, and can defer compliance by several years for other heavier trucks in the fleet. The regulation also contains provisions to provide credits to fleets that downsized as a result of the recession. These credits are set to expire in 2016 or 2017, and staff is proposing to extend them until 2018 or 2020, depending on

the credit. Table VIII-7 identifies the credit provision, its current expiration date, and the proposed expiration date. The table also lists the total number of trucks that have been reported to claim these credits.

Table VIII-7: Proposed Extension of Compliance Credits

Action to earn credits	Current Expiration Date	Proposed Expiration Date	Total Trucks Utilizing Credits (as of Jan 31, 2014)
Early PM filter credits	1/1/2016	1/1/2018	1,800
Early addition of vehicles with OEM PM filters	1/1/2017	1/1/2018	2,300
Adding alternative fueled vehicles	1/1/2017	1/1/2018	2,200
Downsizing compared to 2006	1/1/2017	1/1/2018	14,400
Adding advanced technology vehicles	1/1/2017	1/1/2020	0

To date, no fleet owners have upgraded to fuel efficient hybrids because they are not widely available for most heavier vehicle types; therefore, staff is proposing to extend this credit until January 2020. The definition of fuel efficient hybrids is also being revised to be consistent with criteria used for incentive funding for heavy duty advanced technology vehicles.

Extending the early action credits would recognize fleet owners that have complied by taking early action to replace trucks or retrofit engines, and extending the credits for adding cleaner vehicles would provide additional incentive to encourage fleet owners to upgrade with alternative fueled or advanced technology vehicles. Supporting the commercialization of advanced technology vehicles is a key part of achieving future air quality improvements and a sustainable transportation future. Extending the downsizing credits would provide a compliance pathway for fleet owners that have not fully recovered from the recession, and would increase the likelihood that the owner would upgrade to a 2010 model year engine earlier than under the existing regulation.

The current regulation allows owners to defer compliance for trucks by applying credits earned from installing retrofit PM filters on off-road equipment that are subject to title 13, CCR, section 2449; however, staff is not proposing to change the expiration date for this credit so that consistency is maintained in how the credits are treated in the two regulations.

9. Addressing Compliance for a PM Filter Retrofit that is Recalled

Staff is proposing to address compliance for retrofit PM filter recalls that are not repaired or replaced by the manufacturer. Owners that have installed a retrofit PM filter that becomes subject to a recall under title 13, CCR section 2701 (a)(35) and that the retrofit manufacturer is unable to replace or repair the recalled PM filter would be permitted to operate the affected vehicle up to five years from the date of the recall. The owner would be required to carry documentation with the affected vehicles at all times. This proposed amendment would protect the owner that acted in good faith to comply with the regulation.

10. Other Minor Changes

Staff is proposing amendments to several definitions to define new terms that are associated with the amendments outlined above. Staff is also proposing to modify other sections to clarify existing requirements and improve enforceability of the regulation and updating reporting and recordkeeping requirements.

IX. PUBLIC PROCESS FOR DEVELOPMENT OF PROPOSED AMMENDMENTS

Staff conducted a series of statewide workshops and meetings to solicit comments from affected stakeholders regarding the proposed amendments to the regulation. Written comments that were received shortly before and after the workshops are provided in Appendix H. In addition, staff continues to offer comprehensive outreach to assist and educate fleet owners on actions needed to comply with diesel fleet regulations, and the financial incentive programs that are available. These efforts are described further below.

A. Public Workshops

Since December 3, 2013, staff held five public workshops statewide to discuss proposed amendments to the regulation. Table IX-1 shows the dates and locations of the workshops.

Table IX-1: Public Workshop Dates and Locations

Workshop Dates	Locations
December 3, 2013	Diamond Bar
December 4, 2013	Sacramento (webcast)
December 5, 2013	Redding
December 10, 2013	San Diego
December 12, 2013	Fresno (video link to Bakersfield and Modesto)

The Sacramento workshop was webcast and the Fresno workshop provided a live video feed to locations in Modesto and Bakersfield.

B. Other Meetings

In addition to the workshops noted above, staff discussed and/or met with a number of companies, trade groups, and industry organizations about proposed amendments to the regulation. Staff met with individuals and representatives of the following.

American Lung Association of California
Better World Group
California Air Pollution Control Officers Association
California Cattlemen's Association
California Citrus Mutual
California Cotton Ginners and Growers Association
California Farm Bureau Federation
California Fleet Solutions
California Tow Truck Association
California Trucking Association
Coalition for Clean Air

Construction Industry Air Quality Coalition
Manufacturers of Emission Controls Association
Natural Resources Defense Council
Nisei Farmers League
Robinson Enterprises
Union of Concerned Scientists
Western Agricultural Processors Association

In addition, staff attended Town Hall meetings in Chico, Davis, Yuba City, and Fairfield. Per the request of Assemblyman Dan Logue, staff also met with representatives from five trucking companies to assist with compliance and obtain feedback on the regulatory requirements. The concerns and suggestions made by participants at these meetings included the impact of the regulation on affected businesses in rural areas, the role of funding programs, and potential changes to the regulation.

C. On-Going Outreach Efforts

Since the development of the regulation, ARB has made many efforts to provide compliance assistance and outreach to diesel fleet owners. In 2011, a branch at ARB was created to raise awareness of the regulation as well as other diesel fleet regulations and provide compliance assistance and information by use of multiple innovative outreach mechanisms. Staff has designed an outreach program that serves as a one-stop source of information for all diesel fleet regulations and incentive programs, and assists fleet owners in understanding regulation requirements in a timely, accurate, and plain language format. ARB's multi-pronged compliance assistance approach involves a call center, a dedicated website, distribution of written materials through dealers and other state and local agencies, direct mailings, training and webinars throughout the State, and more recently through a media outreach contract. Staff also participates in special campaigns involving enforcement and media activities.

After the Board meeting, staff will continue its outreach efforts with an updated plan to inform fleet owners about any regulatory changes. Staff will also inform fleet owners of any new or expanded incentive funding opportunities the proposed amendments might provide. Staff will also continue to work with industry representatives and associations on additional ways to educate stakeholders on the amendments to the regulations.

The outreach program is constantly striving to increase collaborations and form new partnerships since many of the diesel fleet regulations have annual deadlines continuing through 2023. To ensure success in 2014 and onward, staff will remain attentive to stakeholder needs, develop additional means of outreach, and continue the extensive compliance assistance efforts described in detail below.

1. Call Center (866-6DIESEL Hotline)

The 1-866-6DIESEL hotline is the primary channel for informing the public about how to achieve full compliance with ARB's suite of diesel regulations. This resource is prominent among the regulated community, particularly small fleet owner/operators who

account for 82 percent of total calls. Staff provides support and compliance assistance on a personalized level in English, Spanish and Punjabi.

In 2013, the hotline phone system and equipment was modernized to accommodate the high volume of calls received during peak call periods. Callers receive electronic assistance in the form of menu driven frequently asked questions and tips. This provides assistance to most questions on a 24/7 basis and minimizes backlog for callers who want more personalized answers. In addition, the upgrade has improved call management, and permits supplementary staff during peak periods during hotline hours of Monday through Friday, 8:00 am to 5:00 pm.

Since 2011, staff fielded 124,279 calls. Table IX-2 provides a breakdown of calls by year and language. Information collected from callers is also analyzed and used to design future publications and webpage content.

Table IX-2: Annual Breakdown of Calls to 866-6DIESEL Hotline

Outreach Year	English	Spanish	Punjabi	Total
2011	24,502	2,066	102	26,670
2012	36,664	4,134	406	41,201
2013	48,719	6,975	711	56,405
Total	109,885	13,175	1,219	124,279

2. Truck Stop Website

The Truck Stop serves as a standalone resource and companion for the Diesel hotline. Information is available in both English and Spanish, and combined, the main pages for each of the two language portals received 120,523 web hits in 2012 and 175,000 hits in 2013. Web content is updated regularly with new information posted in the "What's New?" section on Truck Stop's main page. The website contains detailed information on regulation requirements and compliance options, as well as compliance tools, including a fleet calculator, instructional videos, and relevant info-graphics. A web form allows fleet owners to requests tailored compliance responses either by email or from the hotline. Staff handles an average of 500 emails per month. The Truck Stop is optimized often to enhance user experience, improve usability, and deliver quality content.

3. Written Materials and Mail Outs

Staff prepares written materials and mail outs to assist owners in understanding regulation requirements in a timely, accurate, and plain language format. Printed and online materials have a professional, consistent design for program recognition. Easy-to-understand handbooks, postcards, regulatory applicability flowcharts, information packets, fuel pump toppers, and posters are examples of how we try to reach fleet owners. Since 2012, staff prepared and mailed seven mail-outs to announce approaching compliance deadlines to fleet owners. The December 2013 mail out informed fleet owners of good faith efforts to comply and proposed regulatory changes

to nearly 200,000 truck owners. Each mail out initiated a surge in call volume to the Diesel Hotline and an uptick in web usage.

4. Enhanced Enforcement Outreach Events

Statewide roadside joint enforcement and outreach events have garnered balanced news media coverage, including television, radio, print, online and trade publication pieces that have reached millions of people in California and beyond. Vehicle owners receive outreach materials and have an opportunity to discuss requirements specific to their fleet with staff. Staff has also participated in talk shows on satellite radio stemming from these efforts.

5. Training and Presentations at Business Events

A series of six training courses provide fleet owners guidance on complying with diesel equipment regulations are offered in a classroom setting throughout the state and in a webinar format. Since 2012, staff conducted 400 classes to train over 13,000 attendees. Classes were held in 24 California counties and 62 cities in California and at 22 out-of-state locations (including Mexico). Webinars are offered routinely on topics of current interest. At the request of industry and trade associations, staff has also presented information and provided compliance assistance at 80 business events and technical forums.

6. Media Strategies Contract

In 2012, ARB issued a $1.6 million contract to develop and implement a comprehensive media and information outreach campaign. The contractor has conducted research, and using the attitudes, opinions and behaviors of identified target audiences has designed an imaginative media outreach campaign consisting of television, cable, radio, web, and print material. The purpose of the media campaign is to assist ARB in informing the trucking community about the regulation and motivate them into compliance.

Using themes that resonate with the trucking community, the contractor has designed and produced outreach materials, including tip pads, point of sale materials, and campaign posters to display at 1,000 locations in California including truck stops, dealers, and truck part stores. Since November 2013, the contractor has deployed pump toppers at 43 Truck Stops throughout California, and has delivered prominent print and web advertisement placement in several trade publications including Spanish and Punjabi.

A significant component of this campaign includes coverage of upcoming deadlines and requirements on broadcast television, cable channels airing in the Los Angeles, Bay Area, Central Valley and Northern California media markets, and XM Satellite Radio for nationwide coverage.

X. OTHER STAKEHOLDER CONCERNS AND UPDATE

In addition to the economic concerns raised by many stakeholders, concerns regarding diesel particulate filter effectiveness, the availability of used trucks, and the need for enforcement were also raised. This chapter addresses these concerns.

A. Concerns with Diesel Particulate Filters

At the Board hearing, many stakeholders expressed concerns regarding the effectiveness, reliability, and cost of PM filters. In particular, several commenters stated that PM filters reduced the horsepower and fuel economy of their engines, caused engine failures, or resulted in a fire. Some indicated that diesel particulate filters are not a mature technology and have reliability problems that lead to costly downtime and additional maintenance needs. These comments on poor reliability focused both on retrofit and OEM PM filters.

1. Retrofit Verification and Warranty Data

Filtration of PM emissions is a technique that has been around for decades. PM filters are a mature technology and have been installed in millions of vehicles across the United States and in many parts of the world to comply with emissions standards for new vehicles. PM filters can also be retrofit to in-use vehicles, and the use of retrofits in California has been proven effective. Properly functioning diesel particulate filters reduce diesel PM emissions by 98 percent or more.

Making sure that retrofit PM filters work properly in California has been one of staff's highest priorities over the past decade. Every retrofit PM filter that is installed on a vehicle has gone through ARB's rigorous verification program that requires manufacturers to demonstrate that their equipment works effectively, both in the laboratory and over the road. Retrofit manufacturers sometimes express concern that the verification process is burdensome and slow; however, the process is designed to be as comprehensive as possible to minimize problems once the retrofits enter the marketplace. In addition to verification, manufacturers of verified PM filters must also offer comprehensive warranty coverage for their products that includes any engine damage caused by the retrofit. For heavy heavy-duty engines, the minimum warranty period is 5 years or 150,000 miles.

Despite this robust verification process, there have been isolated issues with some retrofits and their installation. The failure and associated recall of the Cleaire Longmile filter substrate (which was unique in its design and construction among all retrofit OM filters) is the most visible example. In this case, Cleaire initiated a voluntary recall program that removed these filters from operation in California.

Despite the visibility of that recall, the overwhelming majority of filters operate as designed. Warranty report data demonstrate the overall reliability of retrofit PM filters, as shown in Table X-1 below. ARB records indicate 90 different retrofit models have been offered for sale in California, and since 2000 almost 50,000 units have been sold.

About 75 percent of these retrofit PM filters are verified Level 3 devices (providing greater than 85 percent control), while the remaining retrofits are lower level devices that provide a lesser level of control. While warranty claims have been submitted for 11 percent of all retrofit PM filter applications, the vast majority of these claims are for consumable components in the retrofit system like fuses or gaskets that are easily replaced. ARB data shows that about half a percent of total retrofit PM filters have required replacement during the warranty period, as shown in Table X-1.

Table X-1: Retrofit Sales and Warranty Claims Overview

Total Verified Retrofits	Total Retrofit Sales 2000-2012 All Programs	Total Level 3 DPF Sales 2000-2012 All Programs	Total Warranty Claims*	Total Warranty Claims for the DPF Core
90	49,648	36,154	5,700 (11%)	222 (0.6% of all DPFs)

* All submitted claims (valid, denied, and goodwill) for all components, including consumable components such as fuses, glow plugs, and O-rings.

2. Retrofit Investigations and Role of Proper Maintenance

When a fleet owner has a concern about retrofit performance that has not been resolved through discussions with the manufacturer and installer, staff investigate and work to resolve the issue. ARB staff acts as a liaison to installers and manufacturers for program related issues, and oversees the training that manufacturers and installers offer to end-users. Through this work staff conducts investigations of retrofit issues in on-road and off-road applications. Staff's experience underscores the importance of ensuring that engines are in proper repair, and retrofit PM filter maintenance schedules are followed. Staff's experience indicates that while problems similar to those voiced at the October hearing can occur, when engines are properly maintained, and retrofit PM filters are properly installed and maintained, these problems can be minimized.

3. OEM PM Filters

ARB has an active program for certifying new diesel engines to strict emissions standards. All on-road diesel engines have been equipped with diesel particulate filters since 2007. There are now hundreds of thousands of trucks subject to the Truck and Bus regulation that are equipped with diesel particulate filters as manufactured and operate in California. To sell new engines in California, engine manufacturers must first certify their engines through ARB. This requires that the manufacturers conduct durability and emissions testing, provide warranty coverage, submit warranty reports to ARB, and conduct in-use testing. These warranty reports demonstrate that over the period of 2007-2010, warranty claims were filed for about 4 percent of diesel PM filters or filter components sold on new engines.

4. Staff Investigation

In response to concerns expressed by industry stakeholders, staff is conducting an investigation that includes an evaluation of many different types of information including warranty data, emissions testing data, roadside surveys designed to identify the prevalence of PM filter concerns in the California fleet, and interviews of selected fleet owners, including fleet owners expressing concerns during the workshops, fleet owners that are known to have resolved concerns about filters, and fleet owners selected at random. Results to date will be presented to the Board in April 2014 prior to the consideration of the proposed amendments.

B. New and Used Truck Availability

Another concern expressed by industry stakeholders in the workshops was whether or not there is a sufficient number of compliant vehicles available to meet regulatory obligations. Staff's analysis suggests that no more than 50,000 additional trucks would need to be replaced in any of the next 5 years to achieve compliance in California. In most years the totals would be less. There are more than enough trucks available for fleet owners to purchase to comply with the regulation, because both new and used trucks are regularly sold across state lines, used trucks from across the United States can be sold in California, and a large number of compliant used trucks are sold nationally every year.

There are a sufficient number of compliant used trucks available for sale in California. Staff estimates in 2012 more than 300,000 used class 7 and class 8 trucks were sold in the United States in 2012; in that year about 30 percent of those used trucks had 2007 model year or later engines and met PM regulatory requirements (ACT, 2012). This percentage increases every year. Depending on demand, more of these trucks could be sold in California.

Additionally, there are also a sufficient number of compliant new trucks available for sale in California. National truck sales published by Wards Auto shows there were 242,000 new trucks (GVWR >26,000 lbs) sold in the United States in 2012 with more than 110,000 lighter trucks sold (Ward, 2012). All new trucks have OEM PM filters and meet the final compliance requirement of the regulation, and manufacturers have capacity to produce a sufficient number of new trucks to meet projected demand, and to sell these trucks in California.

C. Enforcement

Enforcement plays a major role in providing a level playing field for fleet owners subject to the Truck and Bus regulation. Enforcement is conducted at weigh stations, fleet facilities, along roadways, at border crossings, and other locations. Penalties for non-compliance can be substantial including fines of at least $1000 per month of non-compliance per vehicle, DMV vehicle registration title stops, and other actions. By comparing vehicle registration and reporting data, staff has identified potential companies that may be non-compliant with regulation requirements. Staff anticipates contacting these fleet owners in 2014 to help facilitate compliance, monitoring these

fleet owners to determine if they register in TRUCRS, and following up with these fleet owners through compliance assistance programs and if necessary enforcement actions to ensure compliance.

XI. REFERENCES

ACT, 2012. *State of the Industry: U.S. Classes 3-8 Used Trucks.* ACT Research, Published: December 24, 2012.

ARB, 2008. *Proposed Regulation for In-Use On-Road Vehicles-Technical Support Document: Appendices C-O, Appendix J: Cost and Economic Analysis Methodology.* Air Resources Board, October 2008. http://www.arb.ca.gov/regact/2008/truckbus08/appj.pdf

ARB, 2009. *The California Almanac of Emissions and Air Quality.* Air Resources Board, 2009 Edition. http://www.arb.ca.gov/aqd/almanac/almanac09/almanac09.htm

ARB, 2010. *Proposed Amendments to the Truck and Bus Regulation, the Drayage Truck Regulation and the Tractor-Trailer Greenhouse Gas Regulation-Technical Support Document: Appendices D-J, Appendix G: Emissions Analysis Methodology and Results Medium-Heavy Duty Diesel Trucks, Heavy-Heavy Duty Diesel Trucks, and Regulated Bus Categories.* Air Resources Board, October 2010. http://www.arb.ca.gov/regact/2010/truckbus10/truckbusappg.pdf

ARB, 2011. *2007 State Strategy for California's State Implementation Plan (SIP) for Federal PM2.5 and 8-Hour Ozone Standards.* Air Resources Board (ARB) website. http://www.arb.ca.gov/planning/sip/2007sip/2007sip.htm (accessed January 31, 2014).

ARB, 2013. *EMFAC2011 Overview.* Air Resources Board, January 2013. http://www.arb.ca.gov/msei/emfac2011-release-document-final-updated-0712v03.pdf (accessed February 4, 2014).

Bloomberg, 2014. *California Officials Cut Water Delivery as Drought Deepens.* Bloomberg News, Michael B. Marois, Published: January 31, 2014. http://www.businessweek.com/news/2014-01-31/california-water-officials-cut-delivery-as-state-drought-deepens (accessed February 6, 2014).

Bond, 2013. Bond, T. C., S. J. Doherty, D. W. Fahey, P. M. Forster, T. Berntsen, B. J. DeAngelo, M. G. Flanner, S. Ghan, B. Kärcher, D. Koch, S. Kinne, Y. Kondo, P. K. Quinn, M. C. Sarofim, M. G. Schultz, M. Schulz, C. Venkataraman, H. Zhang, S. Zhang, N. Bellouin, S. K. Guttikunda, P. K. Hopke, M. Z. Jacobson, J. W. Kaiser, Z. Klimont, U. Lohmann, J. P. Schwarz, D. Shindell, T. Storelvmo, S. G. Warren, and C. S. Zender, 2013. *Bounding the role of black carbon in the climate system: A scientific assessment.* Journal of Geophysical Research: Atmospheres, doi:10.1002/jgrd.50171.

Chow, 2010. Chow J.C., J.G. Watson, D.H. Lowenthal, L.W. Chen, and N. Motallebi, 2010. *Black and organic carbon emission inventories: review and application to California.* Journal of Air & Waste Management Association, 60(4):497-507.

Shindell, 2012. Shindell, D., J. C. I. Kuylenstierna, E. Vignati, R. van Dingenen, M. Amann, Z. Klimont, S. C. Anenberg, N. Muller, G. Janssens-Maenhout, F. Raes, J.

Schwartz, G. Faluvegi, L. Pozzoli, K. Kupiainen, L. Höglund-Isaksson, L. Emberson, D. Streets, V. Ramanathan, K. Hicks, N. T. K. Oanh, G. Milly, M. Williams, V. Demkine, and D. Fowler, 2012. *Simultaneously Mitigating Near-Term Climate Change and Improving Human Health and Food Security.* Science, 335 (6065): 183–189. doi: 0.1126/science.1210026.

UNEP and WMO, 2011. *Integrated Assessment of Black Carbon and Tropospheric Ozone.* United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO), 2011.

Ward, 2012. Wards Auto, The Information Center for and about the Global Auto Industry, 2012. http://wardsauto.com/

Appendix A

Proposed Regulation Order

PROPOSED REGULATION ORDER

Title 13, California Code of Regulations
Division 3: Air Resources Board
Chapter 1: Motor Vehicle Pollution Control Devices

Amend title 13, California Code of Regulations, section 2025, to read as follows:

NOTE: Set forth below are proposed amendments to title 13, of the California Code of Regulations. Amendments to existing sections proposed and subject to comment in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions.

Article 4.5.

§ 2025. Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and Other Criteria Pollutants from In-Use Heavy-Duty Diesel-Fueled Vehicles.

(a) Purpose

The purpose of this regulation is to reduce emissions of diesel particulate matter (PM), oxides of nitrogen (NOx) and other criteria pollutants from in-use diesel-fueled vehicles.

(b) Scope and Applicability

Except as provided in subsection (c), this regulation applies to any person, business, federal government agency, school district or school transportation provider that owns or operates, leases, or rents, affected vehicles that operate in California. The regulation also applies to persons that sell affected vehicles in California and those described in section 2025(x). Affected vehicles are those that operate on diesel-fuel, dual-fuel, or alternative diesel-fuel that are registered to be driven on public highways, were originally designed to be driven on public highways whether or not they are registered, yard trucks with on-road engines or yard trucks with off-road engines used for agricultural operations, both engines of two-engine sweepers, schoolbuses, and have a manufacturer's gross vehicle weight rating (GVWR) greater than 14,000 pounds (lbs).

(c) Exemptions

This regulation does not apply to:

(1) Vehicles subject to the solid waste collection vehicle rule commencing with title 13, CCR, section 2021;

(2) Vehicles owned or operated by a municipality, as defined in title 13, section 2020(b), that comply with the Best Available Control Technology (BACT) requirements of title 13, CCR, section 2022.1(a)(1);

(3) Vehicles subject to the fleet rule for public transit agencies commencing with title 13, CCR, section 2023;

(4) Vehicles subject to the rule for mobile cargo handling equipment at ports and intermodal rail yards commencing with title 13, CCR, section 2479;

(5) Military tactical support vehicles, as described in title 13, CCR, section 1905;

(6) Authorized emergency vehicles as described in California Vehicle Code (Veh. Code), section 165;

(7) Off-road vehicles equipped with engines subject to title 13, CCR, sections 2401, 2411, 2421, 2432, and 2449;

(8) Dedicated snow-removal vehicles as defined in section 2025(d)(16)~~(15)~~;

(9) Historic vehicles as defined in section 2025(d)(36);

(10) Motor homes for non-commercial private use;

(11) Except as specified in section 2025(*l*) vehicles subject to the regulation for drayage trucks commencing with title 13, CCR, section 2027 until January 1, 2023;

(12) Trucks with a GVWR of 19,500 lbs or less with a pick-up bed used exclusively for personal, non-commercial, or non-governmental use; and

(13) Except for two-engine sweepers, other two-engine on-road vehicles that are subject to title 13, CCR, section 2449, including but not limited to, water well drilling rigs, workover rigs, and cranes, in which one engine provides the motive power for the vehicle and a second engine is an auxiliary engine 50 horsepower or greater that is integrated into the design of the vehicle and provides power for the vehicle to perform a specialized function.

(d) Definitions

For purposes of this regulation, the following definitions apply:

(1) "2006 *Baseline Fleet*" means diesel-fueled heavy-duty vehicles with a GVWR greater than 26,000 lbs included in the scope of section 2025(b) that were ~~owned by a~~ in the fleet and registered to operate in California on October 1, 2006 with the California Department of Motor Vehicles, or were ~~owned by a~~ in the fleet, registered to operate on October 1, 2006 in a jurisdiction that is an International Registration Plan member, and were driven at least 1,000 miles in California in the calendar year 2006. A fleet owner must include all vehicles that fall within the scope and applicability of section 2025(b) and must exclude all vehicles that are exempt from the regulation in the exemptions section 2025(c).

(2) "*2007 Model Year Emissions Equivalent*" means emissions from:

(A) An engine certified to the 2004 through 2006 model year heavy-duty diesel engine emissions standard that is equipped with the highest level VDECS and reduces NOx emissions by at least 40 percent; or

(B) An engine that was built to the 2004 engine emission standard and was not used in any manufacturer's averaging, banking, or trading program that is

equipped with the highest level VDECS and reduces NOx exhaust emissions by at least 40 percent; or

(C) An engine certified to the 2003 or prior model year heavy-duty diesel engine emissions standard that is equipped with the highest level VDECS and reduces NOx exhaust emissions by at least 70 percent; or

(D) An engine certified to the 2007-2009 model year heavy-duty engine emissions standard and meets PM BACT.

(3) *"2010 Model Year Emissions Equivalent Engine"* means emissions from:

(A) An engine certified to the 2004 through 2006 model year heavy-duty diesel engine emissions standard that is equipped with the highest level VDECS and reduces NOx emissions by at least 85 percent; or

(B) An engine that was built to the 2004 engine emission standard and was not used in any manufacturer's averaging, banking, or trading program that is equipped with the highest level VDECS and reduces NOx exhaust emissions by at least 85 percent; or

(C) An engine certified to the 2007 model year heavy-duty diesel engine emissions standard that meets PM BACT and reduces NOx exhaust emissions by more than 70 percent; or

(D) An engine certified to the 2010 model year or newer heavy-duty diesel engine emissions standard that meets PM BACT; or

(E) A heavy-duty engine certified to 0.2 g/bhp-hr or less NOx emissions level and 0.01 g/bhp-hr or less PM emissions level; or

(F) An off-road engine certified to the Tier 4 Final engine emissions standard.

(4) *"Advanced Technology Vehicle"* means one of the following vehicle types with a GVWR greater than 26,000 lbs:

(A) A hybrid vehicle that draws propulsion energy from both a consumable fuel and a rechargeable energy storage system, has maximum power available from the rechargeable energy storage system during a standard 10 second pulse power or equivalent test of at least 15 percent of the vehicle's total traction power, and a City Fuel Economy of at least thirty percent greater than that of the equivalent non-hybrid make/model vehicle as determined in accordance with the requirements of Internal Revenue Bulletin 2007-23 (www.irs.gov/irb/2007-23_IRB/ar08.html); or

(B) A hybrid vehicle that has an on-board electrical energy storage device with useful capacity equivalent to greater than or equal to ten miles of Urban Dynamometer Driving Schedule (UDDS) range on electricity alone, is equipped with an on-board charger, and is rechargeable from an external connection to an off-board electrical source; or

(C) A zero emission vehicle that produces no evaporative emissions and does not produce any exhaust emissions while operating, such as a fuel cell or battery electric vehicle.

(5)~~(4)~~ "*Agricultural Operations*" means:

(A) The activity of growing ~~or~~and harvesting crops for the primary purpose of making a profit or providing a livelihood including any horticultural, viticultural, aquacultural, forestry, dairy, livestock, poultry, bee or farm product. Raising plants at nurseries that sell exclusively retail are not included, or

(B) The cutting or removing of timber, other solid wood products, including Christmas trees, and biomass from forestlands for commercial purposes. The services also include all the work incidental thereto, including but not limited to, construction and maintenance of roads, fuel breaks, firebreaks, stream crossings, landings, skid trails, beds for falling trees, fire hazard abatement, and site preparation that involves disturbance of soil or burning of vegetation following forest removal activities. Forest operations include the cutting or removal of trees, tops, limbs and or brush which is processed into lumber and other wood products, and or for landscaping materials, or biomass for electrical power generation. Forest operations do not include conversion of forestlands to other land uses such as residential or commercial developments.

(6)~~(5)~~ "*Agricultural Vehicle*" means a vehicle that is eligible to utilize the requirements for agricultural vehicles in section 2025(m) and meets one of the definitions of (A) through (E) below.

(A) A vehicle, or truck-tractor and trailer combination, owned by a farming business and used exclusively in one or more of the following ways:

1. in agricultural operations;
2. to transport harvested farm products to the first point of processing;
3. to directly support farming or forestry operations, which may include supply trucks, cattle trucks, and other vehicles but does not include vehicles that do not directly support farming operations such as personal use vehicles, vehicles rented or leased to others for non-agricultural uses that do not qualify, or vehicles used in a transportation business other than to transport harvested farm products to the first point of processing.

(B) A vehicle, or truck-tractor and trailer combination, owned by a bee keeping business and used exclusively to transport their own bees or honey to the first point of processing.

(C) A truck, or a truck-tractor and trailer combination, that is required to display a hazardous material placard during delivery and exclusively delivers fertilizer or crop protection chemicals that require placard identification for use in agricultural operations from a distribution center to a farm and back, and is owned by a business holding a valid fertilizer or pest control license.

1. Owners of such vehicles must hold:
   a. a valid pest control dealer license issued by the California Department of Pesticide Regulation as required under Food &

Agricultural Code, Division 6, Chapter 7, Article 6, Section 12101; or

b. a valid fertilizing materials license issued by the California Department of Food and Agriculture as required under Food & Agricultural Code, Division 7, Chapter 5, Article 4, Section 14591(a).

2. Such vehicles must exclusively carry products defined under one of the following, and be required to display an appropriate placard, as required by the United States Department of Transportation:

a. 49 CFR, CHAPTER 1, PART 173.127 (Division 5.1); or

b. 49 CFR, CHAPTER 1, PART 173.132 (Division 6.1); or

c. 49 CFR, CHAPTER 1, PART 173.115 Class 2, (Division 2.1, 2.2, and 2.3); or

d. 49 CFR, CHAPTER 1, PART 173.136 Class 8; or

e. 49 CFR, CHAPTER 1, PART 173.140 Class 9.

(D) A truck, or truck-tractor and trailer combination, designed for in-field operations, that is exclusively engaged in agricultural operations on the farm. Examples include truck configurations designed to spread manure, dispense hay, and dispense freestall bedding. It also includes water trucks and trucks designed or modified to be used exclusively for the dusting, spraying, fertilizing, or seeding of crops. Except as allowed in (A) above, trucks, or truck-tractor and trailer combinations that transport any products, materials, personnel, or equipment are excluded.

(E) A truck, or truck-tractor and trailer combination, including yard trucks, that exclusively transports any unprocessed horticultural, viticultural, aquacultural, forestry, dairy, livestock, poultry, bee or farm products such as raw, unprocessed crops, livestock, fish, or fowl between the farm and where the first point of processing occurs after harvest. Also included are trucks that are used to harvest crops for silage, and trucks that transport unprocessed agricultural materials from forest or farm to a biomass facility.

(7) ~~(6)~~ *"Alternative Diesel Fuel"* means any fuel used in diesel engines that is not a reformulated diesel fuel as defined in sections 2281 and 2282 of title 13, CCR, and does not require engine or fuel system modifications for the engine to operate, other than minor modifications (e.g., recalibration of the engine fuel control) that may enhance performance. Examples of alternative diesel fuels include, but are not limited to, biodiesel, Fischer-Tropsch fuels, and emulsions of water in diesel fuel. Natural gas is not an alternative diesel fuel. An emission control strategy using a fuel additive will be treated as an alternative diesel fuel based strategy unless:

(A) the additive is supplied to the engine fuel by an on-board dosing mechanism; or

(B) the additive is directly mixed into the base fuel inside the fuel tank of the engine; or

(C) the additive and base fuel are not mixed until engine fueling commences, and no more additive plus base fuel combination is mixed than required for a single fueling of a single engine or vehicle.

(8)~~(7)~~ "*Alternative Fuel*" means natural gas, propane, ethanol, methanol, hydrogen, electricity, fuel cells, or ~~advanced technologies that do not rely on diesel fuel. "Alternative fuel" also means~~ any of these fuels used in combination with each other~~ or in combination with other non-diesel fuels~~.

(9)~~(8)~~ "*Alternative-Fueled Engine*" means an engine that is exclusively fueled with a fuel meeting the definition of alternative fuel.

(10)~~(9)~~ *"Authorized Emergency Vehicle"* has the same meaning as California Veh~~.~~icle Code section 165.

(11)~~(10)~~ *"California Based Broker"* means a person, with operations based in California, who, for compensation, arranges or offers to arrange the transportation of property by an authorized motor carrier. A motor carrier, or person who is an employee or bona fide agent of a carrier, is not a broker when it arranges or offers to arrange the transportation of shipments which it is authorized to transport and which it has accepted and legally bound itself to transport.

(12)~~(11)~~ "*Commercial Vehicle*" means a motor vehicle or combination of motor vehicles as defined in California Veh. Code, section 260.

(13)~~(12)~~ "*Common Ownership or Control*" means being owned or managed day to day by the same person, corporation, partnership, or association. Vehicles managed by the same directors, officers, or managers, or by corporations controlled by the same majority stockholders are considered to be under common ownership or control even if their title is held by different business entities. Common ownership or control of a federal government vehicle shall be the primary responsibility of the unit that is directly responsible for its day to day operational control.

(14)~~(13)~~ "*Compliance Year*" means January 1 through December 31 of a calendar year.

(15)~~(14)~~ "*Compression Ignition Engine*" means an internal combustion engine with operating characteristics significantly similar to the theoretical diesel combustion cycle. The regulation of power by controlling fuel supply in lieu of a throttle is indicative of a compression ignition engine.

(16)~~(15)~~ "*Dedicated Snow Removal Vehicle*" means a vehicle that has permanently affixed snow removal equipment such as a snow blower or auger, and is operated exclusively to remove snow from public roads, private roads, or other paths to allow on-road vehicle access.

(17)~~(16)~~ "*Diesel Fuel*" has the same meaning as defined in title 13, CCR, sections 2281 and 2282.

(18)~~(17)~~ "*Diesel Particulate Filter*" means an emission control technology that reduces diesel particulate matter emissions by directing the exhaust through a filter that physically captures particles but permits gases to flow through. Periodically, the collected particles are either physically removed or oxidized (burned off) in a process called regeneration.

(19)~~(18)~~ "*Diesel Particulate Matter (PM)*" means the particles found in the exhaust of diesel-fueled compression ignition engines. Diesel PM may agglomerate and adsorb other species to form structures of complex physical and chemical properties.

(20)~~(19)~~ "*Drayage Truck*" is the same as defined in title 13, CCR, section 2027.

(21)~~(20)~~ "*Dual-Fuel Engine*" means any compression ignition engine that is engineered and designed to operate on a combination of alternative fuels, such as compressed natural gas (CNG) or liquefied petroleum gas (LPG) and diesel fuel or an alternative diesel fuel. These engines have two separate fuel systems, which inject both fuels simultaneously into the engine combustion chamber. A dual-fuel engine is not an alternative-fuel engine.

(22)~~(21)~~ "*Electronic Tracking System*"

(A) The tracking device must acquire date, time, and engine-on data at a minimum of 15 minute intervals, with no more than 30 minute data gaps. The tracking device must also acquire location data for vehicles claiming to operate exclusively in NOx-exempt areas and for vehicles that must document low-use in California~~ when their total miles of operation exceed 1,000 miles and total hours of operation exceed 100 hours~~.

(B) The tracking records must be collected by an independent entity with no business relationship to the owners of the vehicles being tracked, other than to provide the tracking service.

(23)~~(22)~~ "*Emergency Operation*" means operation of an authorized emergency vehicle or emergency support vehicle to help alleviate an immediate threat to public health or safety. Examples of emergency operation include vehicle used at an emergency event to repair or prevent damage to roads, buildings, terrain, and infrastructure as a result of an earthquake, flood, storm, fire, terrorism, or other infrequent acts of nature. Emergency operation includes authorized emergency vehicle and emergency support vehicle travel to and from an emergency event when dispatched by a local, state, or federal agency. Routine operation to prevent public health risks does not constitute emergency operation.

(24)~~(23)~~ "*Emergency Support Vehicle*" means a vehicle, other than an authorized emergency vehicle that has been dispatched by a local, state, or federal agency that is used to provide transport services or supplies in connection with an emergency operation.

(25)~~(24)~~ "*Executive Officer*" means the Executive Officer of the ARB or his or her authorized representative.

(26)~~(25)~~ "*Farm*" means a physical location for which the primary purpose is making a profit or providing a livelihood from:

(A) horticultural, viticultural, aquacultural, forestry or crops or plants that are grown and harvested at the location, (nurseries that sell exclusively retail are not farms); or

(B) raising, breeding, grazing, feeding, or milking animals, fish, fowl, or bees.

(27)~~(26)~~ "*Farming Business*" means a business involved exclusively in the cultivating, operating, or managing a farm for profit, or a business contracted to harvest trees in a forest for profit. A farming business does not include businesses that derive their principal source of income from providing agricultural services such as, landscape services, veterinary, farm labor, or management for a fee or on a contract basis, or are engaged in the business of artificial insemination, raising, and caring for dogs, cats, or other pet animals.

(28)~~(27)~~ "*First Point of Processing*" means the location where harvested crops, bees, fowl, fish, livestock, animals, or their products, such as wool, milk, or eggs, are first altered from their original state, or the first location where unaltered products are packaged and prepared for transportation. First point of processing is not a location of the product's final use and for some crops the location may be in the field, such as chipping wood. First point of processing also includes biomass facilities that receive agricultural waste in the form of unprocessed agricultural materials. A first point of processing may include, but is not limited to, packinghouses, slaughterhouses, cotton gins, nut hullers/shellers and processors, dehydrators, lumber mills, feed and grain mills, and biomass facilities. First point of processing does not include distribution centers, wholesale retail sales locations where the first processing of product does not occur, livestock auction houses, and subsequent locations where processing, canning, or similar activities occur after departing a first point of processing location.

(29)~~(28)~~ "*Fleet*" means one or more vehicles, owned by a person, business, or government agency, traveling in California and subject to this regulation. A fleet may fall into one of the following subclassifications:

(A) "*Federal Fleet*" means a fleet of vehicles owned by a department, agency, or instrumentality of the federal government of the United States of America and its departments, divisions, public corporations, or public agencies including the United States Postal Service. With respect to the Department of Defense and its service branches, federal fleets may be managed regionally, locally, or a combination of regional and local management. There may be multiple federal fleets within a military service or an installation; or

(B) "*Rental or Leased Fleet*" means a fleet of vehicles owned by a person (rental or leasing entity) for the purpose of renting or leasing, as defined in California Uniform Commercial Code, section 10103(a)(10) such vehicles to other persons (renters or lessees) for use or operation.

(30)~~(29)~~ "*Fleet Owner*" means~~, except as modified below in paragraphs (A) and (B),~~ either the person registered as the owner or lessee of a vehicle by the

California Department of Motor Vehicles (DMV), or its equivalent in another state, province, or country; as evidenced on the vehicle registration document ~~carried in the vehicle.~~ or the vehicle title, except as specified in (A), (B) and (C) below:

(A) For vehicles that are owned by the federal government and not registered in any state or local jurisdiction, the owner shall be the department, agency, branch, or other entity of the United States, including the United States Postal Service, to which the vehicles in the fleet are assigned or which have responsibility for maintenance of the vehicles.

(B) For vehicles that are rented or leased:

1. The owner shall be presumed to be the rental or leasing entity for purposes of compliance with section 2025(e), if:
   a. The rental or lease agreement for the vehicle is for a period of less than one year; or
   b. The rental or lease agreement for the vehicle is for a period of one year or longer, unless the terms of the rental or lease agreement or other equally reliable evidence identifies the party responsible for compliance with state laws for the vehicle to be the renting operator or lessee of the vehicle.
2. For purpose of enforcement, if the vehicle is inspected and cited for noncompliance with this regulation and neither the operator of the vehicle nor the rental or leasing entity can produce evidence of the party responsible for compliance with state laws, the owner shall be presumed to be both the rental or leasing entity and the renting operator or lessee of the vehicle.

(C) A financing company or a person that only provides financing to a third party in the form of "finance leases," as defined in California Uniform Commercial Code Section 10103(a)(7), is not considered to "own" the vehicles that are financed. Similarly, a financing company or a person that only provides financing to a third party for engine replacements or for PM filter retrofits is not considered to be the owner of the engine or retrofit.

~~(30) *"Fleet Size"* means the total number of diesel vehicles with a GVWR greater than 14,000 lbs in a fleet, regardless of whether the vehicles operate in California, that are under common ownership or control even if they are part of different subsidiaries, divisions, or other organizational structures of a company or agency.~~

~~(31) *"Fuel Efficient Hybrid Vehicle"* means a vehicle with an onboard energy storage system that improves the average fuel economy of the vehicle by at least 20 percent compared to a conventional diesel vehicle of the same model year and configuration. The vehicle must have a combination of an engine and onboard energy storage system that provides motive power for accelerating the vehicle, regenerative braking, or operates auxiliary equipment while stationary, such as a boom, auger, or drill rig. The energy storage system can be electric, hydraulic, pneumatic or of any other type that recovers its energy directly or indirectly from~~

~~the engine. In addition, the onboard energy storage system of the hybrid vehicle can have the capability to supplement its energy from an external power source.~~

(31)~~(32)~~ "*Governmental Agency*" means any federal, state, or local governmental agency, including, public schools, water districts, or any other public entity with taxing authority.

~~(33) "Gross Vehicle Weight Rating (GVWR)" is as defined in Vehicle Code Section 350.~~

(32) "Heavier Vehicle" means a vehicle with a gross vehicle weight rating (GVWR) as defined in Veh. Code Section 350 that is greater than 26,000 pounds.

(33) "*Heavy Crane*" means an on-road single crane that is certified as power-operated equipment that can hoist, lower, and horizontally move a suspended load, is required to be operated by a licensed crane operator, and has a gross vehicle weight rating of 54,000 pounds or more.

(34) "*Heavy-Duty Pilot Ignition Engine*" means an engine designed to operate using an alternative fuel, except that diesel fuel is used for pilot ignition at an average ratio of no more than one part diesel fuel to ten parts total fuel on an energy equivalent basis. An engine that can operate or idle solely on diesel fuel at any time does not meet this definition.

(35) "*Highest Level VDECS*" means the highest level VDECS verified by ARB under its Verification Procedure, Warranty and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines (Verification Procedure), title 13, CCR, sections 2700-2710, for a specific engine as of 10 months prior to the compliance date, which the diesel emission control strategy manufacturer and authorized diesel emission-control strategy dealer agree can be used on a specific engine and vehicle combination without jeopardizing the original engine warranty in effect at the time of application.

(A) The highest level VDECS is determined solely on verified diesel PM reductions. Plus designations do not affect the diesel PM level assigned to a VDECS; that is, a Level 3 Plus is the same diesel PM level as Level 3.

(B) A Level 2 VDECS shall not be considered the highest level VDECS as long as a Level 3 VDECS can be retrofitted on a vehicle in the fleet.

(C) Level 1 devices are never considered highest level VDECS for the purpose of this regulation.

(36) "*Historic Vehicle*" means a vehicle that meets the qualifications for a historical vehicle and has been issued a historical vehicle license plate pursuant to the California Veh. Code, section 5004, and is operated or moved over the highway primarily for the purpose of historical exhibition or other historic vehicle club activities.

(37) "*Hubodometer*" means a non-resettable device mounted on the axle of a vehicle that measures distance traveled that has a serial number and a lock-out feature that permanently prevents tampering.

~~(38) "*International Registration Plan (IRP)*" is a registration reciprocity agreement among states of the United States and provinces of Canada providing for payment of license fees on the basis of total distance operated in all jurisdictions.~~

(38) "Lighter Vehicle" means a vehicle with a GVWR as defined in Veh. Code Section 350 from 14,001 to 26,000 pounds.

(39) "*Log Truck*" means a heavy-duty vehicle with a manufacturer's GVWR greater than 33,000 lbs and has log bunks permanently attached that exclusively transports logs.

~~(40) "*Low-Mileage Construction Truck*" means a vehicle that meets the definition in (A) or (B) as follows:~~

~~(A) A dump truck with a GVWR greater than 26,000 lbs that operates less than 20,000 miles per calendar year and is designed to transport construction materials such as dirt, asphalt, rock or construction debris including a transfer truck, or a tractor trailer combination used exclusively to pull bottom dump, end dump or side dump trailers, or~~

~~(B) A truck with a GVWR greater than 26,000 lbs that travels less than 15,000 miles per calendar year and is a concrete mixer truck, truck with a concrete placing boom, a water tank truck, a single engine crane with a load rating of 35 tons or more, a tractor that exclusively pulls a low-boy trailer, or a truck owned by a company that holds a valid license issued by the California Contractors State License Board.~~

(40)~~(41)~~ "*Low-use Vehicle*" means: ~~a vehicle that will be operated fewer than 1,000 miles in California in any compliance year. If that vehicle has an engine that powers other equipment that can only be used while stationary, the engine or power take off (PTO) must also operate less than 100 hours in any compliance year. The hour limitation does not apply for vehicles where the engine is used to power an auxiliary mechanism that strictly loads and unloads cargo from the vehicle (examples include, but are not limited to, dump trucks, cement powder trucks, or trucks with attached lift devices).~~

(A) A vehicle that is operated fewer than 1,000 miles within the borders of California in the compliance year, or

(B) Until January 1, 2020, a vehicle that is operated fewer than 5,000 total miles, regardless of where it is operated, in the compliance year.

(41)~~(42)~~ "*Motor Carrier*" is the same as defined in California Veh. Code section 408 for fleets other than those that are comprised entirely of school buses, which for the purposes of this regulation, means the registered owner, lessee, licensee, school district superintendent, or bailee of any school bus, who operates or directs the operation of any such bus on either a for-hire or not-for-hire basis.

(42)~~(43)~~ "*Motor Home*" means a single vehicular unit designed for human habitation for recreational or emergency occupancy and built on, or permanently attached to, a self-propelled motor vehicle chassis, chassis cab, or van, which becomes an integral part of the completed vehicle or a vehicle that exclusively

tows a trailer that was originally designed for human habitation for recreational or emergency occupancy.

(43)(~~44~~) "*New Fleet*" means a fleet that is acquired or that enters California after January 1, 2012. Such fleets may include new businesses or out-of-state businesses that bring vehicles into California for the first time after January 1, 2012.

(44)(~~45~~) "*Non-Commercial Use*" means any use or activity where a fee is not charged and the purpose is not the sale of a good or service, and the use or activity is not intended to produce a profit.

(45)(~~46~~) "*NOx Exempt Areas*" are the following counties – Alpine~~,~~; Amador; Butte; Calaveras; Colusa~~,~~; Del Norte~~,~~; Eastern Kern (portion of Kern County within the Eastern Kern Air Pollution Control District); Glenn~~,~~; Humboldt~~,~~; Inyo; Lake~~,~~; Lassen~~,~~; Mariposa; Mendocino~~,~~; Modoc~~,~~; Mono; Monterey~~,~~; Nevada; Northern Sonoma (as defined in title 17, CCR section 60100(e))~~,~~ Plumas~~,~~; San Benito~~,~~; San Luis Obispo~~,~~; Santa Barbara~~,~~; Santa Cruz~~,~~; Shasta~~,~~; Sierra~~,~~; Siskiyou~~,~~; Northern Sutter (portion of Sutter County that is north of the line that extends from the south east corner of Colusa County to the southwest corner of Yuba County); portions of El Dorado and Placer that are within the Lake Tahoe Air Basin; Trinity~~,~~; Tehama~~,~~; Tuolumne; and Yuba.

(46)(~~47~~) "*Person*" means an individual, corporation, business trust, estate, trust, partnership, Limited Liability Company, association, joint venture, government, governmental subdivision, agency, or instrumentality, public corporation, or any other legal or commercial entity.

(47)(~~48~~) "*PM BACT*" means the technology employed on the highest level VDECS for PM or an engine that is equipped with an original equipment manufacturer (OEM) diesel particulate filter and certified to meet the 0.01 g/bhp-hr certification standard.

(48) "*Private Utility Vehicle*" means a vehicle owned by a privately-owned or publicly held company or corporation that provides the same or similar services for water, natural gas, and electricity as a public utility operated by a municipality.

(49) "*Registered and Driven Safely On-Road*" means a vehicle that meets the requirements to be registered for on-road operation in California Veh. Code division 3, chap. 1, article 1, section 4000 et seq. (i.e., required to be registered or could be registered), and the requirements to be driven safely on-road in "Equipment of Vehicles" requirements in Veh. Code division 12, chap. 1, sections 24000 et seq. and "Size, Weight, and Load" requirements in Veh. Code division 15, sections 35000 et seq, or a vehicle defined as an implement of husbandry as defined in California Veh. Code division 16, chap. 1, section 36000 et seq.

(50) "*Repower*" means to replace the engine in a vehicle with a newer engine certified to lower emission standards for PM or NOx or both as applicable.

(51) "*Responsible Official*" means one of the following:

(A) For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, their delegate, designee, or any other person who performs similar policy or decision-making functions for the corporation;

(B) For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

(C) For a municipality, state, federal, or other governmental agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a Regional Administrator of the U.S. EPA). For the purposes of the Department of Defense Military Services, a commanding officer of an installation, base or tenant organization.

(52) "*San Joaquin Valley Air Basin*" includes the entire counties of San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, and Kings and western part of Kern County as described starting page 23888 of the Federal Register Vol. 69, No. 84.

(53) *"School Bus"* is a motor vehicle as defined in California Veh. Code, section 545.

(54) *"Small fleet"* means three or fewer diesel vehicles with a GVWR greater than 14,000 lbs that are under common ownership or control even if they are part of different subsidiaries, divisions, or other organizational structures of a company or agency, regardless of whether the vehicles operate in California.

(55)~~(54)~~ "*Specialty Agricultural Vehicle*" means an agricultural vehicle having one of the following body types and has been approved for the exemption in section 2025(m)(11) by the Executive Officer:

(A) A truck, or a truck-tractor and trailer combination, designed or modified to be used exclusively for the fueling, repairing, or loading of an airplane or helicopter used for the dusting, spraying, fertilizing, or seeding of crops; or

(B) A truck, or a truck tractor and trailer combination, that is equipped with a self-loading bed and is designed and used exclusively to transport field manufactured cotton modules to a cotton gin; or

(C) A truck equipped with a water tank owned by a farmer, not operated for compensation, and used exclusively in agricultural operations to provide dust suppression on dirt roads providing access to agricultural fields and for the transportation of water for crop or tree irrigation or for livestock; or

(D) A feed truck or mixer-feed truck specially designed for dispensing feed to livestock. It does not include trucks designed to supply storage silos with feed; or

(E) A truck with a self-loading bed designed to be used in the process of harvesting lettuce. This type of vehicle is commonly referred to as a Fabco truck; or~~.~~

(F) A livestock truck with a GVWR greater than 33,000 lbs or tractor-trailer combination that exclusively transports cattle, where the truck has a permanently attached livestock module, or where the tractor-trailer combination exclusively tows a trailer with a livestock module.

(56)~~(55)~~ "*Three Day Pass*" means a once-a-year temporary permit to operate a vehicle in California for three consecutive days without meeting the requirements of section 2025(e).

(57)~~(56)~~ "*Tier 0 Engine*" means an engine not subject to the requirements in title 13, CCR, section 2423; Title 40, Code of Federal Regulations (CFR), Part 89; or Title 40, CFR, Part 1039.

(58)~~(57)~~ "*Tier 4 Final Engine*" means an engine subject to the final after-treatment-based Tier 4 emission standards in title 13, CCR, section 2423(b)(1)(B) and/or Title 40, CFR, Part 1039.101. This also includes engines certified under the averaging, banking, and trading program with respect to the Tier 4 FEL listed in title 13, CCR, section 2423(b)(2)(B) and/or Title 40, CFR, Part 1039.101

(59)~~(58)~~ "*Two*-Engine Sweeper" means an on-road heavy-duty vehicle with a manufacturer's GVWR greater than 14,000 lbs, used for the express purpose of removing material from road or other surfaces, by mechanical means through the action of one or more brooms, or by suction through a vacuum or regenerative air system or any combination of the above. A two-engine street sweeper has an engine to propel the vehicle and an auxiliary engine to power the broom or vacuum.

~~(59) "*Private Utility Vehicle*" means a vehicle owned by a privately-owned or publicly held company or corporation that provides the same or similar services for water, natural gas, and electricity as a public utility operated by a municipality.~~

(60) "*Verified Diesel Emission Control Strategy*" (VDECS) means an emissions control strategy, designed primarily for the reduction of diesel PM emissions, which has been verified pursuant to the Verification Procedures. VDECS can be verified to achieve Level 1 diesel PM reductions (25 percent), Level 2 diesel PM reductions (50 percent), or Level 3 diesel PM reductions (85 percent). VDECS may also be verified to achieve NOx reductions. See also definition of highest level VDECS.

(61) "*VDECS Failure*" means the condition of not achieving the emissions reductions to which the VDECS is verified. Such condition could be due to inappropriate installation, damage, or deterioration during use. If a Level 3 VDECS is emitting visible smoke, it is assumed to have failed.

(62) *"Work Truck"* means a vehicle that meets one of the definitions in (A) through (E):

(A) A dump truck that is designed to transport construction materials such as dirt, asphalt, rock or construction debris including a transfer dump truck, or a tractor trailer combination used exclusively to pull bottom dump, end dump or side dump trailers; or

(B) A truck or truck tractor owned by a company that holds a valid license issued by the California Contractors State License Board; or

(C) A truck with an attached bed or body that includes but is not limited to a concrete mixer truck, concrete pump truck, a water tank truck, or a single engine crane, except if the truck in combination with a trailer transports goods as defined by commercial code section 2105; or

(D) A truck tractor that exclusively pulls a low-boy trailer, or

(E) Any truck with a GVWR from 14,001 to 26,000 lbs.

(63)~~(62)~~ "*Yard Truck*" means a vehicle, with an on-road or off-road engine and a hydraulically elevated fifth wheel, that is used in moving and spotting trailers and containers at locations or facilities. Yard trucks are also known as yard goats, hostlers, yard dogs, trailer spotters, or jockeys.

(e) General Requirements

Beginning with the applicable effective dates, a fleet owner must comply with the following requirements of this regulation:

(1) Except as otherwise provided below for specific classifications in sections 2025(e)(2) through 2025(e)(5), fleets must meet the following compliance schedule:

(A) Starting January 1, 2015, fleets must meet the requirements of section 2025(f) for all vehicles with a GVWR 26,000 lbs or less except for school buses.

(B) Starting January 1, 2012, for all vehicles with a GVWR greater than 26,000 lbs, excluding school buses, fleets must meet the requirements of section 2025(g) or fleets that report may instead comply with the phase-in option of section 2025(i).

(C) Fleets with one to three vehicles with a GVWR greater than 14,000 lbs may utilize the small fleet compliance option of section 2025(h) for vehicles with a GVWR greater than 26,000 lbs.

(2) Beginning January 1, 2012, fleets with school buses must comply with the requirements of section 2025(k) for all school buses in the fleet.

(3) Beginning January 1, 2021, all private utility vehicle owners must comply with the requirements of section 2025(*l*)(4).

(4) Beginning January 1, 2023 drayage trucks must comply with the requirements of section 2025(*l*)(1) through (3).

(5) All fleets may utilize the credit provisions of section 2025(j), the provisions of agricultural vehicles and log trucks of section 2025(m), the compliance options ~~provisions~~ for ~~construction~~ work trucks, vehicles operating exclusively in the NOx exempt areas, or any of the other extensions, delays, and exemptions of section 2025(p).

(6) ~~Although the total number of vehicles under common ownership or control is determinative of fleet size, if~~ If some of the vehicles within the fleet are under the control of different responsible officials because they are part of different subsidiaries, divisions, or other organizational structures of a company or agency, the fleet owner ~~of a "common ownership of control fleet"~~ may elect to have the vehicles that are under the control of different responsible officials report and comply ~~compliance~~ independently of other vehicles in the fleet owner's general fleet if choosing to comply with the requirements of section 2025(g) or the phase-in option of section 2025(i) for the segment of the fleet under the control of the different responsible officials. However, all vehicles owned by the fleet owner ~~under common ownership and control~~ must be reported for the fleet to use the credits for fleets that have downsized in section 2025(j)(1), or the credits for the early addition of newer vehicles in section 2025(j)(3)~~, or the extension for low-mileage construction trucks of section 2025(p)(2)~~.

(7) Except personal, non-commercial, unregistered motor vehicles, or vehicles otherwise not required to obtain authority to operate, the following is required for all fleet owners who elect to utilize the phase-in option of section 2025(i) and the small fleet option of section 2025(h), the credit provisions of section 2025(j) for early PM retrofits, early addition of newer vehicles, hybrid vehicles, alternative fueled vehicles, and vehicles with heavy-duty pilot ignition engines, the agricultural vehicle provisions of section 2025(m), or the exemptions, delay, and extensions of section 2025(p):

(A) A valid California motor carrier of property number; or

(B) A valid identification number assigned by the United States Secretary of the Department of Transportation; or

(C) A valid operating authority number issued by the Public Utilities Commission; or

(D) Other applicable valid operating authority number approved by the Executive Officer.

(8) All information specified in section 2025(r) must be reported to the Executive Officer.

(9) Records must be kept as specified in section 2025(s).

(10) Once a vehicle is required to be in compliance with this regulation, it must remain in compliance at all times that it is operating in California.

(11) If the calculated number of engines required to be brought into compliance with a percentage for any compliance option, and the result is not equal to a whole number, the number shall round up to a whole number when the fractional part of the required number of engines is equal to or greater than 0.5, and round down if less than 0.5.

(12) In cases where public funds contributed to the purchase of the vehicle, repower of the engine, or retrofit of the engine, the vehicle will not be counted when determining compliance with PM BACT during the period that the funding program

does not allow the vehicle to be counted towards compliance, unless allowed by the funding program guidelines applicable to the particular source of public funds used for the purchase, nor shall the engine be included in the total fleet for purposes of determining the percent of the fleet that is complying with PM BACT.

(f) Requirements for Vehicles with a GVWR 26,000 lbs or less

Fleets owners must comply with the schedule in Table 1 for all the lighter vehicles in the fleet ~~with a GVWR 26,000 lbs or less~~ and meet the record keeping requirements of section 2025(s). Fleets owners do not need to meet the reporting requirements of section 2025(r). School buses are not subject to the requirements of this subsection and must meet the requirements of section 2025(k).

(1) Except as provided in (3) below, all lighter vehicles ~~with a GVWR 26,000 lbs or less~~ must be equipped with a 2010 model year emission equivalent engine pursuant to the following schedule in Table 1:

Table 1: Compliance Schedule by Engine Model Year for Vehicles with a GVWR 26,000 lbs or less

Compliance Date as of January 1	*Existing Engine Model Year*	*Requirements*
2015	1995 & older	2010 model year emission equivalent
2016	1996	
2017	1997	
2018	1998	
2019	1999	
2020	2003 & older	
2021	2004-2006	
2022	N/A	
2023	All engines	

(2) Any engine that meets PM BACT prior to January 1, 2014, does not have to be upgraded to a 2010 model year emissions equivalent engine until January 1, ~~2020~~2023 as long as the vehicle remains in the fleet, and ~~, but~~ the fleet owner ~~must~~ meets the reporting and record keeping requirements of sections 2025(r) and 2025(s) for ~~the vehicle~~ all lighter vehicles in the fleet starting January 31, 2015.

(3) Fleets owners may use the provisions for agricultural vehicles in section 2025(m) or any of the exemptions, delays, and extensions of section 2025(p), except for the following sections that apply only to heavier trucks: ~~2025(p)(1)(B), 2025(p)(2),~~ 2025(p)(8), 2025(p)(9), and 2025(p)(10).

(4) Starting January 1, 2015, fleet owners may optionally comply with the 2010 model year engine requirement by retiring existing vehicles and replacing them with 2010 model year emission equivalent engines for at least 2 lighter vehicles or 25 percent of the lighter vehicles in the fleet per calendar year, whichever is higher.

(A) The fleet owner must report information about all lighter vehicles that were in the fleet as of January 1 of the compliance year and the prior year. Owners must meet the reporting and record keeping requirements of section 2025(r) and (s) to use this option. ~~Any fleet where all vehicles with a GVWR 26,000 lbs or less meet PM BACT prior to January 1, 2014, does not have to upgrade those vehicles to 2010 model year emissions equivalent engines until January 1, 2023, but must meet the reporting and record keeping requirements of sections 2025(r) and 2025(s) by January 31, 2014 for all the vehicles in the fleet with a GVWR 26,000 lbs or less.~~

(g) Requirements for Vehicles with a GVWR greater than 26,000 lbs

Fleets owners must comply with the schedule in Table 2 for all heavier vehicles in the fleet ~~with a GVWR greater than 26,000 lbs~~ and must comply with the record keeping requirements of section 2025(s)~~, and~~ Fleet owners are not required to meet the reporting requirements of section 2025(r). A fleet may meet PM BACT by installing the highest level VDECS or by having an engine equipped with an OEM diesel particulate filter. A fleet may meet the 2010 model year emissions equivalent engine requirement by replacing the engine or vehicle with one with a 2010 model year engine or later, retrofitting the engine with a VDECS that achieves 2010 model year equivalent emissions, or by replacing a vehicle with one that has a future compliance deadline. Fleets owners may alternatively choose to comply using the phase-in option of section 2025(i) or as specified in 2025(g)(3) below.

(1) Starting January 1, 2012, all heavier vehicles in the fleet ~~with a GVWR greater than 26,000 lbs~~ must meet PM BACT and upgrade to a 2010 model year emissions equivalent engine pursuant to the schedule set forth in Table 2 below.

Table 2: Compliance Schedule by Engine Model Year for Vehicles with GVWR greater than 26,000 lbs

Engine Model Year	Compliance Date Install PM Filter by	Compliance Date 2010 Engine by
1993 & older	N/A	January 1, 2015
1994 – 1995	N/A	January 1, 2016
1996 – 1999	January 1, 2012	January 1, 2020
2000 – 2004	January 1, 2013	January 1, 2021
2005 – 2006	January 1, 2014	January 1, 2022
2007 or newer	January 1, 2014 if not OEM equipped	January 1, 2023

(2) A 2007 model year emissions equivalent engine complies with the BACT requirements until January 1, 2023.

(3) From January 1, 2012 until January 1, 2014, any fleet may optionally choose to meet PM BACT according to the following:

(A) 2003-2004 model year engines and 1993 model year and older engines by January 1, 2012.

(B) 2005-2006 model year engines and 1994-1999 model year engines by January 1, 2013.

(C) All engines by January 1, 2014.

(D) After January 1, 2014, this option expires and the fleet must comply with general requirements of section 2025(e).

(E) Fleet owners choosing this option must comply with the reporting and record keeping requirements of sections 2025(r) and (s).

(4) Any engine that meets PM BACT prior to January 1, 2014, does not have to be upgraded to a 2010 model year emissions equivalent engine until January 1, 2023 as long as the vehicle remains in the fleet~~2020 at which time it must be in compliance with the schedule set forth in Table 2 above~~. To use the exemption, fleet owners choosing this option must comply with the reporting and record keeping requirements of sections 2025(r) and (s) by January 31, 2015~~2014~~ for all of the heavier vehicles in the fleet ~~that meet PM BACT~~.

(5) Fleet~~s~~ owners may utilize the exemptions and extensions of sections 2025(p) and 2025(m).

(6) Fleet~~s~~ owners may use the extension based on the unavailability of highest level VDECS of section 2025(p)(9) for 1996 model year or newer engines.

(7) Starting January 1, 2015, fleet owners may optionally comply with the 2010 model year engine requirement by retiring existing vehicles and replacing them with 2010 model year emission equivalent engines for at least 2 heavier vehicles or 25 percent of the heavier vehicles in the fleet per calendar year, whichever is higher.

(A) The fleet owner must report information about all heavier vehicles that were in the fleet as of January 1 of the compliance year and prior year. Owners must meet the reporting and record keeping requirements of section 2025(r) and (s) to use this option.

(h) Small Fleet Compliance Option

In lieu of initially complying with the schedule set forth in Table 2 of section 2025(g), a small fleet, as defined in section 2025(d)(54), ~~with a fleet size of one to three vehicles with a GVWR greater than 14,000 lbs~~ may alternatively comply with the phase-in schedule to meet PM BACT as specified below for the heavier vehicles in the fleet ~~with a GVWR greater than 26,000 lbs~~ from January 1, 2014 to January 1, 2018~~6~~. Fleets owners must comply with the record keeping requirements of section 2025(s) starting January 1, 2012 and must meet the reporting requirements of section 2025(r) ~~as specified below~~ to utilize this option.

(1) Vehicles within the fleet shall meet PM BACT pursuant to the following schedule:

(A) One vehicle by January 1, 2014.

(B) Two vehicles by January 1, 2016~~2015~~.

(C) Three vehicles by January 1, 20182016.

~~(2) Vehicles that meet PM BACT are exempt from meeting the 2010 model year emissions equivalent engine requirements until January 1, 2020~~

~~(3) Fleets with 1996-1999 model year engines must comply with the reporting requirements of section 2025(r) starting January 31, 2012.~~

~~(4) Fleets with 2000-2004 model year engines must comply with the reporting requirements of section 2025(r) starting January 31, 2013.~~

(2)~~(5)~~ All fleet owners must comply with the reporting requirements of sections 2025(r) ~~by~~ beginning January 31, 2014.

(3)~~(6)~~ Beginning January 1, 2020, all vehicles in the fleet must comply with the 2010 model year emissions equivalent engine requirements by engine model year as set forth in Table 2 of section 2025(g).

(4)~~(7)~~ This option is not available to divisions within a company or subsidiaries under common ownership and control that have a combined fleet size greater than three.

(5)~~(8)~~ Fleets using this option may also utilize the exemptions and extensions in section 2025(m) and 2025(p).

(6)~~(9)~~ Fleets owners may use the extension based on the unavailability of highest level VDECS of section 2025(p)(9) for all engine model years in the fleet.

(7) Any engine that met PM BACT prior to January 1, 2014, does not have to be upgraded to a 2010 model year emissions equivalent engine until January 1, 2023 as long as the vehicle remains in the fleet. To use the extension, fleet owners choosing this option must comply with the reporting and record keeping requirements of sections 2025(r) and (s) by January 31, 2015 for all of the heavier vehicles in the fleet.

(i) PM Filter Phase-in Option

In lieu of initially complying with the schedule set forth in Table 2 of section 2025(g), fleets may alternatively comply with the phase-in schedule and credits of this subsection for the heavier vehicles in the fleet ~~with a GVWR greater than 26,000 lbs~~ from January 1, 2012 to January 1, 20202016.

(1) Beginning January 1, 2012, ~~fleets electing~~ vehicle owners that elect this option must meet the PM BACT requirements pursuant to the schedule set forth in Table 3 below and then comply with the requirements of section 2025(g) starting January 1, 2020.

Table 3: Phase-in Compliance Schedule
for Vehicles with GVWR greater than 26,000 lbs

Compliance Date as of January 1	Percent of Fleet Complying with PM BACT
2012	30%
2013	60%
2014	90%
2015	90%
2016	100%
2020	All vehicles must comply with section 2025(g)

~~(2) If the calculated number of engines required to be brought into compliance with the percentage limits is not equal to a whole number, the owner shall round up to a whole number when the fractional part of the required number of engines is equal to or greater than 0.5, and round down if less than 0.5.~~

~~(3) Vehicles in which public funds contributed to the purchase of the vehicle, repower of the engine, or retrofit of the engine must not be included when determining compliance with PM BACT, unless allowed by the funding program guidelines applicable to the particular source of public funds used for the purchase, nor shall the engine be included in the total fleet for purposes of determining the percent complying with PM BACT.~~

(2)~~(4)~~ To utilize this option, fleet owners must comply with the reporting and record keeping requirements of sections 2025(r) and 2025(s) beginning January 31, 2012.

(3)~~(5)~~ Fleets owners that comply~~ing~~ with this option may also use the credits of section 2025(j), the agricultural provisions of section 2025(m), and the exemptions, delays, and extensions of sections 2025(p).

(4)~~(6)~~ Fleets may use the extension based on unavailability of highest level VDECS of section 2025(p)(9) for all engine model years.

(j) Credits for Fleets that have Downsized, Early PM Retrofits, ~~Hybrid~~ Advanced Technology Vehicles, Alternative Fueled Vehicles, Vehicles with Heavy-Duty Pilot Ignition Engines, and Early Addition of ~~Newer~~ Vehicles with Original Equipment PM Filters

Fleets owners can take advantage of credits that reduce the number of heavier vehicles ~~with a GVWR greater than 26,000 lbs~~ that must meet the PM BACT requirements in the phase-in option of section 2025(i) as described in subsections (1) to (3) below. These credits do not apply to school buses.

(1) Credit for Fleets that have Downsized

Until January 1, 20182~~2016~~, a fleet that has fewer heavier vehicles ~~with a GVWR greater than 26,000 lbs~~ operating in the compliance year than in the 2006 baseline fleet may claim a credit towards compliance with the phase-in option of section 2025(i) for that year.

(A) The fleet owner may reduce the percent requirement in Table 3 of section 2025(i) by the same percent that the fleet was downsized. For example, a fleet that has 20 percent fewer vehicles operating today than in 2006, would be able to subtract 20 percent from the annual compliance requirement. That is, if the compliance requirement for the year is 30 percent, the fleet would only need to demonstrate that 10 percent of the existing fleet (30%-20%=10%) met PM BACT.

(B) A vehicle that is not operated in the compliance year may be excluded from the existing fleet in determining the credit if:

1. The vehicle is not driven for the entire compliance year and
   a. Either a certificate of non-operation has been issued by the DMV or a request for a non-operation certificate has been filed with DMV prior to the beginning of the compliance year; or
   b. An equivalent certificate has been issued by another state or a request for such a certificate has been filed with another state prior to the beginning of the compliance year; or
   c. The vehicle is not operated for any purpose during the compliance year except to demonstrate functionality of the vehicle to potential buyers, to move the vehicle short distances for maintenance, or to a storage facility while awaiting sale.

(C) The fleet utilizing this provision must comply with the reporting requirements of section 2025(r)(12) for low-use vehicles and report information for all vehicles in the 2006 baseline fleet pursuant to section 2025(r)(13).

(D) For purposes of determining the credit, all vehicles in the scope and applicability of section 2025(b), except school buses, must be included in calculating the number of vehicles in the 2006 baseline fleet and in the existing fleet during the compliance year and all vehicles exempt from the regulation in section 2025(c) must be excluded. The number of vehicles calculated at the beginning of the compliance year will include vehicles that are partially paid for by state funds, all drayage trucks, and all on-road vehicles that are now subject to the title 13, section 2449.

(2) A fleet shall receive a credit to treat another heavier vehicle ~~with a GVWR greater than 26,000 lbs~~ as meeting the PM BACT requirements of section 2025(i) ~~until January 1, 2017~~ as described below in 2025(j)(2)(A) to 2025(j)(2)(C).

(A) Credit for Early PM Retrofit

A credit will be granted until January 1, 2018 for each lighter or heavier vehicle~~, with a GVWR greater than 14,000 lbs,~~ that is equipped with the highest level VDECS for PM by July 1, 2011. The fleet owner may receive a

credit for each vehicle for which the highest level VDECS has been ordered and paid for, or for which at least a 20 percent deposit has been paid, by May 1, 2011 and the VDECS is installed by October 1, 2011. The fleet owner must meet the reporting requirements of section 2025(r)(13) ~~by January 31, 2012~~ to claim the credit and must meet the record keeping requirements of 2025(s) to document the VDECS purchase and installation.

(B) Credit for Advanced Technology ~~Hybrid~~ Vehicles, Alternative Fueled Vehicles, and Vehicles with Heavy-Duty Pilot Ignition Engines

A compliance credit to be used for another heavier diesel vehicle in the fleet ~~Credit~~ will be granted for each heavier vehicle ~~with a GVWR greater than 26,000 lbs~~ that is ~~a fuel efficient hybrid vehicle, an alternative fueled vehicle, or a vehicle powered by a heavy-duty pilot ignition engine that is~~ added to the fleet ~~before January 1, 2017. The fleet owner must meet the reporting and record keeping requirements of section 2025(r) and 2025(s) for the vehicle by January 31 of the compliance year to use the credit. Vehicles with a GVWR between 14,000 lbs and 26,000 lbs may also earn a credit if added to the fleet prior to July 1, 2011. Information required by section 2025(r) and the date the vehicle was added to the fleet must be reported by January 31, 2012. Record keeping information must be maintained as required by section 2025(s). Any alternative fueled engine or vehicle powered by a heavy-duty pilot ignition engine must be counted when determining the number of vehicles in the fleet.~~ as follows:

1. Advanced Technology Vehicles until January 1, 2020, and
2. Alternative fueled vehicles, or vehicles that are powered by a heavy duty pilot ignition engine until January 1, 2018.
3. The fleet owner must meet the reporting and record keeping requirements of section 2025(r) and 2025(s) to use the credit.
4. Vehicles with a GVWR between 14,000 lbs and 26,000 lbs may also earn a credit if added to the fleet prior to July 1, 2011.
5. Any vehicle that is used to claim a credit must be counted when determining the number of vehicles in the fleet.

(C) For the same owner, excess PM VDECS credits granted in the Off-road regulation (title 13, CCR, section 2449) may be used in the Truck and Bus regulation and excess PM VDECS credits granted in the Truck and Bus regulation may be used in the Off-road regulation until January 1, 2017. Starting January 1, 2017 no credits may be transferred between the regulations.

1. Excess PM VDECS credits earned in the Truck and Bus regulation will be determined for each compliance year. The annual excess PM VDECS credits are determined by counting the number of Level 3 PM VDECS filters and 2007 model year and newer engines that meet PM BACT in the fleet that exceed the minimum number required to meet the PM BACT percentage of section 2025(i) without accounting for the

credits specified in sections 2025(j)(2)(A), 2025(j)(2)(B), and 2025(j)(3). The number of excess PM VDECS credits cannot exceed the number of Level 3 retrofit VDECS in the fleet. Excess PM VDECS credits can be used in the Off-Road regulation according to section (title 13, CCR, section 2449.1(b)).

2. For each compliance year, excess PM VDECS credits earned in the Off-road regulation may be applied as a credit that would treat another vehicle with a GVWR greater than 26,000 lbs in the Truck and Bus regulation section 2025 as compliant in the compliance year when determining compliance with the phase-in option of section 2025(i).

3. Fleets must meet the reporting requirements of section 2025(r)(26)~~(27)~~ to utilize excess PM VDECS credits.

(3) Credit for Early Addition of ~~Newer Vehicles~~Original Equipment PM Filters

The fleet shall receive credit for the addition of a vehicle that has a propulsion engine that is equipped with an OEM diesel particulate filter before January 1, 2012 if the average age of the propulsion engines in the fleet is newer than ~~it was~~ in the 2006 baseline. Until January 1, 2018~~2017~~, the credit can be applied towards meeting the PM BACT requirements of the phase-in option of section 2025(i).

(A) The credit is a percentage that will be calculated as 5 times the difference in the average age of the 2006 baseline fleet and the average age of the fleet in the compliance year, where:

1. The average age of the fleet in 2006 is calculated as 2007 minus the average of the engine model years in the 2006 baseline fleet.

2. For vehicles that were in the 2006 baseline fleet and are no longer in the fleet as of January 1, 2012, the vehicle model year minus 0.5 will be used in lieu of the engine model year, unless the fleet has documentation demonstrating the engine model year and engine family.

3. The fleet owner may retain the credit after 2012 if the fleet average age stays the same or newer than it was on January 1, 2012, otherwise the credit will be recalculated.

4. Vehicles that use the exemption for low-use vehicles of 2025(p)(4) shall be excluded in determining the credit.

(B) The credit cannot exceed the percentage of the fleet that has 2007 model year or newer engines that meet PM BACT.

(C) The credit shall reduce the PM BACT requirement of the phase-in option in section 2025(i) for the applicable compliance year.

(D) The fleet owner must meet the reporting and record keeping requirements of section 2025(r) and (s) by January 31, 2012.

(4) Credits specified in sections 2025(j)(1) through 2025(j)(3) will not be given for vehicles that were purchased by the fleet or retrofitted to comply with any other California in-use regulation. Credits will also not be given for partially state funded vehicle replacements or retrofits according to the funding program guidelines applicable to the particular source of public funds used for the purchase. Credits are only valid for as long as the vehicle for which the compliance action has been taken remains operational in the fleet ~~or if replaced within 30 days with a vehicle equipped with an engine that meets PM BACT and is at least one model year newer~~.

(5) Credits are not transferrable except with appropriate documentation of a change of business form approved by the Executive Officer such as sole proprietorship to partnership, partnership to corporation, mergers or acquisitions of the entire company and fleet of vehicles, or for changes such as from estate tax or inheritance tax planning.

(k) Requirements for School Buses

This subsection applies to diesel-fueled school buses as defined in section 2025(d)(53) with a GVWR greater than 14,000 lbs.

(1) Phase-in Requirements for School Buses

Fleets with school buses manufactured on or after April 1, 1977 must comply with PM BACT as defined in section 2025(d)(47)~~(48)~~, pursuant to the schedule set forth in Table 5 below for the portion of the fleet that has school buses.

Table 5: Compliance Schedule for School Buses

Compliance Deadline, as of January 1	*Percent of Fleet Complying with PM BACT*
2012	33%
2013	~~63~~66%
2014	100%

(2) Credit for School Bus Fleets that have Downsized

(A) Until January 1, 2014, a fleet having fewer school buses on January 1 of the compliance year than it had in the 2006 baseline year may reduce the percent requirement in Table 5 by the same percentage that the fleet has downsized.

For example, a fleet that is 20 percent smaller than it was in 2006 would subtract 20 percent from the annual compliance requirement. If the compliance requirement for the year is 33 percent, the fleet would need to demonstrate that it had PM filters on the 13 percent of the existing fleet (33%-20%=13%).

(B) The credits are not transferrable except with appropriate documentation of a change of business form such as sole proprietorship to partnership or partnership to corporation, or for mergers or acquisitions of the entire company and fleet.

(3) Credits for Hybrid School Buses, Alternative Fueled School Buses, Electric School Buses, and School Buses with Pilot Ignition Engines

Fleets with fuel efficient hybrid school buses, alternative fueled school buses, electric school buses, or school buses with pilot ignition engines shall receive a credit to treat another school bus in the fleet as compliant until January 1, 2014. A school bus with a dual-fuel engine is not eligible. This credit is not available for school buses that were purchased or retrofitted to comply with any other California in-use regulation. This credit is not available if state funds were used to partially or totally replace or retrofit any school bus unless allowed by the guidelines of the program that funded the bus replacement or retrofit.

(4) Extension of Deadline for Unavailability of VDECS

If a school bus engine cannot be equipped with the highest level VDECS for PM the school bus owner must:

(A) Record and submit to the Executive Officer the information listed in section 2025(k)(4)(B) through (E) by January 31 of the applicable compliance year through January 31, 2017. By January 1, 2018, this extension expires and all school buses using this extension must be replaced with vehicles that are equipped with a 2010 model year emissions equivalent engine or with one that complies with the BACT compliance schedule (i.e., a 1998 model year engine or newer school bus equipped with the highest level VDECS for PM).

(B) Describe the reasons that a compliance extension is needed for each engine or engine-vehicle combination annually.

(C) If during the warranty period the VDECS would void the engine warranty, provide a statement from the engine manufacturer, authorized engine dealer, or vehicle dealer that explains why the warranty would be voided.

(D) If no verified VDECS is commercially available, provide a list of VDECS manufacturers that have been contacted and the manufacturers' responses to your requests to purchase a VDECS from them.

(E) If a verified VDECS is commercially available, but the VDECS manufacturer or an authorized VDECS installer does not deem the VDECS to be technologically feasible for the school bus, provide a statement from the VDECS manufacturer or authorized VDECS installer.

(5) Low-use School Buses

(A) School buses operating fewer than 1,000 miles during any compliance year are exempt from the requirements of section 2025(k), but fleet owners must comply with the record keeping requirements of section 2025(s)(3). Such vehicles must have a properly functioning odometer installed at all times.

(B) A fleet owner of a school bus that exceeds 1,000 miles in any compliance year must immediately ~~count the school bus as part of the fleet,~~ bring the fleet into compliance with the requirements of section 2025(k) in the current compliance year~~,~~ and ~~notify the Executive Officer of the change in status within 30 days~~ must document and provide upon request the date ~~of exceeding~~ the mileage limit was exceeded.

(6) Any school bus manufactured before April 1, 1977, must be retired from service no later than January 1, 2012.

(7) Title 13, CCR, section 1272(c) requires that a school bus that has been retrofitted with a VDECS must receive a safety inspection from an authorized employee of the department of the California Highway Patrol, prior to its return to service.

(8) School buses that were equipped on or before December 31, 2005, with a Level 2 VDECS, which was highest level VDECS at the time of installation, are considered in compliance with PM BACT.

(9) Section 2025(c)(9) exempts school buses meeting the definition in section 2025(d)(36) of a historic vehicle.

(10) Owners of school buses are subject to the record keeping requirements in section 2025(s)(3).

(11) Owners of school buses are subject to the applicable requirements of sections 2025(t) through 2025(z).

(12) Owners of school buses have the option to delay the requirement to meet PM BACT for 1988-1993 model year engine school buses until January 1, 2014.

(l) Requirements for Drayage Trucks and Utility Vehicles

(1) Drayage trucks that are subject to the Drayage Truck regulation may be included in the fleet for purposes of determining compliance with the PM BACT requirements of the phase-in option in section 2025(i) only if all drayage trucks in the fleet are included.

(2) Starting January 1, 2023, all drayage truck owners must comply with the requirements of section 2025(e).

(3) Drayage trucks may not be used to earn additional credits in section 2025(j) or exemptions and extensions in section 2025(p).

(4) Starting January 1, 2021, all private utility vehicle owners must comply with the requirements of section 2025(e).

(m) Requirements for Agricultural Fleets

Beginning January 1, 2011, agricultural vehicles shall be exempt from the requirements of sections 2025(f), 2025(g), 2025(h) or 2025(i) if they meet the definition of an agricultural vehicle and remain below the applicable annual mileage limits for the period specified. Vehicles meeting the specialty vehicle definition would have no mileage

restrictions. Fleets must comply with the reporting and record keeping requirements of sections 2025(r) and 2025(s).

(1) Beginning January 1, 2011 through January 1, 2017, any vehicle meeting the definition of an agricultural vehicle, as defined in section 2025(d)(6)~~(5)~~, that remains below the annual mileage limits in Table 6 below are exempt from the requirements of section 2025(f) and (g).

Table 6: Agricultural Vehicle Annual Mileage Limits

Engine Model Year	Annual Mileage Limits
1995 and earlier	15,000 miles
1996-2005	20,000 miles
2006 or newer	25,000 miles

(2) Low mileage agricultural vehicles shall continue to be exempt from the requirements of 2025(f) and (g), so long as they do not exceed:

(A) 15,000 miles in a compliance year from January 1, 2017 through January 1, 2020; and

(B) 10,000 miles in a compliance year from January 1, 2020 through January 1, 2023.

~~(2) Agricultural vehicles that have not exceeded 10,000 miles per year in a calendar year between January 1, 2011 and January 1, 2017, shall continue to be exempt from the requirements of 2025(f) and (g) until January 1, 2023, so long as they do not exceed 10,000 miles in a calendar year.~~

~~(3) By January 1, 2017 through, all agricultural vehicles that have exceeded 10,000 miles in any calendar year since January 1, 2011, must comply with the best available control technology (BACT) requirements of section 2025(f) and (g).~~

(3)~~(4)~~ A qualifying agricultural vehicle must be operational, functional, able to start without assistance, and be able to move under its own power. Vehicles that are being used for parts do not qualify as an agricultural vehicle subject to section 2025(m).

(4)~~(5)~~ Within 30 days of replacing a qualifying agricultural or specialty agricultural vehicle, the agricultural fleet owner must report the required information in section 2025(r)(14)(I).

(5)~~(6)~~ The maximum number of qualifying agricultural vehicles in a fleet shall be established by the number of agricultural vehicles in the fleet as of January 1, 2009, as reported in section 2025(r)(14). This number shall not increase from one year to the next.

(6)~~(7)~~ The fleet owner may retain the agricultural vehicle extension by replacing an eligible ~~An~~ agricultural vehicle with~~may be replaced by~~ another vehicle in the fleet so long as the replacement vehicle is equipped with an engine that is at least one

model year newer than the engine in the vehicle that it replaced and the original vehicle is scrapped, rendered inoperable, sold out of the agricultural fleet, or is modified so that the body type no longer meets the definition of an agricultural or specialty agricultural vehicle. The vehicle must be replaced and~~replacement vehicle must be~~ reported within twelve months of the original vehicle being retired~~replaced~~ or by January 31 of following compliance year whichever is longer. This requirement does not apply if just the engine is being replaced and not the entire vehicle.

(7) An agricultural vehicle extension may be transferred to another vehicle in the fleet at the beginning of each compliance year before January 31, but the extension may not be transferred after January 31, unless the original vehicle is retired from the fleet. If the vehicle that is using an extension exceeds the allowable mileage limit any time in the applicable year the extension will expire immediately and cannot be used by another vehicle.

(8) When a qualifying agricultural vehicle is replaced, the sum of the miles accrued on the original vehicle in that compliance ~~calendar~~ year, up to the time of replacement, plus the mileage accrued on the replacement vehicle for the remainder of the compliance ~~calendar~~ year (beginning with the date of replacement) must remain below the mileage thresholds based on the model year of the engine in the replacement vehicle.

(9) A merger of two or more agricultural fleets may not result in more agricultural vehicles after the merger occurs than the sum of the agricultural vehicles in the individual agricultural fleets included in the merger.

(10) The agricultural vehicle exemptions are not transferrable to another fleet except with appropriate documentation of a change of business form approved by the Executive Officer such as sole proprietorship to partnership, partnership to corporation, mergers or acquisitions of the entire company and fleet of vehicles, or for changes such as from estate tax or inheritance tax planning.

(11) Requirements for specialty agricultural vehicles

(A) Specialty agricultural vehicles, as defined in section 2025(d)(55)~~(54)~~, are exempt from the requirements of sections 2025(f), 2025(g), 2025(h) and 2025(i), until January 1, 2023.

(B) The number of specialty vehicle extensions that are being used by the fleet owner may not increase from one year to the next, except if reporting livestock trucks that are defined in section 2025(d)(55)(F).~~The Executive Officer will approve a vehicle as qualifying as a specialty agricultural vehicle under the following conditions:~~

~~1. The total number of specialty agricultural vehicles operating in the San Joaquin Valley Air Basin does not exceed 1,100, and~~

~~2. The total number of specialty agricultural vehicles in the state does not exceed 2,200.~~

(C) ~~If more vehicles are reported than allowed by the limits, the Executive Officer will randomly approve one vehicle per eligible fleet until all fleets have one approved vehicle, then randomly approve another vehicle for the remaining eligible fleets until they all have one more vehicle approved. Vehicles will continue to be approved in this manner until the limits have been met. Vehicles will continue to be approved in this manner until the limits have been met. Vehicles reported by March 31, 2010, will be given priority should the limits identified in section 2025(m)(11)(B) above be exceeded.~~

~~(D)~~(C) All vehicles with the body types described in section 2025(d)(55)~~(54)~~ that have are not already using the specialty agricultural vehicle extension ~~not been approved~~ must meet the requirements of section 2025(e) or the agricultural provisions of section 2025(m) except for livestock trucks that are reported by January 31, 2015.

~~1. In such an instance, the agricultural fleet operator shall be notified in writing by the Executive Officer that the reported vehicle is not eligible as a specialty agricultural vehicle.~~

~~(E)~~(D) A fleet that replaces an agricultural specialty vehicle will not affect the number of approved specialty vehicles in the fleet so long as the replacement vehicle meets the specialty vehicle body type and use requirements.

(12) ~~Optional~~ Log Truck Phase-in Option~~for Log Trucks~~

Beginning January 1, 2012, fleets with log trucks as defined in section 2025(d)(39) may opt to have the log trucks in the fleet comply by meeting all of the requirements as set forth below in lieu of meeting the requirements in sections 2025(g) or 2025(i) and may not use a different compliance option for the fleet of log trucks identified as utilizing this option after January 31, 2015.

(A) Fleet owners must~~may~~ phase in 2010 model year emission equivalent engines according to the compliance schedule shown in Table 7, and must reduce the number of log trucks that can be exempt from the requirements of 2025(e) by an equal number.

(B) Log trucks with 2010 model year emission equivalent engines that are used to meet the log truck phase in option cannot be used to meet PM BACT for compliance with 2025(h), 2025(i), 2025(p)(1)(B), or 2025(p)(2). ~~If the calculated number of engines required to be brought into compliance with the percentage limits is not equal to a whole number, the owner shall round up to a whole number when the fractional part of the required number of engines is equal to or greater than 0.5, and round down if less than 0.5.~~

(C) The number of log trucks and qualifying agricultural vehicles cannot exceed the number of vehicles in the fleet as of January 1, 2009.

(D) The total number of qualifying log trucks cannot increase from one year to the next.

(E) Fleets utilizing the optional phase-in for log truck provision must comply with the reporting requirements of section 2025(r) for all log trucks.

(F) Qualifying log trucks may not utilize any of the credits of section 2025(j) or any of the extensions or exemptions of section 2025(p).

(G) The remaining vehicles in the fleet other than the log trucks using the log truck phase-in option, must comply with the requirements of section 2025(e).

Table 7: Compliance Schedule for the Log Truck Phase-in Option

Compliance Deadline as of January 1	Percent of Total Fleet with 2010 Model Year Emissions Equivalent Engines
2012	0%
2013	0%
2014	10%
2015	20%
2016	30%
2017	40%
2018	50%
2019	60%
2020	70%
2021	80%
2022	90%
2023	100%

(13) Labeling Requirements for Agricultural Vehicles and Log Trucks

(A) Within 30 days of the reporting date, fleet owners must permanently affix or paint an identification label on each vehicle that utilizes the agricultural provision or the log truck phase-in option of section 2025(m) according to the following specification:

1. The letters AG shall be white block lettering on a black background. Both letters shall be at least three inches high on a five by eight inch background,
2. The label shall be located on the left and right door of the vehicle and in clear view at all times.

(n) Requirements for Heavy Cranes, Single-Engine Sweepers and Two-Engine Sweepers

(1) Two-engine sweepers with auxiliary engines 50 hp or greater must comply with section 2025(e). The propulsion engine is required to meet PM BACT and to upgrade to a 2010 model year emissions equivalent engine like other vehicles.~~, and the auxiliary engines must meet PM BACT as follows:~~ On the same date that

the propulsion engine is required to meet PM BACT or to upgrade to a 2010 model year emissions equivalent engine (whichever is earlier), the auxiliary engine must either meet PM BACT or be upgraded to a 2010 model year emissions equivalent engine. The auxiliary engine is not required to be replaced or upgraded if it meets PM BACT. The auxiliary engine must be upgraded by 2014 if the vehicle has a 2007 or newer model year propulsion engine.

~~(A) The auxiliary engine is required to meet PM BACT when the propulsion engine is first required to meet PM BACT or to be upgraded to a 2010 model year emissions equivalent. The auxiliary engine is not required to be replaced or upgraded if it meets PM BACT. The reporting requirements of 2025(r)(17) must be met unless the fleet complies with the model year schedules of 2025(f) or 2025(g).~~

~~(2)~~ (A) Regardless of fleet size, two-engine sweepers with Tier 0 auxiliary engines, 50 hp or greater, may not operate more than 450 hours per year starting January 1, 2010 until January 1, 2014 and no more than 100 hours per year thereafter. The fleet owner must meet the reporting requirements in 2025(r)(17) and record keeping in 2025(s) for sweepers with Tier 0 auxiliary engines.

(3) ~~Labeling Requirements for Two-Engine Sweepers with Tier 0 Auxiliary Engines~~

(B)~~(A)~~ Within 30 days of the reporting date, fleet owners must permanently affix or paint an SW identification label on each two engine sweeper that has a Tier 0 auxiliary engine according to the following specification:

1. The letters SW shall be white block lettering on a black background. Both letters shall be at least three inches high on a five by eight inch background; and

2. The label shall be located on the left and right door of the vehicle and in clear view at all times.

~~(4)~~ (C) For purposes of determining the downsizing credit of section 2025(j)(1), fleets with street sweepers may also include all single-engine and two-engine street sweepers with a GVWR from 14,001 lbs to 26,000 lbs in the 2006 baseline fleet and in the fleet for the compliance year. To use this option the fleet must meet the same reporting and record keeping requirements for these lighter street sweepers as is required for heavier vehicles in the fleet.

(D) The reporting requirements of 2025(r)(17) must be met unless the fleet complies with the model year schedules of 2025(f) or 2025(g).

(2) *Heavy Crane Phase-in Option*

Beginning January 1, 2018, fleet owners with heavy cranes as defined in section 2025(d)(34) may opt to have the cranes in the fleet comply by meeting all of the requirements as set forth below in lieu of meeting the requirements in sections 2025(g) or 2025(i). The owner must comply with the reporting and record keeping requirements of sections 2025(r) and 2025(s).

(A) Fleet owners may phase in 2010 model year emissions equivalent engines according to the compliance schedule shown in Table 8.

Table 8: Compliance Schedule for the Heavy Crane Phase-in Option

Compliance Deadline as of January 1	Percent of Total Fleet with 2010 Model Year Emissions Equivalent Engines
2018	10%
2019	20%
2020	30%
2021	40%
2022	50%
2023	60%
2024	70%
2025	80%
2026	90%
2027	100%

(B) Any heavy crane that meets PM BACT prior to January 1, 2018, will be exempt from the requirement to upgrade to a 2010 model year or newer engine and will be treated as a 2010 model year engine that counts towards meeting the compliance requirement in Table 8.

(C) Heavy cranes will continue to be counted as vehicles that do not have a PM filter when determining compliance for a fleet of cranes and other trucks in the fleet. The remaining vehicles in the fleet other than heavy cranes, must comply with the requirements of section 2025(e).

(o) Requirements for a New Fleet and Changes in an Existing Fleet

(1) *New Fleet Requirements.* Owners of new fleets must meet the requirements of section 2025(e) immediately upon purchasing vehicles subject to the regulation or bringing such vehicles into the State of California for the first time after January 1, 2012. New fleets meeting the requirements of sections 2025(h) or 2025(i) must report vehicles subject to the regulation to ARB within 30 days of purchasing or bringing such vehicles into the State, in accordance with the requirements in section 2025(r).

(2) *Changes in an Existing Fleet*

(A) *Adding Vehicles to an Existing Fleet.* Unless the vehicle is a 2007 model year or newer engine that meets PM BACT, a fleet may not operate a newly added vehicle or operate a vehicle that was previously reported as non-

operational in California, unless the fleet as newly constituted complies with the requirements of section 2025(e) and must within 30 days of adding the vehicle, file a report with the Executive Officer that it has added a new vehicle, and demonstrate that the fleet, as newly constituted, complies with the requirements of section 2025(o)(2)(C) below. If the vehicle added can comply by meeting PM BACT, the vehicle may be operated within 30 days of adding the vehicle to the fleet, solely for the purpose of having the vehicle's exhaust temperature data logged.

(B) *Removing Vehicles from an Existing Fleet.* If an existing fleet owner meets the requirements of the compliance options other than that of section 2025(f) or 2025(g) when a vehicle is removed from the fleet, it must file a report with the Executive Officer that it has removed a vehicle and demonstrate that the fleet, as newly constituted, will comply with the requirements of section 2025(o)(2)(C) within 30 days of removal of the vehicle.

(C) *Compliance Requirements for an Existing Fleet that has Changed*

1. A fleet owner who elects to utilize the phase-in option of section 2025(i) or uses the exemptions~~extensions~~, delays, and extensions of section 2025(p) may not add or remove vehicles that cause the percentage calculated for the fleet to fall below the percentage required for the previous compliance date.
2. The addition of vehicles with 2007 or newer model year engines that meet PM BACT need not be reported until the next compliance date unless;
   a. the addition will cause a fleet to increase its size to greater than three vehicles; or
   b. a fleet is utilizing the credit for fleets that have downsized of section 2025(j)(1).
3. A fleet owner of a vehicle that formerly qualified for any of the compliance extensions or exemptions granted in section 2025(p) but whose status has changed so that it no longer meets the applicable definition, must immediately bring the fleet into compliance with requirements of section 2025(e) for the immediately preceding compliance date, and must notify the Executive Officer of the change in status within 30 days from the date of the change.

(p) Exemptions, Delays, and Extensions

(1) Vehicles used Exclusively in NOx Exempt Areas

This subsection applies to vehicles that are used exclusively in NOx exempt areas as defined in section 2025(d)(45)~~(46)~~ when operating in California. The fleet owner must meet the record keeping requirements of section 2025(s) and meet the reporting requirements as specified below.

(A) Replacement Extension for NOx Exempt Areas. Any heavier vehicle ~~with a GVWR greater than 14,000 lbs~~ that is used exclusively in NOx exempt areas

for the compliance year shall meet PM BACT on the schedule specified below in (p)(1)(B). Any lighter or heavier vehicle may also ~~but~~ be exempt from meeting the 2010 model year emissions equivalent requirements of section 2025(f) or 2025(g) if the vehicle already meets PM BACT before ~~by~~ the compliance date that the engine would otherwise be required to be upgraded to a 2010 model year emissions equivalent engine.

1. The fleet owner must report information about the vehicle to demonstrate the engine has met PM BACT as specified in section 2025(r) but does not need to report after the initial reporting, as long as the vehicle continues to meet the requirements for the exemption, and;

2. The fleet owner must either meet the electronic tracking and reporting requirements or the vehicle labeling requirements as specified in section 2025(p)(1)(C).

(B) PM Filter Phase-in Option for NOx Exempt Areas. Until January 1, 2015, fleet owners that use this option ~~Until January 1, 2014,~~for their lighter or heavier vehicles ~~with a GVWR greater than 26,000 lbs~~ that are used exclusively in NOx exempt areas shall be exempt from meeting the requirements of section 2025(f), 2025(g), 2025(h) or 2025(i). From January 1, 2015 to January 1, 2020, the fleet of vehicles ~~and~~ must be brought into compliance with PM BACT ~~from 2014 to 2016~~ as follows:

1. If the fleet owner meets the phase-in schedule in Table 8 for the entire fleet of heavier vehicles, except vehicles that are using the Low-Use Exemption, the remaining heavier vehicles that operate exclusively in NOx Exempt Areas may be exempt from meeting PM BACT for that year. Any vehicle that meets PM BACT may be counted towards the requirement even if it does not operate exclusively in NOx Exempt Areas.

~~1. The fleet of vehicles with a GVWR greater than 26,000 lbs that operate exclusively in the NOx exempt areas, except for low-use vehicles, must meet the following phase-in schedule set forth in Table 8 below Rounding will be done by the same method as described for the phase-in option of section 2025(i)(2).~~

2. If the fleet owner meets the phase-in schedule in Table 8 for the entire fleet of lighter vehicles, except vehicles that are using the Low-Use Vehicle Exemption, the remaining lighter vehicles that operate exclusively in NOx Exempt Areas may be exempt from meeting PM BACT for that year. Any vehicle that meets PM BACT may be counted towards the requirement even if it does not operate exclusively in NOx Exempt Areas.

3. A one truck owner with a lighter or heavier vehicle that operates exclusively in NOx Exempt Areas must meet PM BACT by January 1, 2017.

Table 8: Compliance Schedule for NOx Exempt Area Vehicles ~~Fleets~~

Compliance Deadline, as of January 1	*Percent of Fleet Complying with PM BACT*
~~2014~~	~~33%~~
2015	25 ~~66%~~
2016	40 ~~100%~~
2017	55
2018	70
2019	85
2020	100

4 ~~2~~. The fleet owner must meet the reporting requirements of section 2025(r) to use this compliance exemption, and must either meet the electronic tracking and reporting requirements or meet the vehicle labeling requirements for vehicles that use the extension as specified in section 2025(p)(1)(C) ~~for any vehicle that uses the exemption~~.

5 ~~3~~. The fleet owner must meet the reporting requirements of section 2025(r) for all the vehicles in the fleet.

6 ~~4~~. After the fleet owner reports compliance with PM BACT for every vehicle in the fleet, reporting is no longer required for the NOx exempt area vehicles.

7 ~~5~~. Beginning January 1, 2020, all vehicles must comply with the requirements of section 2025(f) and 2025(g) except for vehicles that meet the requirements for an exemption as specified in section 2025(p)(1)(A) above.

8 ~~6~~. Fleet owners may use the extension of section 2025(p)(9) for any heavier vehicle that operates exclusively in the NOx exempt areas if the highest level VDECS is unavailable.

(C) For each compliance year the ~~exemptions~~extensions are used, the fleet owner must meet the electronic tracking and reporting requirements of section 2025(r)(16)(A)2., or must label the vehicle by permanently affixing or painting an identification label on the vehicle according to the following specification:

1. The letters NE shall be white block lettering on a black background. Both letters shall be at least three inches high on a five by eight inch background.
2. The label shall be located on the left and right door of the vehicle and in clear view at all times.

(D) Vehicles that use the NOx exempt areas ~~exemptions~~extensions may travel outside of the designated NOx exempt areas only for the following purposes: ~~repairs or other services to the vehicle. The vehicle owner must obtain a~~

~~work order from the facility that describes the service and it must show the date of the service and the location of the facility.~~

1. Repairs or other services to the vehicle. The vehicle owner must comply with the record keeping requirements of section 2025(s)(18)(A).

2. Emergency operation as defined in section 2025(d)(23). The vehicle owner must comply with the record keeping requirements of section 2025(s)(18)(B).

~~(2) Extension for Low-Mileage Construction Trucks~~

~~Beginning January 1, 2012, fleets with low-mileage construction trucks as defined in section 2025(d)(40) may opt to have a limited number of low-mileage construction trucks in the fleet comply by meeting all of the requirements as set forth below and do not need to include such vehicles in meeting the fleet requirements of sections 2025(g) through (i).~~

~~(A) Beginning, January 1, 2012, up to ten low-mileage construction trucks in the fleet may use the extension. Fleets electing this option must meet the PM BACT requirements for the qualifying low-mileage construction trucks pursuant to the schedule set forth in Table 9, and then comply with the requirements of section 2025(g) starting January 1, 2020. Rounding will be done by the same method as described for the phase-in option of section 2025(i)(2).~~

~~(B) A one truck owner with a low-mileage construction truck must meet PM BACT by January 1, 2016.~~

~~(C) If fewer than 9,000 trucks use the extension in 2012, then the Executive Officer will approve additional trucks for the extension by approving one additional extension per fleet owner in a series of rounds until 9,000 trucks have been identified as using the extension. A random selection process will be used to assign extensions that cannot be distributed equally among fleet owners.~~

~~*Table 9: Compliance Schedule for Fleets with Low-Mileage Construction Trucks*~~

~~*Compliance Deadline, as of January 1*~~	~~*Percent of Fleet Complying with PM BACT*~~
~~2014~~	~~33%~~
~~2015~~	~~66%~~
~~2016~~	~~100%~~

~~(D) Fleets that have low-mileage construction trucks and other vehicles with a GVWR greater than 26,000 lbs, except low-use vehicles, must demonstrate that the combined fleet meets the phase-in schedule of Table 9 and, if so, the low-mileage construction vehicles in the fleet qualifying for the extension~~

~~under sections 2025(p)(2)(A) and (C) above may delay having to comply with PM BACT until as late as 2016.~~

~~(E) Fleets may use the extension based on unavailability of highest level VDECS of section 2025(p)(9) for low-mileage construction trucks.~~

~~(F) Fleet owners using this provision must comply with the reporting and record keeping requirements of sections 2025(r) and (s) beginning January 31, 2012.~~

~~(G) A low-mileage construction truck that has been approved for the extension may be replaced by another truck and continue to qualify for the extension if the replacement truck has a 1996 model year or newer engine, and the miles traveled after it is placed in service combined with the miles traveled by the original vehicle stays below the annual mileage threshold. The replacement vehicle must be placed in service within one year of removing the original vehicle from the fleet or by the next compliance date, whichever is longer.~~

~~(H) Labeling Requirements for Low-Mileage Construction Trucks~~

~~1. By January 31, 2012, fleet owners must affix or paint an identification label on up to ten low-mileage construction trucks and within thirty days after notification that any additional trucks have been approved as follows:~~

~~a. The letters CT shall be white block lettering on a black background. Both letters shall be at least three inches high on a five by eight inch background.~~

~~b. The label shall be located on the left and right door of the vehicle and be in clear view at all times.~~

~~(I) Low-mileage construction truck exemptions are not transferrable except with appropriate documentation of a change of business form approved by the Executive Officer such as sole proprietorship to partnership, partnership to corporation, mergers or acquisitions of the entire company and fleet of vehicles, or for changes such as from estate tax or inheritance tax planning.~~

(2) Low Mileage Work Truck Phase-in Option

Beginning January 1, 2015, fleet owners with work trucks as defined in section 2025(d)(62) that travel less than 20,000 miles per year may optionally choose to comply by meeting all of the requirements as set forth below and do not need to include such vehicles in meeting the fleet requirements of sections 2025(f) through (i).

(A) If the fleet owner meets the compliance schedule in Table 9 for the entire fleet of heavier vehicles, except vehicles that are using the Low-Use Exemption, the remaining heavier low mileage work trucks in the fleet may be exempt from meeting PM BACT for that compliance year. Any vehicle that meets PM BACT may be counted towards the schedule even if it is not a low mileage work truck.

(B) If the fleet owner meets the compliance schedule in Table 9 for the entire fleet of lighter vehicles, except vehicles that are using the Low-Use Vehicle Exemption, the remaining lighter low mileage work trucks may be exempt from meeting PM BACT for that compliance year. Any vehicle in the fleet that meets PM BACT may be counted towards compliance even if it is not a low mileage work truck.

Table 9: Compliance Schedule for Low Mileage Work Trucks

Compliance Deadline, as of January 1	*Percent of Fleet Complying with PM BACT*
2015	40
2016	60
2017	80
2018	100

(C) A one truck owner with a lighter or heavier low-mileage work truck must meet PM BACT by January 1, 2016.

(D) Fleet owners may use the extension based on unavailability of the highest level VDECS of section 2025(p)(9) for heavier low-mileage work trucks for any engine model year.

(E) Starting January 1, 2020 the fleet owner must comply with the requirements of sections 2025(f) and 2025(g).

(F) Fleet owners using this option must comply with the reporting and record keeping requirements of sections 2025(r) and 2025(s) beginning January 31, 2015.

(G) Labeling Requirements for Low Mileage Work Trucks

1. By January 31, 2015, fleet owners must affix or paint an identification label on all low mileage work trucks and within thirty days after notification that any additional trucks have been approved as follows:
   a. The letters WT or CT shall be white block lettering on a black background. Both letters shall be at least three inches high on a five by eight inch background.
   b. The label shall be located on the left and right door of the vehicle and be in clear view at all times.

(3) *Unique Vehicle Extension* – Until January 1, 2017 the fleet owner may apply for, and the Executive Officer will grant, a single one year extension from the requirement to upgrade to a 2010 model year emissions equivalent engine in section 2025(f) and 2025(g) if by January 1, 2014, a VDECS was not available for

the engine and a used vehicle or suitable cab and chassis that performs a similar function with a 2010 emissions equivalent engine is not available 6 months prior to the 2010 emissions equivalent engine compliance date. For the extension to be considered the fleet must apply for the extension 4 months prior to the compliance date that the engine is required to upgrade to a 2010 model year emissions equivalent engine.

(4) *Exemption for Low-Use Vehicles*

(A) Low-use vehicles as defined in section 2025(d)(40)~~(41)~~ are exempt from the requirements of section 2025(e) but the owner must meet reporting and record keeping requirements in accordance with sections 2025(r)(12) and 2025(s).

1. To be considered a low-use vehicle, the fleet owner must submit engine operation data from a properly functioning odometer or hubodometer ~~and non-resettable hour-meter~~.

2. A vehicle is also considered to be a low-use vehicle if it is not driven for the entire compliance year and either a planned non-operation certificate or a certificate of non-operation has been filed with the DMV or, an equivalent certificate has been filed with another state prior to the beginning of the compliance year. The vehicle must not be operated for any other purpose during the compliance year except to demonstrate functionality of the vehicle to potential buyers, to move the vehicle short distances for maintenance, or to a storage facility while awaiting sale.

3. Low-use vehicles need not be included when determining compliance with the small fleet compliance option of section 2025(h), NOx Exempt Area extension of section 2025(p)(1)(B), work truck extension of section 2025(p)(2), or the phase-in option of section 2025(i).

(B) Vehicles used both as an emergency support vehicle as defined in section 2025(d)(24)~~(23)~~, and for other purposes, do not need to consider the hours of operation or mileage the vehicle accrues when used for emergency operations in determining whether the vehicle meets the definition of a low-use vehicle, but the fleet owner must report information about the emergency hours of operation or mileage as specified in section 2025(r)(15).

(C) Vehicles that formerly met the low-use vehicle definition, but whose use increases above the specified limits, must immediately be brought into compliance as specified in section 2025(o)(2)(C)3.

(5) *Exemption for Vehicles Operating with a Three Day Pass*

(A) Until January 1, 2021, a fleet owner that obtains a three-day pass for a vehicle will be allowed to operate one vehicle per compliance ~~calendar~~ year in California without complying with section 2025(e) for the specified three day period per compliance ~~calendar~~ year, provided the information required in section 2025(r)(19) is filed with the Executive Officer at least three days prior to the vehicle's planned use in California.

(B) A three-day pass must be obtained from the Executive Officer either online, email, or by fax. Prior to operating within California, the fleet must obtain written approval from the Executive Officer, which must be carried within the vehicle. The Executive Officer will make every effort to respond to the request within three business days from the receipt of the request. The Executive Officer shall grant the request so long as it is the first request made by the fleet in the compliance ~~calendar~~ year. If the Executive Officer fails to respond to the request by the date of the vehicle's planned entry into the state, the vehicle may operate in California for the requested three-day period, but if the vehicle's operator fails to present documentation to ARB enforcement personnel, upon request, that it has filed a request for a three-day pass and qualifies to operate that specified vehicle in the state, the fleet may be cited and subject to penalties.

(6) *Exemption for Vehicles Awaiting Sale* – Vehicles in the possession of dealers, financing companies, or other entities that do not intend to operate the vehicle in California or offer the vehicle for hire for operation in California, and that are operated only to demonstrate functionality to potential buyers or to move short distances while awaiting sale for purposes such as maintenance or storage, are exempt from all requirements in section 2025.

(7) *Exemption for Vehicles Used Solely on San Nicolas or San Clemente Islands* - Vehicles used solely on San Nicolas or San Clemente Islands are exempt from all requirements in section 2025. If the land use plans for the islands are changed to allow use by the general public of the islands, this exemption shall no longer be applicable.

(8) Compliance *Extension for Emissions Control Device Manufacturer Delays* - An owner who has purchased, or has entered into contractual agreement with the seller for the purchase, but has not received a VDECS, a replacement engine, or vehicle in order to comply with this regulation will be excused from immediate compliance if the VDECS or vehicles have not been received due to manufacturing delays as long as all the conditions below are met:

(A) The fleet owner who has purchased, or has entered into contractual agreement with the seller for the purchase, at least 4 months prior to the required compliance date, except in the case where a VDECS is ordered to replace a failed or damaged VDECS, the fleet owner has purchased, or has entered into contractual agreement with the seller for the purchase of a replacement VDECS within 60 days of the VDECS failure.

(B) The owner has identified the vehicle to be equipped with the VDECS or replaced upon receipt of the replacement VDECS or vehicle.

(C) Proof of purchase, such as a purchase order, down payment, or signed contract for the sale, including specifications for each VDECS, must be maintained by the owner and provided to an agent or employee of ARB upon request.

(D) The new or retrofitted vehicles are immediately placed into operation upon receipt and any replaced vehicles are removed from service within 30 days.

(E) Proof of the date that the new or retrofitted vehicles were placed into service and proof of the date that any replaced vehicles were removed from service must be maintained by the owner and provided to an agent or employee of ARB upon request.

(9) *Extension of the PM BACT Compliance Deadline Based on Unavailability of Highest Level VDECS* - If an engine that is required to meet PM BACT cannot be equipped with the highest level VDECS for PM, the Executive Officer may grant a one-year extension of the compliance deadline, which may be extended annually through January 1, 2017, based on an evaluation of information submitted pursuant to section 2025(r)(11) that the engine cannot be equipped with the highest level VDECS for PM provided that all other engines in the fleet are in compliance with the requirements for the compliance year. The request must be filed 4 months prior to the compliance deadline. By January 1, 2018, any vehicle that is not equipped with the highest level VDECS for PM must be replaced with a vehicle that meets PM BACT. The extension for unavailability of highest level VDECS applies to the auxiliary engines in two engine sweepers if the engine that provides motive power must meet PM BACT. By January 1, 2018, any auxiliary engine in a two engine sweeper with a GVWR greater than 26,000 lbs that is not equipped with the highest level VDECS for PM must be replaced with Tier 4 off-road engine or an engine that is equipped with the highest level VDECS for PM. The extension does not apply for engines that are required to meet the 2010 model year equivalent requirements.

~~(10) *Extension for Meeting PM BACT by 2014.* By January 1, 2014, if every vehicle in the fleet with a GVWR greater than 26,000 lbs is equipped with either a Level 3 VDECS for PM or a 2007 model year or newer engine that meets PM BACT, the vehicles shall be exempt from meeting the 2010 model year emission equivalent engine requirements until January 1, 2023.~~

~~(A) Fleet owners must meet reporting requirements of sections 2025(r) by January 31, 2014. The fleet will not need to report again after the initial reporting to retain the extension unless a vehicle or engine is replaced with one that has a 2006 model year or older engine.~~

~~(B) The fleet can retain the exemption if an engine or vehicle is replaced with another one that is equipped with a Level 3 VDECS or has a 2007 model year or newer engine that meets PM BACT. The fleet must report the fleet information in accordance with section 2025(o)(2).~~

(10) *Compliance Extension for Owners that Cannot Comply.* Fleet owners can delay compliance for up to 3 vehicles in the fleet that are required to meet PM BACT. The compliance extension will expire on January 1, 2018 when the fleet owner must replace the existing truck or engine with one that has a 2010 model year emission equivalent engine. To qualify for the extension, all of the following conditions must met:

(A) The vehicle that is required to meet PM BACT to comply with section 2025(g), 2025(h) or 2025(i) was in the fleet on January 1, 2012.

(B) The fleet owner has made a good faith effort to obtain financing for a loan between July 1, 2013 and December 31, 2014 from a national or state chartered financial institution that commonly finances trucks or retrofit PM filters, and was denied for a loan. The loan application must meet the following criteria:

1. Must be for a replacement truck that has a 2007 model year or newer engine and has the same configuration and body type as the existing truck; or

2. The loan application is for a VDECS that has been determined to be suitable for the engine and is compatible with the existing truck.

(C) Fleet owners must meet reporting requirements of section 2025(r) by January 31, 2015 to claim the extension and keep records of the loan application and notice of denial.

(D) The vehicle that uses the extension will continue to be counted the same as a vehicle that does not have a PM filter when determining compliance with compliance options other than 2025(g).

(q) *Special Provisions for VDECS and Experimental Diesel Emission Control Strategies*

(1) VDECS *Requirements*

(A) *VDECS Installation*. Before installing a VDECS on a vehicle, the owner must ensure that:

1. The VDECS is verified for use on the engine and vehicle, as described in the Executive Order for the VDECS.

2. Use of the vehicle is consistent with the conditions of the Executive Order for the VDECS.

3. The VDECS is installed in a verified configuration.

4. The engine to be retrofitted must be in its original certified configuration, free of excess oil consumption, must not have malfunctioning fuel delivery systems, or any other mechanical condition that may impair the proper functioning of the VDECS.

5. The VDECS label will be visible after installation.

(B) *VDECS Maintenance*. If a fleet owner installs a VDECS to meet the requirements of section 2025(e), the VDECS must remain installed until the VDECS fails or is damaged or is replaced with a similar or higher level VDECS. Requirements for VDECS failure or damage are in section 2025(q)(2). The owner of a vehicle retrofitted with a VDECS must ensure that the VDECS and engine are properly maintained as recommended by the respective manufacturers.

(2) *Failure or Damage of a VDECS.* In the event of a failure or damage of a diesel emission control strategy, the following conditions apply:

(A) Failure or Damage During the Warranty Period. If a VDECS fails or is damaged within its warranty period, and the VDECS manufacturer or authorized dealer determines that it cannot be repaired, the owner must replace the VDECS with the same level or higher level VDECS for the vehicle within 90 days of the failure.

(B) Failure or Damage Outside of Warranty Period. If a VDECS fails or is damaged outside of its warranty period and cannot be repaired, and if the fleet could not meet an applicable target for the most recent compliance date without the failed VDECS, then within 90 days of the failure, the owner must replace the failed VDECS with the highest level VDECS available for the engine at time of failure.

(C) *Recalled VDECS that cannot be repaired.* If an installed VDECS is subject to a recall (as defined in Title 13, CCR Section 2701 (a)(35)), and the retrofit manufacturer is unable to replace or repair the recalled VDECS, the fleet owner may continue to operate the affected vehicle up to five years from the date of the recall according to the conditions specified in the recall notice. During the five year period, the vehicle will continue to be counted towards compliance the same as when the VDECS was originally installed. The fleet owner must meet the record keeping requirements of section 2025(s)(14)(B).

(3) *Fuel-Based Strategy VDECS*

(A) If a fleet owner determines that the highest level VDECS for a large percentage of the fleet would be a Level 2 fuel verified as a diesel emission control strategy, and implementation of this VDECS would require installation of a dedicated storage tank, then the owner shall request prior approval from the Executive Officer to allow use of the Level 2 fuel-based strategy across its fleet.

(B) Waiver for Discontinuation of Fuel Verified as a Diesel Emission Control Strategy. If a fleet owner has relied upon a fuel verified as a diesel emission control strategy to meet an applicable requirement and has to discontinue use of the fuel due to circumstances beyond the fleet owner's control, the fleet owner shall apply to the Executive Officer no later than 30 days after discontinuing use of the fuel for a compliance waiver of up to two years to provide the fleet owner time to return to compliance with the applicable requirements. The Executive Officer shall respond to the request within 30 days and grant the request upon finding that the application is complete, outlines the compliance strategy to be used, and that all reporting requirements have been met.

(4) *Use of Experimental Diesel Emission Control Strategies*

(A) If a fleet owner wishes to use an experimental or non-verified diesel emission control strategy to support the verification of a non-verified diesel emission

control strategy, the owner must first obtain approval from the Executive Officer for a compliance extension. To obtain approval, the owner must demonstrate either that (1) a VDECS is not available or not feasible for their vehicle or application, or (2) that use of the non-verified strategy is needed to generate data to support verification of the strategy.

1. The application must include the following: emissions data and a detailed description of the control technology that demonstrates that the experimental control strategy achieves at least a Level 2 diesel PM emission reduction, vehicle and engine data, and odometer or hubodometer readings as described in sections 2025(r)(8), 2025(r)(9), and 2025(r)(12)(B).
2. The Executive Officer will treat the strategy as a:
   a. Level 2 VDECS if the application demonstrates that the strategy achieves at least 50 percent reduction in diesel PM.
   b. Level 3 VDECS if the application demonstrates that the strategy achieves at least 85 percent reductions in diesel PM.

(B) Upon approval by the Executive Officer, each vehicle engine retrofitted with the experimental strategy will be allowed to operate for a specified time period necessary to make a determination that the experimental strategy can achieve the projected emissions reductions. The vehicle equipped with the experimental strategy will be considered to be in compliance under section 2025(f), 2025(g), 2025(h), or 2025(i) during the specified time period. The fleet owner shall keep documentation of this use in records as specified by the Executive Officer.

(C) The fleet owner must bring the fleet into compliance under section 2025(f), 2025(g), 2025(h), or 2025(i) prior to the expiration of the experimental diesel emission control strategy extension.

(5) *VDECS That Impairs Safe Operation of Vehicle* - A fleet owner may request that the Executive Officer find that a VDECS should not be considered the highest level VDECS available because:

(A) It cannot be safely installed or operated in a particular vehicle application; or

(B) Its use would make compliance with occupational safety and health requirements, federal highway safety regulations, or an ongoing local air district permit condition impossible.

If a VDECS manufacturer states that there is no safe or appropriate method of mounting its VDECS on the requesting party's vehicle, then the VDECS will not be considered safe. In the absence of such a declaration by the VDECS manufacturer, the requesting party shall provide other documentation to support its claims.

Documentation may include published reports and other findings of federal, state or local government agencies, independent testing laboratories, engine manufacturers, or other equally reliable sources. The request will only be

approved if the requesting party has made a thorough effort to find a safe method for installing and operating the VDECS, including various locations for VDECS mounting, and use of an actively regenerated VDECS. The Executive Officer shall review the documentation submitted and any other reliable information that he or she wishes to consider and shall make his or her determination based upon the totality of the evidence.

Upon finding that a VDECS cannot be installed without violating the safety standards prescribed under title 8, CCR by the California Department of Industrial Relations, Division of Occupational Safety and Health, comparable federal or state health and safety laws where the vehicle operates, or federal highway safety laws, the Executive Officer shall issue a determination that there is no highest level VDECS available. The Executive Officer shall inform the requesting party, in writing, of his or her determination, within 60 days of receipt of the request.

Parties may appeal the Executive Officer's determination as described in (C) and (D) below. During the appeal process described in (C) and (D) below, the requesting party may request the administrative law judge to stay compliance until a final decision is issued. If the stay is granted and the Executive Officer denies the requesting party's request, the requesting party has six months from the date of the Executive Officer's final written decision to bring his or her fleet back into compliance.

(C) *Appeals – Hearing Procedures*

1. Any party whose request has been denied may request a hearing for the Executive Officer to reconsider the action taken by sending a request in writing to the Executive Officer. A request for hearing shall include, at a minimum, the following:
   a. name of the requesting party;
   b. copy of the Executive Officer's written notification of denial;
   c. a concise statement of the issues to be raised, with supporting facts, setting forth the basis for challenging the denial (conclusory allegations will not suffice);
   d. a brief summary of evidence in support of the statement of facts required in c. above; and
   e. the signature of an authorized person requesting the hearing
2. A request for a hearing shall be filed within 30 days from the date of issuance of the notice of the denial.
3. A hearing requested pursuant to this subsection shall be heard by a qualified and impartial hearing officer appointed by the Executive Officer. The hearing officer may be an employee of the ARB, but may not be any employee who was involved with the denial at issue. In a request for reconsideration, the hearing officer, after reviewing the request for hearing and supporting documentation provided under paragraph 1.d. above, shall grant the request for a hearing if he or she

finds that the request raises a genuine and substantial question of law or fact.

4. If a hearing is granted, the hearing officer shall schedule and hold, as soon as practicable, a hearing at a time and place determined by the hearing officer.
5. Upon appointment, the hearing officer shall establish a hearing file. The file shall consist of the following:
   a. the determination issued by the Executive Officer which is the subject of the request for hearing;
   b. the request for hearing and the supporting documents that are submitted with it;
   c. all documents relating to and relied upon by the Executive Officer in making the initial determination to deny the requesting party's original claim; and
   d. correspondence and other documents material to the hearing.
6. The hearing file shall be available for inspection by the applicant at the office of the hearing officer.
7. An applicant may appear in person or be represented by counsel or by any other duly-authorized representative.
8. The ARB may be represented by staff or counsel familiar with the regulation and may present rebuttal evidence.
9. Technical rules of evidence shall not apply to the hearing, except that relevant evidence may be admitted and given probative effect only if it is the kind of evidence upon which reasonable persons are accustomed to relying in the conduct of serious affairs. No action shall be overturned based solely on hearsay evidence, unless the hearsay evidence would be admissible in a court of law under a legally recognized exception to the hearsay rule.
10. Declarations may be used upon stipulation by the parties.
11. The hearing shall be recorded either electronically or by a certified shorthand reporter.
12. The hearing officer shall consider the totality of the circumstances of the denial, including but not limited to, credibility of witnesses, authenticity and reliability of documents, and qualifications of experts. The hearing officer may also consider relevant past conduct of the applicant including any prior incidents involving other ARB programs.
13. The hearing officer's written decision shall set forth findings of fact and conclusions of law as necessary.
14. Within 30 days of the conclusion of a hearing, the hearing officer shall submit a written proposed decision, including proposed finding as well as a copy of any material submitted by the hearing participants as part of that hearing and relied on by the hearing officer, to the Executive

Officer. The hearing officer may recommend to the Executive Officer any of the following:

a. uphold the denial as issued;

b. modify the denial; or

c. overturn the denial in its entirety.

15. The Executive Officer shall render a final written decision within 60 working days of the last day of hearing. The Executive Officer may do any of the following based on substantial evidence in the record:

a. adopt the hearing officer's proposed decision;

b. modify the hearing officer's proposed decision; or

c. render a decision without regard to the hearing officer's proposed decision.

(D) *Appeals – Hearing Conducted by Written Submission*

In lieu of the hearing procedure set forth in (C) above, an applicant may request that the hearing be conducted solely by written submission. In such case the requestor must submit a written explanation of the basis for the appeal and provide supporting documents within 20 days of making the request. Subsequent to such a submission the following shall transpire:

1. ARB staff shall submit a written response to the requestor's submission and documents in support of the Executive Officer's action no later than 10 days after receipt of the requestor's submission;

2. The applicant may submit one rebuttal statement which may include supporting information, as attachment(s), but limited to the issues previously raised;

3. If the applicant submits a rebuttal, ARB staff may submit one rebuttal statement which may include supporting information, as attachment(s), but limited to the issues previously raised; and

4. The hearing officer shall be designated in the same manner as set forth in section 2025(q)(5)(C)(3) above. The hearing officer shall receive all statements and documents and submit a proposed written decision and such other documents as described in section 2025(q)(5)(C) (13) above to the Executive Officer no later than 30 working days after the final deadline for submission of papers. The Executive Officer's final decision shall be mailed to the applicant no later than 60 days after the final deadline for submission of papers.

5. The Executive Officer shall render a final written decision within 60 working days of the last day of hearing. The Executive Officer may do any of the following:

a. adopt the hearing officer's proposed decision;

b. modify the hearing officer's proposed decision; or

c. render a decision without regard to the hearing officer's proposed decision.

(r) Reporting Requirements

(1) The owner of a fleet is subject to reporting requirements for the vehicles in the fleet as defined in section 2025(d)(29)~~(28)~~ if the owner has elected to utilize the compliance options of section 2025(f)(4), 2025(g)(3), 2025(g)(4), 2025(h), 2025(i), the credits of section 2025(j), the agricultural provisions of section 2025(m), the single-engine and two-engine street sweeper requirements~~provisions~~ of section 2025(n), the extension or exemptions for vehicles used exclusively in NOx exempt areas of section 2025(p)(1), or the extension for ~~low-mileage construction~~ work trucks of section 2025(p)(2). Fleet owners that use the credit for fleets that have downsized provided in section 2025(j)(1) and the credit for the early addition of newer vehicles provided in section 2025(j)(3) must report information for all vehicles under common ownership or control with a GVWR greater than 26,000 lbs in the 2006 baseline fleet and in the fleet for each compliance year. Except as required in section 2025(k)(4), school buses are not required to comply with the reporting requirements.

(2) All fleet owners utilizing any of the credits in section 2025(j) or any of the exemptions, delays, or extensions in section 2025(p) must report according to the requirements of section 2025(r) and maintain records according to section 2025(s) for all of the vehicles in the fleet as defined in section 2025(d)(29)~~(28)~~.

(3) The owner of a fleet that complies by using the compliance schedule by engine model year set forth in sections 2025(f) and 2025(g) and also utilizes the low-use vehicle provision of section 2025(p)(4) is only required to meet the reporting requirements of section 2025(r)(12) for the low-use vehicles meeting the definition in section 2025(d)(40)~~(41)~~.

(4) Fleet owners may submit reporting information using forms (paper or electronic) approved by the Executive Officer.

(5) The fleet owner must notify the Executive Officer in writing by the first applicable reporting date and by January 31 of every subsequent compliance year, if applicable, with the name of the responsible official and the location where the records will be kept, and whether any information has changed since its last reporting. Whether the records will be kept inside or outside California, the owner must also comply with section 2025(t).

(6) Each year, fleet owners subject to the reporting requirement must report on their fleet as it was on the compliance date of the current compliance year. The fleet owner must submit the applicable information set forth in sections 2025(r)(5) through (10) by January 31 of each compliance year. Owners must report annually until the year after all of the requirements of section 2025(f), 2025(g), 2025(h), and 2025(i), as applicable to the fleet, have been completely met.

(7) *Owner Contact Information*: Compliance reports must include the following information:

(A) Fleet owner's name;

(B) Name of company or agency;

(C) Motor carrier identification number;

(D) Corporate parent name (if applicable);

(E) Corporate parent taxpayer identification number (if applicable);

(F) Company taxpayer identification number;

(G) Street address and mailing address;

(H) Name of responsible person;

(I) Title of responsible person;

(J) Contact name;

(K) Contact telephone number;

(L) Contact email address (if available); and

(M) Whether the fleet meets the Small Fleet definition of 2025(d)(54);

(N)~~(M)~~ License number issued by the Public Utilities Commission (if applicable).

(8) *Vehicle Information*

Fleet owners must provide to the Executive Officer a list of all vehicles subject to the reporting requirements along with the information listed in (A) through (S) below for each vehicle:

(A) Vehicle identification number;

(B) Vehicle manufacturer;

(C) Vehicle model;

(D) Gross vehicle weight rating;

(E) Vehicle model year;

(F) License plate number;

(G) The state, province, or country where the vehicle is or was registered and type of registration plate;

(H) Vehicle type, including whether the vehicle is a school bus, agricultural vehicle, log truck, truck-tractor, two-engine sweeper, ~~low-mileage construction truck or~~ yard truck, or other body type;

(I) The date the vehicle was purchased or placed in service. If the vehicle was added to the fleet prior to January 1, 2012, the fleet owner may enter "January 1, 2012;

(J) Date that a vehicle was retired, sold, or scrapped after January 1, 2012;

(K) Whether the vehicle will be designated as a low-use vehicle as defined in section 2025(d)(40)~~(41)~~;

(L) Whether the vehicle has been certified as non-operational with the California Department of Motor Vehicles or equivalent documentation from the state, province, or country where the vehicle is registered and whether the vehicle will not operate in California.

(M) Whether the vehicle is an ~~fuel efficient hybrid vehicle~~ advanced technology vehicle as defined in section 2025(d)(4)~~(31)~~;

(N) Whether the vehicle is propelled by an alternative-fueled engine as defined in section 2025(d)(9)~~(8)~~;

(O) Whether the vehicle will use the extension or exemptions for vehicles used exclusively in NOx Exempt Areas in section 2025(p)(1);

~~(P) Whether the fleet size is more than three vehicles subject to the regulation with a GVWR greater than 14,000 lbs;~~

(~~Q~~P) Whether the vehicle is a log truck utilizing the optional phase-in for Log Trucks provision in section 2025(m)(12);

(R~~Q~~) Whether the vehicle is a ~~low-mileage construction~~ work truck that will use the extension for low-mileage ~~construction~~ work trucks specified in section 2025(p)(2); and

(S~~R~~) Whether the vehicle was partially paid for with public funds, and if so, the information about the funding contract dates specified in section 2025(r)(18).

(9) *Engine Information Reporting*

Except as provided in section 2025(r)(13)(A) and 2025(r)(19) below, the following information for each engine that propels a vehicle reported per section 2025(r)(8) and for each sweeper engine that operates auxiliary equipment must be reported to the Executive Officer:

(A) Engine manufacturer;

(B) Engine model;

(C) Engine family for all 1974 model year and newer engines;

(D) Fuel type;

(E) Engine model year;

(F) Whether the engine meets an on-road or off-road emissions standard;

(G) Whether the engine is used to propel the vehicle or to operate auxiliary equipment;

(H) The emissions standard to which the engine was certified if lower than required for the engine model year; and

(I) Whether the engine was partially paid for with public funds, and if so, the information about the funding contract specified in section 2025(r)(18).

(10) *Verified Diesel Emission Control Strategies Reporting*

Except as provided in section 2025(r)(13)(A) below, for each VDECS that is installed on an engine listed per section 2025(r)(9), the fleet owner must report the following information to the Executive Officer:

(A) Description of VDECS installed;

(B) VDECS family name;

(C) Serial number, or experimental part number, or aftermarket part number;

(D) Date installed;

(E) If claiming early PM retrofit credits of section 2025(j)(2)(A) and the VDECS is installed between July 1, 2011 and October 1, 2011, the fleet owner must attest to having records to document the purchase agreement and down payment for the VDECS by May 1, 2011;

(F) Whether the VDECS was partially paid for with public funds and the information in 2025(r)(18) if partially paid for with public funds; and

(G) Whether the VDECS was installed on the engine to comply with another California in-use regulation.

(11) *Reporting for Extension for Unavailability of Highest Level VDECS*

If appropriate, the following information must be submitted to the Executive Officer with a request for an extension based on the unavailability of highest level VDECS:

(A) Owner contact information, vehicle, and engine information listed in sections 2025(r)(7), 2025(r)(8), and 2025(r)(9);

(B) Description of the reason for the compliance extension request for each engine or engine-vehicle combination;

(C) If the VDECS would void the engine warranty, provide a statement from the engine manufacturer or authorized engine or vehicle dealer;

(D) If a verified VDECS is commercially available for the engine family, provide a list of manufacturers and installers that have been contacted and the response to a request to purchase; and

(E) Documentation must be submitted with the initial request and must be reported annually on January 31 following the compliance deadline for each year that the owner is claiming non-availability of the highest VDECS.

(12) *Low-Use Vehicle Reporting*

For vehicles that are designated as low-use, the fleet owner must report the following information to the Executive Officer annually for as long as the fleet owns or operates the vehicle:

(A) Owner, vehicle, and engine information identified in sections 2025(r)(5) through 2025(r)(9);

(B) Mileage readings from a properly functioning odometer or hubodometer taken on January 1 and December 31 of the compliance year. A hubodometer may be used in lieu of the odometer;

~~(C) If the vehicle uses engine power as specified in 2025(d)(41), hour-meter readings from a properly functioning non-resettable hour-meter taken on January 1 and December 31 of the compliance year;~~

(~~D~~C) The dates and readings of the odometer ~~and non-resettable hour-meter readings~~. In the event that the odometer is replaced, the original odometer reading and the new odometer reading and the date of replacement must be reported within 30 days the original odometer failed. In the event that the odometer or hubodometer is removed, the reading and date it is removed and the reading of the replacement and the date it is placed in service. If hubodometers are used, the fleet owner must report the serial numbers;

(~~E~~D) Upon request of an agent or employee of the ARB, the owner of a vehicle operating both inside and outside of California must provide records from an electronic tracking system as defined in section 2025(d)(22)~~(21)~~ that can acquire date, time, engine-on, and location data. The owner may use other documentation of vehicle operation and location, such as International Registration Plan ~~IRP~~ records;

(~~F~~E) Whether the vehicle is used as an emergency support vehicle as defined in section 2025(d)(24)~~(23)~~; and, if so, the fleet owner must report the information in section 2025(r)(15); and

(~~G~~F) Whether a planned non-operation certificate has been filed with the DMV or, an equivalent certificate has been filed with another state prior to the beginning of the compliance year, and whether the vehicle will not be operated in the compliance year.

(13) *Credit for Fleets that have Downsized or Added Vehicles with Original Equipment PM Filters ~~Newer Vehicles Early~~ Reporting*

Fleets owners claiming credits under section 2025(j) must report the following:

(A) Fleet owners claiming credit for downsizing must report the following:

1. For the vehicles in the 2006 baseline fleet, vehicle information specified in section 2025(r)(8)(A) to 2025(r)(8)(G), and if the vehicle was not registered with the California Department of Motor Vehicles, identify the type of records that are being kept to document proof that the vehicles drove at least 1,000 miles in California in the year 2006. Fleets that include street sweepers with a GVWR from 14,001 to 26,000 lbs for determining the credit, must identify that the vehicle is a street sweeper.
2. For the compliance year, whether the fleet has drayage trucks, on-road vehicles subject to the off-road in-use vehicle regulation, and information about how many are currently in the fleet. Fleets that include street sweepers with a GVWR from 14,001 to 26,000 lbs for determining the credit, must identify that the vehicle is a street sweeper.

(B) For the 2006 baseline fleet, a fleet owner that claims credits for adding cleaner vehicles as specified in section 2025(j)(3) must report the vehicle information in section 2025(r)(13)(A) above and the engine model year, and engine family for all the vehicles in the fleet as of January 1, 2012. The fleet owner has the option to report the engine information for vehicles that are no longer in the fleet if the fleet owner has records to document the engine model year and engine family.

(14) *Agricultural Fleet Reporting*

Until January 1, 2023, fleet owners that reported as of January 31, 2015 ~~April 29, 2011~~, and qualified for the provisions of section 2025(m), must continue to report the following information to the Executive Officer no later than January 31 of every compliance year:

(A) For vehicles in the existing fleet, the information required in sections 2025(r)(5) through 2025(r)(9); for vehicles that were in the fleet on January 1, 2009, but are no longer part of the existing fleet, only the vehicle information in section 2025(r)(8) (A) to (G) is required;

(B) Whether the vehicle is a specialty agricultural vehicle or a log truck;

(C) Whether the vehicle is being added or removed from the fleet and the date that the vehicle is added or removed;

(D) The vehicle body type if one of the body types described in the definition of specialty agricultural vehicle in section 2025(d)(55)~~(54)~~;

(E) If eligible to be considered for the specialty vehicle exemption, the priority status of the vehicle in case not all specialty vehicles in the fleet can be approved;

(F) Whether the specialty vehicle will operate exclusively outside the San Joaquin Valley Air Basin;

(G) Whether the vehicle is operated for compensation outside a farming business owner's farm;

(H) Except for specialty agricultural vehicles, mileage from a properly functioning odometer taken on January 1, 2011 and every January 1 thereafter. In the event that the odometer is replaced, the fleet owner shall report the original odometer reading, the new odometer reading, and the date the original odometer was replaced. If a hubodometer is used in lieu of the odometer, the fleet owner must also report the serial number for each hubodometer used or replaced; and

(I) For an agricultural vehicle being replaced, the owner, vehicle, and engine information set forth in sections 2025(r)(5) through 2025(r)(9), the mileage of both the vehicle being replaced and added, and the date the mileage readings were taken.

(15) *Vehicles used as emergency support vehicles in emergency operations*

A fleet owner must provide the following information to the Executive Officer to qualify a vehicle's usage as emergency operation:

(A) Owner, vehicle, and engine information identified in sections 2025(r)(5) through 2025(r)(9);

(B) Odometer readings from a properly functioning odometer to document use at an emergency event and to document travel to and from the emergency event. In the event that the odometer is replaced, the fleet owner shall report the original odometer reading and the new odometer reading and the date that the original odometer was replaced. If a hubodometer is used in lieu of an odometer, the fleet owner must also report the serial number for each hubodometer used or replaced. Vehicles used exclusively for emergency use that are not authorized emergency vehicles do not need to have an hour meter and do not need to report hours. Authorized emergency vehicles are exempt per section 2025(c); and

(C) Records to document dispatch by the local, state, or federal agency or other responsible emergency management entity as approved by the Executive Officer.

(16) *Reporting of Vehicles Utilizing the Exemptions, Delays, and Extensions Provision*

Unless stated otherwise in section 2025(p), fleet owners utilizing the exemptions, delays, and extensions provision of section 2025(p) must provide the following information to the Executive Officer by January 31, 2012:

(A) *Vehicles Operating Exclusively in NOx-exempt areas*

The owner must provide the following information to the Executive Officer by January 31 of each compliance year to demonstrate compliance with the requirements of section 2025(p)(1):

1. Owner, vehicle, engine information, and VDECS listed in sections 2025(r)(5) through 2025(r)(10);
2. For vehicles that are not labeled, records from an electronic tracking system that tracks usage and location in a monthly report format approved by ARB. The system must at a minimum meet the requirements as defined in section 2025(d)(22)~~(21)~~ and provide the information listed therein; and
3. Whether the vehicle is labeled as specified in section 2025(p)(1)(C).

(B) *Unique Vehicle Extension.*

The owner must provide the following information to the Executive Officer by January 31 of each compliance year to demonstrate compliance with the requirements of section 2025(p)(3):

1. Owner, vehicle, and engine information listed in sections 2025(r)(5) through 2025(r)(9).

2. Photos and a complete description of the vehicle and its function.
3. A complete explanation of why the vehicle qualifies as a unique vehicle.
4. Names and phone numbers of sources contacted during the search for a replacement vehicle.
5. Letters from contacted VDECS vendors stating that retrofit technology is unavailable for the unique vehicle.

(C) *Low Mileage Work Truck Extension Reporting*

The owner must provide the following information to the Executive Officer by January 31 of each compliance year to demonstrate compliance with the requirements of section 2025(p)(2):

1. Owner, vehicle, engine information, and VDECS listed in sections 2025(r)(5) through 2025(r)(10);
2. If the vehicle is not a truck tractor that exclusively pulls a dump or lowboy trailer, a valid California Contractors State License Board license number.
3. Mileage from a properly functioning odometer taken on January 1, 2012 and every January 1 thereafter. In the event that the odometer is replaced, the fleet owner shall report the original odometer reading, the new odometer reading, and the date the original odometer was replaced. If a hubodometer is used in lieu of the odometer, the fleet owner must also report the serial number for each hubodometer used or replaced.

(17) *Two-Engine Sweepers Reporting*

The owner must provide the following information for both the propulsion and auxiliary engine to the Executive Officer by March 31, 2010, and January 1 of subsequent compliance years to demonstrate compliance with the requirements of section 2025(n):

(A) Owner, vehicle, and engine information listed in sections 2025(r)(5) through 2025(r)(10);

(B) Engine tier level of the auxiliary engine, model year, and engine family number; and

(C) For Tier 0 auxiliary engines, the hours of use readings taken January 1 and December 31 of each year ~~starting~~ from 2010 to 2014. After 2014, the vehicle owner will need to keep records to document usage below the 100 hour annual limit.

(18) *Vehicles Purchased, Repowered, or Retrofitted Using Public Funds*

For owners of vehicles that were purchased, repowered or retrofitted using public funds and where funding program guidelines include criteria which limit funding projects from receiving regulatory benefit or credit, the fleet owner must provide

the following information to the Executive Officer for all vehicles that were purchased or retrofitted using public funds:

(A) Owner, vehicle, and engine information listed in sections 2025(r)(5) through 2025(r)(10);

(B) Date the public funding contract began;

(C) Date the contract~~or emissions surplus contract period ends or ended~~ allows the vehicle or retrofit to be used towards compliance;

(D) Program providing the funding; and

(E) Information about the contract terms to determine eligibility.

(19) ~~Claiming~~ *Reporting to Claim a Three Day Pass*

Information listed in sections 2025(r)(7) and 2025(r)(8) (A) to (G) must be provided for the vehicle subject to the three-day pass request and the date for which the three-day period would begin.

(20) *Compliance Certification.* All reports submitted to ARB, must be accompanied with a certification signed by a responsible official or a designee thereof that the information reported is accurate and that the fleet is in compliance with the regulation. If a designee signs the compliance certification, a written statement signed by the responsible official designating the designee must be attached to the compliance certification and submitted to the Executive Officer.

(21) *Changes Since Last Reporting* – The fleet owner or responsible person must report to the Executive Officer any additions, removals, or changes to the fleet since the last annual report filed. Such changes shall include, among other things, changes in the fleet's compliance option, vehicles removed from the fleet, vehicles added to the fleet through purchase or by bringing into California, and vehicles newly defined as low-use, or recently repowered or retrofitted. If there are no changes, the fleet owner shall indicate there have been no changes.

(22) *New Fleet Reporting.* New fleets that elect to utilize the phase-in options of section 2025(i) or 2025(h) must submit the information in sections 2025(r)(5) through 2025(r)(9) to the Executive Officer within 30 days of purchasing or bringing such vehicles into the State. Beginning the first January 1 that is more than 30 days after the date of purchase or bringing a vehicle into the State, new fleets must comply with the reporting requirements in section 2025(r).

(23) *Claiming Compliance Extension for Manufacturer Delays*

The fleet owner must report the following information to the Executive Officer by January 31, each year to demonstrate compliance with the requirements of section 2025(p)(8):

(A) The date of purchase or the date the contractual agreement for purchase of VDECS, replacement engine, or vehicle was entered;

(B) The date the VDECS or vehicle was placed into service;

(C) The date the existing vehicle was removed from service; and

(D) Identification of the vehicle that was replaced.

(24) *Reporting for a Compliance Extension for Fleets that Meet PM BACT per section 2025(f) or 2025(g) prior to January 1, 2014*

For fleets complying using the compliance option of section *2025(f) or* 2025(g), the fleet owner must provide the following information about all the vehicles in the fleet and the vehicles that meet PM BACT prior to January 1, 2014:

(A) Owner, vehicle and engine information listed in sections 2025(r)(5) through 2025(r)(9).

(B) Information listed in section 2025(r)(10) for the VDECS.

(25) *Reporting for Small Fleets*

For fleets complying using the phase-in option for small fleets of section 2025(h), the fleet owner must provide the following information about all vehicles in the fleet;

(A) Owner information listed in sections 2025(r)(5) through (7); and

(B) Until January 31, 2014, the vehicle information listed in sections 2025(r)(8) (A) through (J) and starting January 31, 2014, all the information listed in sections 2025(r)(8) through 2025(r)(10).

(26) *Reporting for Fleets Using Excess PM VDECS Credits*

For fleets claiming excess PM VDECS credits of section 2025(j)(2)(C), the fleet owner must provide the following information about the vehicles prior to January 1 of the compliance year in which they want to apply it:

(A) Owner, vehicle and engine information listed in sections 2025(r)(5) through 2025(r)(9) for the vehicle that was retrofit;

(B) Information listed in section 2025(r)(10) for the VDECS; and

(C) The fleet registration identification number for the Off-Road regulation, title 13, CCR, section 2449, known as the diesel off-road online reporting system, or DOORS ID number.

(s) *Record Keeping*

(1) The owner of a fleet shall maintain the following records specified in sections 2025(s)(3) through 2025(s)(18)~~(16)~~as applicable. The owner shall provide these records to an agent or employee of the ARB within five business days upon request. If the records will be kept outside California, the owner must also comply with section 2025(t).

(2) The owner of a fleet subject to the reporting requirements of section 2025(r) shall maintain copies of the information reported under section 2025(r), as well as the records described in sections 2025(s)(3) through 2025(s)(18) below.

(3) *School Buses*

(A) Fleet owners of school buses shall maintain records of all the information listed in sections 2025(r)(7) through 2025(r)(10) and provide them upon request of the Executive Officer.

(B) Fleet owners using the downsize credits of section 2025(k)(2) must maintain records of all the information listed in sections 2025(r)(7) through 2025(r)(10) for all school buses in the 2006 baseline fleet and for all school buses in the fleet on January 1 of the compliance year that were registered. Fleet owners do not have to have to keep engine and VDECS information that is required under sections 2025(r)(9) and 2025(r)(10) for school buses registered on October 1, 2006 that are no longer in the fleet.

(C) Fleet owners with low-use buses must maintain records of all the information listed in section 2025(r)(12) for each low-use bus.

(D) Fleet owners must comply with record keeping requirements for VDECS failures and maintenance as required in sections 2025(s)(10) and 2025(s)(14).

(4) *Motor Carrier or Broker*

(A) Bills of lading and other documentation identifying the motor carrier or broker who hired or dispatched the vehicle and the vehicle dispatched. The documentation shall include the name and contact information of the hiring business entity and vehicle information including license plate number, and other information.

(5) *Agricultural Fleets*

(A) Fleets utilizing the agricultural fleet provision must keep and make available upon request proof that all agricultural vehicles were used exclusively in agricultural operations. This may include records used to support proof to other governmental agencies that the primary business function was agricultural. Such documentation may include IRS or Board of Equalization tax forms or bills of lading.

(B) Records must be maintained for each agricultural vehicle demonstrating that the vehicle was operational, functional and capable of performing the duty for which it was designed. This could include maintenance records, mileage records, or licensing records, emissions testing records, or any other source of data approved by the Executive Officer.

(C) The agricultural fleet owner must keep bills of lading for delivery of fertilizer or crop protection products by an agricultural vehicle to a farm. Such records must demonstrate that the operation of the vehicle for the preceding compliance ~~calendar~~ year was used exclusively to deliver such products to farms.

(D) Proof of transference of ownership of any qualifying agricultural vehicle that is added to or removed from the fleet.

(E) Proof of ownership of the vehicles including title, registration, or bills of sale.

(6) *Proof of Operation* – Owners of fleets must keep records showing that any vehicle used to demonstrate compliance using the phase-in options of section 2025(h) and section 2025(i) was operated in California for that applicable compliance year. Records could include International Registration Plan ~~IRP~~ records, GPS tracking records, or DMV or law enforcement permits.

(7) *Fleets that have Downsized or have Added Newer Engines Early* - Fleets utilizing the credit for fleets that have downsized of section 2025(j)(1) or the credit for the early addition of newer engines of section 2025(j)(3) must keep the following records at the business office or terminal location identified in the reports filed with the Executive Officer:

(A) For all vehicles in the fleet on October 1, 2006; a,

1. Copy of the vehicle's registration; or
2. Copy of the vehicle's ownership documentation; and
3. Copy of documentation of the engine model year and engine family (only if reported for claiming credit for the early addition of newer vehicles); and
4. If not registered with the California Department of Motor Vehicles, proof that the vehicles in the fleet drove at least 1,000 miles in California in the year 2006.

(B) For all vehicles in the fleet on January 1 of the compliance year:

1. A copy of the certificate of non-operation filed with the Department of Motor Vehicles or equivalent documentation from the state, province, or country where the vehicle is registered; and
2. If scrapped in the previous year, a copy of a non-repairable vehicle certificate issued from the California Department of Motor Vehicles or equivalent documentation from the state, province, or country where the vehicle is registered.

(8) *Changes Since the Last Reporting Period*

(A) For fleets complying using any of the compliance options other than section 2025(f) or 2025(g), must keep documentation of any additions, deletions, or changes to the fleet since the last reporting. Documentation may include bills of sale, purchase orders, maintenance records, registration information, or other documentation.

(B) For each vehicle removed from the fleet, a copy of the bill of sale, or other documentation showing transference of ownership from the former owner and the current owner and the date of the transaction or any other form of vehicle transference approved by the Executive Officer.

(9) *Electronic Tracking* – For fleets using electronic tracking systems as defined in section 2025(d)(22)~~(21)~~ summary and detailed records must be kept at the business office or terminal location for the fleet. The records must provide;

(A) Vehicle identification number of the vehicle being tracked;

(B) Monthly and annual mileage accrued in California;

(C) Monthly and annual mileage accrued in the NOx Exempt Areas if claiming the vehicle operates exclusively in NOx-exempt areas, and

(D) Monthly and annual hours of engine operation accrued in California except for vehicles that do not use PTO to perform work in a stationary mode.

(10) *VDECS Failure* – Maintain records of any VDECS failure and replacement including:

(A) Date of failure;

(B) Description of failure;

(C) Description of resolution of failure;

(D) Date of resolution of failure;

(E) Past VDECS maintenance records; and

(F) Past engine maintenance records.

(11) *Fuel-based Strategy* – Documentation of any approval from ARB Executive Officer to use a fuel strategy as in section 2025(q)(3) and the most recent two years' worth of records of purchase that demonstrate usage.

(12) *Experimental Diesel Emission Control Strategy* – For fleets using an experimental diesel PM control strategy, record of approval from the Executive Officer for use of the experimental diesel control strategy, the test plan and test data used in the experimental diesel control strategy application, and other records as specified in the approval.

(13) *Manufacturer Delay* – For any vehicle or VDECS for which the fleet owner is utilizing the equipment manufacturer delay provision in section 2025(p)(8), proof of purchase, such as a purchase order or signed contract for the sale, including engine specifications for each applicable piece of equipment or vehicle.

(14) *Maintenance of VDECS Records*

(A) VDECS Documentation. For each engine requiring a VDECS to comply with the regulation, the owner shall keep the following documentation in the vehicle and provide it upon request to an agent or employee of the ARB;

1. A statement signed by the installer at the time of installation of the VDECS affirming that the installation was performed by an installer authorized by the VDECS manufacturer;
2. The name of the company installing the device;
3. The date the device was installed;
4. Description of VDECS installed;
5. VDECS family name;
6. Serial number of installed VDECS; and
7. Verification level and year of verification of the installed VDECS.

(B) Recalled VDECS Documentation. The owner shall keep the following documentation in the vehicle and provide it upon request to an agent or employee of the ARB;

1. A statement signed by the VDECS manufacturer affirming that the installed VDECS was recalled and could not be replaced or repaired;
2. The date the device was removed or altered to meet the conditions specified in the recall notice;
3. Description of VDECS recalled;
4. Recalled VDECS family name; and
5. Serial number of recalled VDECS.

(15) *Emergency Support Vehicles* – Fleet owners of emergency support vehicles utilizing the provisions of section 2025(p)(1), 2025(p)(2), or 2025(p)(4) shall keep records to document dispatch by a local, state, or federal agency or other responsible emergency management entity as approved by the Executive Officer.

(16) *Low-use Vehicles* – Fleet owners of low-use vehicles that exceed ~~1,000 miles per year~~ the annual mileage threshold shall;

(A) Keep records of electronic tracking pursuant to section 2025(s)(9),

(B) Keep records of dates and the odometer readings when the vehicle leaves and returns to California to demonstrate that no more than 1,000 miles per year was driven in California.

(17) *Early PM Retrofit Credits* - Fleets that are claiming credit for early PM retrofits shall maintain records with the below information;

(A) The bill of sale with date of purchase or order.

(B) The total amount of the purchase and the amount of down payment if not fully paid at the time of purchase.

(C) Work order or equivalent with the completion date.

(18) *NOx Exempt Area Vehicles* – Fleet owners of vehicles operated exclusively in NOx Exempt Areas, as defined in section 2025(d)(45), shall;

(A) Maintain records of repairs or other services to the vehicle that have taken place outside of the NOx exempt areas, including work orders from the facility that describes the service, date of the service, and location of the facility.

(B) Keep records of emergency operation outside of NOx exempt areas pursuant to section 2025(s)(15).

(t) *Audit of Records*

The vehicle owner must make records available to ARB at its request for audit to verify the accuracy of the records. In the event the records are not made available within

30 days of the request, the ARB may assess penalties for non-compliance. Submitting false information to ARB is a violation of this regulation and violators will be subject to penalty.

(u) *Record Retention*

The fleet owner or responsible person shall maintain the records for each vehicle subject to the reporting and record keeping requirements of sections 2025(r) and (s) for 3 years after it is retired, and for the overall fleet, for as long as the owner has a fleet, or January 1, 2025, whichever is earlier. If fleet ownership is transferred, the seller shall transfer the fleet records to the buyer. Dealers must maintain records of the disclosure of regulation applicability required by section 2025(w) for three years after the sale.

(v) *Right of Entry*

For the purpose of inspecting vehicles subject to this regulation and their records to determine compliance with this regulation, an agent or employee of ARB, upon presentation of proper credentials, has the right to enter any facility (with any necessary safety clearances) where vehicles are located or vehicle records are kept.

(w) *Disclosure of Regulation Applicability*

Any person residing in California selling a vehicle with an engine subject to this regulation must provide the following disclosure in writing to the buyer on the bill of sale, sales contract addendum, or invoice, "An on-road heavy-duty diesel or alternative-diesel vehicle operated in California may be subject to the California Air Resources Board Regulation to Reduce Particulate Matter and Criteria Pollutant Emissions from In-Use Heavy-Duty Diesel Vehicles. It therefore could be subject to exhaust retrofit or accelerated turnover requirements to reduce emissions of air pollutants. For more information, please visit the California Air Resources Board website at http://www.arb.ca.gov/dieseltruck."

(x) *Compliance Requirement*

(1) The vehicle owner shall comply with all applicable requirements and compliance schedules set forth in this regulation.

(2) Any in-state or out-of-state motor carrier, California broker, or any California resident who operates or directs the operation of any vehicle subject to this regulation shall verify that each hired or dispatched vehicle is in compliance with the regulation and comply with the record keeping requirements of section 2025(s)(4).

(3) Compliance may be accomplished by keeping at the business location, a copy of the Certificate of Reported Compliance with the In-Use On-Road Diesel Vehicle Regulation for each fleet, or in the vehicle.

(4) Any contract that a lessor and lessee enter into that has an effective date of January 1, 2010 or later shall clearly specify whether or not the leased vehicle is to be excluded from the lessor's fleet for the duration of the lease, or the responsibility will be that of the lessee.

(y) *ARB Certificate of Reported Compliance*

After the required reporting and compliance certification are received by ARB staff, ARB will provide the fleet with a Certificate of Reported Compliance with the In-Use On-Road Diesel Vehicle Regulation. ARB staff will also post on the website for this regulation the name and motor carrier number for fleets that have reported compliance.

(z) *Non-Compliance*

Any person who fails to comply with the general requirements of this regulation, who fails to submit any information, report, or statement required by this regulation, or who knowingly submits any false statement or representation in any application, report, statement, or other document filed, maintained, or used for the purposes of compliance with this regulation may be subject to civil or criminal penalties under sections 39674, 39675, 42400, 42400.1, 42400.2, 42402.2, and 43016, of the Health and Safety Code. In assessing penalties, the Executive Officer will consider factors, including but not limited to the willfulness of the violation, the length of time of noncompliance, whether the fleet made an attempt to comply, and the magnitude of noncompliance.

(aa) *Severability*

If any subsection, paragraph, subparagraph, sentence, clause, phrase, or portion of this regulation is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, such portion shall be deemed as a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions of the regulation.

Note: Authority Cited: Sections 39600, 39601, 39650, 39658, 39659, 39666, 39667, 39674, 39675, 42400, 42400.1, 42400.2, 42402.2., 42410, 43013, 43016, 43018, 43023 and 43600, California Health and Safety Code. Reference: Sections 39650, 39658, 39659, 39666, 39667, 39674, 39675, 40717.9, 42400, 42400.1, 42400.2, 42402.2, 42410, 43013, 43016, 43018, 43023, 43600 and 43701(b), California Health and Safety Code.

Appendix B

Existing Regulation Summary

The existing Truck and Bus regulation applies to nearly one million diesel vehicles that annually operate in California with a manufacturer's GVWR greater than 14,000 pounds, two-engine sweepers, yard trucks with on-road or off-road engines, and all diesel-fueled shuttle vehicles that frequent transit centers. The regulation does not include vehicles subject to previously adopted fleet regulations except for drayage trucks and utility-owned vehicles that become subject to the Truck and Bus regulation beginning January 1, 2021.

Starting January 1, 2012, fleets were required to install PM filters for certain engine model years and to begin accelerating engine or vehicle replacement starting January 1, 2015 for their heavier trucks. Most heavier trucks and buses (with a GVWR greater than 26,000 pounds) are required to have a PM filter by January 1, 2014. PM filters include those that are originally installed by the manufacturer and those that are installed afterwards (PM filter retrofit). After 2014, fleets are required to phase-in additional 2010 model year or newer engines such that by 2023 all engines operating in California and subject to the regulation will be model year 2010 or newer.

The current regulation has several compliance options for fleets to choose from, and some fleets may change compliance options from one year to the next. Compliance options are detailed below.

1. Engine Model Year Schedule for Lighter Trucks

Lighter trucks and buses with a GVWR of 14,001 to 26,000 pounds do not have compliance requirements until 2015 and must follow the Engine Model Year Schedule for Lighter Trucks (see Table B- 1 below). Starting January 1, 2015, lighter trucks with engines that are 20 years or older would need to be replaced with newer trucks. Starting January 1, 2020, all remaining trucks and buses would need to be replaced so that they would all have 2010 model year engines or equivalent emissions by 2023.

Table B- 1. Engine Model Year Schedule for Lighter Trucks

Engine Model Year	Replacement Date
1995 and older	January 1, 2015
1996	January 1, 2016
1997	January 1, 2017
1998	January 1, 2018
1999	January 1, 2019
2003 and older	January 1, 2020
2004-2006	January 1, 2021
2007-2009	January 1, 2023

2. Engine Model Year Schedule for Heavier Trucks

The engine model year schedule (see Table B- 2 below) for heavier trucks (GVWR greater than 26,000 pounds) is a schedule that specifies which vehicles must be equipped with a PM filter or replaced with 2010 model year engines to meet PM and NOx emission requirements based on engine model year. Fleets using the engine model year compliance schedule are not required to report.

Table B- 2. Engine Model Year Schedule for Heavier Trucks

Engine Model Year	Requirement from January 1
Pre-1994	No requirements until 2015, then 2010 engine
1994-1995	No requirements until 2016, then 2010 engine
1996-1999	PM filter from 2012 to 2020, then 2010 engine
2000-2004	PM filter from 2013 to 2021, then 2010 engine
2005-2006	PM filter from 2014 to 2022, then 2010 engine
2007-2009	No requirements until 2023, then 2010 engine
2010 or newer	Meets final requirements

3. Phase-In (Percentage) Option

The PM filter phase-in option is a compliance option based on the entire fleet of heavier trucks that operate in California. This option allows fleet owners to decide which heavier vehicles to retrofit or replace to meet an annual PM filter percentage requirement from January 1, 2012 to January 1, 2016, and defers all truck replacements until January 1, 2020, or later. Beginning January 1, 2020, all trucks and buses will need to be upgraded to 2010 model year engines according to the engine model year schedule for heavier trucks. Fleets must be able to meet PM filter percentage requirements, shown in Table B- 3 below, for the fleet of heavier trucks that operate in California. Fleet owners must report to demonstrate compliance.

Table B- 3. PM Filter Phase In Option for Heavier Trucks

Compliance Date	Percentage of Trucks with PM Filters
January 1, 2012	30%
January 1, 2013	60%
January 1, 2014	90%
January 1, 2015	90%
January 1, 2016	100%

The phase-in option requirements are also adjusted with credits for early action or adding advanced technology vehicles. Here is a summary of each of the credits that when used with the phase-in option can delay compliance for vehicles in the fleet.

a) Downsizing Credit

If an existing fleet has fewer heavier vehicles than were registered on October 1, 2006, the fleet can get PM filter credits to delay compliance for a portion of the fleet until January 1, 2016. The credit reduces the PM filter percentage requirement for the fleet. For example, if the compliance requirement is 90 percent but the fleet has 25 percent fewer heavier trucks in its existing fleet than it did in 2006, then the required percentage is reduced to 65 percent (90 percent – 25 percent = 65 percent). The credit is recalculated when vehicles are added or removed from the fleet.

b) Alternative Fueled or Hybrid Credit

For each heavier vehicle that fleet owners have in the fleet that operates on a dedicated alternative fueled like propane or natural gas, a fleet owner can get PM filter credits to reduce the percentage requirement for the fleet until January 1, 2017. For each alternative fueled vehicle added, compliance is delayed for another diesel vehicle in the fleet. More credits can be earned as more vehicles are added to the fleet. To avoid double counting of credits, alternative fueled vehicles that are used for credits are counted in the fleet size when determining the downsizing credit.

c) Early Installation of PM Filters Credit.

For each PM filter retrofit that was in the fleet on July 1, 2011, a fleet owner can get a PM filter credit that delays compliance for another truck until January 1, 2017. Credit can also be earned if a PM filter retrofit was ordered before May 1, 2011 and installed before October 1, 2011. The fleet owner must report information about early PM filter retrofits along with the California fleet information.

d) Early Addition of Vehicles with Originally Equipped PM Filters Credit

If a fleet owner purchased vehicles that have PM filters as standard equipment (2007 model year and newer engines) before January 1, 2012 and the average age of the fleet of existing engines is newer than it was on October 1, 2006, the fleet owner can get PM filter credits to reduce the percentage requirement for the fleet until January 1, 2017. The credit is calculated by multiplying the difference in the fleet age by 5 percent [(existing average age minus the 2006 average age) * 5 percent]. For example, if the average age of the engines in the fleet was 12.2 years old in 2006 and is now 10 years old, the fleet is now 2.2 years younger; therefore, the credit is 2.2 * 5 percent = 11 percent. The credit can change as vehicles are added or removed from the fleet, but it cannot be higher than established on January 1, 2012.

e) In-Use Off-Road Diesel Vehicle Regulation Excess Credit Exchange.

Fleets that have excess PM filter credits granted in the In-Use Off-Road diesel vehicle regulation (title 13, CCR, section 2449) may be used in the Truck and Bus regulation until January 1, 2017. Excess PM filter credits granted in the Truck and Bus regulation may also be used in the In-Use Off-Road diesel vehicle regulation until January 1, 2017.

4. Small Fleet Option

Small fleets with three or fewer vehicles with a GVWR greater than 14,000 pounds have an alternative compliance option that delayed the first compliance date until January 1, 2014. To use this option, heavier vehicles in the fleet must comply with the following schedule:

One vehicle must have a PM filter by January 1, 2014.
Two vehicles must have PM filters by January 1, 2015.
Three vehicles must have PM filters by January 1, 2016.

All small fleets would need to meet the same Engine Model Year schedule as other fleets starting January 1, 2020.

5. Low-use vehicles

Vehicles operated less than 1000 miles per year or less than 100 hours per year are exempt from the engine requirements of the regulation. To use this option, fleets must report annual mileage and hour readings of the vehicles. Vehicles that also operate less than 1000 miles per year in the State also can be designated as low use vehicles and be exempt from the engine requirements of the regulation.

6. Low Mileage Construction Trucks

The low mileage construction truck extension delays the PM filter requirements for certain low mileage construction trucks with a GVWR greater than 26,000 pounds and requires PM filters to be phase-in from 2014 to 2016 delays their replacement until January 1, 2020 or later. Dump trucks that transport construction materials such as dirt, asphalt, rock or construction debris and include a transfer truck, or a tractor trailer combination used exclusively to pull bottom dump, end dump or side dump trailers are eligible if they travel less than 20,000 miles per year. Other construction trucks must operate less than 15,000 miles per year and include all vocational trucks that are owned by a contractor that holds a valid license issued by the California Contractors State License Board or certain truck body types, regardless of who owns them, including concrete mixers, concrete pump trucks, water trucks, single engine cranes with a load rating of 35 tons or more, or tractors that exclusively pull low-boy trailers. Fleets with low-mileage construction trucks must phase-in PM filters from 2014 to 2016 as shown in the table below. As shown in Table B- 4 below, compliance is determined by applying the minimum percentage to all vehicles in the fleet (except for low-use vehicles). Therefore, other vehicles in the fleet that do not use extensions and have PM filters can be counted towards compliance. In addition, a single truck owner with a low-mileage construction truck can delay the PM filter requirement until January 1, 2016. Starting January 1, 2020, all low-mileage construction trucks must comply with the engine model year schedule like other trucks.

Table B- 4. Low Mileage Construction Truck Extension Compliance Schedule

Compliance Date	Minimum PM Filters*
January 1, 2014	33%
January 1, 2015	66%
January 1, 2016	100%

* Applies to entire fleet of heavier trucks (except low-use).

7. Log Truck Phase-in Option

Log trucks are eligible for the log truck phase-in option if they are heavy-duty vehicles with a GVWR greater than 33,000 lbs., exclusively transport logs, and have permanently attached log bunks. The log truck phase-in option allows log truck fleet owners to opt-in to a compliance schedule to upgrade to 2010 model year engines on a separate schedule shown in the Table B- 5 below and does not require the use of PM filters. The option can be used by log trucks that operate statewide, and there are no mileage limits. However, the total number of trucks using the log truck phase-in option and agricultural vehicle extensions cannot be higher than the number of trucks owned by the fleet on January 1, 2009. Trucks that comply with the log-truck phase-in option do not count towards compliance with other flexibility options.

Table B- 5. Log Truck Phase in Option Schedule

Compliance Deadline as of January 1	Percent of Log Trucks with 2010 Model Year Engines
2012	0%
2013	0%
2014	10%
2015	20%
2016	30%
2017	40%
2018	50%
2019	60%
2020	70%
2021	80%

8. Agricultural Vehicles

The agricultural vehicle extension delays compliance for agricultural vehicles that operate less than specified mileage thresholds and for a limited number of specialized trucks. It applies to diesel trucks and buses that are exclusively use for agricultural operations with a manufacturer gross vehicle weight rating greater than 14,000 pounds. The total number of trucks using the agricultural vehicle extension cannot be higher than the number of trucks owned by the fleet on January 1, 2009. The agricultural vehicle extension also includes agricultural vehicles such as trucks and buses owned by log harvest operations or farming businesses and certain trucks that are not farmer-

owned but are dedicated to supporting agricultural operations. Pickups are not subject to the regulation. Owners must report odometer readings annually to remain eligible.

Starting in 2011, all eligible vehicles must stay below the annual mileage limits as shown in Table B- 6 to remain eligible for the extension except for trucks approved for the specialty agricultural vehicle exemption. Owners must update their odometer reading for January 1 each year and when a vehicle is removed from the fleet. Until January 1, 2017, eligible vehicles must stay below the limits shown in the table. Starting January 1, 2017, only vehicles that operate less than 10,000 miles every year since January 1, 2011, can continue to use the extension until January 1, 2023. The extension expires immediately when a vehicle exceeds the mileage limits in any year or if it is used for non-agricultural purposes.

Table B- 6. Mileage Threshold for Agricultural Vehicle Extension

Engine Model Year	Annual Mileage Limit
2006 or newer	25,000
1996 to 2005	20,000
1995 and older	15,000

9. Vehicles operating exclusively in designated NOx exempt areas

Vehicles with a GVWR greater than 14,000 pounds that are operated exclusively in the existing NOx exempt areas are exempt from any replacement requirements. The existing NOx exempt areas are the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Northern Sonoma (as defined in title 17, CCR section 60100(e)), Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba. Any vehicle with a GVWR greater than 14,000 lbs that is used exclusively in NOx exempt areas are exempt from meeting the 2010 model year replacement requirements if the vehicle meets PM BACT by the compliance date that the engine would otherwise be required to be upgraded to a 2010 model year engine. Heavier trucks with a GVWR greater than 26,000 pounds that operate exclusively in the NOx exempt areas, except for low-use vehicles, must meet the following phase-in schedule as shown in Table B- 7 below.

Table B- 7. Compliance Schedule for NOx Exempt Area Fleets

Compliance Deadline as of January 1	Percent of Fleet with PM Filters
2014	33%
2015	66%
2016	100%

10. Credit for installation of PM Filters by January 1, 2014

Any vehicle that is equipped with a PM filter before January 1, 2014 would comply until 2020 regardless of model year. In addition, fleet owners that install PM filters on all vehicles in their fleet by January 1, 2014 have delayed replacement on all of the

vehicles until January 1, 2023 regardless of the model year of the engine. This applies to any vehicle with a GVWR greater than 14,000 pounds. Reporting requirements apply in order to earn the delayed replacement.

11. School Buses

School buses are exempt from any NOx reduction (replacement) requirements but must meet the PM filter requirements. All school buses must have PM filters installed by 2014. An extension is provided for school buses that cannot be retrofitted such that by January 1, 2018, these buses must be replaced or repowered with an engine on which a PM filter is or can be installed. Recordkeeping and reporting requirements apply until the school bus is brought into compliance.

Appendix C

ASSESSING COMPLIANCE FOR TRUCKS SUBJECT TO THE REGULATION

ASSESSING ACTIONS TAKEN AND FUTURE COMPLIANCE OBLIGATIONS FOR TRUCKS SUBJECT TO THE TRUCK AND BUS REGULATION

The Air Resources Board (ARB) conducted an analysis to better understand the number of trucks that need to comply with regulatory requirements in 2014, 2015, and 2016 using the most current available data in January 2014. These estimates are based on three data sources. The first is vehicle registration data from the California Department of Motor Vehicles (DMV), which provides information on every truck registered in California (CA). ARB receives a copy of portions of the DMV motor vehicle registration database twice per year in April and October. Staff used the latest data available from October, 2013. DMV registration data are not linked to Motor Carrier Permit data and so vehicles cannot be directly linked to permitted fleets. To compensate, staff conducted an analysis assuming trucks registered to the same address are in the same fleet. California-registered trucks can be classified by vehicle identification number (VIN), model year (MY), body type, gross vehicle weight rating (GVWR), and other factors.

The second is vehicle registration data from the International Registration Plan (IRP). This database provides registration information for trucks in fleets that report driving in California. This information is obtained through the DMV and covers all of the United States except Oregon and Oklahoma, and most Canadian territories. Staff used the latest data available for January to December, 2013. The database does not provide information on which vehicles in each fleet actually travel in California and based on surveys only some trucks in fleets reporting mileage in California actually travel in California. Trucks in this database are classified by reporting fleet, VIN, MY, weight, and other factors.

The third are ARB compliance databases that provide information on compliance status for both the Truck and Bus and Drayage Truck Regulation. These databases provide a linkage between a VIN representing a specific truck, whether or not the vehicle is equipped with a filter, and other compliance related information.

In combining these data sets we developed counts of heavier (>26,000 pound GVWR) and lighter trucks (14,000 to 26,000 pounds GVWR) that are subject to the Truck and Bus regulation. Due to time limitations, buses have not yet been considered.

Table C- 1 below provides an overview of the number of trucks in fleets that are registered to drive in California and are regulated by the Truck and Bus Regulation. The Truck and Bus Regulation defines separate requirements for heavier and lighter trucks. There are more than a million trucks that are registered to fleets reporting

operation in California. Of the one million trucks operating in California, over 370,000 have California-based registrations.

Table C- 1. Trucks Subject to the Truck and Bus Regulation that Operate in California

Source of Data	Heavy (>26k)	Light (<=26k)	Grand Total
*DMV - October 2013 Registered In-State Trucks (excluding solid waste and public fleets)	180,772	143,287	324,059
*IRP (2013) California Registered Inter-State Trucks	46,343	965	47,308
IRP (2013) Out-of-State (OOS) Registered Inter-State Trucks with California Address	46,973	912	47,885
IRP (2013) OOS Registered Inter-State Trucks without a California Address	578,832	21,028	599,860
Total Heavy Duty Diesel Trucks	852,920	166,192	1,019,112
***Total CA Registered Heavy Duty Diesel Trucks**	**227,115**	**144,252**	**371,367**

* California based trucks.

Staff developed a methodology to estimate the number of trucks that will need to take steps to comply with regulatory requirements. Methods were developed for lighter trucks and heavier trucks separately.

Light Truck Compliance Count Estimates

The methodology for estimating the number of lighter trucks that will need to take steps to comply is based strictly on the model year of the vehicle. For this analysis we evaluated California registered and non-California registered trucks. Of the total registered heavy duty diesel trucks shown in Table C- 1, over 166,000 (16%) are light heavy trucks of less than 26,001 pounds. Of these, over 144,000 (87%) are California based trucks (in-state or IRP) which would provide the majority of the vehicle miles travelled (VMT) in California for these light trucks. Unless they qualify for other special exemptions, the regulation requires unfiltered light heavy duty trucks with engine MY's older than 1996 to be replaced by January 1, 2015 and those with a 1996 engine MY to be replaced by January 1, 2016. Engine MYs were estimated as one year older than the vehicle MY, as ARB analysis has found this to be typical. Based on our assessment, as shown in Table C- 2, updated 2013 truck counts reflect over 18,000 trucks that might need replacement to comply with the regulation for calendar year (CY)

2015 and over 5,000 trucks that might need replacement to comply with the regulation for CY 2016. Some trucks may not need to be replaced if a diesel particulate matter (PM) filter has been installed, if they meet other special exemption requirements, or if an IRP fleet sends other compliant trucks for travel within California.

Table C- 2. Estimated Number of Lighter Trucks That Would Need to Take Steps to Comply in 2015 and 2016

MY Group per Fleet Type	Total Trucks	Potential Replacements by 1/1/15 (<MY 1996)	Potential Replacements by 1/1/16 (MY 1996)
In-State	***143,287***	***18,546***	***5,076***
<MY1996	18,546	18,546	-
MY1996	5,076	-	5,076
>MY1996	119,446	-	-
Unknown	219	-	-
CA IRP	***965***	***38***	***11***
<MY1996	38	38	-
MY1996	11	-	11
>MY1996	916	-	-
OOS IRP	***21,940***	***337***	***99***
<MY1996	337	337	-
MY1996	99	-	99
>MY1996	21504	-	-
TOTALS	**166,192**	**18,921**	**5,186**
CA Registered Totals	***144,252***	***18,584***	***5,087***

Heavy Truck Compliance Count Estimates

To assess the number of heavy trucks that need to comply, we used a step wise process. In the first step in the process, we grouped vehicles by age. We assumed engine MYs were one year older than vehicle MY based on assessments of available data sets, such as the Drayage Truck Registry, where both engine and vehicle MYs are reported. Over 375,000 (44 percent) of these trucks with engine MYs of 2007 or newer should be equipped with original equipment manufacturer (OEM) filters and already comply with PM filter requirements, as shown in Table C- 3.

Table C- 3. Heavy Vehicle Counts (All Registrants) by Age

Combined Heavy Duty Diesel Truck Counts						
Truck Weight Category	Engine Model Year Groups					
	Pre-MY1994	MY1994-1995	MY1996-2006	*MY2007+	Unknown MY	Totals
Heavy (>26k)	47,645	23,871	405,159	375,621	624	852,920
*Already meets PM Filter Requirements (OEM)						375,621
Total CA & OOS Registered Diesel Trucks Potentially Subject to Rule for CY2014, CY2015 & CY2016 =						477,299

There were over 180,000 in-state trucks in the October 2013 DMV update. Over 31,000 (18 percent) of these in-state trucks should have OEM filters and already comply with PM filter requirements with no further actions needed, as shown in Table C- 4.

Table C- 4. California Registered Intrastate Heavy Trucks by Age

In-State Heavy Duty Diesel Truck Counts						
Truck Weight Category	Engine Model Year Groups					
	Pre-MY1994	MY1994-1995	MY1996-2006	*MY2007+	Unknown MY	Totals
Heavy (>26k)	37,925	14,389	96,191	31,643	624	180,772
*Already meets PM Filter Requirements (OEM)						31,643
Total California Registered Diesel Trucks Potentially Subject to Rule for CY2014, CY2015 & CY2016 =						149,129

There were over 46,000 CA IRP trucks and over 21,000 (46%) of these trucks should already be equipped with OEM filters and comply with PM filter requirements, as shown in Table C- 5.

Table C- 5. California Registered Interstate Heavy Trucks by Age

CA IRP Heavy Duty Diesel Truck Counts					
Truck Weight Category	Engine Model Year Groups				
	Pre-MY1994	MY1994-1995	MY1996-2006	*MY2007+	Totals
Heavy (>26k)	932	989	23,272	21,150	46,343
					21,150
Total California Registered Diesel Trucks Potentially Subject to Rule for CY2014, CY2015 & CY2016 =					25,193

There were over 625,000 Out-of-State (OOS) IRP trucks and almost 52% of these trucks should already be equipped with OEM filters and comply with PM filter requirements, as shown in Table C- 6.

Table C- 6. OOS Registered Interstate Heavy Trucks by Age

OOS IRP Heavy Duty Diesel Truck Counts					
Truck Weight Category	Engine Model Year Groups				
	Pre-MY1994	MY1994-1995	MY1996-2006	*MY2007+	Totals
Heavy (>26k)	8,788	8,493	285,696	322,828	625,805
*Already meets PM Filter Requirements (OEM)					322,828
Total OOS Registered Diesel Trucks Potentially Subject to Rule for CY2014, CY2015 & CY2016 =					322,828

Similar to previous analysis results, taken together these data demonstrate as expected the average age of the in-state fleet to be significantly older than the IRP fleet groups, as shown in Table C- 7. The non-neighboring OOS registered IRP trucks are the newest.

Table C- 7. Comparison of Average Age by Heavy Truck Registration Type

Fleet Type	Engine Model Year Grouping				Totals	Average Vehicle MY
	<1996MY	1996-2006MY	>2006MY	Unknown		
In-State	28.9%	53.2%	17.5%	0.3%	100.0%	2000.1
CA IRP	4.1%	50.2%	45.6%	0.0%	100.0%	2006.3
OOS IRP neighboring states	7.4%	51.0%	41.5%	0.0%	100.0%	2006.0
OOS IRP non-neighboring states	2.6%	45.5%	51.9%	0.0%	100.0%	2007.8
Total >26 Trucks	8.4%	47.5%	44.0%	0.1%	100.0%	2006.1

More than 600,000 of the total heavy trucks are registered to large fleets outside of California. Although these trucks are in fleets authorized to operate in California, not all of these individual vehicles in these fleets may actually come into California. Previous studies have demonstrated that only a fraction of trucks in fleets participating in the IRP program and in fleets reporting mileage in California actually operate in California. Further, these trucks entering California from other states are on average around two to three years old based on previous studies (Lutsey, 2007). Under the Truck and Bus regulation large fleet OOS trucks may choose to comply by dispatching compliant trucks. Therefore, we focused the remainder of our compliance analysis on California-registered trucks.

The second step in the process to assess the number of heavy trucks that may need to comply was to group vehicles by fleet size. DMV and IRP data fields were used to develop the fleet sizes needed to assess compliance requirements. For IRP fleets, by definition, a combination of fields denotes a specific fleet. For DMV data, there are no fields in the records to denote a specific fleet or identify a common owner. To estimate fleet sizes, addresses were scrubbed to make them more consistent and reduce the number of possible permutations for the same address. Then long, concatenated address fields were created (5-digit zip code, city, address line 1, address line 2), with

special characters and spaces removed. Each unique concatenated long address field was used to represent a fleet for the purposes of determining fleets sizes to assess compliance status truck counts.

This process will result in an accurate accounting of trucks by fleet size for many fleets. However, large fleets with multiple registered addresses may appear in the database as multiple fleets, and errors in addresses may inadvertently result in parsing of a single fleet into several small fleets or several owner-operators. The result of the assessment is believed to overestimate to a limited extent the number of owner-operators and small-fleets that are registered in California. For this reason, we are rounding the estimates presented by fleet size to account for such uncertainties. Table C- 8 compares California-registered vehicle counts by fleet size.

Table C- 8. California Registered Heavy Truck Counts by Age and Fleet Size

California Registered Heavy Truck Counts by Vehicle MY Group and Fleet Size						
	Fleet Size					
Vehicle MY Group	1 Truck Fleets	2 Truck Fleets	3 Truck Fleets	>3 Truck Fleets	Unknown Fleet Size	Grand Total
Less than MY1995	11,000	5,000	3,000	20,000	300	39,300
MY1995 to MY1996	4,000	2,000	1,000	8,000	100	15,100
MY1997 to MY2007	24,000	11,000	7,000	76,000	300	118,300
Over MY2007	6,000	3,000	2,000	41,000	400	52,400
Unknown	100	100	50	300	-	550
Grand Total	45,100	21,100	13,050	145,300	1,100	225,650

The third step in the assessment process for heavy trucks was to cross reference California-registered vehicle by VIN against regulation compliance databases: Truck Regulation Upload and Compliance Reporting System (TRUCRS) and the Drayage Truck Registry. When rounded, there are approximately 225,000 California registered heavy trucks. Over 20 percent of these trucks should be equipped with OEM filters and already comply with PM filter requirements with no further actions needed. Only fleets using the flexibility options need to report to TRUCRS, so this matching process will only provide a subset of the potential PM filters that have already been installed on trucks for regulation compliance. There were over 11,000 in-state and 2,700 IRP matched trucks that reported a retrofit PM filter had already been or soon would be installed.

The Truck and Bus regulation heavy truck requirements can vary based on the total number of trucks in a given fleet (or "fleet size"), the number of heavy trucks within a fleet, the age of vehicles in the fleet, the number of trucks equipped with PM retrofit filters, and the chosen compliance pathway. Registration data sources can be used to provide information on vehicles by fleet, but cannot provide information on chosen compliance pathway or on whether or not a retrofit PM filter has been installed. As a result, staff cross-referenced vehicle registration and regulatory compliance databases to identify trucks reporting to ARB as having installed a retrofit PM filter.

Each individual fleet, identified by common address as discussed above, was then evaluated to determine how many trucks by fleet size might need to take action with Regulation requirements in 2014, 2015, and 2016. Results are shown in Table C- 9 and suggest as many as 30,000 small fleet heavy trucks and 60,000 large fleet trucks may need to take action to comply in 2014. This assessment excludes trucks that had already installed a PM retrofit filter, but did not exclude trucks that claimed a flexibility options in TRUCRS. The next step in the heavy truck analysis was to account for flexibility provisions.

Table C- 9. Estimated Number of Heavy Trucks That Would Need to Take Steps to Comply in 2014, 2015, and 2016 (without considering regulation flexibility options)

	Potential Actions Needed for Compliance by Calendar Year					
Fleet Size	*2014 Retrofits*	*2015 Retrofits*	*2016 Retrofits*	*2014 Replacements*	*2015 Replacements*	*2016 Replacements*
1 Truck Fleets	19,000	900	-	-	9,100	3,700
2 Truck Fleets	5,500	200	4,500	2,300	1,200	2,000
3 Truck Fleets	2,500	300	2,400	-	1,400	1,500
>3 Truck Fleets	59,300	4,200	1,800	-	16,800	7,000
Totals	**86,300**	**5,600**	**8,700**	**2,300**	**28,500**	**14,200**

Table C- 10 provides a summary of the number of trucks that have reported into TRUCRS by known compliance status. About 30 percent of the trucks reported into TRUCRS and shown in Table C- 10 are not registered in California. The table suggests there are 6,000 known compliant small fleet heavy trucks with PM filters, and an additional 11,000 small fleet heavy trucks that claimed Good Faith.

Table C- 10. TRUCRS Reporting Data (Light and Heavy Trucks) by Compliance Status as of January 31, 2014

Statewide Totals	Small Fleet	Large Fleet	Total
Known Compliant Trucks	**24,324**	**153,648**	**177,972**
- OEM PM Filter	5,631	85,157	90,788
- Retrofit PM filter	1,038	11,309	12,347
- Flexibility options (ag, low-use...)	17,655	57,182	74,837
Good Faith Efforts Total	**10,658**	**9,536**	**20,194**
- Applied for Funding	1,508	200	1,708
- Approved for Loan	1,064	743	1,807
- Denied for Loan	3,424	1,771	5,195
- Ordered PM Filter	3,604	4,591	8,195
- Ordered Truck	1,058	2,231	3,289

Staff evaluated the number of California-registered trucks reporting to TRUCRS against the total number of registered trucks in California. Of the 177,972 known compliant trucks and 20,194 trucks claiming good faith, about 155,000 are heavy trucks registered in California. Comparing this to 225,000 heavy trucks registered in California, this implies about 70% of California-registered heavy trucks are reported into TRUCRS.

Reporting to TRUCRS is not mandatory, however fleets that choose to take advantage of flexibility provisions in the regulation must also report to TRUCRS. Analysis of trucks reported to TRUCRS suggests about 70% of registered heavy trucks or about 12,000 California-registered heavy trucks in small fleets have claimed flexibility provisions. Because flexibility provisions were not accounted for in Table C- 9, subtracting these 12,000 from 29,300 California-registered heavy trucks in Table C- 9, leaves a maximum of 17,000 possible unreported small fleet heavy trucks that might need to take action in 2014 to comply and have not reported to TRUCRS. Table C- 11 shows the estimated number of California-registered heavy trucks that may need to take action to meet 2014 requirements after accounting for those reported in TRUCRS as complying with the flexibility provisions. Based on this analysis, around 85 percent of California-registered heavy trucks are in compliance with the regulation. Many of these trucks comply through flexibility options and so will gradually need to comply as regulatory compliance dates come due.

Table C- 11. Estimated Number of California-Registered Heavy Trucks that Need to Take Additional Action to Comply with 2014 Requirements

	Small Fleet	Large Fleet	Total
Total heavy trucks that need to take action in 2014 based on age in vehicle registration data (Table C-4)	29,300	59,300	88,600
Estimate of California-registered heavy trucks claiming good faith flexibility provisions in TRUCRS*	12,300*	40,000*	52,300
Total that need to take action in 2014 and are not reported in TRUCRS	17,000	19,000	36,000

* Assumes 70percent of all trucks in TRUCRS and claiming compliance through flexibility provisions are registered in California based on preliminary data evaluation

Note: The estimated compliance rate based on information reported by October 2013 is 85 percent of the 230,000 California registered heavy duty trucks.

Summary

Table C- 12 combines results of the analysis shown in Table C- 11 and Table C- 1. Overall, staff analysis shows that most trucks are currently compliant with 2014 requirements, and that around 70 percent of California-registered heavy trucks are reported into TRUCRS. At the same time fleets will face significant compliance obligations as the regulation continues to be implemented in 2015 and 2016. The proposed regulatory amendments are designed to help ensure emissions reductions are achieved by providing additional pathways to compliance for fleets – especially for small fleets, low mileage fleets, and fleets operating in certain rural areas that may face challenges to comply.

Table C- 12. Summary of Number of Trucks Estimated to Need to Comply, But Have Not Yet Reported to TRUCRS, by Calendar Year, Fleet Size, and Weight Class

Calendar Year	Heavy Trucks			Light Trucks	Total Light and Heavy
	Small Fleet	Large Fleet	Total	All Fleet Sizes	Total
2014	17,000	19,000	36,000		36,000
2015	13,000	21,000	34,000	19,000	53,000
2016	14,000	9,000	23,000	5,000	28,000

Limitations

There are several limitations to this exercise. The latest California vehicle registration data available was provided to ARB in October 2013. Actions taken to comply after this date will not be reflected in the analysis, and the counts will to some degree overestimate the number of trucks that must take action to comply since some will have taken action between October 2013 and today.

DMV extracts are provided to ARB twice per year, in April and October. These biannual DMV data sets require ARB processing to assign necessary field designations (such as vehicle class and registration status categories used by ARB). To expedite updated 2013 truck counts, staff matched VINs on existing ARB processed trucks for detailed data to use for those trucks. The new, unmatched trucks were processed through a VIN decoder to identify the needed detailed information. As not all of the normal processing steps have yet been completed, there may be some minor errors introduced on some individual trucks, however the totals by vehicle class and MY subgroups should be reasonably reliable for the purpose of this status review.

The IRP truck data is an important resource for interstate truck information. However, while conducting this update and analysis, it was discovered that the states of Oregon had ceased participating in this system and so are not included in this analysis. While these data would increase the count of OOS inventory trucks operating in California, the compliance count results would not change since the estimates were based on in-state and CA IRP trucks that provide the majority of heavy duty diesel truck VMT in California.

For both the DMV and IRP truck records, the class of each vehicle was estimated based on data as reported and provided in several weight related fields. The class groups used were "T7" for >33,000 lbs., "T6above26k" for >26,000 and <=33,000lbs., "T6below26k" for >14,000 and <=26,000 lbs., or "Unknown" if it could not be determined. For some individual trucks, there might be erroneous class designations but this analysis reflects the best available data to date.

Analyzing compliance status requires an understanding of the number and age of vehicles by fleet. Because California registration data are not linked to a unique fleet identifier like a Motor Carrier Permit identification number, we grouped California-registered trucks by common address. As discussed above, a unique concatenated long address field was used for DMV truck data to represent a fleet for the purposes of determining fleets sizes to be able to assess compliance status truck counts. Due to permutations in addresses (such as including or excluding a suite or other reference number, different spellings or abbreviations of street names, etc.), it is possible that some small fleet counts are over-estimated for some larger truck fleets if the addresses could not be matched appropriately. The compliance status truck counts represent the best available estimates using the data sources available, however it should be noted that these results provide estimates and not exact numbers. To indicate this level of uncertainty, results provided by fleet size are rounded to an appropriate number of significant digits.

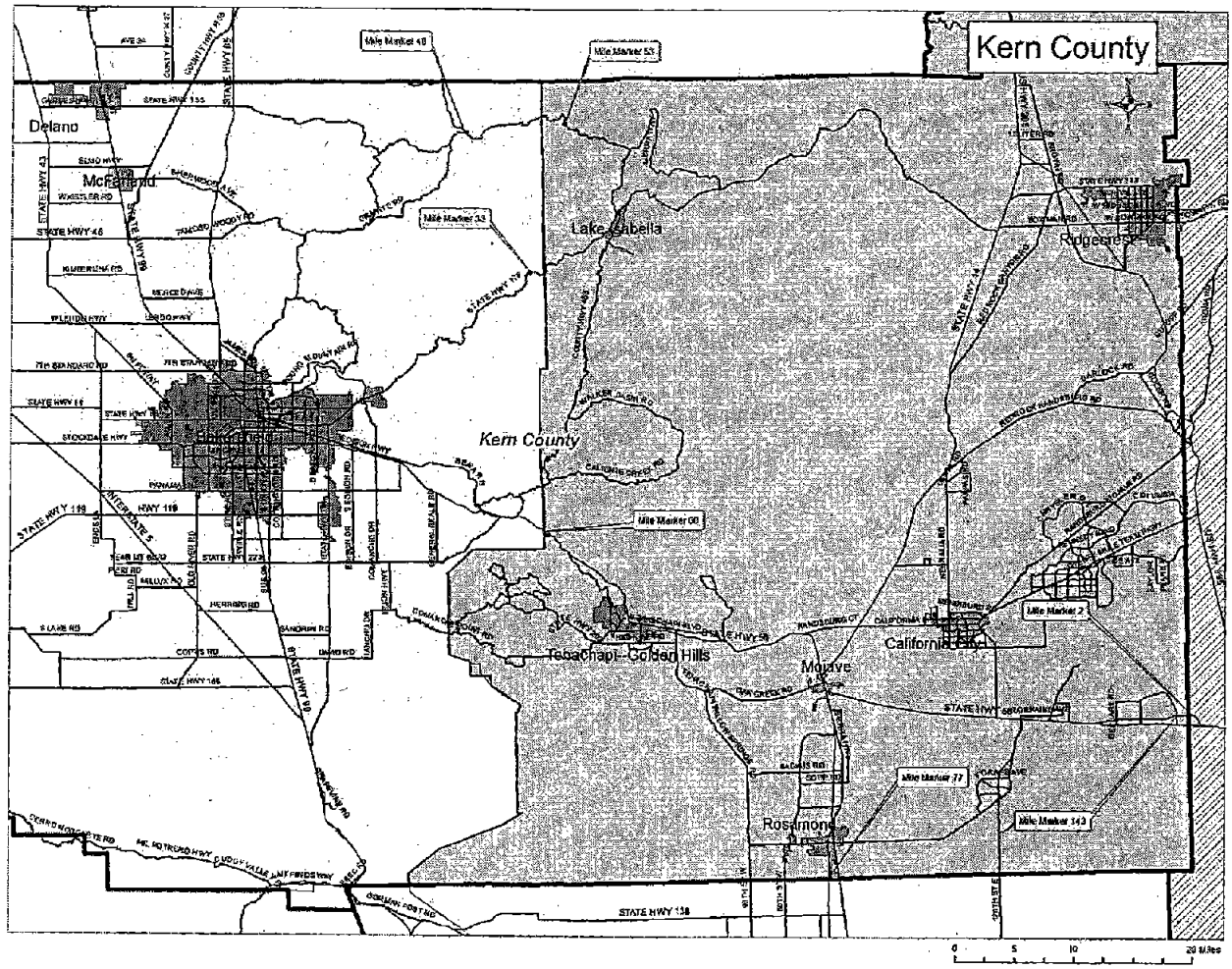
Reference

Lutsey, 2007. Lutsey et al., Assessment of Out-of-State Truck Activity in California, ARB Contract 04-328.

Appendix D

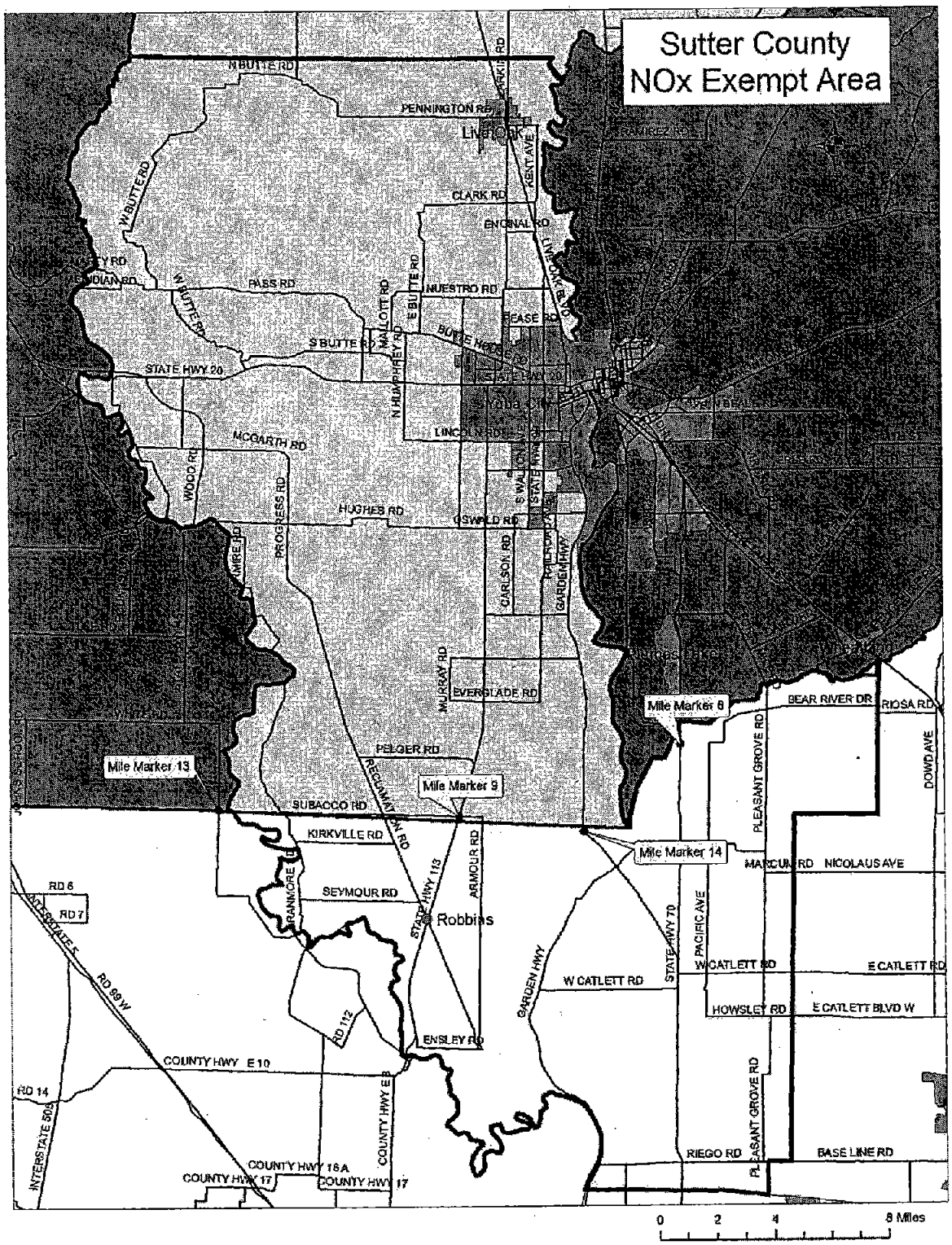
NOx Exempt Area Maps for The Proposed Amaendments

Eastern Kern

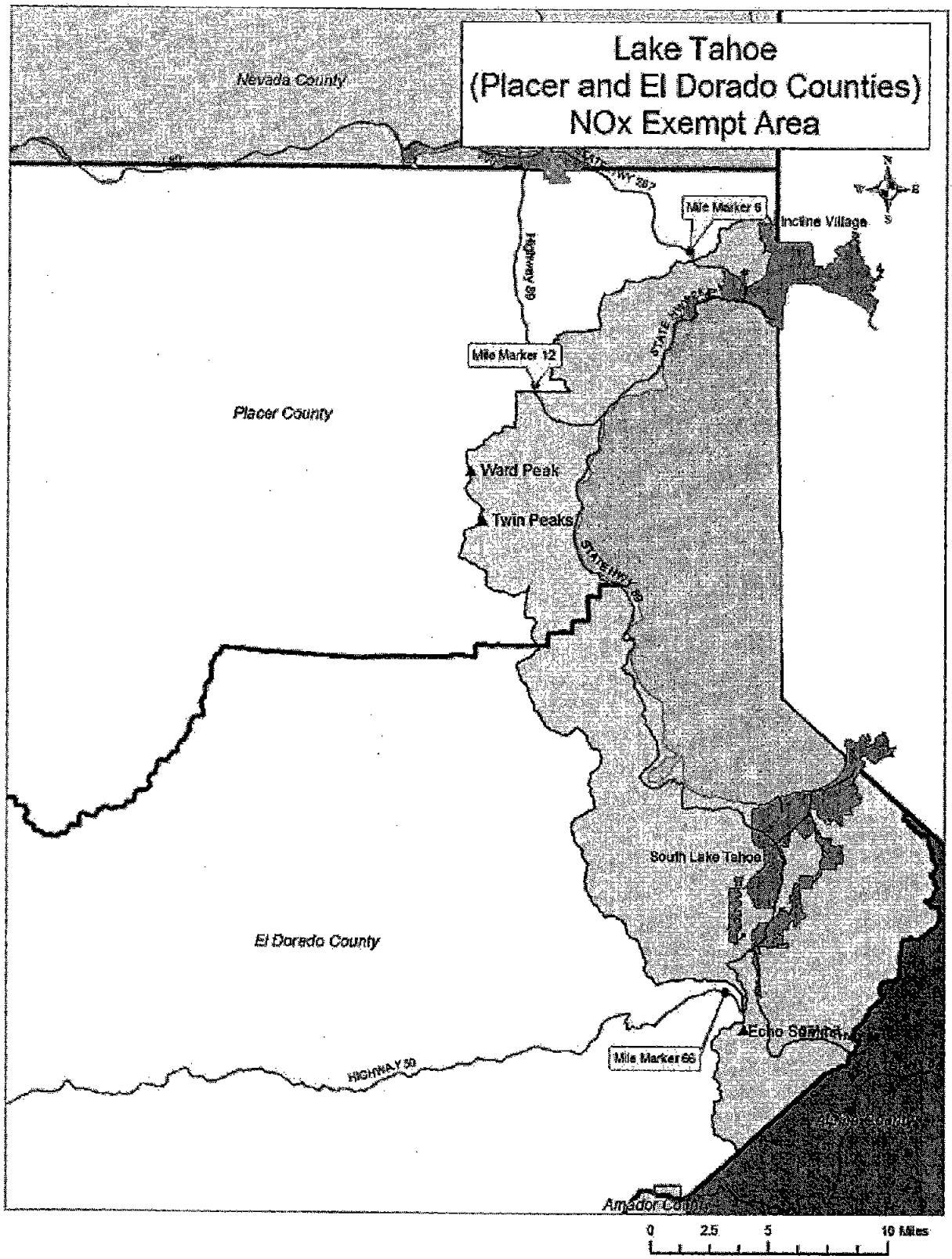


Note: This map represents the portion of Kern County within the Eastern Kern Air Pollution Control District.

Northern Sutter



Note: This map represents the portion of Sutter County that is north of the line that extends from the south east corner of Colusa County to the southwest corner of Yuba County.



Note: This map represents the portions of El Dorado and Placer that are within the Lake Tahoe Air Basin.

Appendix E

COMPLIANCE EXAMPLES FOR THE PROPOSED AMENDMENTS

Staff developed a number of examples to demonstrate what actions would be required of fleets based on the proposed amendments. All of the following examples are for a fleet with 10 trucks or a small fleet with three heavier trucks (GVWR greater than 26,000 pounds) with engine model years ranging from 1992 to 2007. The examples demonstrate how a fleet would comply utilizing the low mileage work truck phase-in option, the NOx exempt area extension, and the planned retirement option.

A. Low Mileage Work Truck Phase-In Option Example

Staff is proposing to replace the existing low mileage construction truck extension with a new extension that applies to work trucks and allows an extended compliance schedule for work trucks that travel less than a total of 20,000 miles per compliance year.

1. Ten Truck Fleet Example

This example fleet consists of 10 work trucks that are operated less than 20,000 miles per year. The fleet initially reported to use the low mileage construction truck extension for eight of the 10 trucks. By 2014, particulate matter (PM) filters were installed on three trucks to meet the 33 percent compliance requirement. In the existing regulation the fleet owner would have been required to install four more PM filters by 2015, and the last three PM filters by 2016.

The proposed amendments provide the fleet owner additional time to comply as shown in the

Table E-1. The fleet owner would install two PM filters by 2014 and one additional PM filter by 2015. In conjunction with the truck that has a 2007 model year (MY) engine that has an originally equipped PM filter, this meets the 40 percent requirement. The owner could then replace trucks with 2010 MY engine trucks instead of installing PM filters by replacing two trucks by 2016, two trucks by 2017, and two trucks by 2018. The owner would then start replacing trucks with PM filters by replacing the truck with a 2003 MY engine by 2021 and the three remaining trucks by 2023.

Table E-1. Example of Compliance Using Work Truck Extension for Large Fleet

Engine Year	January 1 of Compliance Year					
	2014	2015	2016	2017	2018	Next Steps
1992			2010 MY			
1994			2010 MY			
1998				2010 MY		
1999				2010 MY		
2000					2010 MY	
2001					2010 MY	
2003		PM Filter				Replace in 2021
2004	PM Filter					Replace in 2023
2006	PM Filter					Replace in 2023
2007	OEM PM Filter					Replace in 2023

2. Small Fleet Example

This fleet consists of three work trucks, where two of the trucks operate less than 20,000 miles per year. The fleet was initially reported to use the small fleet option and installed a PM filter on one truck by 2014. To meet the requirement s of the existing regulation, the fleet owner would install a PM filter on the second truck by 2015 and on the third truck by 2016.

The proposed amendments provide the owner additional time to comply as shown in the Table E-2. The fleet owner would install a PM filter by 2016 on the second truck and would consider replacing the third truck with a truck with a 2010 or newer engine by 2018. The replacement of the truck that had a PM filter installed by 2014 would have until 2023 to meet the replacement requirements (2010 or newer MY engine) and the truck that had a PM filter installed by 2016 would need to be replaced by 2021.

Table E-2. Example of Compliance Using Work Truck Extension for Small Fleet

Engine Model Year	January 1 of Compliance Year					
	2014	2015	2016	2017	2018	Next Steps
1998	PM Filter					Replace 2023
2000			PM Filter			Replace 2021
2005					2010 MY	

B. NOx Exempt Area Extension

The proposed amendments to the NOx exempt area extension will allow fleets operating exclusively in designated NOx exempt areas of the state to delay PM filter

requirements until January 1, 2020. Table E-3 shows the proposed PM filter phase-in schedule for fleets utilizing the NOx exempt area extension.

Table E-3. NOx Exempt Area Extension PM Filter Phase-in Requirements (Proposed Amendments)

Year	Entire Fleet Percentage	One Truck Fleet	Two Truck Fleet	Three Truck Fleet
2015	20%			1
2016	40%		1	
2017	55%	1		1
2018	70%			
2019	85%		1	1
2020	100%			

1. Ten Truck Fleet Example

This fleet consists of 10 vehicles that are all operated exclusively in a designated NOx exempt area. The fleet initially reported to use the NOx exempt area extension and installed PM filters on three trucks to meet the 33 percent requirement by 2014 in the existing regulation. The owner would then install four PM filters by 2015 and the last three PM filters by 2016.

The proposed amendments would allow additional time to comply. The fleet owner would install a PM filter on the fourth vehicle by 2016 and install PM filters on two more trucks by 2017. The owner would then consider replacing vehicles with 2007 MY engines or newer instead of installing the PM filters by replacing one vehicle by 2018, two more vehicles by 2019, and the remaining one vehicle by 2020 as shown in the Table E-4.

Table E-4. Example of Compliance with the NOx Exempt Area Extension for Large Fleet

Engine Model Year	January 1 of Compliance Year					
	2015	2016	2017	2018	2019	2020
1992						2010 MY
1994					2009 MY	
1998					2009MY	
1999				2008 MY		
2000			PM Filter			
2001			PM Filter			
2003		PM Filter				
2004 (with PM filter)						
2005 (with PM filter)						
2007 (OEMDPF)						

2. Small Fleet Example

This small fleet consists of three vehicles with a PM filter installed on one of the vehicles by 2014. The fleet owner would install a PM filter on the second vehicle by 2015 and the third vehicle by 2016 to meet the requirements of the existing regulation. The proposed amendments would delay the PM filter requirement on the second vehicle until January 1, 2017 and the fleet owner would consider replacing the third vehicle by 2019 as shown in Table E-5.

Table E-5. Example of Compliance with the NOx Exempt Area Extension for Small Fleet

Engine Model Year	January 1 of Compliance Year					
	2015	2016	2017	2018	2019	2020
1998 (PM Filter)						
2000			PM Filter			
2005					2009MY	

C. Planned Retirement Option

Staff is proposing a new flexibility option that waives the PM filter requirement for up to three vehicles in a fleet if they are upgraded to 2010 model year engines or newer by January 1, 2018. To qualify, fleet owners must have been denied a loan for purposes of compliance after July 1, 2013 and opt-in by reporting no later than January 31, 2015.

1. 10 Truck Fleet Example

This example fleet consists of 10 vehicles currently using the engine MY schedule.

Table E- 6 shows how the example fleet would comply using the proposed planned retirement option.

Table E- 6. Compliance Example Using Planned Retirement Option for Large Fleet

Engine Model Year	January 1 of Compliance Year				
	2015	2016	2017	2018	Next Steps
1992	Report to Claim Planned Retirement			2010 MY	
1994	Report to Claim Planned Retirement			2010 MY	
1998 (PM Filter)					Replace 2020
1999 (PM Filter)					Replace 2020
2000 (PM Filter)					Replace 2021
2001 (PM Filter)					Replace 2021
2003 (PM Filter)					Replace 2021
2004 (PM filter)					Replace 2021
2005 (PM filter)					Replace 2022
2007 (OEMDPF)					Replace 2023

By January 1, 2014, the example fleet met the PM filter requirements using the engine MY schedule. By 2015, the fleet designated two of the trucks for planned retirement using the proposed planned retirement option. The existing regulation would require the fleet owner to install a PM filter on the truck with a 1992 MY engine by 2015 and on the truck with a 1994 MY engine by 2016. Using the proposed planned retirement option, the fleet owner would delay the replacement requirements on the trucks without PM filters for two years on one truck and three years on another truck.

2. Small Fleet Example

This small fleet consists of three vehicles with a PM filter installed on one of the vehicles by 2014. The fleet owner would install a PM filter on the second vehicle by 2015 and the third vehicle by 2016 to meet the requirements of the existing regulation. Using the proposed planned retirement option, the fleet would delay the replacement requirements on the two trucks without PM filters for two years on one truck and three years on another truck as shown in the Table E- 7.

Table E- 7. Example of Compliance with Planned Retirement Option for Small Fleet

Engine Model Year	January 1 of Compliance Year					
	2015	2016	2017	2018	2019	Next Steps
1998 (PM Filter)						2010 MY by 2023
2000	Report to Claim Planned Retirement			2010 MY		
2005	Report to Claim Planned Retirement			2010 MY		

D. Small Fleet Compliance Option

The proposed amendments include a modification to the existing small fleet option that delays the PM filter compliance requirement for the second and third trucks in a small fleet. In the existing regulation, small fleets are required to install PM filters on the second and third trucks by January 1, 2015 and January 1, 2016, respectively. The proposed amendments require the second truck to meet the PM filter requirements by January 1, 2016 and the third truck by January 1, 2018. The proposed amendments allow greater flexibility for small fleets to comply and improve the opportunity for small fleets to take advantage of public funding.

E. Log Truck Phase-in Option

The proposed amendments allow fleets to opt into the log truck phase-in option by January 31, 2015. The proposed amendments will allow additional fleets to take advantage of this option or opt out in order to use other flexibility options that may be more advantageous for the fleet. For example, a fleet that operates exclusively in Tuolumne County and opted into the log truck phase-in option in 2014 was required to replace 10 percent of their trucks per year starting in 2014. Using the proposed amended log truck phase in option and the expanded NOx exempt area extension, which now includes Tuolumne County, the fleet can now opt out of the log truck phase-in option and claim the NOx exempt area extension. This would give fleet owners the option to install PM filters on their vehicles rather than replace.

F. Heavy Cranes Extension

The proposed amendments include a new flexibility option for fleets with heavy cranes. The heavy crane extension requires the fleet to upgrade heavy cranes to a crane with a 2010 or newer MY engine at a rate of 10 percent per year starting in January 1, 2018, until January 1, 2027. The proposed amendments would allow fleet owners to phase in replacement of heavy cranes rather than install PM filters since installation of PM filter retrofits on crane engines may conflict with existing crane certification requirements, and could present safety concerns. Modifications to cranes require a manufacturer or registered professional engineer who is familiar with the equipment to review and approve any modifications to the crane, and may require modifications to load charts, procedures, instruction manuals and other items as needed. Staff is also proposing to provide credit for heavy cranes that are equipped with a retrofit or original equipment PM filter before January 1, 2018, by counting such cranes towards meeting the proposed 2010 engine requirement. This credit would recognize crane owners that have already retrofitted or upgraded to newer cranes. These cranes would also be exempt from the replacement requirement.

Appendix F

Emissions Analysis Methodology and Results

Medium Heavy-Duty Diesel Trucks, Heavy Heavy-Duty Diesel Trucks, and Regulated Bus Categories

TABLE OF CONTENTS

List of Acronyms iv

A Introduction 1

B Heavy-Duty Truck Emissions Inventory Updates 1

1) Updated VMT Based on New (2013) Fuel Sales and Use Data 1

2) Updated Fleet Age Distributions Based on New (2013) Truck Sales Data 4

3) Improved Matching of Existing Engine Emission Factors to Truck Model Years 7

4) Updated Rule Compliance Assumptions 8

C Proposed Regulatory Scenarios and Compliance Assumptions 10

1) Low Use Vehicles 11

2) Work/Vocational Truck Phase-in Option 11

3) Limited Mileage Agricultural Truck Extension 12

4) Small Fleets Rule Compliance (>26,000 lbs GVWR) 12

5) Large Fleet Rule Compliance (>26,000 lbs GVWR) 15

6) Extended NOx Exempt Areas 18

D Emissions Results 19

1) Estimating Statewide Emissions Benefits of the Regulation 19

2) Comparison to Current Emissions Inventory 23

E References 25

List of Acronyms

AEO	Annual Energy Outlook
ARB	Air Resources Board
BOE	Board of Equalization
CY	Calendar Year
DMV	Department of Motor Vehicles
DPF	Diesel Particulate Filter
EIA	Energy Information Administration
GVWR	Gross Vehicle Weight Rating
HDT	Heavy-Duty Truck
HHDDT	Heavy Heavy-Duty Diesel Trucks
IRP	International Registration Plan
MHDDT	Medium Heavy-Duty Diesel Trucks
MY	Model Year
NO_x	Nitrogen Oxides
PM	Particulate Matter
SIP	State Implementation Plan
TEU	Twenty-foot equivalent unit
VMT	Vehicle Miles Traveled

A Introduction

In an effort to best characterize present-day heavy duty truck emissions in support of the proposed regulatory amendments, four inventory-related updates were made. The effect of these updates were changes to: truck VMT; truck fleet age distributions; the truck populations associated with specific rule compliance scenarios; and the assignment of existing engine model-year emission factors for truck model-year emission calculations. This appendix only provides discussion of these changes and their impact on emissions in the context of the proposed amendments. The technical appendices (ARB, 2008; ARB, 2010a) from prior Truck and Bus regulatory actions can be referred to for a full discussion of the methodologies and assumptions that have not changed.

B Heavy-Duty Truck Emissions Inventory Updates

1) Updated VMT Based on New (2013) Fuel Sales and Use Data

In the 2010 Rule inventory, staff used trends in historical fuel sales and use data published by the Board of Equalization (BOE) as a surrogate for estimating historical VMT for heavy duty diesel truck fleets that do not have vocation-specific growth trends. More specifically, future year VMT trends were estimated assuming the recovery would begin in 2010 and grow at a rate roughly consistent with forecasted transportation and warehousing employment that was published in several economic studies at that time. Since that time, the growth rate in fuel use has been lower than projected. For this update, staff refreshed the BOE historical fuel sales and use data with recent (2013) data. These data show little or no growth in taxable diesel fuel sales since 2009. Staff used the new data up to 2013 to represent historical VMT growth, then, starting in 2014 and beyond, assumed the same future year, economic recovery trend that was previously assumed in the 2010 Rule inventory (ARB, 2010a).

Figure 1 and Figure 2 show the current and revised VMT growth trends for heavy heavy-duty (T7) and medium-heavy-duty (T6) diesel trucks. In general, the revised VMT estimates are lower than previously estimated. However, the differences are smaller after 2020.

For drayage trucks, the twenty-foot equivalent unit (TEU) statistics from ports (Port of Los Angeles, 2013; Port of Long Beach, 2013; Port of Oakland, 2013) were used as surrogate to update the historical drayage truck VMT growth trends. Figure 3 and Figure 4 show the growth trends for drayage trucks serving ports in South Coast and in San Francisco Bay areas, respectively.

The VMT growth trends for construction fleets were also updated based on the trends in the In-Use Off-Road Equipment emission inventory (ARB, 2010b).

Figure 1. Heavy-Heavy Duty Diesel Truck VMT Growth Trend Assumption

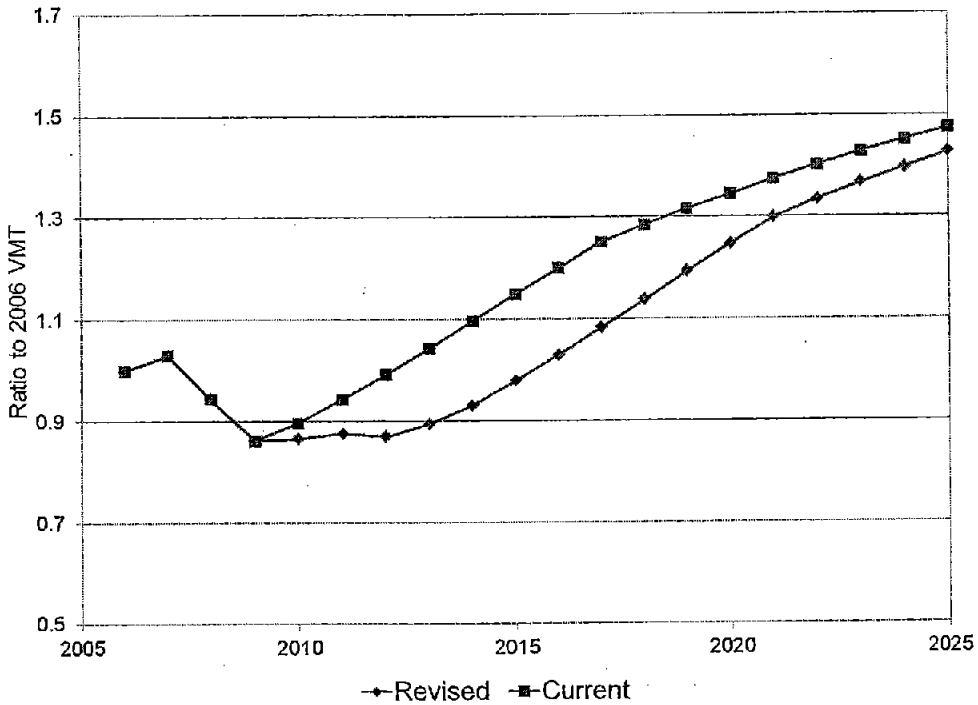


Figure 2. Medium-Heavy Duty Diesel Truck VMT Growth Trend Assumption

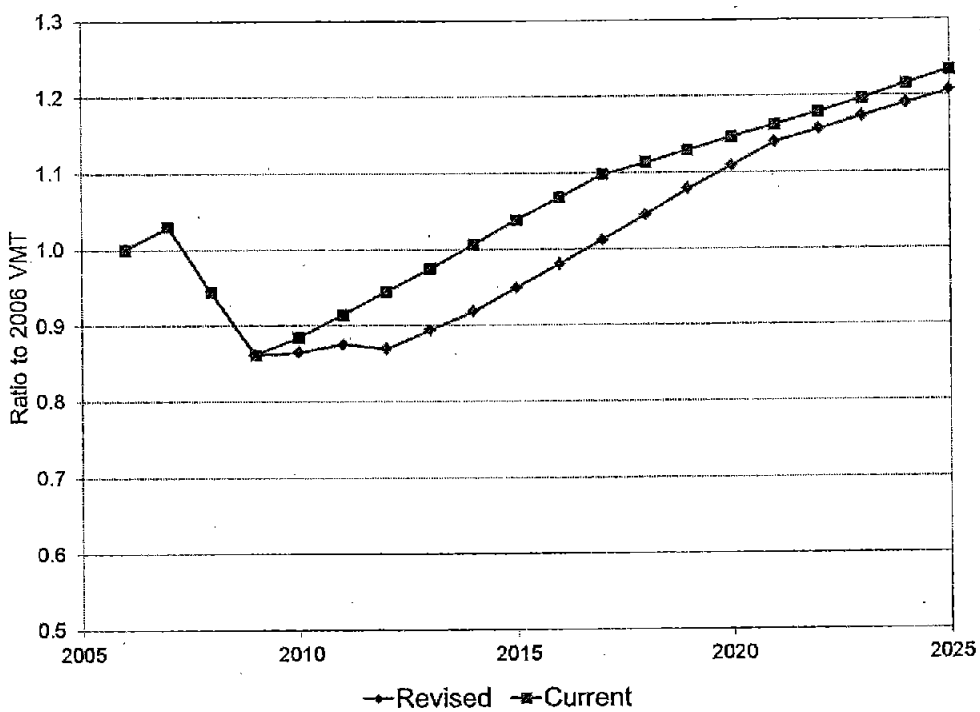


Figure 3. VMT Growth Trends of Drayage Trucks Serving South Coast

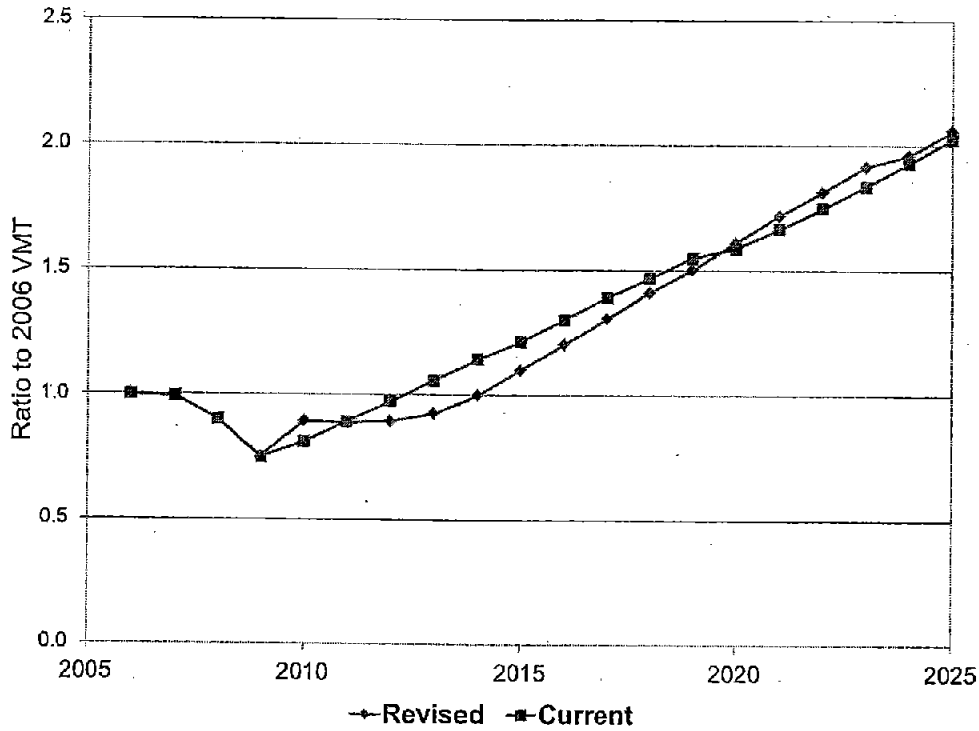
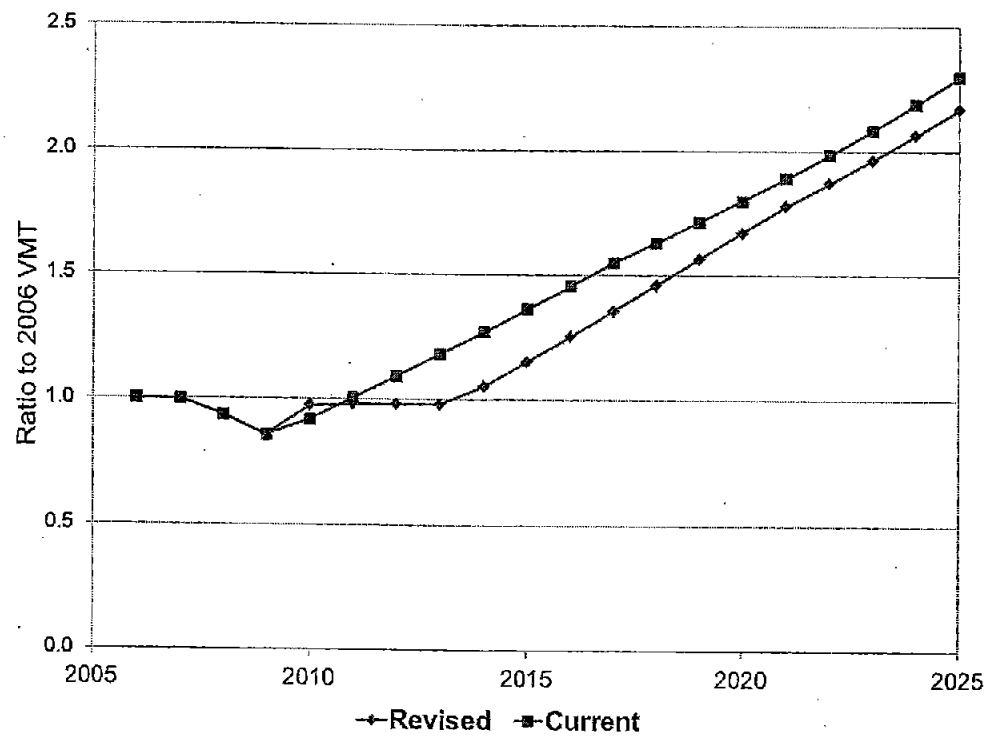


Figure 4. VMT Growth Trends of Drayage Trucks Serving San Francisco Bay



2) Updated Fleet Age Distributions Based on New (2013) Truck Sales Data

New truck sales are used to calculate the fleet and calendar year specific age distributions from an average age distribution as described in previous technical appendices (ARB, 2008; ARB, 2010a). Year-specific adjustments to an average age distribution are calculated as ratios of year-specific vehicle sales to a best-fit regression 'trend' line level of sales (where the trend line functions as a surrogate for average sales conditions).

For this update, staff used the latest Annual Energy Outlook (AEO) projected nationwide truck sales published by the U.S. Energy Information Administration (EIA, 2014). Following the same approach used in the 2010 inventory, staff used scalars based on the revised California VMT (described above) to nationwide VMT as a California-specific adjustment to the nationwide truck sales data. The California-specific sales estimate was then used to develop California specific fleet age distributions.

In the 2010 inventory, staff used the heavy duty (GVWR above 26,000lbs) sales in AEO for heavy-heavy duty and medium duty (GVWR 10-26,000lbs) for medium-heavy duty trucks. However, after further review of the data, for this update staff concluded that it would be more appropriate to use the heavy duty sales in AEO for estimating the sales for both medium and heavy-heavy duty diesel trucks.

Figure 5 and Figure 6 show the current and revised truck sales with California-specific adjustments for heavy-heavy and medium-heavy diesel trucks. Similar to VMT growth trends, these sales estimates were used for the majority of the heavy duty diesel truck fleets that do not have vocation-specific growth trends. The sales for trucks in the construction sector are shown in Figure 7 and Figure 8.

In Figures 5-8, for any specific model year, the ratio between actual/projected sales (green or light blue line) to the regression-based best-fit sales curve (dark blue line) is calculated. This ratio is applied as scalar to the average age distribution fraction for that model year in all calendar years. After applying the scalar, the sum of adjusted age distribution fractions is then renormalized to 1 to generate a new calendar year specific fleet age distribution.

Figure 5. Sales Forecast for Heavy Heavy-Duty Diesel Trucks

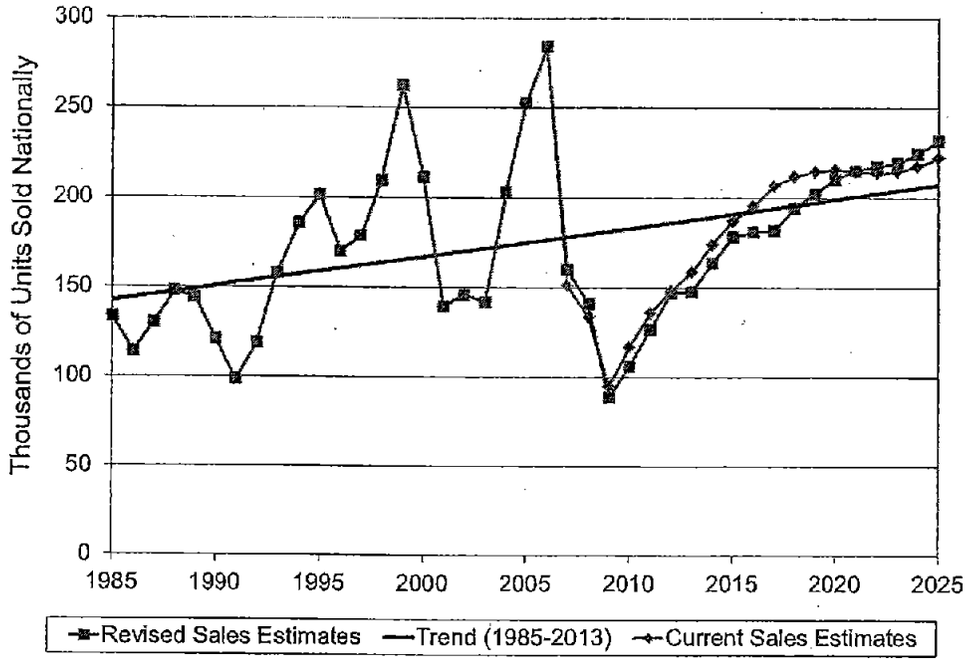


Figure 6. Sales Forecast for Medium Heavy-Duty Diesel Trucks

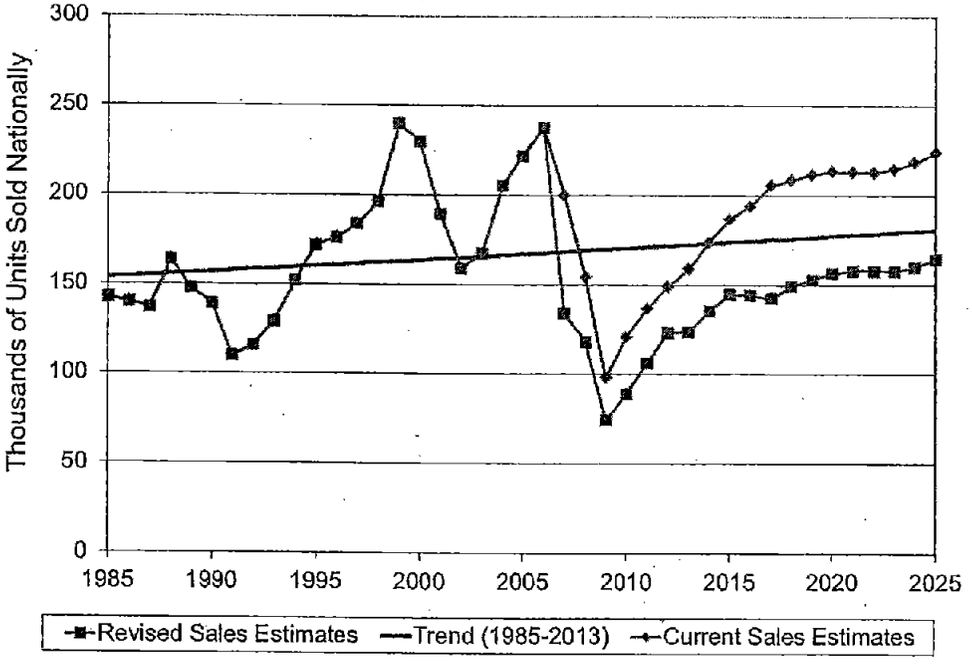


Figure 7. Sales Forecast for Heavy Heavy-Duty Construction Trucks

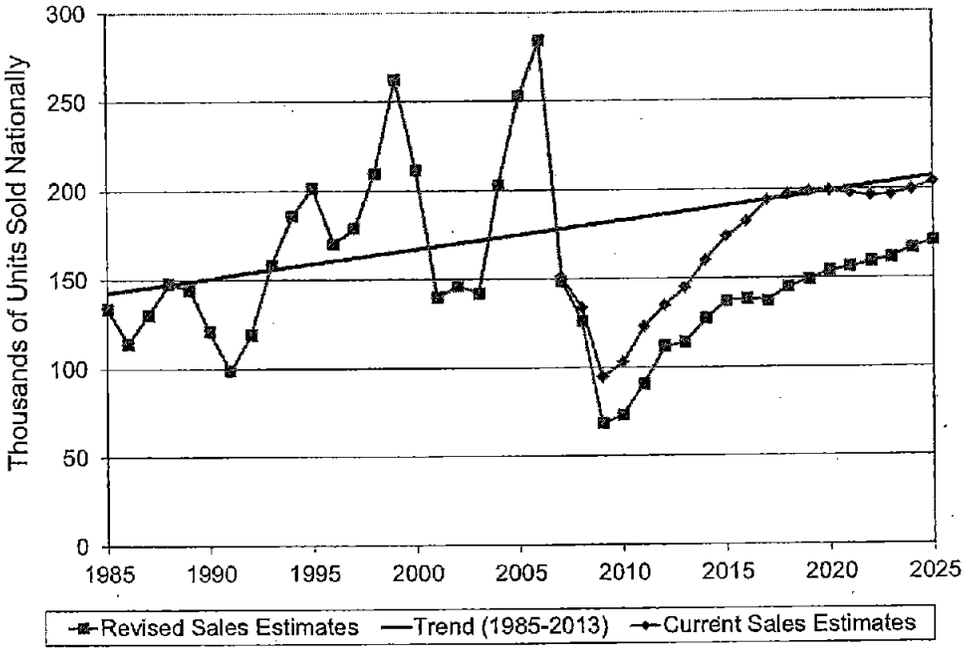
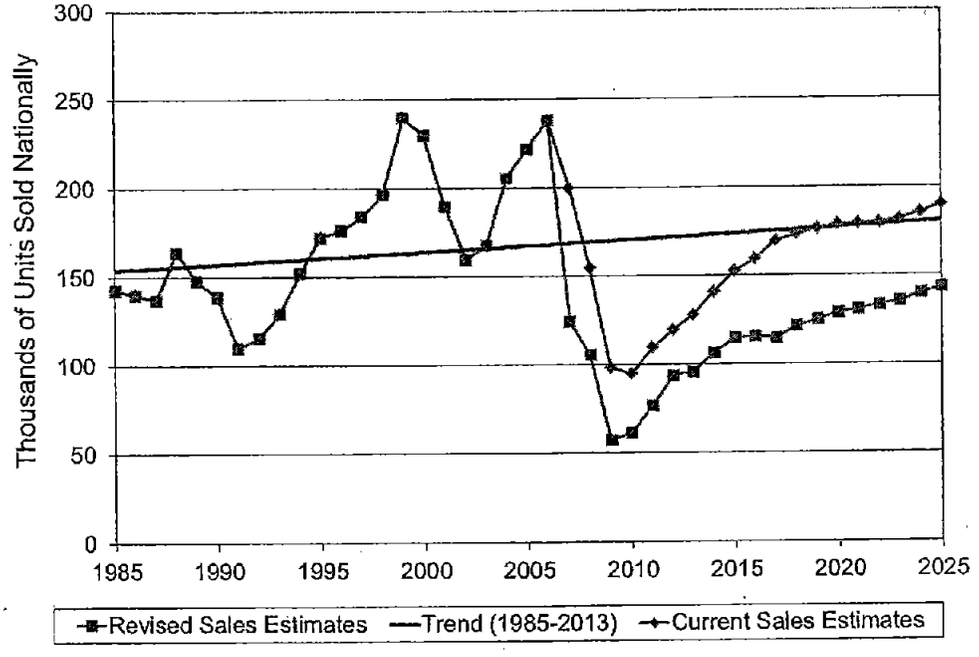


Figure 8. Sales Forecast for Medium Heavy-Duty Construction Trucks



3) Improved Matching of Existing Engine Emission Factors to Truck Model Years

Truck populations in the emissions inventory are based on California Department of Motor Vehicle (DMV) registration data and International Registration Plan (IRP) submittals. Both data sources provide *vehicle chassis* ('truck') model year. However, data collected to develop emission rates are based on *engine* model year. An earlier survey of about 800 trucks indicated that a miss-match between truck and engine model years could be as high as 20% for some model years. Based on the survey results, staff made minor adjustments to the emission factors used in EMFAC2007 (ARB, 2007).

For this update, the latest data collected through the Drayage Truck Registry (DTR), shown in Table 1 indicates that engine model years are about 1 year older for the majority of late model year trucks. Existing adjustments do not adequately account for these differences, especially for the Diesel Particulate Filter (DPF) and Selective Catalyst Reduction (SCR) equipped trucks, which are the focus of the Truck and Bus regulation. To account for this issue in this update, staff shifted the truck model year by one year (older). This results in the use of more representative emission factors in the calculation of emissions.

Table 1. Drayage Truck Registry Engine vs. Truck Model Years

Truck Model Year	Engine Model Year								
	2005	2006	2007	2008	2009	2010	2011	2012	2013
2007	4%	72%	24%						
2008		3%	62%	35%					
2009			5%	62%	33%				
2010					83%	17%			
2011					17%	67%	15%		
2012						15%	68%	17%	
2013						8%	16%	66%	10%

4) Updated Rule Compliance Assumptions

When the Truck and Bus Regulation was amended in 2010, little information was available regarding the actions that truck fleet operators might take in order to comply with the requirements of the regulation. Therefore, staff made the assumption that the operators would choose to comply with the regulation by following the engine model year compliance schedule and that few operators would use credits for downsizing or early diesel PM filter compliance.

The Truck Regulations Upload and Compliance Reporting System (TRUCRS) came on-line in March 2010. Fleet data collected in the past two years through TRUCRS provided more up-to-date information to revise the prior assumptions.

Truck and fleet data collected through TRUCRS shows that as many as 50 percent of trucks in some fleet categories may delay compliance due to credits and flexibility provisions. In addition, some fleet operators preferred to purchase 2007 standard trucks with originally equipped diesel particulate filter than retrofit their existing pre-2007 trucks. Table 2 and Table 3 show the previous assumptions for large fleet tractors in the previous inventory (2010 update) and in the inventory for this proposed update, respectively. The updated assumptions reflected in Table 3 (and subsequent tables) account for the improved matching of engine and truck model year.

Table 2. Previous Retrofit/Turnover Assumptions (2010 Update) for >26,000 lbs GVWR Tractor Trucks in Large Fleets

Due Date January 1st of Calendar Year	Truck Model Year Group Affected on Date	Assumed Compliance Action for Affected Truck Model Year Group (DPF or Engine Model Year Required)
2012	1996-1999	DPF
2013	2000-2004	DPF
2014	2005-2006	DPF
2015	Pre-1994	2010
2016	1994-1995	2010
2020	1996-1999	2013
2021	2000-2004	2014
2022	2005-2006	2015
2023	Pre-2010	2015

IMPORTANT NOTE! The model years contained in the remainder of this document (Table 3 and beyond) should **not** be referenced to assess compliance with the proposed amendments. The model years listed in the tables are truck model year, where truck model year = engine model year +1. The reason behind this issue is that emission factors are stored in EMFAC2011 based on ***truck*** model year, not *engine* model year. Because the focus of compliance for the regulation is on ***engine*** model year, the adjustments to truck model year described in Section 3 (above) are, effectively, 'artificial' adjustments to ensure that the proper emission factors are being used to calculate assumed engine model year compliance scenario emissions for truck model year groups.

Table 3. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Tractor Trucks in Large Fleets with Adopted Rule in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Truck Model Year Group Affected on Date	Assumed Compliance Action for Affected Truck Model Year Group (**DPF** or **Engine Model Year*** Required)	
		70%	30%
2012	1997-2000	2008	Credit and provisions No action
2013	2001-2005	50%DPF+50%2010	
2014	2006-2007	50%DPF+50%2010	
2015	Pre-1995	2011	
2016	1995-1996	2012	Pre-2001 →2008 2001-2007→2012
2020	1997-2000	2015	
2021	2001-2005	2016	
2022	2006-2007	2017	
2023	Pre-2011	2017	2017

See **IMPORTANT NOTE in the text, above.*

C Proposed Regulatory Scenarios and Compliance Assumptions

The proposed amendments provide additional flexibility to vehicle owners by ensuring a more successful compliance path, thereby better protecting the emission benefits of the regulation through greater levels of compliance. To reflect these amendments, staff has made assumptions about how trucks in each category will respond to proposed regulatory requirements. The assumptions incorporate the updated rule compliance assumption based on information gathered through TRUCRS.

This section provides the assumptions used to calculate the emissions benefits of the proposed amended regulation using EMFAC2011 with updates described in item B (noted as revised inventory model henceforth) for each inventory category for which regulatory requirements changed between the 2010 regulation and the proposed regulation. If the requirements did not change, the assumptions documented in ARB (2010) are still valid.

1) Low Use Vehicles

The proposed amendments expand the existing definition of Low Use Vehicles by including vehicles that travel fewer than 5,000 total miles per compliance year. The 5,000 mile low use exemption sunsets in 2020 and staff assume all pre-2011 low use vehicles would be replaced with model year 2011 vehicles by January 1, 2020.

2) Work/Vocational Truck Phase-in Option

The proposed amendments expand the types of trucks that are eligible for construction extension by expanding the existing Construction Truck definition to include all trucks except for tractor trailer combinations that are not already included in the existing definition. In the revised emission inventory model, staff applied the option to trucks with annual mileage between 5,000 and 20,000 miles including heavy-heavy duty single unit and tractor in construction sector, medium-heave trucks above 26,000 lbs GVWR in construction sector and heavy-heavy duty single unit. The compliance assumptions are modeled in the revised inventory as illustrated in Table 4.

Table 4. Retrofit/Turnover Assumptions for Work Truck Phase-In Option in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Model Year Group Affected on Date	Assumed Compliance Action for Affected Truck Model Year Group (**DPF** or **Engine Model Year*** Required)
2014	2006-2007	DPF
2015	Pre-1997	2008
2016	1997-2000	50%DPF + 50% 2008
2017	2001-2003	50%DPF + 50% 2008
2018	2004-2005	50%DPF + 50% 2012
2020	DPF equipped	2013
2023	2008-2010	2013

See **IMPORTANT NOTE in the text, above.*

3) Limited Mileage Agricultural Truck Extension

The existing agricultural vehicle extension for vehicles with limited mileage is set to expire on January 1, 2017. Staff proposed to lengthen the limited mileage extension out over several years as shown in Table 5.

Table 5. Retrofit/Turnover Assumptions for Limited Mileage Agricultural Trucks in the Revised Inventory Model

Due Date January 1st of Calendar Year	Model Year Group Affected on Date	Assumed Compliance Action for Affected Truck Model Year Group (**DPF or Engine Model Year*** Required)
2017	Pre-1997	2012
2018	1997-2000	2012
2019	2001-2005	2012
2020	2006-2007	2012
2023	2008-2010	2012

See **IMPORTANT NOTE in the text, above.*

4) Small Fleets Rule Compliance (>26,000 lbs GVWR)

The proposed amendments to the Regulation provide additional flexibility for small fleets by spreading out the compliance schedule for 2 and 3 truck owners so that the second and third truck is upgraded every other year. In addition, staff assumed 10 percent of the intra-state small fleets would be eligible for the special provision that delays compliance for owners that cannot comply. For the 10 percent within small fleets, no action would be needed until 2018. In 2018, all pre-2008 would be replaced with 2012 model year trucks, and in 2023, 2008-2010 would be replaced with 2015 model year trucks. Table 6,Table 7, and Table 8 present the compliance assumptions for the remaining 90% of small fleets.

Table 6. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Tractor Trucks in Small Fleets in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Model Year Group	1st truck*	2nd truck*	3rd truck*
2014	1997-2007	1/3DPF, 2/3 2008		
2015	Pre-1995	2012		
2016	Pre-1997	2012	2012	
2016	1997-2007		1/3DPF, 2/3 2008	
2018	Pre-1997			2012
2018	1997-2007			2012
2020	1997-2000	2013	2013	
2021	2001-2005	2014	2014	
2022	2006-2007	2015	2015	
2023	2008-2010	2015	2015	2015

See **IMPORTANT NOTE in the text, above.*

Table 7. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Single-Unit Trucks in Small Fleets

Due Date January 1st of Calendar Year	Model Year Group	1st truck*	2nd truck*	3rd truck*
2014	1997-2007	2/3DPF, 1/3 2008		
2015	Pre-1995	2012		
2016	Pre-1997	2012	2012	
2016	1997-2007		2/3DPF, 1/3 2008	
2018	Pre-1997			2012
2018	1997-2007			2012
2020	1997-2000	2013	2013	
2021	2001-2005	2014	2014	
2022	2006-2007	2015	2015	
2023	2008-2010	2015	2015	2015

See **IMPORTANT NOTE in the text, above.*

Table 8. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Interstate Trucks in Small Fleets in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Model Year Group	1st truck*	2nd truck*	3rd truck*
2014	1997-2007	60%2008, 40%2011		
2015	Pre-1995	2012		
2016	Pre-1997	2012	2012	
2016	1997-2007		60%2008, 40%2011	
2018	Pre-1997			2012
2018	1997-2007			2012
2020	1997-2000	2013	2013	
2021	2001-2005	2014	2014	
2022	2006-2007	2015	2015	
2023	2008-2010	2015	2015	2015

See **IMPORTANT NOTE in the text, above.*

5) Large Fleet Rule Compliance (>26,000 lbs GVWR)

Although the proposed amendments do not specifically target large fleets, there are credits and provisions that large fleet could utilize for compliance. Staff assumed that half of the large fleet that are currently using credits and provisions would be able to further delay actions by another two years. Table 9,Table 10 and Table 11 show the assumptions for large fleets.

Table 9. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Tractor Trucks in Large Fleets in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Model Year Group	Assumed Compliance*		
		70%	15%	15%
2012	1997-2000	2008	Credit and provisions No action	Credit and provisions No action
2013	2001-2005	50%DPF+50%2010		
2014	2006-2007	50%DPF+50%2010		
2015	Pre-1995	2011		
2016	1995-1996	2012	Pre-2001 →2008; 2001-2007→2012	pre-2008 turnover to 2012
2018				
2020	1997-2000	2015		
2021	2001-2005	2016		
2022	2006-2007	2017		
2023	Pre-2011	2017	2017	

See **IMPORTANT NOTE in the text, above.*

Table 10. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Single-Unit Trucks in Large Fleets in the Revised Inventory Model*

<table>
<tr><th rowspan="2">Due Date January 1st of Calendar Year</th><th rowspan="2">Model Year Group</th><th colspan="3">Assumed Compliance*</th></tr>
<tr><th>50%</th><th>25%</th><th>25%</th></tr>
<tr><td>2012</td><td>1997-2000</td><td>50%DPF+50%2008</td><td rowspan="4">Credit and provisions No action</td><td rowspan="5">Credit and provisions No action</td></tr>
<tr><td>2013</td><td>2001-2005</td><td>50%DPF+50%2008</td></tr>
<tr><td>2014</td><td>2006-2007</td><td>50%DPF+50%2008</td></tr>
<tr><td>2015</td><td>Pre-1995</td><td>2011</td></tr>
<tr><td>2016</td><td>1995-1996</td><td>2012</td><td rowspan="5">Pre-2001 →2008; 2001-2007→2012</td></tr>
<tr><td>2018</td><td></td><td></td><td rowspan="4">pre-2008 turnover to 2012</td></tr>
<tr><td>2020</td><td>1997-2000</td><td>2013</td></tr>
<tr><td>2021</td><td>2001-2005</td><td>2014</td></tr>
<tr><td>2022</td><td>2006-2007</td><td>2015</td></tr>
<tr><td>2023</td><td>Pre-2011</td><td>2015</td><td colspan="2">2015</td></tr>
</table>

*See ***IMPORTANT NOTE*** *in the text, above.*

Table 11. Retrofit/Turnover Assumptions for >26,000 lbs GVWR Out-of-State Trucks in Large Fleets in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Model Year Group	Assumed Compliance*
2012	1997-2000	2008F
2013	2001-2005	50%DPF+50%2010DPF
2014	2006-2007	50%DPF+50%2010DPF
2015	Pre-1995	2011
2016	1995-1996	2012
2020	1997-2000	2015
2021	2001-2005	2016
2022	2006-2007	2017
2023	Pre-2010	2017

See **IMPORTANT NOTE in the text, above.*

6) Extended NOx Exempt Areas

The proposed amendment extend the regions that could use the NOx exempt provision. The provision can only apply to vehicles that travel exclusively within the NOx exempt areas and staff assumed that 25% of activities in the areas are eligible for the exemption described in Table 12.

Table 12. Retrofit Assumption for Trucks in the NOx Exempt Areas in the Revised Inventory Model*

Due Date January 1st of Calendar Year	Model Year	Large fleets	Small Fleets		
			One Truck	Two Truck	Three Truck
2015	pre-1995	DPF			DPF
2016	1995-1996	DPF		DPF	
2017	1997-2000	DPF	DPF		DPF
2018	2001-2002	DPF			
2019	2003-2004	DPF		DPF	DPF
2020	2005-2007	DPF			

See **IMPORTANT NOTE in the text, above.*

D Emissions Results

1) Estimating Statewide Emissions Benefits of the Regulation

The proposed regulatory amendments are designed to preserve the emissions benefits of the regulation for milestone years while providing additional regulatory flexibility to small fleets, lower mileage fleets, and fleets in certain rural areas. Staff anticipates the proposed amendments to the regulation will reduce diesel PM emissions by 39 percent from a baseline (without the regulation) levels in 2014 and achieve a 37 percent reduction in statewide NOx emissions in 2023.

The emissions results presented in this section all reflect the updates discussed in Item B of this technical appendix and include vehicles subject to either the Truck and Bus or Drayage Truck regulations. Figure 9 and Figure 10 show the NOx and diesel PM2.5 emissions inventories for baseline without Truck and Bus Regulation, with adopted regulation and with proposed amendments. As can be seen, the NOx and PM benefits of the proposed amendments are lower in 2014 and 2017. However, since most of the new provisions still require trucks to have diesel PM filters equipped by 2020 as in the current regulation, the PM benefits become identical in 2020. Since the truck operators are much more likely to meet the PM requirements by purchasing a 2010 standard truck in 2020, the NOx emissions reductions could be slightly higher than anticipated. By 2023 emissions reductions are very similar because the proposed rule requirements in 2023 are unchanged by the proposed amendments. Figure 11 and Figure 12 compare

anticipated emissions in the South Coast. Figure 13 and Figure 14 compare the anticipated emissions in the San Joaquin Valley.

Figure 9. Statewide Truck and Bus NOx Emissions

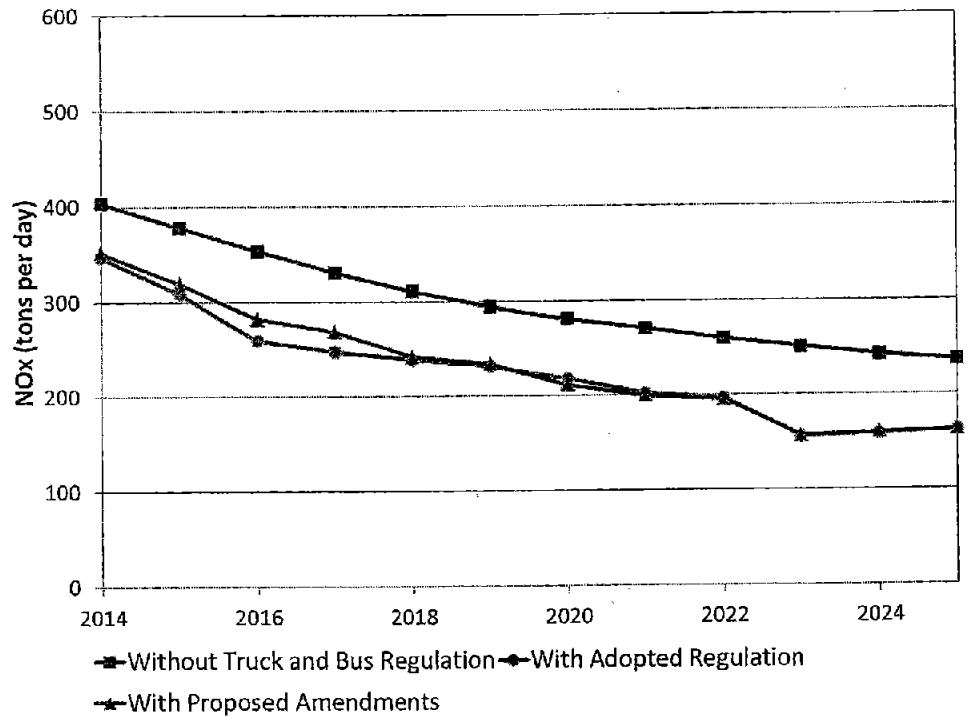


Figure 10. Statewide Truck and Bus Diesel PM2.5 Emissions

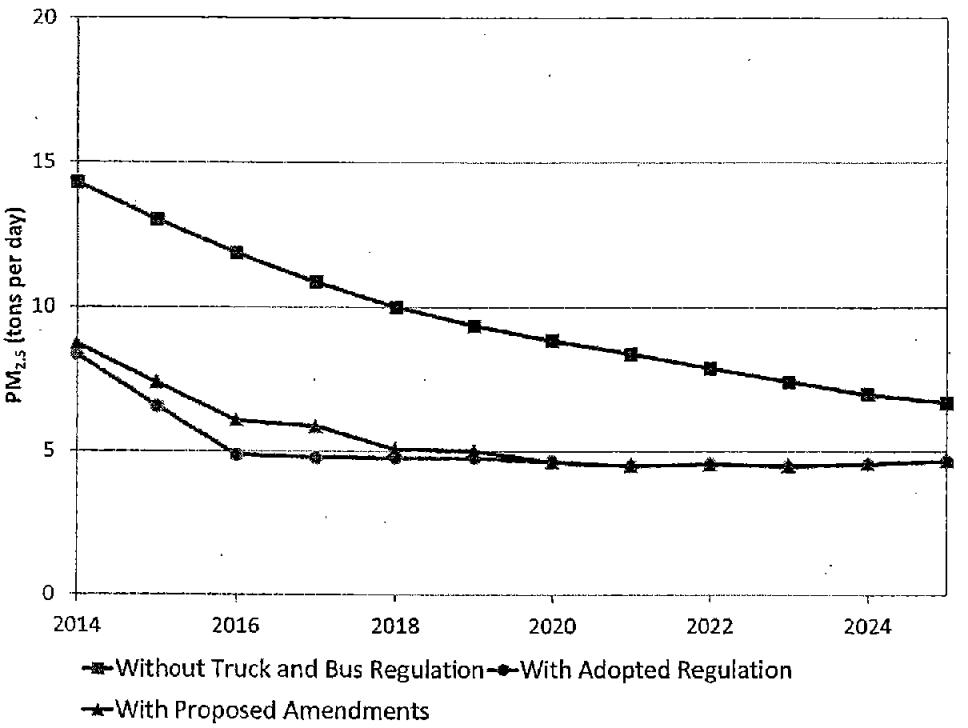


Figure 11. South Coast Truck and Bus NOx Emissions

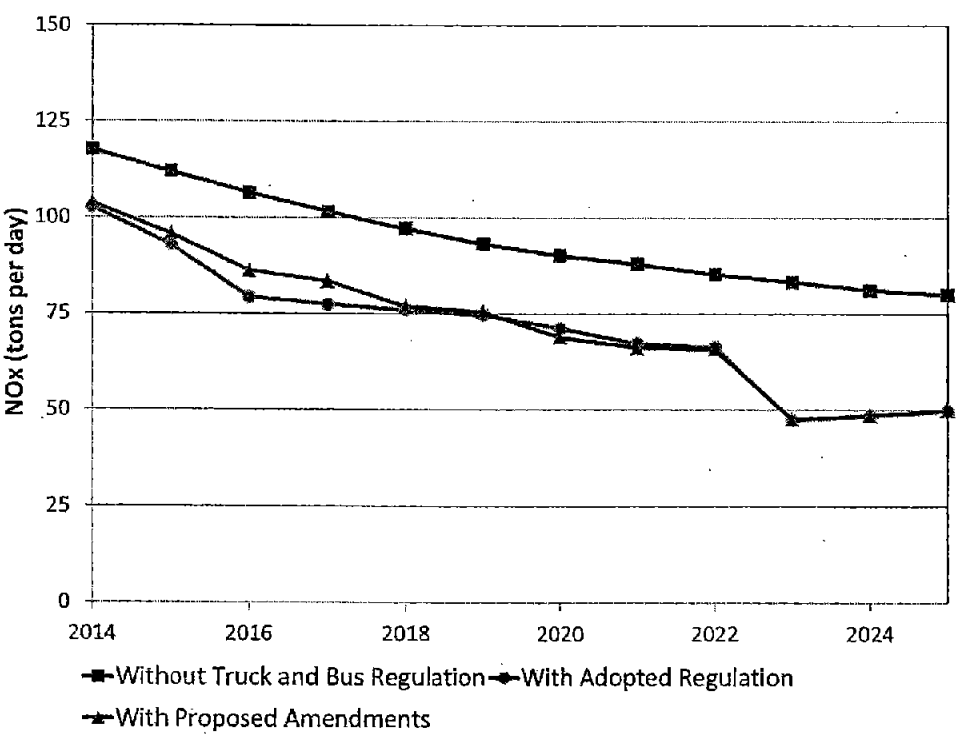


Figure 12. South Coast Truck and Bus Diesel PM2.5 Emissions

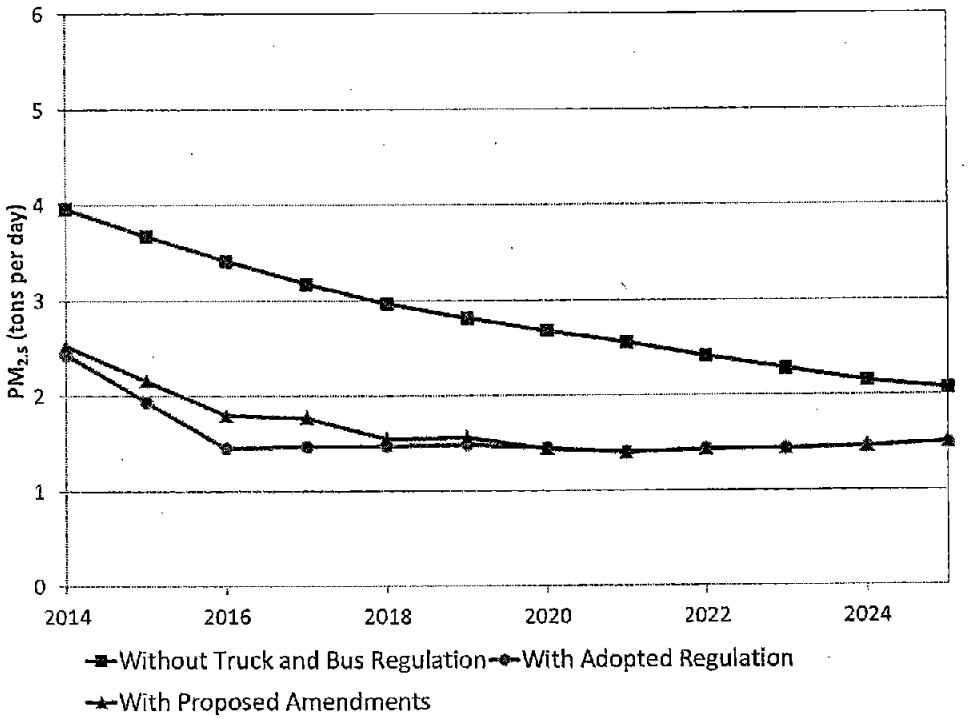


Figure 13. San Joaquin Valley Truck and Bus NOx Emissions

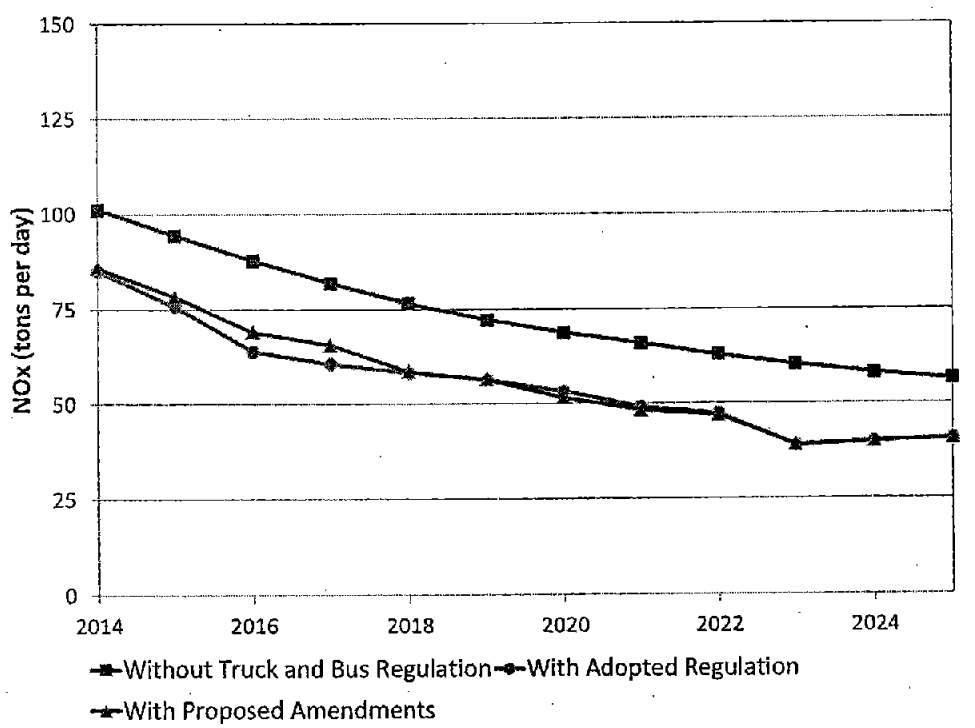
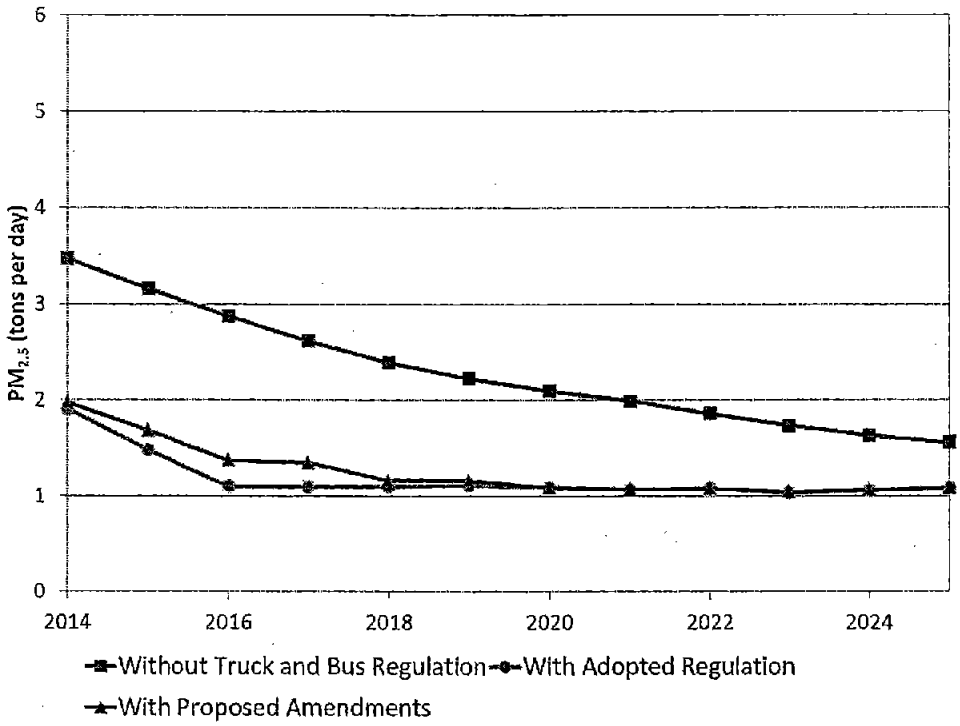


Figure 14. San Joaquin Valley Truck and Bus Diesel PM2.5 Emissions



2) Comparison to Current Emissions Inventory

The revisions made to truck and bus emission inventories in 2008 and 2010 were incorporated into EMFAC2011, ARB's current tool for assessing the population, activity, and emissions from on-road mobile sources (ARB, 2011). EMFAC2011 provides the emission estimates with adopted Truck and Bus regulation and staff made updates based on new data. Some of the revisions, such as revised VMT will reduce truck activity and lead to lower emissions. However, the age distribution revision could raise the average age for truck fleets and, therefore, lead to higher emissions. Figure 15 and Figure 16 show the compounding impact of the revisions. EMFAC2011 defaults are noted as "Current Estimates with Adopted Regulation" and revised inventories are the same inventories as in section D-1.

Figure 15. Revision Comparison of Statewide Truck and Bus NOx Emissions

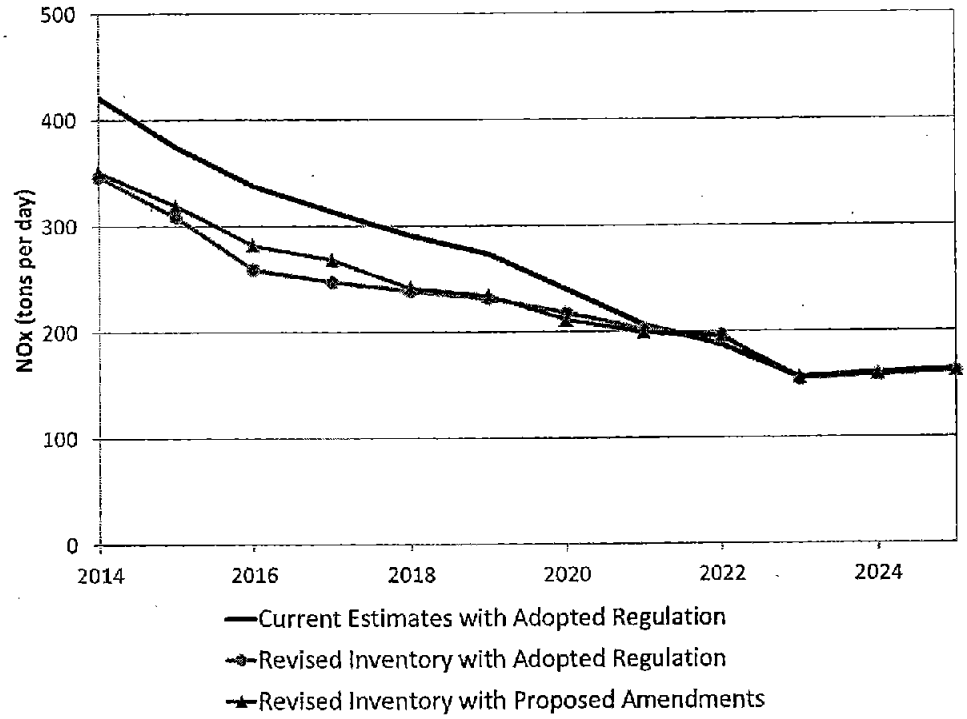
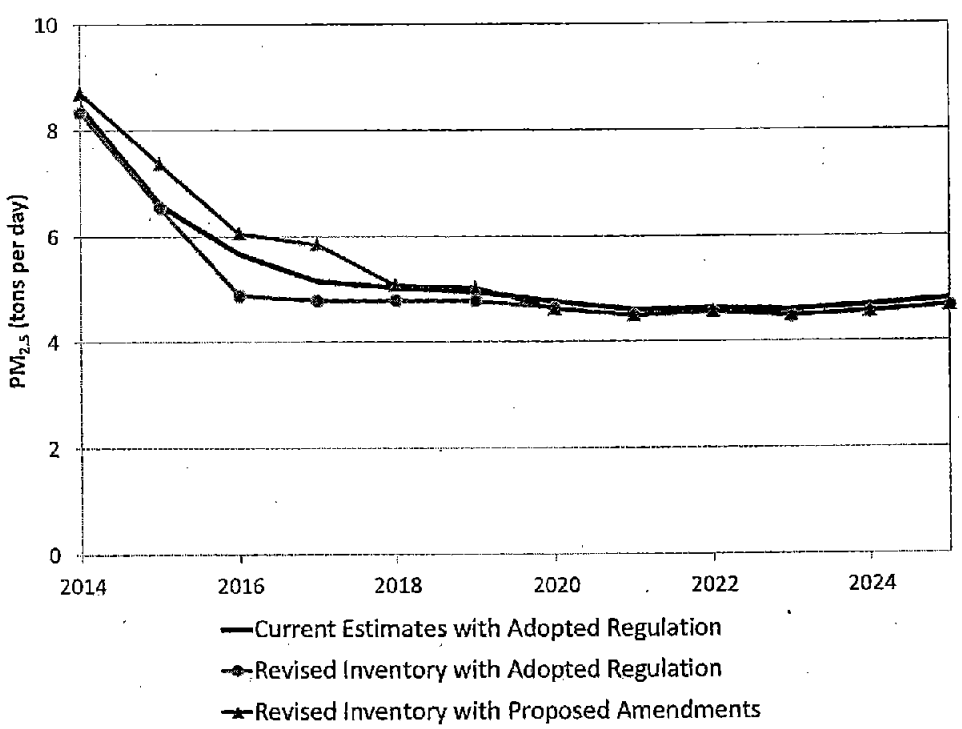


Figure 16. Revision Comparison of Statewide Truck and Bus Diesel PM2.5 Emissions



E References

ARB, 2007. California Air Resources Board, *EMFAC Modeling Change Technical Memo: Revision of Heavy Heavy-Duty Diesel Truck Emission Factors and Speed Correction Factors.* Available at: http://www.arb.ca.gov/msei/onroad/techmemo/revised_hhddt_emission_factors_and_speed_corr_factors.pdf

ARB, 2008. California Air Resources Board, *Truck and Bus Regulation. Staff Report: Initial Statement of Reasons (ISOR), Technical Support Document.* October 2008. Available at: http://www.arb.ca.gov/regact/2008/truckbus08/truckbus08.htm.

ARB, 2009. California Air Resources Board, *ARB Staff Assessment of the Impact of the Economy on California Trucking Activity and Emissions 2006-2014.* Available at: http://www.arb.ca.gov/msprog/onrdiesel/documents/truck_economic_documentation_v015.pdf

ARB, 2010a. California Air Resources Board, *Truck and Bus Regulation. Staff Report: Initial Statement of Reasons (ISOR).* October 2010. Available at: http://www.arb.ca.gov/regact/2010/truckbus10/truckbus10.htm

ARB, 2010b. California Air Resources Board, *Regulations for In-Use Off-Road Diesel-Fueled Fleets, Staff Report: Initial Statement of Reasons (ISOR).* October 2010. Available at: http://www.arb.ca.gov/regact/2010/offroadlsi10/offroadappd.pdf

ARB, 2011. California Air Resources Board, *Mobile Source Emission Inventory, EMFAC2011.* Available at: http://www.arb.ca.gov/msei/modeling.htm

BOE, 2013. Board of Equalization, *Taxable Diesel Gallons 10 Year Report.* Available at: http://www.boe.ca.gov/sptaxprog/reports/Diesel_10_Year_Report.pdf Last accessed January 2014.

EIA, 2014. Energy Information Administration, *Annual Energy Outlook 2014 Early Release.* Available at: http://www.eia.gov/forecasts/aeo/er/tables_ref.cfm Last accessed January 2014

Port of Los Angeles, 2013. Port of Los Angeles, *TEU Statistics (Container Counts).* Available at: http://www.portoflosangeles.org/maritime/stats.asp Last accessed January 2014.

Port of Long Beach, 2013. Port of Long Beach, *Yearly TEUs.* Available at: http://www.polb.com/economics/stats/yearly_teus.asp Last accessed January 2014.

Port of Oakland, 2013. Port of Oakland, *Container Statistics*. Available at: http://www.portofoakland.com/maritime/containerstats.aspx Last accessed January 2014

Appendix G

Alternatives Considered

Throughout the regulatory amendment development process, staff worked with stakeholders and evaluated a number of suggested alternatives to the proposed amendments. This appendix provides a description of the alternatives considered and the reasons they were not selected.

1. Make No Changes to the Regulation

Keeping the regulation intact without changes would not be responsive to Board directives, would not consider the impact of the economy on impacted fleets, would not reduce compliance costs, and would not protect that the emissions reductions envisioned would be achieved. Therefore, this alternative was rejected.

2. Increase "Low-Use Vehicle" Threshold to 5,000 Miles per Year Based on Miles Travelled in California and Not on Total Miles

One regulatory alternative considered would have increased the low-use mileage exemption to 5,000 miles (based only on miles travelled in California). However, staff counts suggest that there are more than 250,000 trucks in non-California registered fleets, based outside of California, with an engine model year (MY) 2006 or older. Such an amendment could result in significantly higher emissions from large out-of-state fleets which could dispatch non-compliant trucks into California, each driving below the 5,000 mile low-use exemption. California-based motor carriers that compete directly with out-of-state motor carriers would be placed at a competitive disadvantage. For these reasons this alternative was rejected.

Another alternative considered was to increase the low-use mileage exemption to 5,000 miles total on the truck, but not provide a sunset date of 2020. This would allow a potentially large number of trucks to operate in California without a diesel PM filter after 2020. Because this result is not consistent with the Diesel Risk Reduction Plan, the alternative was rejected.

3. Extend Compliance Deadlines, Increase Mileage Thresholds, and Exempt Vehicles Operating Less than 7,500 Miles per Year for Construction Trucks

Stakeholders estimate that there are approximately 44,000 heavy tractors and unitized diesel powered vehicles used for construction. They requested staff to consider a proposed three tier Low-Mileage Construction Truck extension as follows:

- Ultra–Low-Mileage for less than 7,500 annual miles (exempt with no expiration);
- Very–Low-Mileage for 7,501 to 30,000 miles with a 2023 compliance deadline; and
- Low–Mileage for 30,001 to 65,000 annual miles with compliance by 2020.

The proposal would exempt between 60 and 85 percent of most construction trucks from compliance obligations until 2023. As a result, the Diesel Risk Reduction Plan goal would not be met. In addition, allowing vehicles to continue to be exempt up to 7,500 miles indefinitely would also fail to provide the Oxides of Nitrogen (NOx) emission reductions needed to meet 2023 SIP obligations. Therefore, this alternative was rejected.

4. Require Opacity Testing in Attainment Areas Instead of PM Filters

Several stakeholders suggested that we replace the diesel PM filter requirements in the regulation simply with more stringent opacity standards and testing. This is not a new suggestion, and staff has evaluated similar recommendations in the past. Opacity testing measures the ability of light to pass through a truck's exhaust plume of soot, and current standards are set at either 40 percent or 55 percent, based on the age of the truck. Opacity testing that is currently conducted through ARB's smoke inspection programs provides a cost-effective means of identifying grossly emitting or tampered trucks in immediate need of repair and maintenance.

However, opacity testing is only a screening tool as it is not a rigorous measurement of PM emissions, and trucks that pass an opacity test but are not equipped with a diesel PM filter would still have relatively high PM2.5 emissions because those emissions are not visible. This has been confirmed through ARB field testing that shows, on average, diesel PM filter equipped trucks have five times lower opacity than properly maintained unfiltered trucks (with most diesel PM filter equipped trucks having opacity readings of zero percent). Further, emission testing conducted under controlled laboratory conditions show that unfiltered trucks emit 100 times more PM than filter equipped trucks. Accordingly, requiring use of diesel PM filters is necessary to achieve significant reductions in diesel PM emissions. Opacity testing is not sufficient to meet the goals of the Diesel Risk Reduction Plan and does not adequately reduce exposure to diesel PM. Based on these concerns, this alternative was rejected.

5. Extend the 2010 Engine MY Requirement to 2027 for Heavy Vehicles with 2007 to 2009 MY Engines Purchased Before January 1, 2014

In this alternative, 2007 to 2009 MY engines purchased before January 1, 2014, would be allowed to operate after the 2023 requirement for total fleet turnover to 2010 technology trucks. Without full deployment into the fleet of lower emitting 2010 MY engines, this alternative would result in higher emissions in 2023 that would jeopardize attainment with ARB commitments in the SIP. As a result, this alternative was rejected.

6. Delay the Replacement of 2007 to 2009 MY engines beyond 2023 with the Purchase of Engines That Are Certified below the Current 2010 NOx Emissions Standard

In this alternative, a fleet would be permitted to keep trucks having 2007 to 2009 engines so long as they purchased trucks with engines certified below the current 2010 engine emission standards. However, because of significant differences in emissions between trucks certified to these two standards, it would be extremely difficult to protect the overall emission reductions of the regulation. For example, in a 10 truck fleet, it would take between 3 and 6 lower emitting trucks certified to a 0.02 g/bhp-hr engine (depending on the mileage of each truck) to offset keeping just one 2007 standard truck (at 1.2 g/bhp-hr) in the fleet. Given the number of 2007 trucks that potentially would be allowed to operate after 2023 in this alternative, coupled with the current limited projected availability of lower emitting trucks in the 2020 timeframe, this alternative was rejected.

7. Remove PM Filter Requirements for Small Fleets

Stakeholders suggested removing the PM filter requirements for small fleets altogether. However, small fleets (3 or fewer trucks) contribute about 50 percent of statewide NOx and PM emissions, and represent half of the emissions benefits from the regulation. Further, many small fleet operators compete with other fleets that are currently compliant with the Rule. Enabling this alternative would create a competitive disadvantage for various owners and other fleets that already complied, and would eliminate a significant fraction of emissions benefits. Therefore, staff rejected this alternative.

8. Allow Limited Miles Outside of NOx Exempt Areas

Stakeholders requested exemptions for trucks reported as operating exclusively inside NOx exempt areas which would allow them to travel beyond the boundary for a limited number of miles per year. Staff recommends that only under very limited situations such as emergency use for protection of the public health should this be allowed. This proposal would not be practical to enforce and would result in higher emissions in areas that are in the greatest need of emissions reductions. This would create unnecessary public health issues for residents living in the non-attainment areas, including environmental justice and disadvantaged communities. Therefore, staff rejected this proposal.

Appendix H

Comments Received Before the 45 Day Comment Period

From:	Ellison Wilson Advocacy, LLC
To:	Brasil, Tony@ARB
Cc:	White, Erik@ARB; White, Elizabeth@ARB
Subject:	CTTA Support for Modification to the Low-use Vehicle Exemption
Date:	Thursday, November 14, 2013 12:42:01 PM

Tony,

On behalf of our client, the California Tow Truck Association (CTTA), we applaud the ARB's recognition that further relief on the Truck and Bus Rule is warranted and necessary. As a follow-up to our testimony at the October 24, 2013 Meeting of the Air Resources Board (as well as numerous conversations with you and fellow ARB Staff), heavy-duty tow trucks of 33,001 GVWR and above continue to be particularly impacted by the regulation, as they tend to be traditionally driven for only a low number of miles each year (thus tend to be long-lasting, yet older model trucks) and, as specialty trucks, are extremely expensive to replace. Replacement costs for these specialty trucks range between $325K to $750K, very similar to the replacement costs for emergency vehicles such as firefighting apparatus. Furthermore, retrofit devices are oftentimes impractical as modification to these trucks would cost far more than just the retrofit device installation. Bodies would have to be modified to create space to physically enable installation. This process would be both costly and time consuming resulting in excessive out of service time.

It has always been our argument that these heavy-duty low-mileage vehicles are utilized to clean-up the most disastrous accidents on our roadways as part of the CHP and local law enforcement tow rotation lists. With so few miles driven and such a huge cost of replacement, these trucks understandably tend to be replaced at a slower pace than smaller tow trucks. Our members have mortgages on these trucks, and their business model is based on the assumption that they can get decades of service out of the vehicles. Requiring them to replace these trucks ahead of schedule will have one of two direct consequences – get out of heavy-duty towing completely or take a massive financial risk in an unstable economy by purchasing a new heavy-duty tow truck to meet the rule requirements. Either way there's a strong likelihood there will be less heavy-duty tow truck operators in California. As such, roads will remain uncleared, traffic will back up, vehicle emissions will increase, and our economy and environment will be further harmed. It is ironic that the very air the rule is designed to clean will actually become even more polluted.

While it is not complete relief, modifying the current "low-use vehicle" exemption in the current regulation in the following manner may accommodate many of these vehicles:

> "Low-use Vehicle" means a vehicle that will be operated fewer than 5,000 miles in California in any compliance year. If that vehicle has an engine that powers other equipment that can only be used while stationary, the engine or power take off (PTO) must also operate less than 500 hours in any compliance year. The hour limitation does not apply for vehicles where the engine is used to power an auxiliary mechanism that strictly loads and unloads cargo from the vehicle (examples include, but are not limited to, dump trucks, cement powder trucks, or trucks with attached lift devices).

In addition to an increase in the mileage threshold, it is critically important for any regulatory

changes to the low-use exemption to also contain a proportionate increase in the number of hours that a truck is able to operate while stationary. CTTA's recommendation is 500 hours, which is consistent with the proposed 500% increase in mileage. These trucks perform the majority of their work while stationary (clearing disabled vehicles from the roadway) and a mere increase in mileage would merely provide negligible relief.

We would like an opportunity to further discuss CTTA's recommended revisions to the low-use vehicle exemption. Please let us know your availability for an in-person meeting. Thank you.

Kirk Blackburn
Ellison Wilson Advocacy, LLC
(916) 448-2187

From: Elmer James
To: White, Elizabeth@ARB
Subject: Assistance required
Date: Friday, December 27, 2013 3:31:09 PM

Ms. Elizabeth White
Manager On-Road Compliance
Air Resources Board

With no answer on your telephone, assuming that you may be gone over a long holiday weekend, therefore since time is slipping by, decided to send this e-mail.

Please refer to letter of 1/20/2013 from Alberto Ayala to Solartrac, Inc./ Slide Ridge Honey in which he referred me to you, for answers, and note that we take issue with many of his statements which do not relate to the real world that we have to live in to make an income.
I have in the past had a number of contacts with CARB attempting to reach an acceptable, fair solution to our position which has not happened.

Now things have changed; since my past inputs to CARB, therefore will restate our position as briefly as possible and hope that logic prevails based on the recent release of Regulatory Advisory released sometime in November 2013, which we found on the internet today.

We have questions and comments:

1. Refer to Attachment "A" of the Regulatory Advisory, this map of Kern County has it split into two Parts, which part is Bakersfield located? Is it white or light green?
2. Wasco, is it located in the white or light green?
3. It appears that the light green areas on the map, Attachment "A", are going to be converted to dark green and become exempted.
4. We are a Business registered in California with a Rio Linda Address.
5. Our Kenworth is Licensed, in the State of California.
6. We carry Insurance on our Truck.
7. We file California Income Taxes, and make a payment to CA each year based on our Income.
8. Our California in state total mileage is; 5 to 7,000 per year.
9. Our Total mileage including California mileage is about 12,000 per year.
10. We cross into California on Highway 115 from Las Vegas to Barstow, then 58 from Barstow to Bakersfield, then 99 to McFarland, Our consistence route delivering / returning our Honey Bees in and out of California.
11. Per Attachment "A" most of our California mileage is in EX-Exempted areas of San Bernardino & Kern Counties, and should not be counted as miles in a smog prone area.
12. We should be EXEMPTED as an Agricultural Operation since we are honey bee keepers, servicing the Almond Farming in California.
13. As an Agriculture Business we should not be penalized for being "out of state" since we are a California Registered Company in Good Standing, and since we are a California Tax Payer, we consider this very unfair and illegal.

14. We have contacted a Nevada Trucking Company in an attempt to hire them to truck our Honey Bees into California (Jan. 2014). Their answer was: "We will no longer haul into California due to all of the Rules & Regulations." Since our Bee Wintering yard is in southern Nevada, considered this a possible solution, however, it just pointed out that we are caught between our (contract) with the Almond Orchard & CARB.
15. The question becomes: When the Orchard files a lawsuit against us for not delivering our annually quantity of Honey Bees for Almond Pollution, is CARB going to pay the Thousands of Dollars that lawsuit will amount to because of loss in production of Almonds?
16. There is an acute shortage of Honey Bees for Almond Pollination this year due to the extreme losses most Honey Bee growers have endured this year, so every Honey Bee delivered to California, this Pollination year is very important.

All we are asking for is Fair & Realistic Treatment, so far that has not happened and in a few weeks we must move our bees into California or default on our contract because of un-realistic rules by the State of California.

Please provide a written document exempting our truck for the next 10 years, that we can place in the truck so we can legally travel to and from the orchard as required to meet our contractual commitments. Before 10 years is up, no doubt our truck will be replaced by a later version.

Please review the small mileage that we travel in the smog area of California.

Thanks for your reconsideration,

Elmer James
Slide Ridge Honey
Mendon, Utah 84325

elmer@slideridgehoney.com

www.slideridge.com

NORTHWEST EXCAVATING

Since 1959

OPERATED EQUIPMENT RENTALS

18201 Napa Street • Northridge, California 91325-3374
Tel: (818) 349-5861 • (800) 715-5755 • Fax: (818) 701-9326 • www.nwexc.com

December 03, 2013

Dear CARB Staff,

Thank you for giving me the opportunity to write and speak with you today. I am the head mechanic for Northwest Excavating, Inc. a family owned business in Southern California employing families and supporting local businesses for more than 50 years. With all the new regulations recently passed, conducting business in California has its challenges.

In the On Road Diesel Regulation we are grouped together with the large distributing and transportation companies that accumulate more miles annually than we do. The California Construction Industry is different. Most of us are family owned small businesses. These small businesses are required to comply with the same rules as the mega fleets and because of such, I would like to take this opportunity and asked if you would consider the suggestions below that in my opinion would benefit not only the construction industry, but all of us who live and work in California.

- Increase the *Low Use Vehicle Mileage* to 7,500 miles per year and 500 PTO hours annually using a three year rolling average like the *Off Road Diesel Regulation* does. 5,000 miles per year and 200 PTO hours annually is still not enough for expensive specialized trucks that don't get used that often. This option should continue indefinitely with no expiration just like the current *Low Use Vehicle* exemption. You might want to consider labeling the *Low Use Vehicles* just like the other specialized trucks.

- Adopt CIAQC's three tier *Low Mileage Construction Truck extension.*
  - Ultra – Low Mileage for less than 7,500 annual miles (exempt with no expiration).
  - Very – Low Mileage for 7,501 – 30,000 miles with a 2023 compliance deadline.
  - Low – Mileage for 30,001 – 65,000 annual miles with compliance by 2020.

- Create the ability to remove a DPF filter and install it on a like engine when the truck is sold out of state, totaled due to an accident or qualifies for an exemption like the *Low Use Vehicles.* We have that ability now to exchange like motors, transmission and other expensive truck components. This would be a win – win for both parties due to the cost savings for the owner not having to purchase another filter thus keeping that filter in California cleaning the air we breathe.

- Single construction truck owners need long term relief. For example, we have an outside lowbed hauler. He owns a 2006 truck that he just paid off. With increased fuel cost, insurance, registration, permits, maintenance and lack of business he can't afford a $20,000.00 DPF filter right now.

- Update the online Truck and Bus calculator to incorporate the new changes. This will help us in the coming years to determine what path of compliance to take.

Once again, thank you for your time and I would be happy to discuss any of these topics with you. Please feel free to call me at your earliest convenience.

Sincerely,

Ron Nuss

Andromeda Transport
P.O. Box 207
Ducor, Calif. 93218
Phone (559) 534-2406
Mobile (559) 731-2290
FAX (559)534-2565

December 10, 2013

California Air Resource Board

c/o San Joaquin Valley
Air Pollution Control District

Central Region Office

1990 E. Gettysburg Avenue
Fresno, CA 93726

Dear CARB staff:

Thank you for taking the time to hear or read my comments on the Truck and Bus Regulations. I regret that I am unable to attend this meeting personally or by Webcast. I have prior commitments this morning.

My name is David Schwartz, owner of Andromeda Transport, based in Tulare County.

I grew up with eight brothers and sisters, the son of faithful parents who grew up in the Great Depression; who fought and worked during World War II; who started a family with meager beginnings, and taught their children how to make the most out of our resources. We grew up appreciating the value of even the smallest portion of food, the simplest of clothing, and the dignity of hard work. We were true Environmentalists, making the most of what we had and wasting none. We conserved and protected our resources.

I started Andromeda Transport in 1981 with a single 18 year old truck coupled to a 31 year old trailer. Over the years, I updated the vehicles with more efficient components. In the subsequent twenty-four years, I raised four boys with that 1963 Kenworth. I drove 1.6 million miles hauling local sand and gravel products during that time. I operated (and continue to do so) this business with the highest standards of honesty and integrity.

I finally retired that 42 year old truck in 2005 when it could go on no longer. I hope to restore it someday. In the meantime, my son joined the business and we expanded the fleet, recycling older, well-running trucks.

There have always been challenges in owning one's business. I have encountered many over the past 33 years: breakdowns, middle of the night fixes, collections, even employee embezzlement. These trials are part of the whole test. The failures and near misses are instrumental in building character and growth.

The past five years have been exceptionally challenging. I had seven trucks running in 2009, with drivers and a full-time and a part-time mechanic working. I worked mainly in the office, managing everything else.

The downturn of the economy with the accompanying defaults and bankruptcies by a few critical customers put the business in a tailspin. By July of 2010, my wife and I decided our only choice for survival was to downsize. I started driving again, kept one of the drivers and my son, while I turned wrenches and did the office work. I even laid off my son at the end of 2010 as a further cost-cutting measure.

I worked my tail off until the present to salvage the business. I can confidently say that it is solvent again. All this WITHOUT government assistance.

For every Bill Gates, there are hundreds of thousands of small business owners like me who provide the essentials of a vibrant and free economy. Most of them provide a basic income for the proprietors. Most of us do it not for financial riches, but for the almost intangible wealth and substance of carving our own path in the American Dream.

At age 62, I am now facing the BIGGEST challenge of my career: the myopic and despotic decrees by our state's Air Resources Board. If CARB continues with its draconian proposals, the hard work will have been for nothing. My customers will no longer receive their service and products at reasonable rates.

I could rant on about many facets of the regulations being discussed, but time prohibits me from doing so. Suffice it to say, the short-sightedness, or blatant dishonesty integral to these regulations will put me out of business, kill my career and lifetime service to my family, community and state.

In the past, CARB board and staffers have shown little or no inclination to hear the voices of men and women like me (let alone LISTEN to those voices . . .). Your six figure salaries dictate that arrogance toward us peons.

Sincerely,

David Schwartz

Memorandum to California Air Resources Board Staff:
CTA Position and Policy Recommendations on Proposed Truck and Bus Rule Amendments

Chris Shimoda, Director of Policy

(916)373-3504 cshimoda@caltrux.org

Formal Position

The Board of Directors of the California Trucking Association has formally adopted a neutral stance on the proposed regulatory amendments as described in Regulatory Advisory MSC 13-28. However, it has directed its staff to ensure that any changes proposed by the Air Resources Board primarily benefit those fleets who have demonstrated early and on-time compliance with the Statewide Truck and Bus Rule.

Accordingly, we are pleased to submit to you the following policy proposals.

Proposals to Benefit Early Compliance:

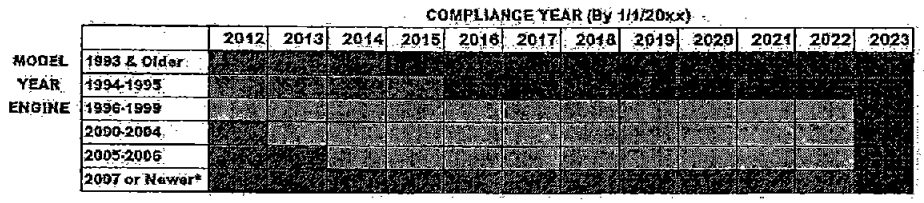
1. Extend engine compliance dates to 1/1/2023 in case of VDECS recall

CARB staff should formally extend the turnover deadlines for trucks previously equipped with recalled VDECS to 1/1/2023 during this rulemaking. Fleets who have purchased recalled filters were very early compliers and any flexibility in the rule should first aid those fleets who have taken on early compliance costs and the associated issues that came with early compliance like the Cleaire Longmile recall. Early turnover/replacement of these trucks can be achieved through CTA's earlier policy suggestions for the proposed Prop 1B Substrate Replacement Program (attached). This suggested amendment would provide a vital backstop for early compliers negatively impacted by VDECS recalls.

2. Extend early retrofitted truck 2010-turnover deadlines to 2023

Allow additional useful life for retrofitted trucks, regardless of model year, that were installed prior to 1/1/2014. This is similar to the early retrofit provision already in the rule, but allows additional flexibility for fleets using the phase-in schedule to meet compliance obligations. This additional useful life would not be transferrable in the case of an ownership exchange that occurred after 1/1/2014.

This provision would reward early and on-time compliance actions by providing additional useful life for retrofit investments.



Legend

GREEN	=	Compliant Truck
YELLOW**	=	Compliant Truck if retrofit for PM
RED	=	Replace with 2010 MY Engine

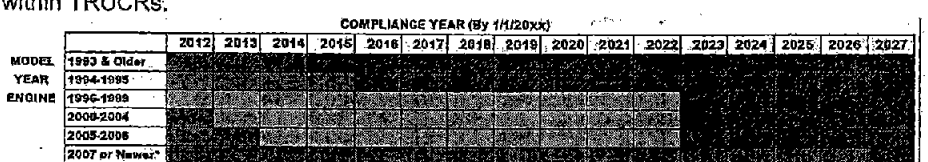
Notes

* 2007 or Newer MY Engine must be OEM equipped with PM filter for the above to apply

** PM retrofits must be highest level Verified Diesel Emissions Control System (VDECS) to qualify

3. Extend early purchased truck 2010-turnover deadlines to 2027.

Allow additional useful life for 2007-2009 model year engines that were purchased prior to 1/1/2014. Assess trade-off for NOx neutrality with estimated penetration rate of optional low-NOx standard engines. Allow ownership of these trucks to be transferred within TRUCRs.



Legend

GREEN	=	Compliant Truck
YELLOW**	=	Compliant Truck if retrofit for PM
RED	=	Replace with 2010 MY Engine

Notes

* 2007 or Newer MY Engine must be OEM equipped with PM filter for the above to apply

** PM retrofits must be highest level Verified Diesel Emissions Control System (VDECS) to qualify

CTA estimates an approximate 12 to 1 optional-low NOx to 2007-2009 ratio necessary to produce NOx neutrality. CARB staff should assess both low and high adoption scenarios through 2023 for the cumulative assumed low-NOx vehicles and compare to the estimated 2007-2009 vehicles purchased prior to 1/1/2014.

Other Proposals:

Regarding Additional Flexibility/Delays

While CTA has chosen to remain neutral on the amendments suggested in Regulatory Advisory MSC 13-28, we would strongly advise CARB against further amendments which would retroactively provide non-compliant fleets a compliant status.

We believe non-compliance with the rules as implemented on 1/1/2012 and subsequently proposed to be amended per Regulatory Advisory MSC 13-28 is absolutely not an issue which should be dealt with through retroactive regulatory amendments, but is a matter best left to your enforcement policy.

In late 2012, CTA submitted a report to CARB outlining its concerns regarding the enforceability of your trucking industry related rules (including the Statewide Truck and Bus Rule, Tractor-Trailer Greenhouse Gas Reduction Measure, Drayage Truck Regulation and Transport Refrigeration Unit Air Toxic Control Measure). As part of the policy recommendations made at that time, we had suggested that CARB should eliminate all resources spent prosecuting administrative penalties that do not result in excess emissions. This recommendation was made due to otherwise compliant fleets being fined in excess of $1000 for reporting errors.

We would suggest that Senate Bill 1402 (Dutton – 2010) provides your enforcement staff with significant flexibility to adjust penalties and individual fleet/truck owner-operator compliance approaches depending on a series of factors as outlined in statute (applicable provisions in bold):

> *(1) The extent of harm to public health, safety, and welfare caused by the violation.*
> *(2) The nature and persistence of the violation, including the magnitude of the excess emissions.*
> ***(3) The compliance history of the defendant, including the frequency of past violations.***
> ***(4) The preventive efforts taken by the defendant, including the record of maintenance and any program to ensure compliance.***
> *(5) The innovative nature and* ***the magnitude of the effort required to comply,*** *and the accuracy, reproducibility, and repeatability of the available test methods.*
> ***(6) The efforts of the defendant to attain, or provide for, compliance.***
> *(7). The cooperation of the defendant during the course of the investigation and any action taken by the defendant, including the nature, extent, and time of response of any action taken to mitigate the violation.*
> ***(8) The financial burden to the defendant.***

We would also remind regulatory staff that California fleets have already been cited for being in violation of the Statewide Truck and Bus Rule so any retroactive amendments to the rule would necessitate a review of these cases.

Emission Control Maintenance

CTA Staff recommends CARB consult with fleet maintenance professionals and VDECS maintenance vendors to provide recommendations regarding the formulation of an effective preventative maintenance and oversight program for emission control systems.

ATTACHMENT A

Proposition 1B
Filter Substrate Replacement Matrix

Proposed Prop 1B Filter Substrate Replacement Program Matrix

	Can replace substrate?	Suitable alternative DPF?	Proposed Action
Scenario A	YES	N/A	Full cost of replacement (inc. labor) funded by filter substrate replacement program.
Scenario B	NO	YES	1. Full cost of replacement (inc. labor) DPF funded by filter substrate replacement program; or 2. Fleet may opt to apply for Prop 1B priority funded truck replacement + cost of removing filter.
Scenario C	NO	NO	1. Automatic compliance extension for non-availability of VDECS until 1/1/2020 2. Fleet may opt to apply for Prop 1B priority funded truck replacement + cost of removing filter

ATTACHMENT B

CTA Compliance Policy
Executive Summary

EXECUTIVE SUMMARY

The California Air Resources Board (ARB) is tasked with enforcing a suite of diesel truck regulation that will cover approximately 2,000,000 pieces of individual equipment with limited resources. The California Trucking Association's (CTA) Board of Directors tasked its staff with a review of enforcement of ARB's regulations and formed a Compliance Taskforce to ensure that regulated parties are provided a "level playing field" and ARB is efficiently managing its existing resources.

CTA's staff reviewed ARB's Enforcement Policy, requested and received the most recent inspection, settlement and compliance data from ARB enforcement personnel, and analyzed a multitude of possible enforcement policy enhancements.

FINDINGS

i. **ARB enforcement currently has the capacity to inspect 2.1% of the regulated fleet per year. At this rate, it would take a minimum of 47 years for enforcement to inspect each piece of regulated equipment under its purview.**
ii. **The majority of ARB enforcement actions in 2011 were focused on "legacy rules" like the Periodic Smoke Inspection Program, the Heavy Duty Vehicle Inspection Program, and the Emission Control Label Regulation (56.7% of all inspections; 82% of all settlements).**
iii. **Design and scope of diesel truck regulations make them difficult to enforce.**

RECOMMMENDATIONS

i. **Divest resources from "legacy rules" and consolidate regulatory requirements where possible.**

ii. **ARB should convene multi-agency, industry truck rule working group.**

iii. **Working group should review current enforcement staffing levels, suggested incremental staffing increases, consolidation of resources from existing programs and efficiency and streamlining measures.**

iv. **Working group should continue discussions for future vehicle registration ban proposals and other upstream, technology based solutions.**

v. **ARB should eliminate all resources spent prosecuting administrative penalties that do not result in excess emissions**

CIAQC

CONSTRUCTION INDUSTRY AIR QUALITY COALITION

Coalition Members

AGC CALIFORNIA

Associated General Contractors America-San Diego Chapter, Inc.

Building Industry Association of Southern California

California Dump Truck Owners Association

Engineering Contractors Association

Engineering & General Contractors Association

Engineering & Utility Contractors Association

Southern California Contractors Association

November 25, 2013

Mary D. Nichols, Chairman
California Air Resources Board
1001 I Street
P.O. Box 2815
Sacramento, CA 95812

RE: Comments on ON-ROAD TRUCK RULE

Dear Chairman Nichols and Members of the Board:

The Construction Industry Air Quality Coalition (CIAQC) appreciates the opportunity to comment on the status of the TRUCK AND BUS Regulation (On-Road Truck rule) and its impacts on the construction industry and construction fleets and small business owners based in California.

We believe there are a number of areas where the rule can be improved without threatening the goals and objectives of the emissions reduction effort. It is also important to understand that the trucks used in construction, although they may be similar to those used in the over-the-road transport business do not operate nearly as many miles nor do they operate in the same fashion as those long-haul trucks. The one-size-fits-all truck rule simply does not work for the construction trucks. Further, we believe that due to the relative small size of the construction fleet, the low number of miles operated and the ongoing construction industry recession, we are well ahead of the expectation for emission reductions from this segment of the statewide truck fleet.

For those reasons we are recommending that the Board direct the staff to update the rule to recognize these changes in actual emissions from those "assumed" at the time of the rule development and make adjustments required to meet the reduction target without over-burdening the California based construction employers.

CONSTRUCTION TRUCKS ARE NOT 'THOSE' TRUCKS

The construction industry drives very few miles with their trucks. Many trucks are transported to the site by low-bed, ie. Water trucks, service trucks. Some specialty trucks drive fewer than 5,000 miles per year and according to the low-use truck registration program, many drive fewer than 1,000 miles a year. Even with the current restrictions to the Low-Mileage Construction Truck (LMCT) Extension, 7,200 trucks registered for that program at the 15,000 to 20,000 annual miles cap.

2149 East Garvey Ave. North, Suite A-11, West Covina, CA 91791
Tel: 626 858 4611 Fax: 626 858 4610 e-mail: ciaqc@uia.net www.ciaqc.com
Major Funding Provided by the Construction Industry Advancement Fund and the Fund for Construction Industry Advancement

A high mileage construction truck might drive 35,000 to 40,000 miles per year. Compare that to an over-the-road truck which could travel 250,000 miles annually and averages 100,000 to 140,000 miles annually according to the Oak Ridge National Laboratory – Center for Transportation Analysis.

Further, many of these construction trucks are owner-operators, or part of a small family owned fleet that provides support to the construction industry. They don't have the financial resources to retrofit and replace those trucks on the same schedule as the larger, out-of-state and high mileage fleets.

Forcing the construction industry to comply with the same schedule as the over-the-road trucks is unfair and unnecessary given the unique nature of construction related trucks and the much lower mileage levels (and emissions) generated by those trucks. ***CARB should recognize that these captive in-state trucks owned by California based employers and small business owners should be given an appropriate and separate schedule for achieving the necessary emission reductions. Further, those that are clearly construction related trucks should be placed in a separate category with a separate compliance schedule to address the excessive burden placed on those small operators.***

GET THE EMISSION NUMBERS RIGHT

In the four years since the On-Road Truck rule was adopted, several things have become clear. The number of trucks used in construction is fewer than originally estimated, they don't drive nearly as many miles as originally thought and many are newer than originally projected. In the attached calculation (Attachment 1) it would appear that the number of construction trucks is about 44,000 or 2.4% of the on-road fleet. ***A stand-alone emission inventory and target for construction trucks would be the most equitable means to craft a regulation for the construction industry.*** Contractors are willing as an industry to reduce the emissions from their fleets, but aggregating them with the 1.5 million long haul trucks unnecessarily increases the compliance requirements for construction fleets and small businesses.

The staff presentation to the Board indicates that the emission testing done in Long Beach and Oakland demonstrated reductions in Black Carbon and NOx at 40% - 50%. Those dramatic reductions do not appear to be reflected in the graphs presented by the staff in the very same presentation (attached).

We believe that the chart presented in the staff report does not reflect the actual emissions generated or reduced by the construction industry, nor does it indicate the "recession" caused reductions versus the rule caused reductions. It also appears to be an extrapolation of 2009 data and not an update with current actual emissions. Much better data is now available on fleet sizes, mileage and age and a new examination could eliminate the "phantom" emissions that no longer exist in the inventory. ***An update to the actual construction emissions should clearly indicate that more time and flexibility is warranted in the construction truck category.***

THERE IS NO CONSTRUCTION "RECOVERY" FROM THE RECESSION

The use of construction equipment fluctuates with the employment and volume of construction activity in the economy. Construction volume peaked in February of 2006, with an employment level near 945,000. At the depths of the recession employment languished at 550,000. Today employment has stagnated at around 620,000, the same level as June of 1998 – this is far from a robust recovery. It has been a weak recovery at best and nowhere near the levels that were projected by the staff in their presentation to the CARB Board in 2010.

Further proof of this anemic construction recovery can be seen in the level of residential building in California. Home building has always represented about 75% of all construction activity in the state. A normal and healthy homebuilding rate is about 150,000 units per year. Before the economy collapsed in 2007 we had built 200,000 units the previous year. Last year we build 40,000 housing units. In 2013 we are expected to achieve a 50,000 unit level. The best projections for 2014 are 60,000 units if interest rates do not rise.

The Board needs to understand that construction is still all about the lowest responsible bidder, regardless of public or private work. As the industry contracted beginning in 2007, bids followed and the profit margins have not ever recovered. It is still a very competitive environment and with low profit margins many have not been able to afford to replace trucks and equipment. The theory of just "pass the costs on" has not materialized within the construction industry. ***Construction activity has not accelerated at the same rate as other segments of the economy and specific consideration should be given to the compliance schedule as a result of the lag in construction activity and subsequent reduction in emissions.***

A CARB FILTER VERIFICATION IS NO ASSURANCE TO THE CONSUMER

The vigorous CARB filter verification process is merely an indication that "When the filter works, it reduces the emissions the way we say it does". Most often that filter will only work

when the engine is running for long periods of time, generating high heat, under high load. Something most construction engines do not do.

Unfortunately verifying a filter for an entire engine family, regardless of the operating conditions of the engine, is a misleading presumption that it will actually work on every engine. Most consumers are unaware that extensive engine testing is required to determine if the filter will actually work on a specific engine, operating under its typical operating conditions and will not impede the operation of the equipment during actual field operations. The burden falls on the equipment owner, at the mercy of the sales rep, to make the determination. As a consequence, many verified filters are inappropriate for the operating conditions of most low-use, low-mileage construction trucks and equipment. Yet, CARB makes no effort to collect and disseminate this information to the consumers. Every contractor and trucker has to learn on his own what may or may not work on his unique truck or piece of equipment.

This is a costly and time consuming process. The "verification vs. reality" gap might also account for the numbers presented by MECA (Manufacturers of Emission Controls Association) which indicated that only 3,500 DPF devices had been installed in the first half of 2013 when CARB had estimated that 59,000 were needed for full compliance by year-end. Even 2012 installations were 24% below CARB's estimate of those required for compliance.

The gaps in the CARB reporting and information sharing process have led to widespread complaints about the reliability of the filters. The CARB warrantee reporting process is designed to capture only catastrophic failures and some types of warrantee issues. Routine problems with filter plugging disrupted operations and equipment down-time; the problems encountered every day by consumers, are not tracked or reported by CARB.

With the growing use of retrofitting strategies to supplement OEM efforts, CARB should establish a more rigorous performance monitoring program to advise consumers about the appropriate applications for this filter equipment. In addition a truck owner should be allowed to remove a filter after a certain number of failures or engine shutdowns.

FORCED OBSOLESCENCE "CUMULATIVE EFFECT" IS PENALIZING CALIFORNIA BASED BUSINESSES

Most construction and even trucking companies in California are affected by at least three CARB equipment rules; the On-Road Truck rule, the Off-Road rule and the Portable Equipment ATCM. Those with specialty equipment like forklifts, pumps or cranes may be affected by more than

three. All of these rules require the retrofit, repower or replacement of nearly 100% of the equipment owned by those companies. For most companies it means disposing or rebuilding of engines long before the useful life has been realized. These extraordinary expenses turn the business plans for most contractors completely upside down. These contractors invested in very expensive equipment planning on being able to use it well past the payment schedule in order to keep their businesses profitable.

For small companies the only compliance path in these extraordinary economic times is to shrink their fleet. That means fewer jobs, fewer projects and less revenue to achieve compliance. According to the Bureau of Labor Statistics, of the 65,000 construction companies in California 91% have fewer than 20 employees.

This burden falls particularly hard on California based employers. Large national contractors and trucking companies can purchase new pieces of equipment and use those in California while they use their older non-compliant equipment elsewhere. California based employers don't have that flexibility. These employers are not given any consideration for the fact that they have multiple rules, each with vigorous compliance schedules, forcing the expensive replacement of their primary business activity.

CARB should consider developing flexible compliance options for California based businesses that are faced with two or more rule schedules. One option might be to adopt a three year rolling fleet average that would provide some flexibility for small fleets. Another consideration would be to harmonize the rule requirements so the same truck used in the construction industry has the same requirements as one used in the agriculture. It makes no sense for them to have different mileage limitations. A third option might be the "bubble" concept discussed before where fleet owners would be allowed to achieve aggregate emission reductions for all of their regulated equipment. CARB needs to recognize and correct the extraordinary burden they have place on California employers and small business owners with their multiple retrofit and replacement requirements.

LOW MILEAGE CONSTRUCTION TRUCKS

A current provision in the regulation, added after the original adoption, allows companies to apply for a temporary low-mileage truck exemption for up to 10 trucks operating under 15,000 and 20,000 miles annually as long as the company holds a contractor's license. A total of 9,000 trucks were to be included in the program. As of the deadline, only 7,200 trucks were able to

qualify. Those trucks also operate fewer miles than the staff originally estimated and generate fewer emissions that originally projected which should allow even more trucks into the program.

This provision was originally established in recognition of the lower emissions being generated by construction activity due to the recession. As a consequence the industry has not been able to take full advantage of the savings in emission reductions.

We support the staff proposal to re-open the program ***but request that the provision for the equipment to be owned by a company with a contractor's license be dropped.*** Many trucking companies do not need a contractor's license to perform the activities that they provide to the construction industry. And many construction companies hold their equipment assets in a different company than the one that provides the construction work. Having equipment registered in the off-road DOORS program should be sufficient evidence of construction related work by the equipment owner.

The requirement for a contractor's license has clearly limited access to this program and should be modified. We would also propose the maximum number of trucks be increased to at least 12,000 as originally proposed at the time the rule was adopted. We have previously proposed that the retrofitting of these trucks be phased-in over 4 years when the provision expires.

LOW USE TRUCKS

The original regulation included an exemption for trucks traveling less than 1,000 miles per year. While this has been helpful for a few trucks, there are many more that travel more than 1,000 but less than 7,500 miles per year. Many of these are specialty trucks that perform a very specific task and may be very expensive to replace. Many also have PTO (Power Take-Off) engines that run some function of the equipment while the engine is in operation. CARB has also placed an additional limit on the hours of operation of the PTO's to 100 hours annually. These two limitations combine to severely limit the ability of trucks to qualify for this program and fail to recognize the very limited emissions generated by this equipment.

We believe that an accurate emissions inventory would support raising the exemption from 1,000 to 7,500 miles and the PTO limit from 100 to 750 hours.

CONSTRUCTION VOCATIONAL TRUCK MILEAGE EXTENSION

To simplify the regulation as it relates to just construction vocational tractors and unitized trucks *we would propose that those trucks be categorized into three mileage thresholds.*

- ***Ultra-low mileage for less than 7,500 annual miles (exempt),***
- ***Very-low mileage for 7,501-30,000 miles with a 2023 compliance deadline and,***
- ***Low mileage for 30,001 to 65,000 annual miles with compliance by 2020).***

Construction trucks would be defined as all 2 and 3 axle tractors and unitized vehicles utilized to haul construction related commodities and materials or that preformed work on the project site. All of the following diesel powered heavy vehicles would be included:

- Asphalt Trucks
- Agitator Truck
- Boom Trucks
- Combo Truck w/End Dump
- Combo Truck w/Lowboy
- Concrete Mixing Trucks
- Mixer Truck
- Concrete Pump Trucks
- Cranes of all types
- Dump Trucks (rear, bottom, side)
- Dump Truck w/Crane
- Drill Trucks
- Stone Slinger Truck
- Tipper Truck
- Flatbed Trucks for Construction
- Flatbed Dump Truck
- Flatbed Truck w/Crane
- Fuel & Lube Trucks
- Water & Tank Trucks
- Winch Tractors
- Service Trucks

A SEVERE SHORTAGE OF NEWER USED TRUCKS

There is currently a severe shortage of used trucks in the market. The (2010 year engine) trucks are not expected to begin entering the used market until 2015 and beyond. The attached chart on Class 8 truck sales indicates that the 2010 truck sales were nearly the lowest in 5 years. That means fewer trucks available for the used truck market in four or five years.

These extensions would allow the used truck market to produce enough "newer" used trucks to meet the vocational needs of the construction industry. Clearly, the construction industry is struggling to recover from the recession. The vast majority of construction companies in California are small businesses (fewer than 20 employees) and 70% of construction trucking is a single truck owner-operator. The costs and the schedule for them to comply with this regulation are just too high and too rapid. We believe they are entitled to relief given the much lower emissions from reduced fleets, lower use and mileage.

There are too few used trucks even today 3 years after the new 2010 clean engine standard. Most trucks are now on 4-5 years (500,000 - 600,000 mi.) trade cycles There is no greener program than reusing, repurposing, and recycling of newer used trucks.

ATTAINMENT AREAS

Most of the rural areas "green zones" of this state have no state or federal attainment issues and should not be subject to the provisions of this regulation. There is no public health threat in those communities and they are often more reliant on trucks to perform their livelihood than the more urban areas of the state. Further most of these trucks are "captive" to the area and do not travel to other non-attainment areas.

For single and small fleet operators compliance is a very expensive proposition. For most in the rural areas, the activities are seasonal due to weather or the economy of the region and the ability to generate additional revenue simply isn't available. The rule imposes an air quality burden where it isn't needed or warranted. The changes to the smoke testing program recommended by the industry should be sufficient to keep rural "captive" trucks within the manufacturer emission limits.

We would recommend that trucks in the attainment areas be exempted from the rule as long as they remain in the attainment area, that they be subject to annual smoke testing and that attrition and natural turnover be allowed to bring those fleets into compliance.

PERIODIC SMOKE INSPECTION PROGRAM (PSIP) "Smoke Testing"

The "smoke testing" program in California has been very successful and effective in eliminating smoking trucks from California's highways for the trucks for which it applies and for which the owners are aware of the program. Recent legislative amendments have made it easier for larger fleets to keep their fleets in compliance by allowing all trucks to be tested annually at the same time. Many of the trucks tested in this program are substantially below the levels established by CARB, providing an extra air quality benefit. For those that fail the test the fix can be as simple as installing a new air filter or cleaning a clogged injector.

Unfortunately tens of thousands of owner-operators were excluded from the program due to the high cost of testing. Today, there are many testing operations available, and the cost is around $45. Another weakness of the program was the lack of reporting or enforcement. After many years of not being asked to supply evidence of testing, many operators simply stopped performing the tests. Only recently did CARB begin a mail audit, asking operators to send in their proof of testing.

We would recommend that this test be required of all trucks, even in the attainment areas. Further, trucks that fail the test should be removed from the road or repaired. Evidence of the test should be maintained on each truck and available for inspection

FAIR ACCESS TO GRANT FUNDING

There are far too many obstacles to grant funding opportunities, mileage restrictions, areas of operation, miles on a replacement truck etc. If the state is going to take real property, it should fairly reimburse the property owner. Fair Access to Grant, Moyer, Prop1B funding and low interest loans for this same group of trucking businesses is a must. ***CARB currently bases grant funding on mileage but the rule itself does not contemplate low mileage in any way.***

CARB COMPLIANCE ADVISORY

CARB has indicated that they are going to be issuing an advisory on "good faith" compliance as a result of their proposal to shift the compliance date from January 1, 2014 to July 1, 2014. ***CIAQC supports the shift in dates.***

Staff has proposed four steps which may be taken to maintain compliance: order a PM filter, order a replacement truck, apply for a grant or apply for a loan. Those don't address all the possible issues that might arise out of the shift in compliance dates.

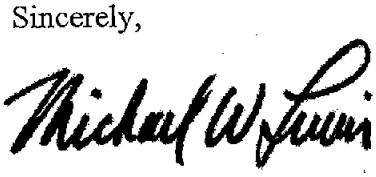
First, there should be some reward for the truck owner who has achieved compliance by the original deadline (perhaps exemption from the 2010 engine standards).

Second, enforcement should be delayed until six months after the adoption of the amendments. (If the mileage limit is going to be increased, why should an owner be required spend $20,000 to order a filter for a truck that will be exempt when the amendments are adopted?)

Finally, trucks with high value chassis such as concrete booms, cement trucks, service trucks, drill rigs, even tow trucks, etc. should be exempted from the 2010 engine standards.

The construction industry is able and willing to work closely with the board and the staff to achieve workable amendments to the rule that will achieve the California's air quality goals without economic hardship on our still struggling construction companies. We look forward to presenting an effective set of amendments at your April board meeting.

Sincerely,



Michael W. Lewis
Senior Vice President

cc: Members, California Air Resources Board
Governor Jerry Brown
Members, California State Legislature

ATTACHMENT 1

ESTIMATING THE NUMBER OF CONSTRUCTION TRUCKS IN CALIFORNIA

According to CA DMV registration information
(http://apps.dmv.ca.gov/about/profile/ca_dmv_stats.pdf),
there are approx. 451,000 in-state registered commercial trucks and 1.35 million IRP registered trucks that operate in California. We believe that 99% of IRP (out-of-state registered trucks are diesel powered heavy-trucks) and are long-haul (125,000 mi./yr.+), all are based outside of CA. There are another 65,000 IRP state based heavy trucks. These 1.4 million trucks should be the focus of existing CARB regulations. The 452,000 in-state registered are those of most interest to us. The CA Construction Trucking Association estimates about 40% are of the weight class and vocation of interest – construction. Of those approx. 176,000 trucks, 25% or 44,000 trucks are heavy tractors and unitized diesel powered vehicles used for construction; including dumps, pumps, cranes, water trucks etc. Again, we are focused on the approx. 2.4% or 44,000 construction industry that are now not in compliance. The 44,000 non-compliant construction trucks represent just 2.4% of the on-road fleet rather than the original 75,000 that was estimated in 2006. (See attached DMV report)

DEPARTMENT OF MOTOR VEHICLES
STATISTICS FOR PUBLICATION
JANUARY THROUGH DECEMBER 2012

EMPLOYEE AND OFFICE STATISTICS

Number of Field Offices	170	- 19 Auxiliary Offices that include: 3 CDL sites, 1 Dealer Service Center, 6 Industry Centers, 1 Scale Location, 3 Travel Runs, and 5 Business Service Centers.
Number of Driver Safety Offices	16	- 12 are located within other DMV locations and 4 are independent. Additional Offices: 27 Resident Hearing Offices.
Number of Call Centers	3	- 3 independent facilities.
Number of Investigations Offices	11	- An additional 39 are within other DMV locations.
Number of Occupational Licensing Offices	4	- An additional 17 are within other DMV locations.
Number of Other Locations	3,833	- 161 Auto Clubs and 3,672 Business Partner sites.
Approximate Number of Employees	8,590	- Includes full-time, permanent-intermittent, and part-time employees. Approximately 5,510 (65%) are in Field, and approximately 3,080 (35%) are at Headquarters.

DRIVER LICENSE AND IDENTIFICATION CARD STATISTICS

Source: DL Information Report 12/31/2012

A. **Total Driver Licenses Currently Issued:**	***24,290,288***	(Includes 3,443,946 people that also have an ID Card)
Identification Cards		
B. ID-Only	2,768,698	
C. Both ID Card and Driver License	3,443,946	
D. Under Age 16 ID Cards	255,140	
E. ***Total Identification Cards***	**6,467,784**	(Includes 1,260,524 Senior Citizen ID Cards)
Total People with a Driver License and/or ID Card:	***27,314,126***	***(A + B + D)***
Total Driver Licenses and ID Cards Currently Issued :	***30,758,072***	***(A + E)***

REGISTERED VEHICLE STATISTICS

Source: Estimated Vehicle Registration by County For the Period of January 1, 2012 through December 31, 2012

Automobiles	22,473,717	
Motorcycles	832,304	
CVRA Trucks	450,886	(Commercial Vehicle Registration Act)
Non-CVRA Trucks	5,014,040	
PTI Trailers	2,035,007	(Permanent Trailer Identification)
Trailer Coach/CCH	381,420	
CA Based IRP Trucks	65,364	(International Registration Plan)
Misc. Vehicles	136,163	(Miscellaneous vehicles include historical vehicles, spec/farm equipment, etc.)
Fee-Paid Registered	**31,388,901**	
Exempt Registered	557,521	
Total Registered:	**31,946,422**	
Foreign Based IRP Trucks	1,352,056	(Vehicles based in other states which pay fees to operate in California.)

AVERAGE FEE PAID BY BASIC VEHICLE TYPE (does not include IRP)

Source: Statement of Transactions Summary Report - Department of Finance January 2012 - December 2012

	TRUCK (CVRA)	TRUCK (Non-CVRA)	AUTO	MOTORCYCLE	TRAILER (CCH)
Registration Fee	$46	$46	$46	$46	$46
CHP Fee	39	23	23	23	23
Vehicle License Fee (VLF)	159	49	69	28	50
Weight Fee	0	88	0	0	0
CVRA Fee **	897	0	0	0	0
Motorcycle Safety Fee	0	0	0	2	0
Total	***$1,141***	***$206***	***$138***	***$99***	***$119***
Percent of All Vehicles	1.55%	17.20%	77.09%	2.86%	1.31%

(The fee calculation does not include special fees such as air quality fees, abandoned vehicle fees, etc. that vary by county and air quality district)

NOTE: The current average VLF is $66 per vehicle, and the current overall Total fee paid per vehicle registration is $164.

** The first $122 of the CVRA fee is allocated to the Motor Vehicle Account.

DMV Forecasting Unit (916) 657-8008

March 2013

ADDITIONAL ATTACHMENTS

Class 8 Truck Sales Are Up in 2011

Mainly due to the economic recession, class 8 truck sales in 2008 and 2009 declined, but grew in 2010 and 2011. There was not a large shift in market share among the manufacturers over the last five years. Freightliner had 32% of the market in 2011 and International had 21%. All other companies listed have less than a 15% share of the market.

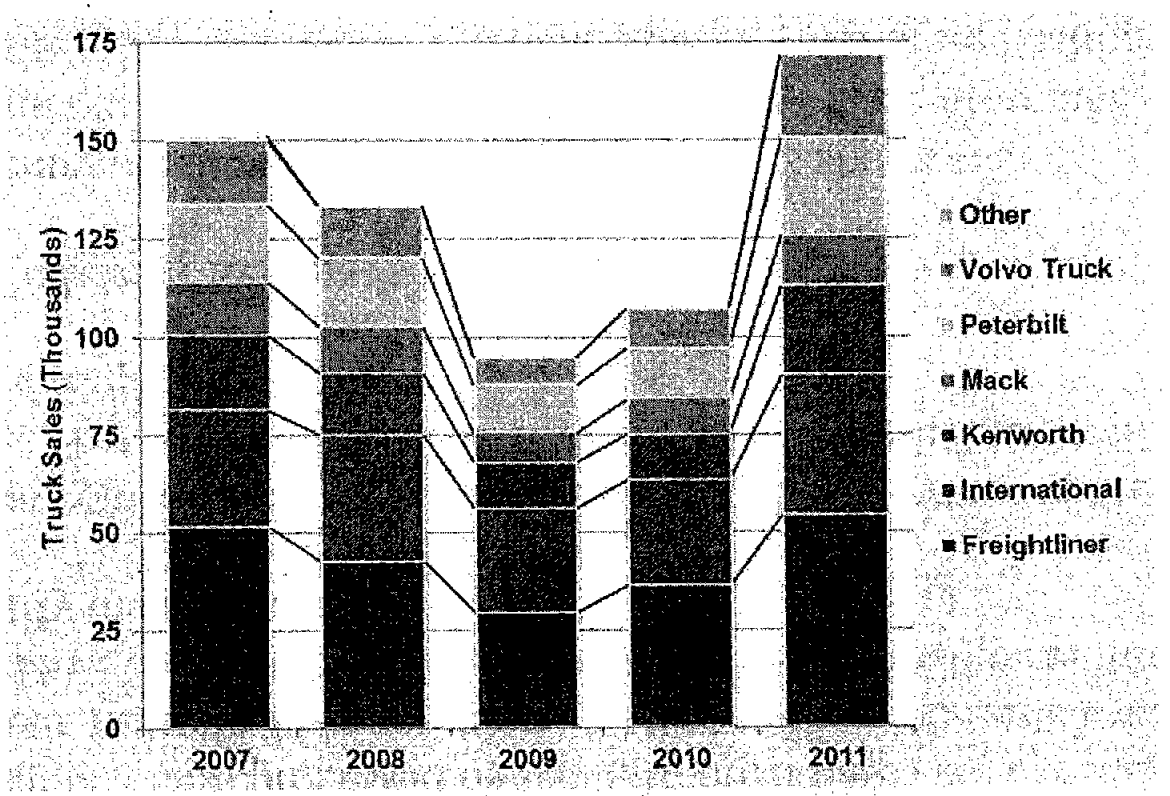
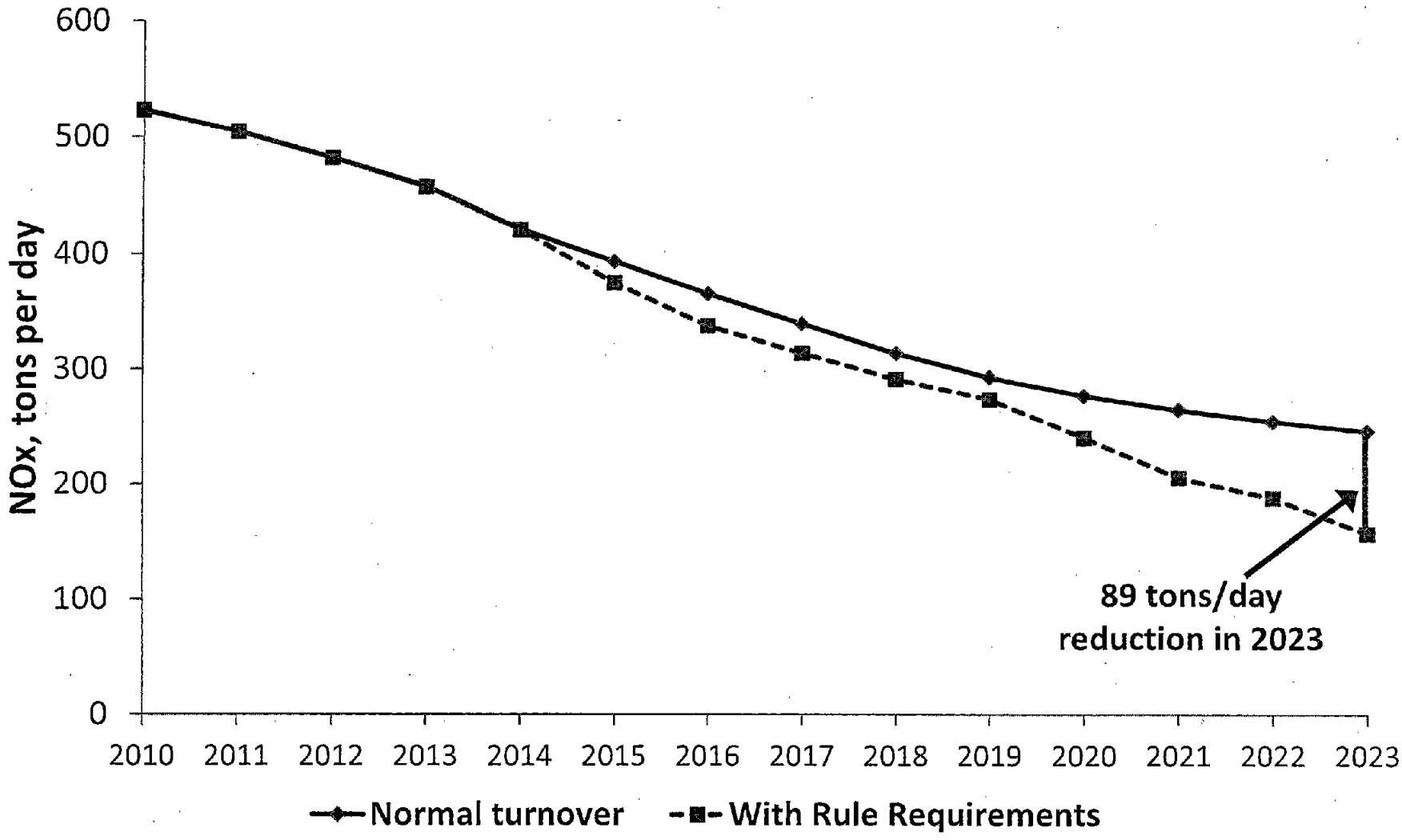


FIGURE 61. Class 8 Truck Sales by Manufacturer, 2007-2011

Source:
Ward's Automotive Group, *Motor Vehicle Facts and Figures 2012*, Southfield, MI, 2012.
http://wardsauto.com

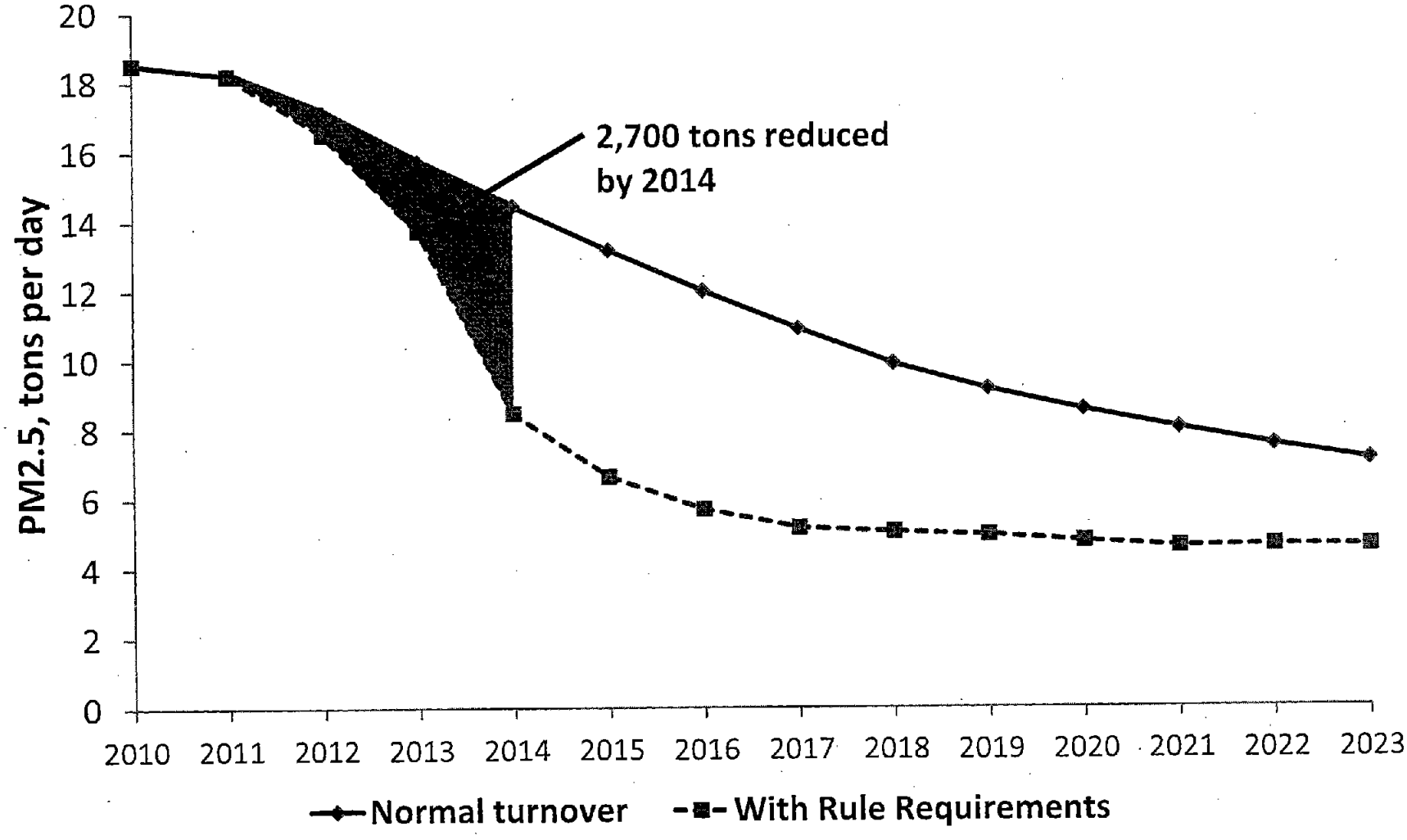
Significant NOx Benefits Expected

14

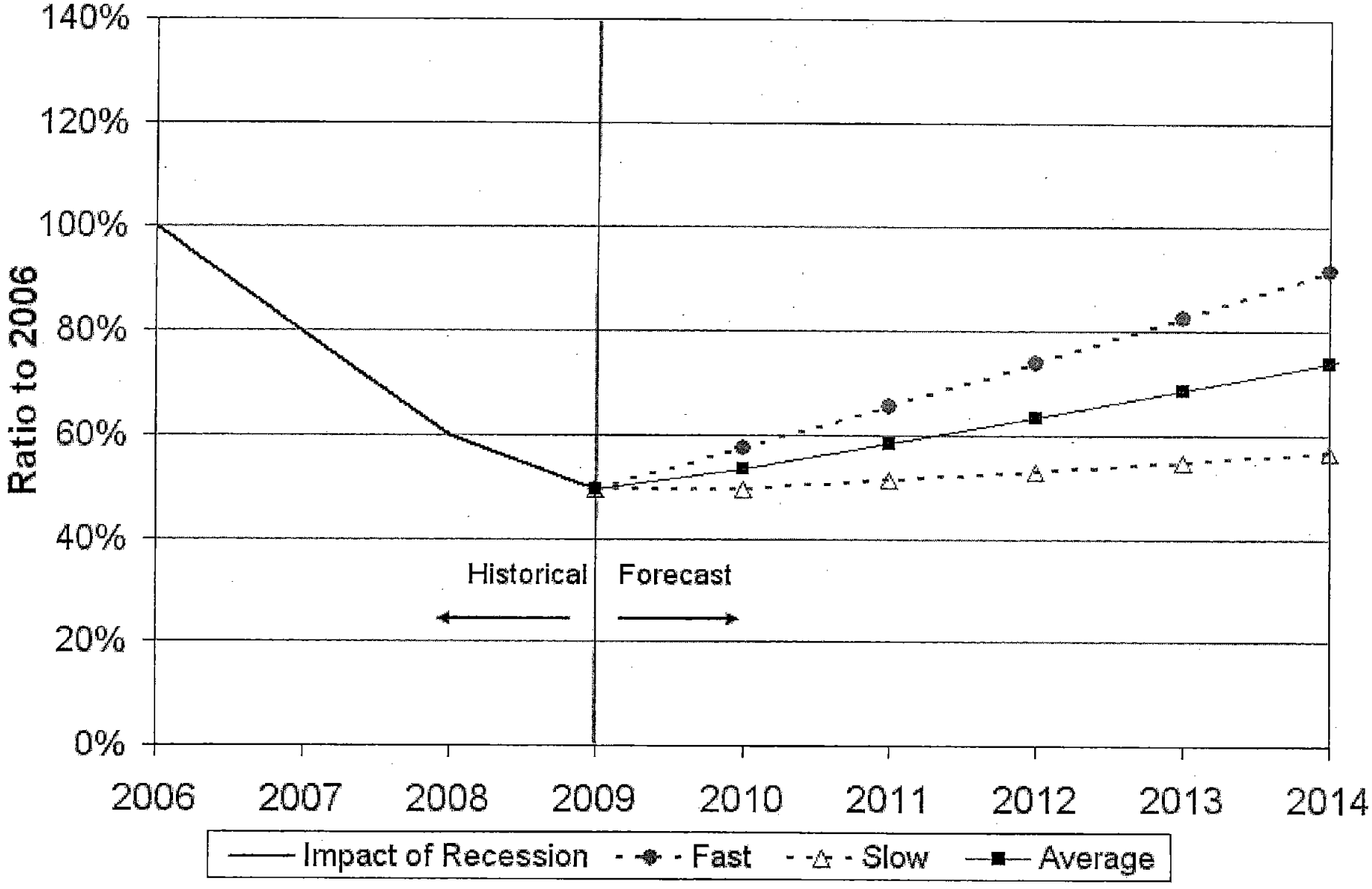


PM Benefits Already Realized

13



Construction Activity Growth



Appendix I

Regulatory Advisory (Mail-Out #MSC 13-28)

Regulatory Advisory

November 2013

Mail-Out #MSC 13-28

Truck and Bus Regulation
ARB Will Recognize Good Faith Efforts to Comply and Provide Early Access to Expected Regulatory Changes

This advisory describes steps the Air Resources Board (ARB or Board) is taking to assist vehicle owners with the transition to the upcoming January 1, 2014, particulate matter (PM) filter compliance deadline under the Truck and Bus regulation (regulation). The overall goal of these actions is to:

- Provide additional time for owners to complete their good faith compliance efforts
- Provide additional flexibility for many lower use vehicles and vehicles that operate solely in certain areas of the State

To qualify and use the compliance options described in this Advisory, truck owners must report specific information to ARB through the Truck Regulations Upload and Compliance Reporting System (TRUCRS) by January 31, 2014, as described below.

ARB recognizes that many fleets are taking actions to comply with the January 1, 2014, deadline but may not be able to complete them on time. For such fleets, ARB is providing guidance to truck owners that are compliant for 2013 and have made good faith efforts to comply with the January 1, 2014, deadline to give assurance that they will not be subject to enforcement action for non-compliance prior to July 1, 2014.

In addition, at its October 24, 2013, meeting, the Board directed ARB staff to examine several potential changes to the regulation that could provide owners additional compliance flexibility. In developing these changes, staff will evaluate them to ensure that emission levels remain similar to what would be expected under the current regulation, and do not jeopardize a region's ability to meet health based federal air quality standards. Potential changes include increasing low-use vehicle thresholds, allowing owners to newly opt-in to a number of existing flexibility provisions, providing adjustments to the "NOx exempt" vehicle provisions, and granting additional time for fleets in certain areas to meet the PM filter requirements. Because the Board will not formally consider these changes until April 2014, this advisory allows truck owners to report and take advantage of applicable anticipated regulatory changes.

Background

The regulation requires diesel truck and bus owners to take steps to reduce their engine emissions. The regulation is a part of the State's plan to meet federal ambient air quality standards and to protect public health, particularly near roadways and distribution centers where exposures frequently reach unhealthy levels. Nearly all trucks and buses with a manufacturer's gross vehicle weight rating greater than 14,000 pounds that operate in California are required to be upgraded between 2012 and 2023 to reduce exhaust emissions.

Most heavier trucks and buses (with a gross vehicle weight rating greater than 26,000 pounds) are required to have a PM filter by January 1, 2014. There are certain exceptions to these requirements for truck owners that have reported to use flexibility options allowed under the regulation. These include, but are not limited to, certain agricultural and limited-use construction trucks, low-use vehicles, and vehicles that operate in certain areas of the State. Additional information about the regulation is at: http://www.arb.ca.gov/msprog/onrdiesel/documents/FSRegSum.pdf.

To comply with the PM filter requirements, owners can upgrade existing engines by installing PM filters that are Verified Diesel Emission Control Strategies approved by ARB, or by upgrading to cleaner engines or vehicles. A list of Verified Diesel Emission Control Strategies that have been approved by ARB can be found at: http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm.

Recognizing Good Faith Efforts to Comply

While the January 1, 2014, compliance date remains unchanged for most fleets, ARB will recognize good faith efforts of vehicle owners to comply with the deadline. Specifically, fleets of any size that demonstrate they took one of the following actions prior to January 1, 2014, and report into TRUCRS, will not be subject to enforcement action during the period through July 1, 2014, on any truck for which they:

- Entered into an agreement with an authorized retrofit installer for a PM filter retrofit
- Signed a purchase contract and ordered a replacement truck that is equipped with a PM filter (2007 model year engine or newer)
- Were approved or denied a loan or other financing for a retrofit PM filter or for a replacement truck that is equipped with a PM filter

Additionally, for owners with one to three trucks that meet all of the eligibility requirements for the Proposition 1B: Goods Movement Emission Reduction Program (Program) and report into TRUCRS, the owner will be recognized for good faith efforts provided the owner does all of the following: applies for grant funding from the Program by the December 12, 2013, close of the second solicitation to replace an existing truck with a truck meeting 2010 or later emissions standards; and replaces the truck per the requirements and schedule in the grant contract. Eligibility requirements include but are not limited to: demonstrating 75 percent operation within California for the past two years, using the vehicle to move goods as part of a sales transaction, committing to at least 50 percent travel within the four California trade corridors, and meeting minimum mileage

requirements. Program requirements and participating air districts can be found at: http://www.arb.ca.gov/gmbond.

Loans from a national or state chartered financial institution or a licensed California finance lender can be used to demonstrate good faith efforts. Contractual purchase agreements used to demonstrate good faith efforts must be a written and legally binding contract signed on or before January 1, 2014, for immediate delivery and cannot be modified or cancelled by the owner after January 1, 2014.

Vehicle owners must keep copies of purchase orders, receipts, contracts, or correspondence from dealers or financial institutions at their place of business and in the vehicle at a location known to the driver. Records that document good faith efforts must be kept for two years and may be subject to audit. Vehicle owners that made good faith efforts before January 1, 2014, and are still unable to meet the compliance requirements of the regulation should contact ARB at the number below before July 1, 2014, in order to discuss alternative compliance options and penalties.

Owners that placed orders for equipment prior to September 1, 2013, and qualify to use the manufacturer delay extension, have until July 1, 2014, to bring the vehicle into compliance and to claim credits as specified in the regulation. For details see: http://www.arb.ca.gov/msprog/mailouts/msc1315/msc1315.pdf.

Utilizing Anticipated Regulatory Changes

Because the proposed amendments to the regulation being developed by ARB staff will not be completed until after the January 1, 2014, compliance deadline, owners are allowed to report into TRUCRS to take advantage of the following anticipated regulatory changes for all vehicles (except school buses) prior to the Board's April 2014 public hearing:

- The opt-in period will be reopened for vehicles to newly register for the existing low mileage agricultural vehicle extension
- The opt-in period will be reopened for vehicles to newly register for the existing low mileage construction truck extension
- The opt-in period will be reopened for vehicles to newly register for the existing PM phase-in requirements
- The thresholds for the low-use exemption will be increased for all trucks that are operated a total of less than 5,000 miles per year, and for trucks that are designed to perform work while stationary, the limit will be increased to 200 hours per year
- The definition of "NOx exempt" areas will be expanded to include regions designated in Attachment A to this Advisory

The PM filter requirements for vehicles operated exclusively in the existing and newly proposed "NOx exempt" areas, as well as the cross-hatched areas as shown in Attachment A, will be delayed one year until January 1, 2015. This one year delay is intended to provide the Board an opportunity to consider the timeline to deploy PM filters on all trucks operated in these areas. Additional detailed maps of these areas are provided at: http://www.arb.ca.gov/msprog/onrdiesel/regulation.htm. Before staff finalizes the proposed amendments, they will evaluate these regions for needed future NOx emission reductions and localized risk impacts on sensitive populations that a delay in PM filters may have.

Please be advised that while ARB staff anticipates proposing amendments similar to these administrative changes at the Board's regularly scheduled April 2014 meeting, the changes will not be finalized until approved by the Board. As such, the final scope and applicability of the proposed amendments may change as ARB staff assesses their emission, risk, and economic impacts and conducts public workshops at various locations throughout the State. In the event that the proposed amendments differ from those identified above and impact a fleet's ability to comply with the regulation, ARB staff will provide fleets that have reported their intent to use these options additional time beyond the Board's April 2014 meeting to come into compliance.

Reporting Compliance Actions Taken Under this Advisory

To qualify and use the compliance options described in this Advisory, an affected owner must report, under penalty of perjury, specific information to ARB through TRUCRS by January 31, 2014.

Information on TRUCRS, including how to report, either electronically or with paper forms, can be found at: http://www.arb.ca.gov/msprog/onrdiesel/reportinginfo.htm. To complete the reporting process, vehicle owners should be prepared to provide information about their company, the specific good faith efforts undertaken or the anticipated regulatory changes being claimed, the location where applicable records will be kept, and information about all of the heavier diesel trucks that operate in California within that fleet. Vehicle owners will be able to print a confirmation of reported compliance that can be used by brokers, motor carriers, or others who need to verify compliance of the individual vehicle owners or fleets they hire.

Failure to Comply

Vehicle owners that are noncompliant and fail to demonstrate their good faith efforts to comply with the regulation or their intent to use the anticipated regulatory changes being considered, may be subject to penalties and possible Department of Motor Vehicle (DMV) registration holds. Vehicles operating without current DMV registration are subject to enforcement actions by law enforcement which may include vehicle impoundment. Vehicle owners that make good faith efforts before January 1, 2014, but do not comply by July 1, 2014, will be subject to penalties and enforcement action.

Contacts for Additional Information

For further information about ARB's diesel regulations, please visit www.arb.ca.gov/truckstop or call 1-866-6DIESEL (866-634-3735), or email us at 8666diesel@arb.ca.gov.

Attachment

Attachment A
Areas That Do Not Need to Meet the 2014 PM Deadline
of the Truck and Bus Regulation

The darker areas are already defined as NOx exempt areas and the lightly shaded areas represent the proposed added regions.

The crosshatched areas are additional areas that do not need to meet the January 1, 2014 PM compliance date.

Affected Counties:

Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Del Norte, Glenn, Humboldt, Inyo, Eastern Kern, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Monterey, Nevada, Plumas, Eastern Riverside, San Benito, Northeastern San Bernardino, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Eastern Solano, Northern Sonoma, Sutter, Tehama, Trinity, Tuolumne, Yolo, and Yuba.

Note: Except for the current "NOx Exempt Areas" in the regulation, the above proposed regions may change based on the actions taken by the Board at its April 2014 hearing.

Description of the Portions of Partial Counties

Eastern Kern: That portion of Kern County within the Eastern Kern Air Pollution Control District.

Eastern Riverside: That portion of Riverside County within the Mojave Desert Air Quality Management District.

Eastern San Bernardino: That portion of San Bernardino County within the Mojave Desert Air Quality Management District.

Eastern Solano: That portion of Solano County within the Yolo-Solano Air Quality Management District.

Northern Sonoma: The northern portion of Sonoma County within the Northern Sonoma Air Pollution Control District.

Appendix J

Standardized Regulatory Impacts Assessment
and
Department of Finance Response

Standardized Regulatory Impact Assessment (SRIA)
Proposed Amendments to Truck and Bus Regulation

A. Summary

1. Statement of the Need of the Proposed Amendments (referred to as proposed Amendments)

On December 12, 2008 the Air Resources Board approved the Truck and Bus Regulation (referred throughout as Regulation). The Regulation applies to nearly one million diesel vehicles that annually operate in California with a manufacturer's gross vehicle weight rating (GVWR) greater than 14,000 pounds. This Regulation was designed to reduce exposure to diesel exhaust particulate matter (PM) and to provide nitrogen oxide (NOx) reductions to help achieve attainment with ambient particulate matter and ozone air quality standards. Effective December 14, 2011, the Board approved Amendments that restructured the Regulation in light of the economic recession that had effectively reduced emissions from regulated trucks and buses through lower vehicle activity.

The Regulation requires trucks and buses to meet PM filter requirements starting January 1, 2012, and NOx emission reduction (replacement) requirements starting January 1, 2015. Emissions reductions are achieved through the installation of verified diesel emission control strategies (PM filter) on existing engines; by replacing older vehicles with newer vehicles equipped with cleaner engines; or repowering vehicles with newer, cleaner engines. The Regulation provides a variety of flexibility options tailored to fleets operating low-use vehicles, fleets operating in selected vocations like agricultural and construction, and small fleets of three or fewer trucks. These options were designed to help provide more affordable compliance pathways for fleets. To assist in meeting these requirements, ARB and local air districts offer a variety of programs that provide grants and loans to help facilitate compliance.

While the 2010 Amendments took into consideration the recession, the trucking and other related industries encountered slower growth than anticipated. The recession, and its adverse effect on business finances, means some small businesses were unable to comply with the Regulation's requirements. Incentive programs providing financing to ameliorate the financial difficulties are almost all over-subscribed and unlikely to have much impact on the regulatory costs. Therefore the cost of compliance without delay would cause an undue burden on these businesses. The proposed Amendments intend to provide flexibility in compliance which would address the issue of financial ability to comply.

The proposed Amendments include the following changes:

- A longer-phase-in period for PM requirements in cleaner rural areas while continuing to ensure compliance with diesel risk reduction program goals.
- Additional time and a lower cost pathway for small fleets to achieve compliance with PM requirements, while re-opening opportunities for these fleets to apply for and receive incentive funding.
- A compliance pathway for owners currently unable to qualify for a loan to finance compliance.
- Adjusted schedules for low-use and vocational trucks that are less cost effective to clean-up and are not competitive in obtaining incentive funding.
- Recognition of fleets that took early action to comply by providing additional useable life for retrofit trucks and reducing near-term compliance obligations.

Compliance with the Regulation can be accomplished in multiple ways. A fleet operator can purchase newer vehicles, install filters, designate vehicle as low-use, downsize, or a combination of the previous to meet the mandated cap. Adding a filter to an older truck, as permitted by the proposed Amendments, becomes a less attractive option, as the annual cost relative to purchasing a used truck becomes higher as the compliance period of a retrofit shortens.

2. Major Regulation Determination

The proposed Amendments to the Regulation will exceed $50 million in economic costs through capital cost savings in the year 2015 compared to the existing Regulation. Additional flexibility and cost savings are achieved through a relaxing of the filter requirement for some vehicles and an extended compliance schedule for small fleets, certain rural fleets operating in counties that have made substantial progress towards cleaner air, and certain lower use fleets.

3. Economic Baseline

The existing Regulation requires trucks and buses to meet PM filter requirements starting January 1, 2012, and to upgrade to 2010 engines starting January 1, 2015. The baseline includes the requirements for installation of verified diesel emission control strategies on existing engines; by replacing older vehicles with newer vehicles equipped with cleaner engines; or repowering vehicles with newer, cleaner engines. The prices of PM filter retrofits should remain nominally steady through full implementation, but used truck prices will decline over time.

4. Public Outreach and Input

Staff conducted a series of statewide workshops and meetings to solicit comments from affected stakeholders regarding the proposed Amendments to the Truck and Bus Regulation. The affected businesses extensively participated in the workshops throughout the state and were supportive of delaying some of the compliance requirements as developed in the proposed Amendments. ARB continues to offer comprehensive outreach to assist and educate fleets on actions needed to comply with diesel fleet Regulations, and the financial incentive programs that are available.

B. Benefits:

Total savings from the proposed Amendments to the Regulation are a little over $400 million from 2015 to 2025. The expenditure reductions would result from the proposed Amendments, of which over $375 million is from postponed capital investments and lower cost of replacement trucks and approximately $25 million in maintenance cost reductions. The proposed Amendments would lower the overall cost of the Regulation by about 20 percent. The estimated annual costs are from deferring truck replacement or PM retrofits by a few years and the changes in the associated annual operating cost.

1. Individuals

The Regulation will not directly affect individual consumers. However, to the extent that any potential savings are passed on to the consumers, individuals may also benefit from the proposed Amendments.

2. Businesses

The proposed Amendments to the Regulation would affect about 60,000 fleets in such industries as for-hire transportation, construction, agriculture, manufacturing, retail and wholesale trade, truck leasing and rental companies, truck dealerships and truck maintenance firms, and bus lines. Of these affected businesses ninety percent are small businesses owning

10 trucks or less. Fleets with less than 10 heavier trucks that qualify for an amended option such as Work Trucks, NOx Exempt Area, Agricultural Mileage Exemption, Low Use exemption may see changes; all other fleets will see no change due to the proposed Amendments. For example, a typical fleet with 10 Low Mileage Construction Trucks in the adopted Regulation would be able to defer the PM filter requirement on 3 vehicles from 2015 to 2017 and on 4 vehicles from 2016 to 2018. If the PM filter cost is $18,000, the cost would be around $4,300 lower. However, if the owner planned to buy used trucks to comply, his cost reduction will be the money he saves by postponing the purchase of replacement trucks by two years and his replacement trucks could also be lower because they could be two years older. Similar larger companies would have similar effects per truck. These companies are larger by approximately a factor of 10 and should see 10 times the benefits as their smaller counterparts.

Table 1. Cost Savings Due to the Proposed Amendments to the Truck and Bus Regulation Calculations for A Small Business Owning 10 Trucks (Example)

Calendar Year	2015	2016	2017	2018	2019	Total Cost
Current Retrofit Requirement	33%	66%	100%			
Total Retrofits	3	4	3			
Retrofit Cost in 2014 Dollars	$54,000	$72,000	$54,000			$180,000
Maintenance Cost in 2014 Dollars	$1,500	$3,500	$5,000	$5,000	$5,000	$20,000
Reporting Cost in 2014 Dollars	$100	$100	$100			$300
						$200,300
Proposed Retrofit Requirement	33%	40%	60%	80%	100%	
Retrofits Required	3	1	2	2	2	
Retrofit Cost in 2014 Dollars	$54,000	$18,000	$36,000	$36,000	$36,000	$180,000
Maintenance Cost in 2014 Dollars	$1,500	$2,000	$3,000	$4,000	$5,000	$15,500
Reporting Cost in 2014 Dollars	$100	$100	$100	$100	$100	$500
						$196,000
Cost Per Retrofit	$18,000					
Annual Maintenance Cost per Retrofit	$500		**Total Cost Reduction**			$4,300
Annual Reporting Cost	$100		**Reporting Cost Increase**			$200

3. Retrofit Industry

Table 2 shows the number of PM filters expected to be operating each year in the fleet. The number of PM filters installed each year is expected to be lower than with the existing Regulation. Overall, the proposed Amendments are expected to result in installation of 8,420 fewer retrofit PM filters. The lower demand for filter installation and service would potentially result in downsizing of some PM retrofit manufacturers and services providers.

4. Emissions

Because the proposed Amendments would defer and/or relax some requirements for businesses and some small fleets in the near term, staff projects there would be a temporary delay in emission benefits, until 2020, compared to emission benefits that may have been

achieved absent the proposed Amendments. For instance, the Regulation reduced NO_x emissions in by 14%, whereas the proposed Amendments reduce by 13%. For PM, the reduction from the Regulation was 42%, and the proposed Amendments reduce by 39%. Emissions of diesel PM, and NOx would continue to trend down from today and it would ultimately result in essentially the same projected emissions after 2020.

Table 2. Incremental Changes in the Number of Retrofit and OEM PM Filters of the Current Regulation Compared to the Proposed Amendments

	Number of Retrofits		Number of OEM Filters	
CY	Current Regulation	Proposed Amendments	Current Regulation	Proposed Amendments
2015	5,454	0	42,222	19,114
2016	6,031	2,361	45,460	25,088
2017	398	1,102	8,898	11,692
2018	0	0	8,910	19,266
2019	0	0	9,650	10,401
2020	0	0	13,382	55,433
2021	0	0	19,286	11,611
2022	0	0	11,241	6,511
2023	0	0	2,115	2,092
2024	0	0	2,717	2,745
2025	0	0	2,972	2,989

Table 3. Statewide Emission Reductions of the Current Regulation Compared to the Proposed Amendments (tpd)

	NOx Reductions		PM2.5 Reductions	
Year	Existing Regulation	Proposed Amendments	Existing Regulation	Proposed Amendments
2014	57	52	6.0	5.6
2017	83	62	6.1	5.0
2020	63	70	4.2	4.2
2023	95	94	2.9	2.9

C. Costs and Cost Savings

None of the changes by the proposed Amendments would make the Regulation more stringent for the affected business. However, the proposed Amendments reschedule required expenditures to the future years yielding cost savings in some years, and deferred costs to the affected businesses (Tables 2 and 3). The costs and cost savings are amassed by the businesses and not individuals, unless the business is an individual.

1. Individuals

While there are no direct costs on consumers, there may be slight changes in health outcomes as a result of the proposed amendments. However, nearly all the health benefits are preserved while simultaneously providing relief mostly to low-use trucks that operate in the more rural

areas, where less people are exposed to diesel PM. Looking to the justification for the amendments adopted by the Board in 2010, staff estimated that 3,500 premature deaths (2,700 to 4,400, 95 percent confidence interval) would be avoided between 2010 and 2025 by implementation of the amended regulation.

The proposed amendments also would have little impact on the overall emissions benefits achieved; therefore, the health impacts are not expected to change significantly and are within the margin of error of the mortality calculations. As an example, over the life of the regulation, the proposed amendments cumulatively achieve 93 percent of the PM2.5 and NOx benefits, providing similar reductions in premature mortality (3,500 fewer deaths statewide attributable to PM2.5 exposure) as envisioned in the 2010 amendments, valued at billions of dollars in reduced health care costs. The proposed amendments result in an insignificant change in emissions compared to today's existing environmental conditions and would continue to meet the goals that were established when the regulation was initially adopted.

2. Businesses

The proposed Amendments to the Regulation would predominantly affect small businesses owning 10 trucks or less. Table 4 shows the total annual changes in expenditures. The amounts in parantheses are cost savings (reduction in expenditures), the others are costs (increase in expenditures). The cost saving calculations for the small businesses are presented in Table 1. Larger companies considered here tend to be 10 times larger than a small business as measured by truck ownership. The savings due to the amended compliance options can be seen in the following table in years 2015 and 2016, which are then incurred starting in 2017. Additionally, other costs and cost savings are distributed differently year to year based upon the type of truck and the corresponding requirement level and date. The businesses required to comply are throughout the state of California, while all regulated businesses can benefit from the compliance delays, the businesses that have already complied would not be affected. The complying businesses that are not affected are in the sectors listed in Table 6. Many of the low-use trucks that are currently non-compliant operate in rural areas. Counties in the NO_x Exempt Areas benefit from a delay of the initial compliance deadline by one year and delay in the final compliance deadline by four years. The proposed Amendments expand the definition of this NO_x Exempt Areas, adding Amador, Butte, Calaveras, Easter Kern, Inyo, Mariposa, Momo, Nevada, Northern Sutter, and Tuolomne counties; these counties will also get to use the aforementioned compliance delays (in total only about 3,000 businesses of the 60,000 will be using the aforementioned exemptions for the expanded NO_x Exempt Areas).

Table 4. Annual Expenditure Changes Due to the Proposed Amendments of the Truck and Bus Regulation

Year	Changes in Expenditures (Millions)
2015	($621)
2016	($841)
2017	$126
2018	$368
2019	$31
2020	$600
2021	($255)
2022	($78)
2023	$260
2024	$2
2025	$1
Total	($406)

The affected businesses will have ongoing reporting costs of about $100 because the proposed Amendments will require the owner of the affected businesses to file reports with the ARB on average for two years more than the current requirements.

Expenditures Vs. Compliance Costs/Savings

Table 5 shows annual changes in expenditures and compliance costs associated with the proposed Amendments. Expenditures represent changes in total capital costs and on-going costs that occur in each year while compliance costs represent changes in annualized capital costs and on-going costs that occur in each year. Annual expenditures are estimated for the purpose of the economic modeling while compliance costs are calculated for the purpose of estimating the cost-effectiveness. Cost-effectiveness is a ratio of annual compliance costs to annual emissions reductions. Since emissions occur annually, compliance costs need to be estimated on annual basis too in order to make a meaningful comparison of the costs and benefits of a regulation.

Compliance costs are estimated to spread out the costs that do not occur annually over the useful life of equipment using a capital recovery factor (CRF). For this amended regulation, we used a 7 percent discount rate and a useful life of 10 years to calculate the CRF). The 7 percent discount rate includes higher risk premium associated with affected businesses, which are 90 percent small business.

As shown in Table 5, the total expenditures and compliance costs attributed to the amendments are about $406 and $420 million lower in 2014 dollars than the existing regulation.

Table 5: Annual Changes in Expenditures and Compliance Costs Attributed to the Amended Regulation Compared to the Existing Regulation (millions in 2014 dollars)

Year	Change in Expenditures	Change in Compliance Costs
2015	($621)	($49)
2016	($841)	($116)
2017	$126	($107)
2018	$368	($71)
2019	$31	($58)
2020	$600	($5)
2021	($255)	($5)
2022	($78)	($20)
2023	$260	($4)
2024	$2	$13
2025	$1	$4
Total	($406)	($420)

D. Macroeconomic Impacts

1. Economic Analysis Methodology

The REMI model of the California economy was used to assess economic impacts of the proposed Amendments. The annual cost savings and the deferred costs were entered into the model. Multiple sectors are directly impacted: the Ag Forestry industry, Construction, Transportation and Warehousing, Manufacturing and Mining, Wholesale and Retail Trade, and Vehicle Licensing or Rental. The costs and savings were apportioned to these sectors based on truck fleet ownerships in these sectors. Table 6 shows the distribution of the annual costs and savings to the respective sectors.

2. Inputs and Assumptions

The major assumptions for the inputs into the REMI model assessment of the proposed Amendments are:

- The baseline economy grows at rates forecasted by California Department of Finance.
- 10 years of savings and costs were inputted into the model.
- Agriculture, Forestry, Construction, Transportation and Warehousing, Manufacturing & Mining, Other Services, Wholesale and Retail Trade, and Vehicle Leasing or Rental sectors are affected.
- The shares of the costs and cost savings are based on number of fleets affected and remains constant during the 10-year life of the proposed Amendments, as shown in Table 6.
- The cost savings and costs were adjusted with the appropriate price deflators for the

corresponding impact year.

- Final demand for the sector related to the PM filter manufacturing and retrofitting was adjusted to account for the retrofit delays.

Table 6. The Economic Sectors Affected Cost Savings and Cost Shares

Sector	NAICS	Percentage Share
Agriculture, Forestry, Fishing, or Hunting	11	16
Construction	23	22
Transportation and Warehousing	48-49	27
Manufacturing & Mining	31-33, 21	12
Wholesale and Retail Trade	42, 44-45	15
Vehicle Leasing or Rental	5321	8

3. Impact Assessment Results

i. Competitiveness

When comparing the competitive advantage of businesses outside of California to those in California, no direct impact on competitiveness is projected. The proposed Amendments likely will only result in a positive impact on competitiveness, if any. The businesses identified in the proposed Amendments have indicated that the compliance requirements would negatively impact their ability to achieve the necessary profits to stay in business. The proposed Amendments are designed to provide the flexibility necessary to ensure these businesses are not eliminated. The REMI output suggests the proposal's strategy will be beneficial for California due to a favorable change in the trade balance between California and the rest of the world by about $245 Million.

ii. Job Impacts in California

The proposed Amendments to the Truck and Bus Regulation's compliance requirements may lower immediate demand for trucks and exhaust retrofit devices resulting in the elimination of some jobs associated with PM filter installation and maintenance. There will be no net loss in jobs over the life of the proposed Amendments. The changes in the number of jobs will be an increase in 8,900 in 2016 (highest savings year) and a reduction of about 3,600 in 2020 (the highest expenditure year). The cumulative total from 2015 to 2025 is an increase of about 13,000 jobs.

iii. California Business Impacts

The greater flexibility afforded by the proposed Amendments is expected to either have no change or significantly lower the compliance costs for many businesses. The cost savings from the proposed Amendments could allow some businesses that lacked adequate resources to comply in the short run, to continue their operations. ARB does

not expect any business elimination or creation in California. While some of the truck engine and PM filter retrofit manufacturers will experience lower demand, these manufacturers are not located in California. The businesses installing retrofits would experience lower demand. The affected businesses will continue to operate in California.

iv. Investment and Incentives

The REMI model predicts a change in investment as a result of the proposed Amendments. According to the model, about $250 million will be directed to investment because of the proposed Amendments.

There are several federal, state and local incentive funding programs currently. ARB's portfolio of incentive funding programs includes the Carl Moyer Program (including the Truck Improvement/Modernization Benefitting Emission Reductions (TIMBER) Program), on-road Voucher Incentive Program (including the California Hybrid Truck and Bus Voucher Incentive Project), the Goods Movement Emission Reduction Program (Prop 1B), Lower Emission School Bus Program, and the AB118 Air Quality Improvement Program. ARB also provides a loan assistance program to offer financial opportunities to on-road heavy-duty vehicle owners. While the proposed Amendments provide the opportunity for some businesses to delay compliance, there is no projected impact on available levels of these incentive funding programs. Currently, these programs are oversubscribed; the availability of compliance delays will not affect need or demand for these funds. While some currently qualified applicants, if they choose to delay compliance, may no longer qualify for funding, the current demand for these funds indicate that the funds will be used for other qualified applicants. Additionally, creating a longer compliance period, more applicants may be eligible to comply before their compliance dates. The distribution of funds to particular businesses may occur due to the proposed Amendments, however the overall funding levels will not change. The fiscal impacts should be quite insignificant. We do not believe there will be noticeable other impacts described in this document.

v. Personal Income

The direct and indirect impacts of the changes in the affected economic sectors also suggest a change in personal income: an increase of $500 million in 2016 (highest savings year), and decrease of $160 million in 2020 (highest expenditure year), with a cumulative increase of $950 million.

vi. Gross State Product

An increase in GSP of $830 million in 2016 (highest savings year), and decrease of $310 million in 2020 (highest expenditure year), with a cumulative increase of $1.5 billion.

vii. Incentives for Innovation in Products, Materials, or Processes

While no additional innovations are required to assist the businesses in meeting the current requirements, the proposed multi-year extended compliance timeframe may provide incentives for innovation in the manufacturing of heavy trucks to reduce PM and NOx during the interim years. Any incentives for innovations will likely be isolated to the hybrid market, and a potential increase in offerings of hybrid trucks may result. The Regulation gives credit to fleets that purchase a hybrid truck by exempting a non-complying truck. This incentive could promote innovation in the affected fleets.

4. Summary and Interpretation of Economic Impacts

These proposed Amendments will likely improve the California economy. Significant increases in Gross State Product and personal income lead to positive impacts throughout the economy. The later compliance costs enables businesses to compete and preserve job opportunities. The increased flexibility predominantly benefits small businesses, which represent 90% of the impacted businesses.

E. Alternatives

ARB staff believes there is only one reasonable alternative as explained below. One other alternative was submitted to the ARB but was deemed unreasonable. It proposed to exempt all trucks with annual driving miles of less than 65,000. The average affected truck by the Regulation drives about 40,000 miles per year. This proposed alternative would exclude more than half of the trucks currently regulated. The exclusion would make the proposed alternative unreasonable because the Federal SIP commitments would not be met.

1. Alternative 1

The first alternative proposed is to exempt all trucks with annual driving miles of less than 65,000.

i. Costs and Benefits

The compliance costs would be significantly cheaper for the businesses, however the benefits would be reduced dramatically. The cost savings would likely be in the hundreds of millions; this is because they would incur the cost savings, but not have to expend the money in the later years (this would be similar to the cost savings presented in table 4, years 2015 and 2016, and these same businesses not expending in 2017 and onward). This is because the majority of the trucks in the Regulation and the proposed Amendments drive less than 65,000 miles, and would therefore never have to comply. Additionally, the health impacts would be significant; this is because ARB would not meet the standards and emissions would remain at poor levels.

ii. Reason for Rejecting

The average affected truck by the Regulation drives about 40,000 miles per year. This proposed alternative would exclude more than half of the trucks currently regulated. The exclusion would make the proposed alternative unreasonable because the Federal SIP commitments would not be met.

2. Alternative 2

Stakeholders recommend that trucks in the attainment areas be exempted from the PM filter requirements of the Regulation as long as they remain in the attainment area, and that they be subject to annual smoke testing so that normal attrition would bring those fleets into compliance. These tests are currently used for fleets with three or more trucks, and this alternative suggests that the requirement be expanded to fleets with less than three trucks, with a no filter requirement. Opacity tests are designed to be simple tests to detect an engine problems but do not reduce emissions of a properly operating engine.

i. Costs and Benefits

This would cost less for each business as the Smoke tests are less expensive than a filter, however, for those trucks that cannot pass, they would still require a filter (after repairs are attempted). These businesses would only have to incur an approximately $50 test each year, and whatever repairs were required to meet the standards. These costs are difficult to quantify because they vary based upon the level of repair required, if any. These savings would be similar to the ones presented in the first alternative (and the health and emission impacts as well). Smoke tests cannot achieve PM reductions like a PM filter can. PM filters have been proven to reduce exhaust emissions by 99 percent, whereas smoke testing removes none.

ii. Reason for Rejecting

This alternative was rejected because smoke testing is not sufficient to meet the goals of the Diesel Risk Reduction Plan and does not adequately reduce exposure to diesel PM.

F. Fiscal Impacts

1. Local Government

The proposed Amendments do not affect local government.

2. Air Resources Board

There may be slight increases in staff hours required to complete the record-keeping requirements. These slight adjustments are projected to be absorbed into existing budgets.

3. Other State Agencies

There is no projected impact on other state agencies.

DEPARTMENT OF FINANCE

EDMUND G. BROWN JR. ▪ GOVERNOR

915 L STREET ▪ SACRAMENTO CA ▪ 95814-3706 ▪ WWW.DOF.CA.GOV

February 28, 2014

Fereidun Feizollahi, Manager
Economic Studies Section, Research Division
Air Resources Board
Sacramento, CA

Dear Mr. Feizollahi:

Government Code section 11346.3 and California Code of Regulations, title 1, sections 2002 and 2003 require an agency promulgating major regulations to prepare and submit a Standardized Regulatory Impact Assessment (SRIA) to the Department of Finance (Finance) for comments. Finance must provide its comments on the SRIA regarding whether that SRIA adheres to Finance's regulations. The agency must summarize and respond to Finance's comments, and include them with the notice of proposed action it files with the Office of Administrative Law.

California Code of Regulations, title 1, section 2002(a)(1) requires that a SRIA be submitted to Finance not less than 60 days prior to the filing of a notice of proposed action with the Office of Administrative Law. We recognize that the full extent of the economic impact did not become clear until the Economic Impact Assessment was almost complete, and we appreciate you letting us know as soon as you realized the proposed trucking regulation amendments would meet the standard of a major regulation. To prevent this situation from recurring in future regulations, we are available to consult regarding estimated economic impacts.

As the regulation extends the time and gives additional flexibility to the trucking industry to comply with air quality regulations, we concur that reduced expenditures of at least $621 million will accrue to the regulated trucking businesses in 2015 as a result of this proposed regulatory amendment. This SRIA fulfills all the requirements set forth in Finance regulations, and we broadly agree with its conclusions. However, we have some suggestions that may provide a more complete discussion of the issues raised by the regulations.

There could be a section added on differences in calculated impacts using discounted amounts and the methodology required by Finance's regulations, which requires an examination of annual disaggregated impacts. We understand that for some of ARB's other regulatory requirements, discounted amounts are needed. However, this may be confusing for readers if there are different numbers presented in the SRIA and other regulatory material. The two approaches also show different aspects of the trade-offs, and it would be valuable to discuss both within the SRIA.

Discussion of the two alternatives would benefit from more thorough modeling of the effects. Ideally, investigation of the alternatives would include the same level of analysis that was applied to the proposed major regulation. If advance consultations had been possible, we would also have recommended alternatives be chosen to illustrate the trade-offs on both sides. Both alternatives discussed are less costly to industry, but do not have adequate air quality benefits. It would have been instructive to investigate an alternative that was more costly to industry but better for air quality. Additional public outreach in the future could aid in identifying a wider scope of alternatives.

The analysis would also have benefited from a more thorough discussion of the health impacts. When the regulation was initially promulgated, the main trade-off was between the health impacts of cleaner air and costs to industry. The SRIA discusses changes to industry costs, but does not discuss the decreased health benefits with as much detail. Some evidence is provided that the changes will be marginal. Cross-references to the calculations in the original regulatory material could also be provided for readers interested in these aspects.

We hope that our comments provide sufficient guidance for you to revise your analysis if necessary and for future analyses. Please let us know if you have any questions regarding how our comments should be summarized when submitting your regulatory package to OAL as required. Again, we appreciate your willingness to work with Finance to ensure that the SRIA provides information regarding the economic impact of the proposed regulations for the public and policymakers.

Sincerely,

Irena Asmundson
Chief Economist

cc: Ms. Panorea Avdis, Governor's Office of Business and Economic Development
Ms. Debra Cornez, Director, Office of Administrative Law
Mr. Michael Fitzgibbon, Air Resources Board
Mr. Reza Mahdavi, Air Resources Board
Ms. Chantel Crane, Air Resources Board

Note: Today's existing environmental conditions referenced to in this appendix includes the existing regulation.

Response to Comments on the Environmental Assessment Prepared for the Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market Based Compliance Mechanisms

California Environmental Protection Agency
Air Resources Board

Released April 15, 2014

to be considered at the

April 25, 2014 Board Hearing

This page intentionally blank.

Introduction

To meet the requirements of the California Environmental Quality Act (CEQA) under the California Air Resources Board's (ARB) certified regulatory program, ARB staff prepared an environmental analysis (EA) as part of the Initial Statement of Reasons (ISOR) for the Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Instruments. The ISOR was released for public review on September 6, 2013 for a 45-day public review and comment period that concluded on October 25, 2013 at the Board Hearing. There was one 15-Day change notice for the modified regulatory text, following the initial 45-day comment period. The 15-day changes were largely administrative and did not affect the environmental analysis in the ISOR and no revision or recirculation of the environmental analysis was required.

This document represents verbatim a subset of all the comments received during the 45-day comment period, the 15-day comment period, and at the October 2013 Board Hearing that raise significant environmental issues and ARB's written responses to those comments. Substantive responses are limited to comments that "raise significant environmental issues associated with the proposed action," as required California Code of Regulations, title 17, section 60007(a). ARB conservatively included comments and responses in this document if the comment raises an environmental issue area even if the comment does not directly pertain to the adequacy of the environmental analysis. This document includes environmental comments received outside of the 45-day review and comment period required by CEQA, namely environmental comments received during the 15-day comment period even though the EA was not recirculated or reopened for public review during that time. In accordance with the ARB certified regulatory program, the Board will consider the written responses to these environmental comments for approval prior to taking final action on the proposed amendments.

Staff will prepare written responses to all public comments, not just the environmental comments, for purposes of the Administrative Procedure Act. The complete written responses to all comments will be included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

For the purposes of this document, comments and responses have been separated between those relating to the proposed amendments, and those relating to the Compliance Offset Protocol Mine Methane Capture Projects (MMC Protocol). In this document, the individual comments are presented under the correspondence within

which they were received, ordered alphabetically by COMMENT ID, and identified as shown in the example below:

COMMENT ID: *This is the abbreviation used to identify the comment correspondence in which the individual comments are contained.*

Name:	*Person(s) submitting the comment*
Affiliation:	*Affiliation of the commenter(s)*
Written/Oral Testimony: MM/DD/YYYY	*Type of comment and date received*
45-day/15-day Comment #: 123	*Comment period and unique comment number. The unique ID number corresponds to the numbering in the FSOR.*

Comment: Comments received under the COMMENT ID are presented individually as shown in this example, beginning with "**Comment**" on the first line.

Response: Responses are presented following each comment. Responses are indented from the left margin.

Commenters

The list below identifies the commenters that submitted comments related to the Environmental Analysis, and includes commenter information. This list is alphabetically ordered with a identification on when the comment was submitted to ARB.

ALA	Will Barrett, American Lung Association Oral Testimony: 10/25/2013
ANGELL	J. Angell, Private Individual Written Testimony: 04/02/2014
BARNES	Kathryn Barnes, Private Individual Written Testimony: 04/02/2014
BULLA	Jeanne Bulla, Private Individual Written Testimony: 03/31/2014
CCA	Bill Magavern, Coalition for Clean Air Oral Testimony: 10/25/2013
COVANTA 2	Ellie Booth, Covanta Energy Written Testimony: 04/04/2014
CULLENWARD 3	Danny Cullenward, Private Individual Written Testimony: 4/4/2014
EDF 2	Derrik Walker, Environmental Defense Fund Oral Testimony: 10/25/2013
FWW	Wenonah Hauter, Food & Water Watch Written Testimony: 9/26/2013
GILLESPIE	Sherri Gillespie, Private Individual Written Testimony: 04/03/2014
HAYES	Linda Hayes, Private Individual Written Testimony: 03/31/2014
HO	Kit Ho, Private Individual Written Testimony: 04/03/2014
MAES	Linda Maes, Private Individual Written Testimony: 03/31/2014
MARKS	Luan Marks, Private Individual Written Testimony: 04/04/2014
MARTINEZ	Juan Martinez, Private Individual Written Testimony: 04/02/2014
MOTL	Julie Motl, Private Individual Written Testimony: 03/31/2014
ROSENTHAL	Richard Rosenthal, Private Individual Written Testimony: 10/23/2013

SKINNER	Nancy Skinner, Assemblymember, Fifteenth District Written Testimony: 10/17/2013
STANFORD 4	Aaron Strong, Stanford University Oral Testimony: 10/25/2013
STANFORD 5	Barbara Haya, Stanford Law School Written Testimony: 04/05/2014
TAYLORR	Jeremy Taylorr, Private Individual Written Testimony: 03/31/2014
THORNBURGH	Jack Thornburgh, Private Individual Written Testimony: 04/02/2014

Location of Comment Letters on the ARB Website

All comment letters and attachments received on the proposed Cap-and-Trade Regulation are posted on the ARB website, with comments ordered by date received, and grouped by review period. These comments may be viewed at the following link:http://www.arb.ca.gov/lispub/comm/bccommlog.php?listname=capandtrade13

COMMENTS RELATED TO THE PROPOSED AMENDMENTS TO THE CAP AND TRADE REGULATION

COVANTA 2

Name:	Ellie Booth
Affiliation:	Covanta Energy
Written Testimony:	04/04/2014
15-Day Comment #:	113

Comment: New data show that the methane emitted by landfills and other sources is even more damaging than previously thought. Since the October 2012 Board Resolution and the CalRecycle study, the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report has updated the 100 year global warming potential of methane to 34 times as potent as CO_2 when climate-carbon feedbacks are included. Over a 20-year timeframe, identified in the February 10, 2014 proposed update to the Scoping Plan as a better reflection of what can be achieved in the near term by mitigation, methane is 86 times as potent as CO_2. This new data, and the shorter term perspective on methane, further demonstrates the positive characterization of EfW versus landfill from a GHG perspective and provides a sound basis to exclude the three EfW facilities moving forward.

Response: As discussed in the Draft Proposed First Update to the AB 32 Scoping Plan (Scoping Plan Update)[1], ARB approved two resolutions to work with CalRecycle and other stakeholders to characterize emission reduction opportunities for handling solid waste, waste-to-energy, and landfilling, among other waste sectors. In light of these recommendations, ARB and CalRecycle are currently preparing a joint study to analyze maximum GHG emission reduction opportunities for these and other solid waste streams in the State. ARB will continue to work with CalRecycle and other State agencies to determine the most appropriate treatment of the waste sector under the Cap-and-Trade Program, and will make any necessary modifications to the Regulation pending the results of this ongoing study.

In addition, the Scoping Plan Update also recommends that ARB develop a comprehensive strategy for mitigation of short-lived climate pollutants, including methane, by 2015. This will help ARB to continue to develop strategies that address methane emissions from the waste sector, identify opportunities for additional methane control at new and existing landfills, and identify important complements to ARBs efforts to reduce emissions of CO_2.

[1] California Air Resources Board. "Proposed First Update to the Climate Change Scoping Plan: Building on the Framework." Released February 10, 2014. Available at: http://www.arb.ca.gov/cc/scopingplan/2013_update/draft_proposed_first_update.pdf.

CULLENWARD 3

Name:	Danny Cullenward
Affiliation:	Private Individual
Written Testimony:	04/04/2014
15-Day Comment #:	89

Comment: ARB's environmental analysis is legally insufficient because it fails to acknowledge the significant environmental harms caused by the safe harbors.

Although the proposed amendments are problematic enough on their own, ARB's failure to acknowledge the expected—and quite likely intended—consequences of its actions is all the more troubling. ARB's September 2013 Staff Report on the current proposed regulations contains an environmental analysis for the proposed regulations.[2] This analysis brazenly relies on misleading comparisons to avoid assessing the environmental impacts of the proposed regulatory changes. It must be updated to serve the most basic purposes of the California Environmental Quality Act ("CEQA"), which are to:

(1) Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.

(2) Identify ways that environmental damage can be avoided or significantly reduced.

(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.[3]

Even as it implements major reforms that undermine the economic and environmental integrity of the carbon market, ARB nevertheless manages to stay silent on the expected environmental impacts. ARB's 2013 Staff Report falsely construes the proposed safe harbors as mere "clarifying language" that "would not affect the compliance responses available to [covered] entities from what was analyzed in the 2010 FED."[4] That reliance is misplaced because the 2010 FED analyzed a rulemaking

---

[2] California Air Resources Board, Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Staff Report: Initial Statement of Reasons 1, 44 (Sept. 4, 2013).

[3] Cal. Code Regs. tit.14, §§ 15002(a)(1)-(4).

[4] California Air Resources Board, supra note 24 at 51 (citing California Air Resources Board, 2010 Cap and Trade Regulation, Appendix O: Functional Equivalent Document 1, 1 (Oct. 28, 2010)). ARB concludes its 2013 Staff Report analysis by stating that: "Resource shuffling was disclosed as a prohibited activity in the 2010 Regulation as analyzed in the 2010 FED. Therefore, the potential for adverse impacts associated with the proposed clarifications to this definition fall within the scope and scale of those previously analyzed." Id. at 59.

that produced the original prohibition on resource shuffling, which did not include any safe harbors. In other words, ARB falsely claims that the current proposed safe harbors do not affect its prohibition on resource shuffling.

This is simply incorrect. The current regulation says only that "[r]esource shuffling is prohibited and is a violation of [Article 5 of the Cap-and-Trade Regulations]";[5] it says nothing about thirteen broad exemptions to this supposedly-preserved rule. As a result of the proposed safe harbor provisions, ARB's prohibition on resource shuffling will become an unenforceable formality. Between 30 and 60 million tons of CO2 have leaked or are imminently leaking as a result, exceeding any reasonable threshold for significance under CEQA.[6] Because the proposed safe harbors would radically modify the carbon market regulations as they currently exist, CEQA requires ARB to conduct an analysis of the environmental impacts.[7]

By claiming that it is not, in fact, changing its market rules, ARB suggests that adding multiple loopholes that undermine a critical market rule will have no environmental effect on the performance of its cap-and-trade market. Yet as my previous comment letter, ARB's own economic advisers (EMAC), and the observed resource shuffling transactions described in this letter show, the proposed regulatory changes have caused and will continue to cause significant leakage. In turn, this will lead to significant environmental consequences, as ARB put it when addressing leakage in its 2010 FED:

"If leakage occurs, the reductions in GHGs achieved by sources in California may be undone by a corresponding increase in emissions outside of California .... [Leakage] would likely lead to increased adverse environmental impacts outside of California, and would have negative effects on California's economy."[8]

Because the resource shuffling safe harbors have caused and will continue to cause significant environmental consequences—impacts ARB has never acknowledged or analyzed—ARB has not satisfied the basic requirements of CEQA. To comply, ARB must assess the environmental consequences of its proposed safe harbor regulations and evaluate the feasibility of alternative approaches.

> **Response:** The commenter suggests that the environmental analysis (EA) contained in Chapter III of the ISOR is inadequate because it classifies the

[5] Cal. Code Regs. tit. 17, § 95852(b)(2).
[6] See Cal. Code Regs. tit. 14, § 15064.4 (providing guidelines for determining the significance of impacts from greenhouse gases for the purposes of CEQA analysis).
[7] ARB could argue that the current regulatory proposal will have no significant changes to the status quo, but only if it acknowledges that the safe harbor regime is already in effect due to the November 2012 regulatory guidance document. Yet that admission would raise serious questions as to whether introduction of the regulatory guidance document constituted impermissible underground regulation that avoided the basic requirements of California administrative law, such as offering the public with formal notice and an opportunity to comment.
[8] California Air Resources Board, 2010 Cap and Trade Regulation FED, supra note 26 at 378 (discussing leakage in the context of a CEQA evaluation of an alternative policy design that would employ border adjustments to goods and services imported to California).

amendments related to resources shuffling as "clarifying language." The commenter argues that this characterization is incorrect because the 2010 FED analyzed a rulemaking that produced a single prohibition on resource shuffling, which did not include any safe harbors.

Staff disagrees that the proposed amendments related to resource shuffling are not clarifying in nature. Under the existing Cap-and-Trade Regulation (Regulation), resource shuffling is explicitly prohibited and was disclosed as a prohibited activity in the 2010 Regulation, as analyzed in the 2010 FED. Pursuant to Board Resolution 12-33, staff was directed to provide additional clarity relating to the existing definition of resource shuffling, to provide guidance to in-state electricity generators and out-of-state electricity importers on actions that are already prohibited under the program. In Resolution 12-51, the Board directed staff to further refine the definition of resource shuffling and to identify situations that ARB would not consider resource shuffling based on Attachment A of Resolution 12-51. In consultation with State Utilities, ARB staff developed this clarifying language via an open public process, and released a public draft of this clarifying language in November 2012. Pursuant to board direction, the activities identified as "safe harbors" are not exemptions from the current prohibition, but rather serve to clarify it.

The commenter suggests that the EA is inadequate because it states that clarifying language related to resource shuffling would not affect the compliance responses available to entities from what was analyzed in the 2010 FED. Staff does not agree. The 2010 FED indicated the following four compliance responses are available to covered entities: (1) upgrade equipment; (2) decarbonization (fuel switching); (3) implement process changes; and (4) surrender compliance instruments. These compliance responses have not changed for in-state generators or out-of-state importers as a result of the proposed clarifying language related to resource shuffling.

Finally, the commenter argues that the EA must be updated in order to serve the purposes of CEQA, which are to inform decision makers, identify ways to avoid or mitigate impacts, provide alternatives if feasible, and disclose the reason for project approval in the case that significant projects are identified. Staff disagrees with the commenter. As discussed in the ISOR, the focus of the EA is to assess the potential for adverse impacts associated with incremental changes to the previously adopted program, as analyzed 2010 FED. The EA concluded that the proposed regulatory amendments to the Regulation would not result in any new significant adverse impacts or an increase in the severity of any significant impacts as previously identified in the 2010 FED, and may provide air emissions benefits as compared to current practices. Because the impacts of the proposed amendments fall within the scope and scale of those already analyzed in the 2010 FED, and the amendments do not result in any additional or more severe impacts than previously analyzed in the prior certified environmental documents,

the EA concluded that no additional alternatives analysis for the amendments was required. (See Public Resources Code, section 21166.)

An alternative analysis for the MMC Protocol which identified impact identified in its environmental analysis was included in Appendix A to the ISOR. ARB's CRP requires that prior to adoption of an action for which significant adverse environmental impacts have been identified during the review process, that ARB consider all feasible mitigation measures and alternatives available which could substantially reduce such adverse impacts (California Code of Regulations, title 17, section 60006.). While an agency may approve a project with unavoidable adverse environmental impacts, CEQA requires the agency to make a statement in the record of its views on the ultimate balancing of the merits of approving the project despite the environmental impacts. As a result of this requirement, staff prepared a Findings and Statement of Overriding Considerations to be considered by the Board at April 25, 2014 public hearing.

Staff notes that this comment was received outside the 45-day comment period provided for the environmental analysis for purposes of CEQA. The following 15-Day change notice for the modified regulatory text was limited to review on those limited changes and did not reopen the CEQA comment period. Non-CEQA related aspects of this comment, such as enforcement of the resource shuffling prohibition, will be addressed in the FSOR prepared for the Regulation in accordance with APA requirements

EDF 2

Name: Derrik Walker
Affiliation: Environmental Defense Fund
Oral Testimony: 10/25/2013
Board Hearing speaker #: 44

Comment: There is, however, one element of today's package that creates tremendous concern for us. That is the extension of transition assistance to the refining sector. We believe that this decision is premature as research has not been finalized to demonstrate its necessity. In fact, WSPA's own analysis found that 100 percent transition assistance is unnecessary, not to mention that it won't make much of a difference to these very large petroleum companies.

We have excerpted WSPA's analysis in our written comments that we filed to the Board. What's more, the extension of this transition assistance amounts to between a $550 million and $750 million give away, money that could be invested to improve the environment and public health in communities that have suffered for decades from the effects of air pollution from refineries. We urge the Board to reject this extension of transition assistance.

Response: The commenter argues that the additional transition assistance provided to the petroleum refining sector should not be approved, and suggests that the monetary value of these additional allowances should be invested to improve the environment and public health in communities which have increased air quality impacts as a result of refineries.

The Regulation requires GHG reductions on a statewide level, but does not stipulate specific improvements or compliance actions by individual regulated entities. Moreover, the Regulation does not obviate any existing local or regional air quality regulations or control programs related to the management of toxic air pollutants in California. Local air pollution control districts and/or air quality management Districts (air districts) have primary responsibility for adoption and implementation of stationary and area-wide source emission control measures. The 2010 FED accurately reflects that local governments, notably cities and counties, have land use and permitting authorities (CEQA lead agency authority, zoning Ordinances and regulations, building codes, construction permits, etc.) that are applicable to facility-specific projects. Such projects may be undertaken as compliance responses and would be local improvements subject to project-level CEQA analysis and local permitting.

In addition, the 2010 FED, to which the EA for the current amendments provides an addendum, also identified ARB's commitment to an adaptive management approach to assess the effectiveness of the Regulation, and identify data trends that could indicate unanticipated or undesirable results. This monitoring and feedback approach lays out a framework to monitor the potential for adverse

impacts that could result from action taken to comply with the Regulation, including the proposed amendment to shift the first reduction in transition assistance for refineries.

Finally, staff would like to point out that in 2012, the Legislature passed and Governor Brown signed into law three related bills (i.e., AB 1532, SB 535, and SB 1018) providing direction on the establishment of the Greenhouse Gas Fund (created pursuant to Government Code section 16428.8), and the process for the allocation of auction proceeds to further the goals of AB 32. In enacting the implementing legislation, the Legislature stated its intent to direct resources to the State's most impacted and disadvantaged communities, in order to provide economic benefits as well as health benefits through additional emission reductions. A requirement of these statutes is that at least 25 percent of program funding must be allocated to projects that benefit disadvantaged communities and at least 10 percent of program funding must be allocated to projects located in disadvantaged communities. CalEPA is responsible for identifying disadvantaged communities outlined the investment plan to the Legislature. Identification criteria may include, but are not limited to, areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure or environmental degradation. ARB directs the commenter to the Cap-and-Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14 through 2015-16[9], for additional information on the use of auction proceeds.

[9] California Air Resources Board. Cap-and-Trade Auction Proceeds Investment Plan: Fiscal Years 2013-14 through 2015-16. Released May 14, 2013. Available at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/final_investment_plan.pdf

ROSENTHAL

Name:	Richard Rosenthal
Affiliation:	Private Individual
Written Testimony:	10/23/2013
45-Day Comment #:	74

Comment: Prior to consideration of proposed amendment, an EIR should be undertaken to assess the environmental impacts of the proposed amendment. [This comment was provided in response to the proposed amendments related to clarifications on resource shuffling.]

Response: In accordance with Public Resources Code section 21080.5 of CEQA, public agencies with certified regulatory programs are exempt from certain CEQA requirements, including, but not limited to, preparing environmental impact reports, negative declarations, and initial studies (14 CCR 15250). Staff prepared a substitute environmental document, referred to as an environmental analysis (EA) for the proposed amendments in Chapter III of the ISOR, pursuant to ARB's regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60005-60007). The EA, as part of the ISOR, was released for public review on September 6, 2013 for a 45-day public review and comment period that concluded on October 25, 2013..[10] ARB also prepared a separate EA specific to the MMR Protocol in the ISOR for that proposed protocol in Appendix A to the ISOR for the proposed amendments.[11]

In the EA for the proposed amendments, staff specifically analyzed the proposed amendments relating to the definition of resource shuffling, and the identification actions that ARB does not consider resource shuffling. In the EA, staff concluded that the intent of the proposed language relating to resource shuffling is to provide further clarification to electricity generators and importers regarding both prohibited and non-prohibited activities under the Regulation, and that the potential for adverse impacts associated with the proposed clarifications to this definition falls within the scope and scale of those previously analyzed in the environmental analysis certified for the Regulation in 2010 (referred to as the 2010 Functional Equivalent Document included as Appendix O to the 2010 ISOR). Staff concluded that the clarity provided to the definition and other administrative changes to the Regulation do not trigger any additional environmental review because these were not substantial changes to the regulation, substantial changes to the circumstances, or new information of substantial information that alters the analysis or conclusion discussed in the certified environmental analysis prepared for the Regulation in 2010. (See Public Resources Code section 21166.)

[10] http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13isor.pdf
[11] http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13isorappa.pdf

COMMENTS RELATED TO THE PROPOSED COMPLIANCE OFFSET PROTOCOL MINE METHANE CAPTURE PROJECTS

ALA

Name:	Will Barrett
Affiliation:	American Lung Association
Oral Testimony:	10/24/2013
45-Day Comment #:	67

Comment: Also wanted to briefly get into -- the echo also many of the comments related to the impacts of methane mine protocol and think more time is needed to evaluate the concerns raised today by several of the groups and academics that testified. At the national level, the American Lung Association supports the phase out of coal and a transition to cleaner energy sources for the climate air quality and localized public health benefits or damages associated with all phases of the coal use. We believe additional time is needed to review the protocol and urge you to take that time to do so just to ensure that any projects under that protocol do not incent more coal or probably result in non-additional projects going forward. So thank you very much.

Response: The limited use of offsets serves as an important cost-containment feature in the Cap-and-Trade Program, which reduces emissions and works in conjunction with other AB 32 measures that shift California's energy consumption toward renewable sources. The environmental analysis prepared for the proposed Mine Methane Capture Compliance Offset Protocol (MMC protocol) concluded that any potential impacts to air quality would be less than significant due to the requirement that all projects comply with all applicable federal, state and local laws and regulations. The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The

analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The issue of additionality raised by the commenter will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

ANGELL

Name:	J. Angell
Affiliation:	Private Individual
Written Testimony:	4/2/2014
15-Day Comment #:	52

Comment: Proposed offsets for methane flaring are patently absurd, detrimental to effectively addressing climate change and to public health, especially for indigenous populations; thus do not approve this illogical insane proposal.

Response: Staff disagrees with the commenter that allowing the flaring of mine methane is detrimental to effectively addressing climate change. CO_2, a greenhouse gas, is released when methane is destroyed via a flare or when combusted for productive utilization as allowed in the MMC protocol. Methane has a much higher global warming potential than carbon dioxide so the CO_2 emissions resulting from the destruction of methane still represent a reduction in terms of the climate impact. Nonetheless, the MMC protocol takes into consideration the release of CO_2 from the destruction of methane, regardless of the destruction method employed, and accounts for the impact of these emissions in the quantification methodologies. It is only the real, net emission reductions that are credited. The environmental analysis prepared for the proposed MMC protocol determined that implementation of MMC projects would result in beneficial impacts to greenhouse gas emissions. The environmental analysis further concluded that its potential impacts to resource areas related to public health such as air quality, hazards/hazardous materials, and hydrology/water quality would be less than significant due to the MMC protocol's requirement that all projects comply with all applicable federal, state, and local laws and regulations. The environmental analysis applies equally to potential projects on tribal and non-tribal lands. It is worth noting that the MMC protocol is not a compulsory regulation; rather the development of a MMC offset project is strictly a voluntary action.

BARNES

Name:	Kathryn Barnes
Affiliation:	Private Individual
Written Testimony:	4/2/2014
15-Day Comment #:	49

Comment: Do not capture and burn off methane gas. It is wasteful and creates global warming. It is one thing to use a resource, another to waste it.

Response: The MMC protocol allows for a variety of end-uses for captured methane including productive utilization. Staff disagrees with the commenter that allowing the flaring (burning) of mine methane creates increased global warming. CO_2, a greenhouse gas, is released when methane is destroyed via a flare or when combusted for productive utilization as allowed for in the MMC protocol. Methane has a much higher global warming potential than carbon dioxide so the CO_2 emissions resulting from the destruction of methane still represent a net reduction in the terms of the climate impact. Nonetheless, the MMC protocol takes into consideration the release of CO_2 from the destruction of methane, regardless of the destruction method or employed, and accounts for the impact of these emissions in the quantification methodologies. It is only the real, net emission reductions that are credited. The environmental analysis prepared for the proposed MMC protocol determined that implementation of MMC projects would result in beneficial impacts to greenhouse gas emissions. It also found that the MMC protocol has the potential to both reduce a facility's reliance on fossil fuel and increase the supply of electricity and natural gas, both beneficial impacts of the MMC protocol.

BULLA

Name:	Jeanne Bulla
Affiliation:	Private Individual
Written Testimony:	March 31, 2014
15-Day Comment #:	15

Comment: The State of California's Global Warming Solutions Act's proposed Mine Methane Capture Protocol has extremely strong potential to become a major driver of national and international coal mining and fossil fuel extraction in Indigenous Peoples' and non-Indigenous lands, as well as profiteering and increased environmental degradation. The Protocol purports to be about the environmentally motivated capture and destruction of methane for offsets. However, it actually incentivizes and subsidizes the development of additional and potentially major coal mining and natural gas extraction operations, including flaring and burning, in existing and future coal and trona[2] mine areas. It represents not just business-as-usual for the fossil fuel industries, but a future increase in fossil fuel extraction, with expansions in extent, production, output, and infrastructure, including refineries and pipelines, together with permits to pollute even more.

Response: Only projects located within the United States are eligible under the proposed MMC protocol. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm
The protocol in no way impacts the permitting process applicable to the mining industry. Project developers must meet the regulatory compliance requirements set forth in section 95973(b) of the Cap-and-Trade Regulation and offset credits will not be issued if a project is not in compliance with regulatory requirements.

The commenter's claim that the MMC protocol represents business-as-usual will be addressed in written responses to all comments included in the Final

Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at:
http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

CCA

Name:	Bill Magavern
Affiliation:	Coalition for Clean Air
Oral Testimony:	October 24, 2013
45-Day Comment #:	51

Comment: And thirdly, we oppose the adoption of the mine methane protocol. Others have testified as to the technical reasons why it shouldn't be adopted. I would just ask you to look at fundamentally what's happening here if this is adopted. You have a law which requires California to reduce California's greenhouse gas emissions. If this is adopted, then instead, what will happen is the state's polluters, instead of reducing their own pollution here in California, will send money out of state to the companies that mine coal, which can then use that money to dig up more coal, our dirtiest energy source, so it will be burned in other states and possibly other countries very much against what we're trying to do to reduce CO2 emissions. I would ask is that really the direction you want to go implementing this law.

Response: The limited use of offsets serves as an important cost-containment feature in the Cap-and-Trade Program. The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at:
http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

FWW

Name:	Wenonah Hauter
Affiliation:	Food & Water Watch
Written Testimony:	9/26/2013
45-Day Comment #:	5

Comment: On behalf of Food & Water Watch (FWW),[12] I write to express our organization's opposition to the September 4, 2013 "Proposed Compliance Offset Protocol Mine Methane Capture Projects."

Offsets are counterproductive and do not lead to real, additional, or permanent emissions reductions. Even worse, offsets generated from coalmine methane capture operations would further promote an emissions intensive and highly polluting fossil fuel.

As if offsets alone were not problematic enough, California's new initiative to generate offsets from coalmine methane capture projects creates additional specific problems. Supporting these offsets supports coal mining and ultimately coal burning power plants—a chain of processes that is highly polluting, degrades the environment, and adds significant amounts of greenhouse gases (GHGs) into the atmosphere. The point of an emissions reduction initiative is to *reduce* emissions, not support a process that creates additional emissions.

Coal is a fossil fuel, it is not renewable and it is one of the most highly polluting fossil fuels. It doesn't just cause methane emissions, it also emits carbon dioxide (CO2), sulfur dioxide (SO2), nitrogen oxides (NOx), particulate matter, mercury, and several other harmful pollutants and GHGs.[13]

The negative impacts of coal are numerous and extensive. Coal mining is energy intensive and labor intensive, and depending on the type of mine (surface or underground) it results in a great deal of environmental damage. Significant deforestation is a direct result of surface mining, as is mountaintop removal.[14] This in turn has drastic impacts on water resources through destruction and contamination.[15]

---

[12] Food & Water Watch (FWW) is a nonprofit consumer advocacy organization headquartered in Washington, DC that runs cutting-edge campaigns to help ensure clean water and safe food. We work with various community outreach groups around the world to create an economically and environmentally viable future. We advocate for safe, wholesome food produced in a humane and sustainable manner, and public rather than private control of water resources, including oceans, rivers and groundwater.

[13] Union of Concerned Scientists. "Environmental impacts of coal power: air pollution." 2012 at 1.

[14] Union of Concerned Scientists. "Environmental impacts of coal power: air pollution." 2012 at 1.

[15] *Ibid at 1.*

"In West Virginia, more than 300,000 acres of hardwood forests (half the size of Rhode Island) and 1,000 miles of streams have been destroyed" by mining.[16] In addition, underground mining is especially hazardous for workers, with many risking death and serious injury as well as chronic lung diseases and other health problems.

The destruction doesn't stop there. Coal burning power plants emit so much carbon dioxide that they are the greatest source of CO2 emissions in the United States.[17] "In 2011, utility coal plants in the United States emitted a total of 1.7 billion tons of CO2."[18] Burning coal also causes smog, acid rain, and toxic air pollution.[19]

The concept of offsets from coalmine methane capture is so backwards that it's astonishing it is even under consideration. Not only will emissions continue at the source in California, but methane would be reduced while other GHGs are released from flaring the methane as well as from coal mining and coal burning power plants.

Allowing offsets from coalmine methane capture projects is just another pay to pollute scheme in which coalmines are *paid* money for capturing their methane emissions rather than let them escape into the atmosphere—the same coalmines that are responsible for emitting a host of other GHGs and are part of the larger process of burning coal for energy, which is the leading source of CO_2 emissions in the United States.

What's more is that through such an offset scheme, not only will an offset be sold to a company in California and a coalmine elsewhere will receive payment for the offset, but the coalmine being paid for the offset could also make additional profit from selling the captured methane for various end-use options outlined in the "Proposed Compliance Offset Protocol Mine Methane Capture Projects".[20]

The coalmines involved in mine methane capture projects would then receive a financial incentive from offsets, and possibly an additional incentive from selling their captured methane, further supporting the production of a fossil fuel that emits many serious GHGs in high amounts. This could even cause an increase in coal production.

> **Response:** The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and

[16] *Ibid at 1.*

[17] Union of Concerned Scientists. "Environmental impacts of coal power: air pollution." 2012 at 1.

[18] *Ibid at 1.*

[19] *Ibid at 1.*

[20] California Air Resources Board, California Environmental Protection Agency. "Proposed Compliance Offset Protocol Mine Methane Capture Projects." September 4, 2013 at 129

therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The commenter's characterization of offsets as being counterproductive and not leading to real, additional, or permanent emission reductions will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

Comment: Of the eight options for destruction or end-use of captured methane, only two—open flare and enclosed flare—involve the actual destruction of methane. However, when methane is flared CO_2 is released into the atmosphere. There isn't much benefit from an offset, which is supposed to *remove* emissions in place of those not removed in California, that just replaces one type of emission (methane) with another or even many other types of emissions (carbon dioxide and the several other GHGs released from mining and burning coal).

The other six options for disposing of captured methane are all end-use options that involve using the captured methane to generate heat, electricity, other forms of power, and fuel. This means that coalmines stand to profit from both the offset and the potential sale of captured methane.

Response: CO_2, a greenhouse gas, is released when methane is destroyed via a flare or when combusted for productive utilization as allowed for in the MMC protocol. The concern over methane destruction resulting in the "replacement" of one type of greenhouse gas with another, however, is misplaced. Methane has a much higher global warming potential than carbon dioxide so the CO_2 emissions resulting from the destruction of methane still represent a reduction in the terms of the climate impact. Nonetheless, the MMC protocol takes into consideration the release of CO_2 from the destruction of methane, regardless of the destruction method or employed, and accounts for the impact of these emissions in the

quantification methodologies. It is only the real, net emission reductions that are credited.

Captured mine methane can be sold and put to productive use. This economic reality is in no way altered by the MMC protocol since mine operators have the option to pursue such incentives with or without the existence of the offset protocol. Nonetheless, analysis showed that, aside from pipeline injection of mine methane extracted from methane drainage systems at active underground mines, the capture and destruction or utilization of mine methane is not common practice. By providing offset credits for emission reductions, the MMC protocol further incentivizes the capture and destruction of methane through a variety of means that are not deemed business-as-usual.

Comment: Furthermore, not only would mine methane offsets perpetuate hot spots in California by allowing pollution to continue at the source, they would also perpetuate hot-spots surrounding coalmines. Social, environmental, and health costs would continue where pollution occurs in California and at coalmine sites, all for the benefit of giving polluters in California another *option* in meeting their emissions reductions.

Do the supposed benefits of offsets, especially from coalmine methane capture projects, really justify the extensive costs that will burden not only the people of California but also communities across the United States?

Response: The limited use of offsets serves as an important cost-containment feature in the Cap-and-Trade Program. The environmental analysis prepared for the proposed MMC protocol concluded that its potential impacts to air quality would be less than significant due to the requirement that all projects comply with all applicable federal, state and local laws and regulations.

The Regulation requires GHG reductions on a statewide level, but does not stipulate specific improvements or compliance actions by individual regulated entities. Moreover, the Regulation does not obviate any existing local or regional air quality regulations or control programs related to the management of toxic air pollutants in California. In addition, the 2010 FED, to which the EA for the proposed amendments serves as an addendum, also identified ARB's commitment to an adaptive management approach to assess the effectiveness of the Regulation, and identify data trends that could indicate unanticipated or undesirable results. This monitoring and feedback approach lays out a framework to monitor the potential for adverse impacts that could result from action taken to comply with the Regulation.

GILLESPIE

Name:	Sherri Gillespie
Affiliation:	Private Individual
Written Testimony:	4/3/2014
15-Day Comment #:	56

Comment: This legislation must be stopped. Representatives of the mining and fossil fuel industries have contributed heavily to the protocol's drafting, dictating its terms.

State of California's Global Warming Solutions Act's (AB32) has the very strong potent potential to become a major driver of national and international coal mining and fossil fuel extraction in Indigenous Peoples' and non-Indigenous lands, as well as profiteering and increased environmental degradation. The Protocol is said to be about environmentally motivated methane capture and destruction for methane offsets. However it actually incentivizes and subsidizes the development of additional and potentially major coal mining and natural gas extraction operations, including flaring and burning, in existing and future in coal and trona mine areas. It represents not just business-as-usual for fossil fuel industries, but a future increase in fossil fuel extraction, with expansions in extent, production, output, and infrastructure including refineries and pipelines, together with permits to pollute more.

This hydraulic fracturing on steroids and must NOT pass.

Response: Staff undertook an extensive public process, consistent the requirements of the Administrative Procedure Act, in the development of the MMC protocol. As in the past, staff started the protocol development process by evaluating existing voluntary and regulatory offset protocols and taking the best features through a public process to develop an ARB compliance offset protocol. Staff engaged with a diverse set of stakeholders and considered all comments made in order to put forward the best possible protocol that meets the rigorous standards of the Cap-and-Trade Regulation.

Only projects located within the United States are eligible under the proposed MMC protocol. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the

protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The protocol in no way impacts the permitting process applicable to the mining industry. Project developers must meet the regulatory compliance requirements set forth in section 95973(b) of the Cap-and-Trade Regulation and offset credits will not be issued if a project is not in compliance with regulatory requirements.

The protocol is unrelated to hydraulic fracturing aside from the explicit exclusion of mines that use CO2, steam, or any other fluid/gas to enhance mine methane drainage.

The commenter's claim that the MMC protocol represents business-as-usual will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

HAYES

Name:	Linda Hayes
Affiliation:	Private Individual
Written Testimony:	3/31/2014
15-Day Comment #:	9

Comment: I could hardly believe my eyes when I read that the State of California had gotten a mining executive to write a Mine Methane Protocol which does nothing but incentivize ongoing pollution from the coal mining industry. To my mind this is nothing less than criminal behavior. Please back out of this bad move and end the nonsense.

Response: Contrary to the comment, the proposed MMC protocol was not written by a mining executive. Staff undertook an extensive public process, consistent the requirements of the Administrative Procedure Act, in the development of the MMC protocol. As in the past, staff started the protocol development process by evaluating existing voluntary and regulatory offset protocols and taking the best features through a public process to develop an ARB compliance offset protocol. Staff engaged with a diverse set of stakeholders and considered all comments made in order to put forward the best possible protocol that meets the rigorous standards of the Cap-and-Trade Regulation.

Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

HO

Name:	Kit Ho
Affiliation:	Private Individual
Written Testimony:	4/3/2014
15-Day Comment #:	60

Comment: Extraction of fossil fuel like coal releases methane that requires the methane to be capture and burned. The methane is reduced to carbon dioxide. It causes environment degradation and is absolutely not a solution. Full force should be on the development of green energy like wind, solar, tidal wave, etc. giving the imminent ominous effect of global warning!

Response: CO_2, a greenhouse gas, is released when methane is destroyed via a flare or when combusted for productive utilization as allowed for in the MMC protocol. Methane has a much higher global warming potential than carbon dioxide so the CO_2 emissions resulting from the destruction of methane still represent a reduction in the terms of the climate impact. Nonetheless, the MMC protocol takes into consideration the release of CO_2 from the destruction of methane, regardless of the destruction method or employed, and accounts for the impact of these emissions in the quantification methodologies. It is only the real, net emission reductions that are credited. An environmental analysis of the proposed MMC protocol determined that implementation of MMC projects would result in beneficial impacts to greenhouse gas emissions. The limited use of offsets serves an important role in the Cap-and-Trade Program, which reduces emissions and works in conjunction with other AB 32 measures to shift California's energy consumption toward renewable sources.

MAES

Name:	Linda Maes
Affiliation:	Private Individual
Written Testimony:	3/31/2014
15-Day Comment #:	29

Comment: This Mine Methane Capture Protocol will only encourage more fossil fuel extraction and burning, which exacerbates climate change, please don't do this!

Response: Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

MARKS

Name:	Luan Marks
Affiliation:	Private Individual
Written Testimony:	4/4/2014
15-Day Comment #:	83

Comment: I hope you will reconsider and not pass the MMCP under the Cap and Trade Program.

Mine Methane Capture Protocol (MMCP) Comment Summary

- California's Air Resources Board's (ARB) proposed Mine Methane Capture Protocol has extremely strong potential to become a major driving force in subnational, national, and international fossil fuel extraction profiteering and increased environmental degradation.
- The MMCP purports to be about environmentally concerned methane capture and destruction, but it actually incentivizes and subsidizes the development of additional and potentially major natural gas extraction operations, including fracking and burning, in existing and future coal and trona mine areas.
- The MMCP represents a future increase in business as usual for the fossil fuel industries, with expansions in extent, production, output, and infrastructure, including refineries and pipelines, together with permission to pollute.
- The language of the MMCP permits open-ended possibilities in regard to location, extent of activities permitted, and environmental damage as the result of expansions and entrenchment of methane extraction operations and of potentially more extensive mining operations, in both abandoned and operating mines
- ARB staff have determined "potentially significant environmental impacts may be unavoidable.[21] Disclaimer was made that the environmental "analysis in these documents is necessarily programmatic in nature" because of site-specific or project-specific aspects that cannot be presently described.[22]
- Despite the fact that the MMCP is currently designated for U. S. mines, the overarching program is anticipated to be international in scope. California has already established major international links; ARB is also informed by the REDD Offset Working Group. With international expansion, some current constraints will fall away, including the domestic laws and regulations that are now major buffers for negative environmental impacts. This poses grave dangers in environmental and social justice arenas that are international in scope
- Flaring is not a sustainable or carbon negative use. While fracking is not mentioned as a capture technology, neither is it specifically prohibited.

[21] http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13isorappa.pdf, pdf 24, SR 20. This pdf includes both staff report (SR) and regulations (Reg), each with separate page numbers.
[22] http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13isor.pdf, 48

- Focuses of coal extraction in the U. S. are federal and tribal lands. Because tribal lands are obvious sites for mine methane capture, tribes are at risk from the numerous environmental impacts of increased mining on their lands.
- The MMCP has built in major incentives for the fossil fuel industry to reap multitiered profits from a program of essentially deregulated resource extraction disguised as carbon abatement. It stands to increase global warming, rather than to mitigate it.

Response: Only projects located within the United States are eligible under the proposed MMC protocol. The commenter's concern related to potential international ramifications are outside of the scope of applicability of the protocol and this rule-making.

Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. The environmental analysis analyzed the potential environmental impacts of the proposed MMC protocol based on the expected compliance responses to the protocol, including the installation and operation of infrastructure used to capture, transport, treat and destroy mine methane. That analysis determined that implementation of MMC projects would result in beneficial impacts to greenhouse gas emissions, no impacts to public services and, less than significant impacts to aesthetics, agriculture and forest resources, air quality, energy demand, geology/soils and minerals, hazards/hazardous materials, hydrology/water quality, land use, noise, population and housing, recreation, transportation and traffic, and utilities and service systems. It further concluded that impacts to biological resources and cultural resources are potentially significant related to landscape disturbance required for construction of facilities and infrastructure. The EA identified recognized measures, including existing statutes and

regulations and operating permit requirements designed to reduce this potentially significant impact, but the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects. ARB does not have the authority to require project-level mitigation. Further, the programmatic analysis in the EA does not allow project-specific details of mitigation, resulting in an inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, the EA takes a conservative approach in its post-mitigation significance conclusion and finds this impact potentially significant and unavoidable.

The programmatic level environmental analysis applies equally to potential projects on tribal and non-tribal lands. It is worth noting that the MMC protocol is not a compulsory regulation; rather the development of an MMC offset project is strictly a voluntary action. Moreover, no action that ARB takes in execution of California's Cap-and-Trade Program precludes action on greenhouse gas emissions by the federal government or jurisdictions outside of California. The protocol in no way impacts the permitting process applicable to the mining industry. Project developers must meet the regulatory compliance requirements set forth in section 95973(b) of the Cap-and-Trade Regulation and offset credits will not be issued if a project is not in compliance with regulatory requirements.

Staff disagrees with the commenter that the flaring of mine methane is not a carbon negative use. CO_2, a greenhouse gas, is released when methane is destroyed via a flare or when combusted for productive utilization as allowed for in the MMC protocol. Methane has a much higher global warming potential than carbon dioxide so the CO_2 emissions resulting from the destruction of methane still represent a reduction in the terms of the climate impact. Nonetheless, the MMC protocol takes into consideration the release of CO_2 from the destruction of methane, regardless of the destruction method or employed, and accounts for the impact of these emissions in the quantification methodologies. It is only the real, net emission reductions that are credited.

Finally, contrary to the comment, the protocol is not silent on hydraulic fracturing and in fact explicitly excludes mines that use CO2, steam, or any other fluid/gas to enhance mine methane drainage.

MARTINEZ

Name:	John Martinez
Affiliation:	Private Individual
Written Testimony:	4/2/2014
15-Day Comment #:	54

Comment: DON'T DO THIS!
The State of California's Global Warming Solutions Act's (AB32) proposed Mine Methane Capture Protocol (MMCP) [1] has extremely strong potential to become a major driver of national and international coal mining and fossil fuel extraction in Indigenous Peoples' and non-Indigenous lands, as well as profiteering and increased environmental degradation. The Protocol purports to be about the environmentally motivated capture and destruction of methane for offsets. However, it actually incentivizes and subsidizes the development of additional and potentially major coal mining and natural gas extraction operations, including flaring and burning, in existing and future coal and trona[2] mine areas. It represents not just business-as-usual for the fossil fuel industries, but a future increase in fossil fuel extraction, with expansions in extent, production, output, and infrastructure, including refineries and pipelines, together with permits to pollute even more.

NO TO A832!!!!!!!!!!!!!!!!!!!!

Response: Only projects located within the United States are eligible under the proposed MMC protocol. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. The environmental analysis analyzed the potential environmental impacts of the

proposed MMC protocol based on the expected compliance responses to the protocol, including the installation and operation of infrastructure used to capture, transport, treat and destroy mine methane. That analysis determined that implementation of MMC projects would result in beneficial impacts to greenhouse gas emissions, no impacts to public services and, less than significant impacts to aesthetics, agriculture and forest resources, air quality, energy demand, geology/soils and minerals, hazards/hazardous materials, hydrology/water quality, land use, noise, population and housing, recreation, transportation and traffic, and utilities and service systems. It further concluded that impacts to biological resources and cultural resources are potentially significant related to landscape disturbance required for construction of facilities and infrastructure. The EA identified recognized measures, including existing statutes and regulations and operating permit requirements designed to reduce this potentially significant impact, but the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects. ARB does not have the authority to require project-level mitigation. Further, the programmatic analysis in the EA does not allow project-specific details of mitigation, resulting in an inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, the EA takes a conservative approach in its post-mitigation significance conclusion and finds this impact potentially significant and unavoidable.

The environmental analysis applies equally to potential projects on tribal and non-tribal lands. It is worth noting that the MMC protocol is not a compulsory regulation; rather the development of an MMC offset project is strictly a voluntary action. The protocol in no way impacts the permitting process applicable to the mining industry. Project developers must meet the regulatory compliance requirements set forth in section 95973(b) of the Cap-and-Trade Regulation and offset credits will not be issued if a project is not in compliance with regulatory requirements.

The commenter's claim that the MMC protocol represents business-as-usual will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at:
http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

MOTL

Name:	Julie Motl
Affiliation:	Private Individual
Written Testimony:	3/31/2014
15-Day Comment #:	11

Comment: This proposal, if passed, would be very detrimental to the state of California. It would only lead to more mining and more environmental destruction. I am concerned about natural gas mining in an already seismically active state. This is a terrible idea and should be banned! The profit gained by a few companies is not worth the potential damage to the citizens of California!

Response: Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, ARB staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The commenter's expressed concern about natural gas mining in California, a seismically active state, is unfounded as California does not have active mines and only abandoned mines that could potential support MMC projects.

SKINNER

Name:	Nancy Skinner
Affiliation:	California State Assembly
Written Testimony:	10/17/2013
45-Day Comment #:	48

Comment: I am concerned about the draft Mine Methane Capture (MMC) carbon offset protocol, initiated under AB 32 and the Cap and Trade Program. The protocol, as written, will subsidize coal mining, likely for export. I urge you to postpone indefinitely the adoption of the Protocol scheduled for the October 24-25 Board meeting until a comprehensive plan for methane emissions reduction in California has been developed and adopted by the Board.

The MMC only counts emissions at the mining operation and not emissions associated with the use or transport of the product. With US exports of coal reaching their highest levels in two decades and doubling from 2006 to 2011, the MMC could actually increase carbon emissions. I am skeptical that the MMC "offset" can balance the additional emissions associated with moving coal thousands of miles over land and sea only to be burned where there are few environmental and air protections.

Global climate change is accelerating and the primary cause is the burning of fossil fuels. We cannot have a policy that directly incentivizes coal mining. The best way to reach our AB 32 goals is to keep coal in the ground. California has already taken steps to dis-incentivize the use of coal, but the draft MMC protocol undermines those efforts. (SKINNER)

Response: The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at:
http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The comment about developing a comprehensive plan for reducing methane emissions in California is consistent with staff's recommendations in the proposed AB 32 Scoping Plan Update for addressing Short-Lived Climate Pollutants, which is currently open for public review and comment. This issue will be addressed more fully in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at:
http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

STANFORD 4

Name:	Aaron Strong
Affiliation:	Stanford University
Oral Testimony:	10/24/2013
45-Day Comment #:	42

Comment: Having participated in this process actively and having seen the impressive work of the staff in preparing this protocol, I'm here today to say simply we aren't there yet. In my academic opinion, this protocol is not quite ready for adoption. My message put succinctly is this: More work needs to be done to assess the strong possibility of the protocol increasing emissions by making coal mining more profitable at some mines and truly conservative business as usual assumptions need to be made when setting eligibility criteria for projects at abandoned mines in order to avoid generating substantial non-additional credits.

Response: The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets compare to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, and assessing whether or not the protocol would shift production between existing coal mines or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at:
http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The comments related to the eligibility criteria and additionality of abandoned underground mine methane recovery activities will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

STANFORD 5

Name:	Barbara Haya, Aaron Strong, Emily Grubert, and Deborah Sivas
Affiliation:	Stanford Law School
Written Testimony:	4/5/2014
15-Day Comment #:	127

Comment: Conflicts with implementation of greenhouse gas provisions under the Clean Air Act

A. At the October 2013 Board meeting, we and other stakeholders raised the concern that the proposed MMC Protocol would create incentives that conflict with implementation of greenhouse gas provisions under the federal Clean Air Act. Assuming states issuing Prevention of Significant Deterioration (PSD) permits follow Environmental Protection Agency (EPA) guidance, methane capture from drainage wells would be required at the large majority of permit-requiring mines. The Board's proposed MMC Protocol risks undercutting this EPA guidance by creating incentives for state permitting authorities to refrain from requiring methane capture so that mines within their jurisdictions would be eligible to participate in the Protocol and to receive payment for implementing MMC technologies. Board staff did not respond to this concern with revisions to the Protocol, nor with a written response refuting the concerns raised and the need for preventative measures.

We continue to strongly recommend that the capture of drainage methane from new mines and major mine expansions with releases large enough to require PSD permits should be ineligible for crediting in order to avoid undercutting implementation of Clean Air Act. It is important to note that the number of projects affected by this exclusion is a small minority of potential MMC projects and that the activities that would otherwise qualify this small number of potential MMC projects for credits should be legally required based on federal EPA guidance and precedent. Amending the eligibility section of the Protocol to exclude these projects is straightforward, is justified by the legal requirement test, and would avoid a significant tangible risk posed by the Protocol.

Again, we urge the Board to more carefully consider our detailed description of this concern and our recommendation in our comments to the Board from February 14, 2014, attached below, because Staff has never meaningfully addressed this concern.

February 14, 2014 (attached to written testimony submitted April 5, 2014)

(1) Drainage methane from new mines and major mine expansions with releases large enough to require Prevention of Significant Deterioration (PSD) permits should be ineligible for crediting in order to avoid conflicts with Clean Air Act implementation. So long as Environmental Protection Agency (EPA) guidance on PSD permitting for mines

is followed by state permitting authorities requiring PSD permits, methane capture from drainage wells would be required at the large majority of permit-requiring mines. Yet, the current draft MMC Protocol risks undercutting this EPA guidance on PSD permitting by creating incentives for state permitting authorities to refrain from requiring methane capture so that mines within their jurisdictions would be eligible to participate in the Protocol and to receive the large revenues expected from large MMC projects. To avoid this potential adverse effect and the resulting increases in emissions, we recommend that the Board amend the Protocol so that the destruction of methane from any new drainage wells at a mine requiring a PSD permit be ineligible for crediting under the Protocol. Restricting this eligibility eliminates the incentive for state permitting authorities to weaken PSD permit requirements for greenhouse gases (GHGs), and would avoid any conflict with EPA's regulation of greenhouse gases. Importantly, it would accomplish this without any disadvantage, since the only mines that would be prevented from participating in the Protocol due to this change would be mines that should be required to capture methane under the PSD permitting process.

We remain concerned about the eligibility of drainage methane capture from new active underground mines and major mine expansions with emissions releases large enough to trigger PSD permitting requirements. Under the Clean Air Act Tailoring Rule, PSD permits are required for emissions increases over 75,000 tCO2e/year for major modifications of existing mines or 100,000 tCO2e/year for new mines. In past comments we discussed a perverse incentive expected to result from allowing drainage methane from all new mines and major mine modifications to earn credits under the Protocol (see section 2 of our attached comment to the Board from 23 October 2013). As you know, PSD permitting requirements are determined on a case-by-case basis by state-level agencies. For each permit application, the state agency granting the permit must determine if methane capture is Best Available Control Technology (BACT) for reducing emissions for that particular mine and would therefore be required as a part of the construction permit. We discussed our concern that the Protocol may encourage state agencies to make weak BACT determinations so that mines in their state would be eligible under California's MMC Protocol to be paid to capture methane instead of being required to do so as a PSD permit condition. To the extent that BACT determinations are weakened in this way, not only would non-additional credits be generated from projects that would otherwise have been required by law, but these permits would also serve as precedent for other PSD applications in the state and via EPA's RACT/BACT/LAER Clearinghouse (RBLC) at the national level.[23] The precedent that could result from early and weak BACT rulings is of particular concern because state agencies commonly base new BACT determinations on past determinations at comparable facilities.[24] Given the substantial profits that could be earned from MMC at the gassiest mines (see Section 2 below), mine owners can be expected to watch state-level BACT determinations closely.

[23] EPA RACT/BACT/LAER Clearinghouse. http://cfpub.epa.gov/RBLC/ (accessed 14 February 2014)
[24] *See*, RACT/BACT/LAER Clearinghouse, *at* http://cfpub.epa.gov/RBLC/ (accessed 14 February 2014)

In these comments we stress and elaborate on three points. First, we emphasize that mines with emissions greater than 75,000 tons CO2e/y for existing sources that undertake major modifications and 100,000 tons CO2e/y for new sources are currently required to apply for PSD permits under the Clean Air Act Tailoring Rule. EPA does not need to take further action for PSD permits to be legally required at gassy mines that might emit above the Tailoring Rule threshold.

Second, underground coal mines are currently being built and planned with emissions large enough to trigger PSD requirements. As noted in our October comments attached hereto, Walter Energy is developing a new mine in the gassy Blue Creek seam in Alabama.[25] An application to build Red Cliff Mine on Bureau of Land Management (BLM) land in Colorado has already drawn significant attention because of its expected methane emissions profile.[26] This list is not comprehensive but does indicate that new gassy mines are being developed. Both of these mines are expected to be gassy enough to require PSD permits. The Walter Blue Creek mine is similar to three existing mines that each liberate well over the 100,000 tonnes of CO2-equivalent per year (tCO2e/year) threshold over which a greenhouse gas PSD permit is required: in 2006, Blue Creek No. 7, No. 4, and No. 5 liberated 4.0, 3.0, and 1.2 million tonnes of CO2-equivalent per year (MTCO2e/year), respectively.[27] If built, Red Cliff Mine in Colorado is expected to liberate 3.1 MTCO2e/year.[28]

Third, we focus these comments on providing further evidence that methane destruction should be considered BACT at essentially all gassy mines expected to trigger PSD permitting requirements. This means that excluding these mines or mine expansions from participation in the Protocol avoids a potentially harmful perverse incentive that could weaken implementation of the Clean Air Act without restricting mines from participating in the Protocol that should not otherwise be required to capture drainage methane.

BACT determination

---

[25] Walter Energy. Jim Walter Resources. http://walterenergy.com/operationscenter/jwr.html (accessed 11 February 2014).

[26] Earthjustice. "Pollution Giant: New Colorado Coal Mine." http://earthjustice.org/features/pollutiongiant-new-colorado-coal-mine (accessed 11 February 2014).

[27] EPA. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04-003.

[28] Bureau of Land Management. Red Cliff Mine Environmental Impact Statement Table 4-6. http://www.blm.gov/co/st/en/BLM_Programs/land_use_planning/rmp/red_cliff_mine.html (accessed 11 February 2014).

According to the Clean Air Act, Best Available Control Technology (BACT) is an emission limitation "based on the maximum degree of reduction of each pollutant subject to regulation . . . emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility. . ."[29]

When determining BACT, regulatory agencies place the responsibility for presenting and defending the technology selection on the applicant.[30] The BACT permit applicant typically undertakes the following five steps: "(1) identify available pollution control options; (2) eliminate the technically infeasible options; (3) rank the remaining control technologies by control effectiveness [at eliminating the pollutant in question]; (4) evaluate the most effective controls (considering energy, environmental, and economic impacts) and document the results; and (5) discuss the appropriate BACT selection with the permitting authority."[31] The EPA considers this five-step process very important to ensure proper compliance.[32]

If the applicant believes that the top pollution control option is inappropriate as BACT, the rationale for this finding must be fully documented for the public record.[33] Furthermore, the applicant should not argue that a control option is inappropriate for economic reasons unless the average cost-effectiveness of a BACT control option (calculated by dividing the annualized cost of its implementation by the pounds of pollutant reduced) is unduly burdensome compared to the cost effectiveness of similar projects for other sources in the national BACT clearinghouse.[34] Both EPA guidance

---

[29] 42 U.S. Code § 7479

[30] Memo to Regional Administrators, I-X: Guidance for Determining BACT Under PSD at p4, http://www.epa.gov/region07/air/nsr/nsrmemos/bactupsd.pdf (accessed 11 February 2014).

[31] New Source Review 90-Day Review Background Paper at p6, http://www.epa.gov/nsr/documents/nsrreview.pdf (accessed 11 February 2014).

[32] See many of the EPA comment letters on GHG permitting actions, e.g. Comments on Intent-to-Approve for Pacificorp Lake Side Power Plant, Block #2, http://www.epa.gov/nsr/ghgdocs/20110304pacificorplakeside.pdf (accessed 11 February 2014).

[33] Draft New Source Review Workshop Manual at B29, http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf (accessed 11 February 2014).

[34] "The presumption is that sources within the same category are similar in nature, and that cost and other impacts that have been borne by one source of a given source category may be borne by another source of the same source category . . . Thus, where a control technology has been successfully applied to similar sources in a source category, an applicant should concentrate on documenting significant cost differences, if *any*, between the application of the control technology on those other sources and the

documents and the Clean Air Act definition of BACT demonstrate an expectation that the selected BACT should be the most effective abatement technology that is both technically feasible and not unduly burdensome to the facility owner.

Mine methane capture at drainage wells should be considered BACT

EPA assessment[35] indicates that capture of drainage methane is available, technically feasible, environmentally effective, and cost effective, so it is reasonable to expect that it will be ruled BACT given the five step process outlined above.[36]

In late 2013, EPA published analysis of domestic, additional greenhouse gas abatement potential as part of a broader effort to characterize global abatement opportunities for non-CO2 GHG emissions.[37] Among other purposes, the analysis directly informs the United States' 2014 Climate Action Report to the United Nations Framework Convention on Climate Change,[38] indicating that the data constitute EPA's present understanding of abatement potential. Coal mine methane control opportunities are identified in three categories: capture drainage methane for use; flare drainage methane; and destroy ventilation methane. In 2006, 12 out of 24 mines with drainage wells captured 80% to 100% of their drainage methane in order to sell that methane into a pipeline.[39] EPA's 2013 analysis of additional mitigation opportunities in coal mine methane control indicates such financial benefits are typical even for sites that are not currently capturing (since the analysis focuses on additional mitigation potential), with an average breakeven price for on site methane capture below $0/tCO2e (these projects are

---

particular source under review" (emphasis in the original) http://www.epa.gov/ttn/nsr/gen/wkshpman.pdf at B29, B31

[35] Environmental Protection Agency. Global Mitigation of Non-CO2 Greenhouse Gases. December 2013. http://www.epa.gov/climatechange/EPAactivities/economics/nonco2mitigation.html (accessed 11 February 2014).

[36] In a prototypical BACT example provided as Appendix G to (6), capture and destruction are demonstrated to be reasonable BACT options for a landfill, which shares many characteristics with gassy underground mines.

[37] Environmental Protection Agency. Global Mitigation of Non-CO2 Greenhouse Gases. Table 1-5. December 2013. http://www.epa.gov/climatechange/EPAactivities/economics/nonco2mitigation.html (accessed 11 February 2014).

[38] 2014 CAR: United States Climate Action Plan. January 2014. http://www.state.gov/documents/organization/219038.pdf (accessed 13 February 2014).

[39] Environmental Protection Agency. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04-003.

income generating: average costs range from an average of -$5/tCO2e to -$1/tCO2e, depending on the particular form of use).[40]

In those cases where capture for use might not be cost effective for the mine owner, which we anticipate are unusual cases for mines that trigger PSD, EPA publications show that flaring is a cost effective abatement technology. The breakeven price for flaring at active underground coal mines is, on average, a little over $6/tCO2e,[41] and flaring can be implemented at any mine with a drainage system, not just those near pipeline infrastructure or with on-site or nearby natural gas demand. In addition, EPA's marginal abatement analysis shows that about 75% of the total 2010 abatement potential – which comprises the maximum amount of abatement of mine methane at a facility level, including ventilation methane – is available at a breakeven carbon price of less than $10/tCO2e. (The proportion is roughly the same for 2020 and 2030 marginal abatement opportunity.)[42] Thus, since both methane capture and destruction are technically feasible (the second BACT process criterion), effective at destroying methane (the third BACT process criterion), and not unduly burdensome compared to the cost effectiveness of similar projects for other sources (the fourth criterion), they can be assumed to be BACT. For example, see Table 1-7 in (15) to see that mitigation for landfill methane in covered landfills, which are similar to coal mines in many ways, is expected to cost between -$2/tCO2e and $10/tCO2e on average, with flares costing $5-6/tCO2e (vs $6.3/tCO2e for a mine). Notably, most capture-for-use applications for landfills are expected to have positive costs rather than generate revenues as they do for most coal mine applications. Methane flaring has been included as BACT in at least one PSD permit from the EPA RACT/BACT/LAER Clearinghouse.[43] The 2008 PSD permit for the expansion of the Rumke Sanitary Landfill in Ohio lists flaring as BACT.[44]

We note that an assumption that states with gassy coal mines will systematically rule extremely weakly on BACT for mine methane is not a valid reason to dismiss the concerns we raise in this section. First, controls are very often cost effective even without regulation. We also call attention to actions like Colorado's 2013-2014 Oil and Gas Rulemaking Effort, under which Colorado is considering adopting EPA's full oil and gas New Source Performance Standards (NSPS) recommendations in addition to more

---

[40] Environmental Protection Agency. Global Mitigation of Non-CO2 Greenhouse Gases. Table 1-5. December 2013. http://www.epa.gov/climatechange/EPAactivities/economics/nonco2mitigation.html (accessed 11 February 2014).

[41] Id.

[42] Environmental Protection Agency. Global Mitigation of Non-CO2 Greenhouse Gases. Data Annex: col_mac_output_epa.xlsx. December 2013. http://www.epa.gov/climatechange/EPAactivities/economics/nonco2mitigation.html (accessed 11 February 2014).

[43] EPA RACT/BACT/LAER Clearinghouse. http://cfpub.epa.gov/RBLC/ (accessed 14 February 2014)

[44] See RBLC ID #OH-0330

stringent control measures for oil and gas.[45] Colorado is one of the states where new gassy underground mines are being planned. The state's ruling on oil and gas regulation demonstrates that Colorado cannot be dismissed as a lax BACT permitting authority.

We have shown here that drainage methane capture meets EPA BACT determination guidance for essentially all mines that might require PSD permits. We have also discussed briefly above and in more detail in earlier comments that there is a tangible and real risk that, as currently drafted, the Protocol could incentivize state agencies to accept weaker BACT determinations than they otherwise would have. We therefore recommend that the Board choose to exclude from crediting any drainage methane at a new mine or major mine modification that would require a PSD permit. Restricting this eligibility eliminates the incentive for state permitting authorities to weaken GHG PSD permit requirements, and would avoid any conflict with EPA's regulation of greenhouse gases. Importantly, it would accomplish this without any disadvantage, since the only mines that would be prevented from participating in the Protocol due to this change would be mines that should be required to capture methane under the PSD permitting process. We believe that there is a very strong case for eliminating eligibility for mines requiring PSD permits for crediting under the Protocol.

October 23, 2013 (attached to written testimony submitted April 5, 2014)

2. Conflicting incentives: Incentives created by the Protocol may weaken implementation of greenhouse gas regulations under the federal Clean Air Act. Incentives may also cause mine owners to flare methane that would have been injected into a pipeline in the absence of the Protocol. Both of these incentives only apply to new underground mines and underground mines that have undergone major modification.

Recommendation: The Protocol should either include refined eligibility criteria for projects at new underground mines and at underground mines that have undergone major modification to avoid these "perverse incentives," or new and majorly modified active underground mines should be excluded outright.

This modification is meant to avoid two potentially serious adverse effects of the current draft protocol that would increase emissions while also crediting non-additional (business-as- usual) reductions.

First, the Protocol may undermine effective implementation of greenhouse gas reductions under the federal Clean Air Act. Many new and major modifications to coal mines will need to receive Prevention of Significant Deterioration (PSD) permits for their

[45] Colorado Department of Public Health and Environment, Air Pollution Control Division. 2013-14 Oil and Gas Rulemaking Effort http://www.colorado.gov/cs/Satellite/CDPHE-AP/CBON/1251635574914 (accessed 11 February 2014).

emissions of greenhouse gas pollutants. No such permits have yet been written for coal mines; and the terms of those permits are determined by state-level agencies on a mine-by-mine basis. This permitting process requires each state granting a permit to determine the Best Available Control Technology (BACT) for reducing emissions from the source. Under the current Protocol, a tangible "perverse" incentive therefore exists for state agencies to determine that the technologies that capture methane that are used for offset credits under the Protocol are not BACT. Such determination would allow mines within their borders to receive offsets payments to capture methane instead of being required to capture that methane without compensation under state implementation of the Clean Air Act. This risk is particularly high at the present time since no state has yet made a first BACT determination for greenhouse gas emissions reductions from a coal mine. A weak BACT determination for mines planning to sell offsets could have wider effect if weakened BACT standards set a precedent for other mines in the state. It is important to emphasize that, despite the fact that states have not yet begun issuing PSD permits and making BACT determinations, such permit applications and determinations for new mines and major modifications to existing mines are anticipated under the Clean Air Act. No additional rule promulgation or new legislation is required for this implementation to take place.

Due to the relatively slow rate at which new underground mines are built and expanded, it is expected that the majority of credits potentially generated under the active underground mine portion of the Protocol will be from existing mines. By incenting the development of MMC projects at existing mines the Protocol helps generate experience with MMC technologies that will encourage MMC to be considered BACT. This positive influence of the Protocol on policy implementation is a form of positive leakage – emissions reductions supported by the Protocol but not credited under the Protocol. Because of the relatively small proportion of new and expanding mines expected to participate in the Protocol, excluding these mines should not substantially weaken this positive leakage effect.

However, it is also important to note that coal mines still are being built and expanded. For example, new mining at Alabama's Blue Creek seam, one of the country's most gassy coal seams, is being planned,[46] and if built, would face both of the incentives described just above.

ARB staff response to these concerns: These issues were not addressed in the *Staff Report* nor by the Protocol.

Both of the risks we raise are tangible, substantial, and largely avoidable. The potential for offsets to "perversely" incent state regulators to refrain from adopting climate-friendly policies have long been discussed and documented. Christiana Figueres, who serves as Executive Secretary of the UN Framework of Climate Change, documented several instances of countries refraining from enacting climate-friendly policy to enable facilities

[46] http://walterenergy.com/operationscenter/jwr.html (accessed 17 October 2013)

within the country to pass the legal additionality test of the Kyoto Protocol's offsets program and to generate offsets credits.[47]

There is a simple, straight-forward solution to both of these risks. Both issues apply only to new underground mines and major modification to existing active underground mines. Both issues can be avoided by carefully defining project eligibility criteria to avoid crediting projects that could be considered BACT or mines where pipeline injection is feasible. Alternatively, these issues can be avoided by making drainage methane from new and majorly modified underground mines ineligible under the Protocol. Even if the Board decides to exclude these mines or mine expansions now, it can choose to include all or a subset of them in the future, after there is more clarity with regard to how BACT is determined for coal mines and if natural gas prices increase in a sustained manner.

We described our concerns in written comments submitted on July 1 and August 22, 2013 to the Board (attached hereto as appendixes).

August 22, 2013 (attached to written testimony submitted April 5, 2014)

1. We offer one suggested modification to the discussion draft protocol that we believe will simultaneously address two of the concerns we have raised. We suggest making projects that capture drainage methane from new underground mines and new major modifications to existing active underground mines ineligible under the Protocol. Doing so would avoid the Protocol's potential conflict with the Clean Air Act.

Projects that capture methane from drainage wells at new and major modifications to active underground coal mines should be considered ineligible under the Protocol

In our written comments emailed to you on July 1, and in our comments at the Offsets Workshop on August 19, we described two ways that the Protocol could result in an increase in emissions in addition to non-additional crediting.

First, the Protocol may undermine effective implementation of the Clean Air Act. Many new and major modifications to coal mines will need to receive Prevention of Significant Deterioration (PSD) permits for their emissions of greenhouse gas pollutants; no such permits have yet been written for coal mines; and the terms of those permits are determined by state-level agencies on a mine-by-mine basis. A tangible perverse incentive therefore exists for state agencies to determine that technologies which capture methane are not Best Available Control Technology (BACT) in order to allow mines within their borders to receive offsets payments to capture methane. This risk is particularly high at the present time before states have made their first BACT determinations for coal mines. A weak BACT determination for mines planning to sell offsets could have wider effect if weakened BACT standards are applied to other mines

[47] Figueres, Christiana. 2006. Sectoral CDM: Opening the CDM to the Yet Unrealized Goal of Sustainable Development. International Journal of Sustainable Development Law & Policy. 2(1)

in the state. This potentially serious adverse consequence of the Protocol can be avoided by excluding drainage methane at new underground mines and at existing active underground mines that have undergone new major modification as a source of eligible methane capture under the Protocol.

Both of these issues are described in detail in our written comment letter from July 1, a copy of which is attached hereto.

Both of these risks are tangible, substantial, and largely avoidable. Both apply directly to new underground mines and major modification to existing active underground mines and so can be avoided by making drainage methane from new and majorly modified underground mines ineligible under the Protocol. Even if the Board decides to exclude these mines or mine expansions now, it can choose to include them in the future, after there is more clarity with regard to how BACT is determined for coal mines and if natural gas prices increase in a sustained manner.

July 1, 2013 (attached to written testimony submitted April 5, 2014)

2. The Board should take proactive steps to prevent the Protocol from interfering with States' implementation of the Clean Air Act's New Source Review process and to avoid potential offset credit invalidations that may result from this interference.

Appendix B identifies two types of legal risks associated with the Protocol's relationship to the Clean Air Act. First, the existence of the Protocol creates an incentive for state permitting authorities to establish weaker standards for required Best Available Control Technology ("BACT") to control greenhouse gas emissions when they issue PSD permits for new mines or major modifications (expansions) of existing mines. In addition to directly compromising the implementation of the Clean Air Act and crediting projects that may otherwise have been legally required, the effects of these incentives may extend further if weakened control standards are applied to mines that do not implement offset projects. Second, if BACT determinations are made after offsets credits have been generated, there is a risk that those credits will be invalidated by a BACT determination that covers all or part of the technology implemented by the offsets project, triggering buyer liability. This, in turn, may trigger a wave of lawsuits among parties to the offsets transaction. In order to proactively avoid conflicts with the Clean Air Act and any resultant non-additional crediting or invalidation of credits, we recommend that the Board adopt scheduled updating procedures for MMC baselines, and that it exclude new or expanding mines from crediting. If the Board rejects this suggestion and elects to credit projects at these sites, it should, at minimum, authorize these projects only after any required PSD permitting process is complete and should set different, more conservative eligibility criteria for new and expanding mines to avoid influencing BACT determinations.

In conclusion, we emphasize that the risks associated with an MMC Protocol go beyond crediting non-additional projects and over-estimating reductions from individual projects. The potential for an MMC Protocol to cause a weakening of BACT standards, to incentivize flaring over productive methane use, and to increase profits from coal mining could lead to an increase in emissions substantially greater than the credits generated. Our analyses find that these effects may be substantial. The Board should take affirmative steps to avoid these effects in the design of the Protocol, through applying conservative project eligibility criteria, developing safeguards against conflicts with the Clean Air Act, and monitoring these effects as technologies and conditions change over time.

Appendix A of July 1, 2013 letter (attached to written testimony submitted April 5, 2014)

APPENDIX A
Project Eligibility Thresholds

At the second meeting of the Potential MMC Compliance Offset Protocol Expert Technical Working Group (hereafter, "the Working Group") on May 21, 2013, the Working Group discussed the potential use of thresholds for determining the eligibility of pipeline injection projects for offset crediting from mines with drainage systems. These thresholds were based on the goal of ensuring that non-additional projects are not eligible to generate offset credits.

While the Working Group's discussion was limited to thresholds for the eligibility of pipeline injection projects, we believe that the Board must consider the potential interaction of thresholds across multiple project types. Setting eligibility thresholds in a piecemeal manner for only a subset of project types is likely to generate non-additional credits.

We offer the following recommendations, which are each explained in detail below:

- If the Board develops thresholds for eligibility of pipeline injection projects in its draft Protocol, then the Board should also develop eligibility thresholds that are at least as stringent for all other project types[48] that destroy methane from drainage wells in order to avoid crediting non-additional projects. Based on our analysis, we believe that such thresholds are necessary for the Protocol to meet the requirement under AB 32 that offsets credits be additional.
- We urge the Board to consider defining eligibility thresholds for flaring of mine methane that are more strict than for productive uses of the methane (e.g., pipeline injection, on-site consumption) when those productive uses are economically feasible with carbon credits.

[48] Other project types include flaring, other on-site destructive uses such as electricity generation, transportation fuel, heating fuel, thermal drying, or off-site destructive uses which do not involve sale into a natural gas pipeline network for distribution, such as the sale of methane for use as fuel at a nearby off-site facility.

We support the Board in its endeavor to develop eligibility thresholds for pipeline injection that seek to ensure, to a very high level of confidence, that no non-additional mine methane capture projects will be eligible to generate offsets credits under the Protocol. Though our analysis here responds to a discussion about eligibility thresholds for pipeline injection, we encourage the Board to apply similar analyses of the risk of crediting non-additional credits as the Board considers the eligibility of other project types that may be covered under this Protocol, including all methane destruction from active underground mine venting, and methane destruction projects at abandoned underground mines, and surface mines.

1. In order to avoid crediting non-additional projects, the Board should set eligibility thresholds that are at least as stringent as those set for pipeline injection for all other project types that use drainage-well methane.

At its May 21 meeting, the Working Group discussed previously assessed criteria for setting eligibility thresholds for pipeline injection. These options included differentiating by mining method, methane liberation rate, well source, gas composition (percentage methane), gas quality (concentration of contaminants in gas), well-life, and distance from pipeline. Much of our discussion centered on setting thresholds using gas composition metrics (i.e., the percentage of methane).

It is our understanding that the rationale for using eligibility thresholds for pipeline injection is to avoid crediting non-additional projects. Pipeline injection of methane is common practice at mines with drainage systems; a majority of mines with drainage systems currently inject methane into pipelines.[49] The threshold would thus be designed to establish eligibility for pipeline injection for a set of specific mine, well, or gas circumstances where injection *would not occur in the absence of the offset credit*, and thus, pipeline injection could be considered additional if the threshold criteria were met.

At its May 21st Working Group meeting, the Board did not discuss the application of eligibility thresholds for other methods of destroying methane, including flaring, or uses such as electricity generation and on-site heating. While pipeline injection of drained methane is common practice at a majority of mines with drainage systems in the United States, flaring is not currently in common practice,[50] nor are other uses of methane from drainage wells.[51] Since the rationale for the use of eligibility thresholds for pipeline

[49] In its analysis of gassy mines with drainage systems, the EPA found that as of 2006, 12 of 23 mines with drainage systems injected the majority of their mine methane into pipelines, and an additional four mines used at least some portion of their mine methane. Data from: EPA. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04- 003.

[50] According to EPA, as of 2006, no active coal mines in the United States were currently engaged in flaring mine methane. From: EPA. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04-003.

[51] The use of methane for on-site power generation is common at mines in China, where projects have been developed under the Clean Development Mechanism. From: International Energy Agency. 2009. Methane in China: A Budding Asset with the Potential to Bloom: An Assessment of Technology, Policy and Financial Issues Relating to CMM in China, Based on Interviews Conducted at Coal Mines in Guizhou and Sichuan Provinces IEA Information Paper. Available at: http://www.iea.org/publications/freepublications/publication/name,15740,en.html

injection is to assure that only additional projects are eligible for credits, it might seem straightforward to conclude that eligibility thresholds do not need to be applied to flaring or other destructive use project types. Because these activities are not currently common practice and are not economically profitable for most mines in the absence of offset credits, it could be assumed that these uses would be additional for any gas quality, well type, or other criteria, and thus there would be no reason to apply thresholds. However, *not setting thresholds for flaring and other destructive use projects strongly risks crediting non-additional projects.* The reason for this relates to the financial incentives presented to a project developer by the circumstance in which a threshold is applied *only* to pipeline injection project eligibility.

Consider the following example. If the Board were to develop an eligibility threshold for pipeline injection which requires that mine gas must be less than 80% methane[52] to be eligible for pipeline injection (because it is presumed that lower quality gas would not be sold into a pipeline without the added financial benefit from offsets sales), and if no threshold were applied for flaring projects (because it is assumed that flaring would not otherwise occur in the absence of the offset credit), then mine methane sources with 80% methane or greater would be eligible only for flaring projects. However, in this example, the pipeline injection eligibility threshold presumes that injecting gas of this quality or greater can be profitable *without* the offset credit. Flaring drainage-well gas could therefore be (1) eligible for crediting, but (2) non-additional. This would also be true for credited on-site use projects that destroy methane that exceeds the threshold: such projects would generate credits for the destruction of methane that would likely have occurred in the absence of the Protocol. As the example above illustrates, the Board risks crediting non-additional projects if it does not promulgate eligibility thresholds for *all* project types, including flaring and other on-site destructive uses.

In the scenario described above, we have shown that there is a risk of crediting non-additional projects in the absence of thresholds for projects other than pipeline injection. Below we show that the risk is strong, due to the financial incentives that a project developer would face. Whether a project developer would opt to profitably inject the greater-than-80% methane content gas or would opt to flare it would depend on the relative value of the profits received from offset credits that would be received for the flaring project and the value of the profits received from selling the gas into a pipeline.

In comments previously submitted to the Climate Action Reserve ("CAR") regarding its Coal Mine Methane Project Protocol,[53] members of our team provided an analysis of the relative revenues from natural gas sales to pipelines and the generation of offset credits in the context of CAR's Protocol's eligibility rules for drained methane, which permitted flaring but prohibited pipeline injection. Under plausible pricing scenarios for both offset credits and natural gas, project developers will expect greater economic returns from flaring methane for offset credits than they would for selling the same methane as

[52] We use this number as a simple illustrative example only, not as an intended suggestion of a threshold value, nor as a recommendation of gas-quality metric based thresholds. The analysis below would apply to any or all thresholds.
[53] Please see Appendix D.

natural gas on the wholesale market (see Figure 1). At a carbon price of $15/tCO2e and at natural gas prices up to$4.50/mmbtu or less (for comparison, as of December 2012 natural gas wellhead prices were around $3.35/mmbtu[54]), a project developer would opt to flare rather than profitably inject mine methane.

Figure 1: Economic Value of Carbon Offsets Compared to Sale of Natural Gas

		CO2 price ($/tCO2-eq.)				Value of natural gas sales
		5	15	25	50	
Natural gas price ($/mmBTU)	2.5	$ (40.58)	$ 141.92	$ 324.42	$ 780.67	$ 131.83
	3.5	$ (93.31)	$ 89.19	$ 271.69	$ 727.94	$ 184.56
	4.5	$ (146.05)	$ 36.45	$ 218.95	$ 675.20	$ 237.30
	5.5	$ (198.78)	$ (16.28)	$ 166.22	$ 622.47	$ 290.03
	6.5	$ (251.51)	$ (69.01)	$ 113.49	$ 569.74	$ 342.76
	7.5	$ (304.24)	$ (121.74)	$ 60.76	$ 517.01	$ 395.49
Value of carbon offsets		$ 91.25	$ 273.75	$ 456.25	$ 912.50	

Each cell in the main table of Figure 1 shows the difference between the value of the carbon offset derived from flaring methane and the value of selling that methane into a pipeline, for a range of natural gas prices and offset prices, per metric ton of CO_2e. Positive numbers are highlighted and indicate that the prices applicable in that cell, the carbon offset is more valuable than the direct sale of methane. Thus, under these conditions, a project developer will prefer to generate offset credits rather than sell captured methane into the pipeline network.[55]

In response to our earlier comments, CAR indicated that any project that has already been injecting into a pipeline would not be eligible for credits if it switched to flaring. The Board's Protocol could similarly exclude flaring from eligibility at mines (or wells) where injection is already occurring. This response has the effect of eliminating some, but not all risk. We emphasize that our concern is more general and applies equally to the financial incentives presented to a mine owner upon mine expansion, the development of a new underground mine, or the drilling of new gob wells to drain methane from an active mining face.

The fundamental problem is that an offset project developer that is eligible to receive offset credits for flaring drainage-well methane when pipeline injection is economically feasible but is not an eligible project type, will preferentially select flaring. This is because the value of the carbon offset is likely to be greater than the market value of

[54] Energy Information Administration, Natural Gas Prices, available at http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_m.htm. As of this writing, the most recent data for wellhead natural gas prices are from December 2012. Notably for our analysis, natural gas wellhead prices have remained under $4.50/mmbtu since January 2011.

[55] The Table in Figure 1 and its description are copied from the previous comment letter submitted to the Climate Action Reserve. The full comment letter is included as Appendix D

natural gas (see Figure 1). If the Board were to set piecemeal eligibility thresholds for pipeline injection only, but not for flaring, the Board would create an incentive to flare gas that otherwise would have been injected into a pipeline, thus generating non-additional credits. We urge the Board to establish eligibility thresholds for flaring and other methane use projects that are at least as stringent as those established for pipeline injection.

We recognize that applying conservative eligibility criteria to flaring may miss opportunities to reduce emissions cost effectively through flaring mine methane. However, fromthe perspective of achieving California's emissions target, we view the risks associated with inducing the flaring of methane that would otherwise have been injected into a pipeline as far greater. As a compliance-grade offsets program, the credits generated must meet AB 32's requirement that all offset credits are additional. Thus, to avoid the strong risk of crediting non- additional activities outlined above, we urge the Board to adopt eligibility thresholds for all project types that use drainage well methane.

2. The Board should consider defining eligibility thresholds for flaring of mine methane that are more strict than for productive uses of the methane (e.g., pipeline injection, on-site consumption) when those productive uses are both additional and economically feasible with carbon credits to avoid incentivizing the unproductive use of this gas.

In Section 1, we urge the Board to set eligibility thresholds for flaring and on-site destructive use projects that are as least as stringent as those set for pipeline injection projects, in order to meet the statutory requirements of AB 32 that it avoid generating non-additional credits. In Section 2, we present an observation that refines our recommendation in Section 1. Setting identical eligibility threshold levels for flaring, other on-site destructive uses, and pipeline injection would address our primary concerns regarding crediting non-additional projects. However, the incentives resulting from setting such identical thresholds for all project types could still incentivize the flaring of methane that would otherwise have been put to productive use in the economy. Specifically, we note that such a Protocol could incentivize non-productive uses of methane (i.e., flaring) when productive uses (e.g., pipeline injection, electricity generation, vehicle gas) remain economically feasible with offset credits.

The decision to flare or to inject drainage methane that would otherwise have been vented would be determined by the relative profits from pipeline injection and flaring because the mine would receive offset credits from either project type. In order to build a pipeline project, the mine would have to construct pipeline infrastructure and potentially upgrade the quality of the gas by removing nitrogen or other contaminants. In contrast, flaring would likely require fewer up-front costs, but would not generate revenues from natural gas sales. When revenues generated from the sale of the gas into the pipeline do not make-up for the difference in relative costs of the two project types, under circumstances where identical thresholds are applied to injection and flaring projects, the project developer would prefer to flare the methane. This would be the case even if the

operator could profitably inject the same natural resource into a pipeline network with offsets credits.

While there is no legal requirement for a Protocol to avoid creating such incentives under AB 32, as both project types would be additional in the above example, we bring this issue to the Board's attention because we believe that the Board may wish to draft a Protocol that avoids incentivizing the flaring of methane that could otherwise be put to productive use in the economy, for two reasons. First, the productive use of this methane would displace an equivalent amount of methane that would otherwise be consumed elsewhere within the pipeline, and thus the productive use would avoid emissions elsewhere in the economy. Secondly, setting thresholds so as not to incentivize flaring when productive-uses are feasible avoids having the Protocol encourage an activity which may be perceived as the waste of a valuable natural resource. For these reasons, we urge the Board to consider setting more stringent thresholds for flaring projects than for productive-use projects.

3. Recommendations

Based on our analysis, we recommend that, in order to minimize the risk of crediting non-additional emissions reductions, the Board should:

- Set eligibility thresholds for all projects types that use drainage-well methane (e.g., pipeline injection, flaring, electricity generation, and other on-site uses);
- Set eligibility thresholds for flaring and other destructive uses that are at least as stringent as the eligibility thresholds set for pipeline injection.

Further, we recommend that, in order to avoid incentivizing the flaring of methane that might otherwise have been put to productive use, the Board should:

- Set eligibility thresholds so that flaring projects are only eligible when productive uses (e.g., pipeline injection, on-site consumption) are unlikely to be effectively supported by offsets credits.

Finally, as also discussed in Appendix B, which addresses the need to regularly revisit the Protocol's approach to eligibility, given the evolution of regulation of mine methane emissions under the Clean Air Act, we urge the Board to consider establishing a timeline schedule for regularly revisiting eligibility threshold criteria for pipeline injection and other project types which destroy drainage-well methane. Given the relatively quick pace at which methane capture technologies are developing, revisiting thresholds criteria according a schedule established in the Protocol would help ensure that, in practice, eligibility thresholds are not inducing the crediting of non-additional projects.

Appendix B of July 1, 2013 letter (attached to written testimony submitted April 5, 2014)

APPENDIX B

Legal and Policy Interactions Between the MMC Protocol and the Clean Air Act's New Source Review Program for Greenhouse Gases

Two types of legal risk exist if the Protocol creates eligibility for projects at new mines or projects associated with mine expansions that increase emissions by 75,000 metric tons of carbon dioxide equivalent per year. First, the existence of the Protocol creates a perverse incentive for state permitting agencies to establish weaker standards than they otherwise might for required Best Available Control Technology ("BACT") to control emissions when the states issue Prevention of Significant Deterioration ("PSD") permits for new mines or major modifications of existing mines. In addition to potentially compromising the implementation of the Clean Air Act and risking crediting activities that would have occurred in the absence of the Protocol, this incentive could also further undermine the climate benefits of the Protocol if these same weakened permitting standards are applied to mines that do not implement offset projects.

Second, there is a risk that some BACT determinations could invalidate offset credits if the Board is not careful to credit only projects that have already fully complied with all New Source Review ("NSR") requirements. Many coal mines will be subject to the NSR permitting process upon expansion or when newly constructed. Mines that opened or made major modifications since 2011 may already be required to apply for PSD permits because of their greenhouse gas emissions ("GHG"), but none have yet gone through the application process.[56] Further, no state has yet defined GHG BACT for any such permit. There is, therefore, a risk that offsets may be invalidated if projects are certified for offsets before legally required BACT determinations have been made. For example, a BACT determination requiring methane mitigation measures for mines that are also generating offsets credits may, in some cases, invalidate those credits. But invalidation is no simple matter. Either litigation or individual mine regulation decisions could cause the invalidation of credits, but both of these processes can span months or years. In turn, invalidation and the resultant buyer liability may result in expensive and complex litigation for participants in the offsets transaction, including the Board.

Given these risks, the Board should take particular care to address any such potential conflicts now, at the outset of the development of the protocols. The Board's response to these risks should take a proactive approach above and beyond the level of concern expressed in the Climate Action Reserve draft protocol. We recommend here two measures that can help to mitigate these risks. First, the Board should include in the Protocol a schedule of time or event- based thresholds that will trigger a re-assessment of protocol baseline conditions. These periodic reassessments will allow for recalibration of the Protocol in response to BACT determinations. Second, the Board should consider excluding new mines and expanding mines engaged in major modifications from

[56] Each PSD permit requires a BACT determination. The U.S. Environmental Protection Agency, Clean Air Technology Center - RACT/BACT/LAER Clearinghouse, does not list any greenhouse gas BACT determinations for coal mines. See http://cfpub.epa.gov/rblc/index.cfm?action=Search.BasicSearch&lang=eg, accessed 27 July 2013

eligibility for offsets credits. This approach would eliminate the risk of conflict between offsets generated under the Protocol and Clean Air Act BACT requirements. If instead, the Board decides to allow offset projects at mines potentially subject to BACT, it should do so only after developing additionality analysis techniques specifically tailored to avoid conflict with BACT determinations. In addition, the Board should require that all MMC project developers attest in writing that the mine is in compliance with all PSD permitting requirements and certify any offsets generated at these sites only after the Board has independently assessed the baseline conditions and after any required BACT determinations have been made. In addition to these measures, the Board should establish monitoring and reporting requirements to ensure that any required BACT has been implemented and remains fully operational.

These informal comments update and incorporate by reference, as applicable to the Board's planned Protocol, comments previously submitted to the Climate Action Reserve ("CAR") regarding its Coal Mine Methane Project Protocol Version 2.0 (attached hereto as "Appendix D"). In the context of developing a compliance-grade offset protocol for California's carbon market, which may serve as a model for other offsets programs in North American and around the world, it is crucial that the protocol avoid legal and policy conflicts with federal law.

1. The Protocol's complex relationship with the Prevention of Significant Deterioration program under the Clean Air Act raises serious concerns about the ability of the Protocol to produce real and additional emission reductions.

As of 2011, large new and expanded coal mines are required to obtain PSD permits in order to comply with the Clean Air Act. New Source Review ("NSR") under the Clean Air Act applies to new or major modifications of mines.[57] The U.S. Environmental Protection Agency ("EPA"), through its Tailoring Rule, currently interprets the NSR provisions of the Clean Air Act to require the establishment of greenhouse gas emissions thresholds in PSD permits for the largest emitters.[58] Under the Tailoring Rule, new underground mines that emit at least 100,000 tons CO_2e per year and modifications to underground mines that increase the mine's emissions by at least 75,000 tons CO_2e per year are required to obtain a PSD permit.[59]

The PSD program puts substantially all of the permitting authority in the hands of state environmental agencies. PSD permits are generally issued by state agencies with

[57] See generally 42 U.S.C. §§ 7470–79

[58] See 40 C.F.R. 52.21(b)(1)(i); . *Coalition for Responsible Regulation v. EPA*, 684 F.3d 102, 134-35 (D.C. Cir. 2012), *reh'g en banc denied* (D.C. Cir. Dec. 20, 2012), *petition for cert. filed* (U.S. Apr. 17, 2013) (No. 12- 1253).

[59] 40 C.F.R. 52.21(b)(49)(b)(iii–v). While it is not certain how many new mines are likely to be permitted in coming years, if past trends are any indication, a substantial portion of any new mines are likely to meet or exceed this threshold. Of 75 reporting underground coal mining facilities, 33 emitted 75,000 tons or more CO_2e in that year. U.S. ENVIRONMENTAL PROTECTION AGENCY, 2011 GREENHOUSE GAS EMISSIONS FROM LARGE

FACILITIES, *available at* http://ghgdata.epa.gov/ghgp/main.do.

delegated implementation responsibility.[60] In order to obtain a PSD permit, regulated sources must demonstrate to state regulators that they employ BACT to mitigate emissions. But what specifically constitutes BACT is determined by the state permitting agency on the basis of its assessment of technical and economic feasibility of available pollution reduction measures.[61] EPA has extremely limited authority to review these state agency findings unless they are unreasonable or unsupported by the evidentiary record. In short, state environmental agencies retain substantial discretionary authority to determine BACT in the context of PSD permits.[62]

A. The Protocol creates a tangible perverse incentive that encourages state-level regulators to make weak BACT determinations.

The availability of offset credits for methane emission reduction measures will increase political pressure on state regulators who make GHG BACT determinations to require minimal or no controls in order to retain legal additionality for MMC projects which benefit industry in their states. State agencies make determinations as to what constitutes GHG BACT on a case-by- case basis, taking into account available techniques and technologies for emissions control, as well as technical and economic considerations.[63] The measures a mine might employ in order to create offsets under the MMC protocol are among the measures an agency would consider for any mine requesting a PSD permit. This means that when a state makes a GHG BACT determination for an individual mine applying for a PSD permit, that state agency must decide whether the particular mine is required to capture and combust methane that would otherwise be released from the mine. If a mine must mitigate its methane emissions in order to comply with the terms of its PSD permit, this same mitigation could not generate offsets credits under the Protocol. But if a state does not require methane capture as BACT for the PSD permit, the mine may generate offsets credits from methane capture, if it chooses to do so. The state and the mine therefore have every incentive to find methane mitigation infeasible, even where the technology is readily available and not cost-prohibitive: both the mine operators and the state permitting agency would rather have a third party pay for the emissions reductions than to have them go uncompensated as a legal requirement. As explained in prior comments to CAR (see Appendix D), even the possibility or appearance of this perverse incentive can affect the integrity of the protocol. This concern is even more significant for California's efforts to establish a legally binding compliance mechanism.

---

[60] States that do not have an approved NSR State Implementation Plan or that implement a plan developed by the federal EPA rely to varying degrees upon the federal EPA to administer this portion of the Clean Air Act. All but five states, the District of Columbia, Puerto Rico, and the Virgin Islands have some version of a State Implementation Plan. See U.S. ENVIRONMENTAL PROTECTION AGENCY, NEW SOURCE REVIEW, Where You Live, *available at* http://www.epa.gov/NSR/where.html.

[61] See 42 U.S.C. § 7479(3). In some states the BACT determinations may be made by or implemented by the federal EPA, rather than the state permitting agency. See n. 4, *supra.*

[62] *Alaska Dep't Envtl. Conservation v. Envtl. Prot. Agency,* 540 U.S. 461 (2004). See also Appendix D, 2–3.

[63] See 42 U.S.C. § 7479(3).

CAR responded to this concern only with the assurance that it would "track developments under the CAA and BACT determinations made at the state level will inform updates to the protocol's additionality tests over time."[64] This approach is unsuitable for the Board's compliance-grade protocol, which, as a matter of law, may only sanction credits that are real and additional.

While all offset protocols present some risk of undermining other enforcement regimes, the risk under the MMC Protocol is tangible and immediate. Here, there is an existing federal law implemented by state agencies with considerable discretion as to the stringency of applied standards and a strong local constituency with a financial stake in the determinations. Because the perverse incentive would affect agencies in other states, California's actions could create serious consequences for the implementation of the Clean Air Act that neither California nor EPA, given its limited authority to review state BACT determinations, could effectively remedy.[65]

If the Board proceeds with a protocol that does not address the PSD conflicts that we identify here, weak GHG BACT determinations may occur in key states that could thereby lock- in a deflated legal baseline for credits under the Protocol and hinder stricter GHG BACT determinations more broadly. We emphasize that this outcome would affect methane emissions at both mines where MMC Protocol projects are implemented and those where they are not.

B. BACT determinations that require methane reductions may invalidate issued offsets, triggering buyer liability and litigation risks.

If the Board were to credit reductions from mine methane control measures, and a subsequent BACT determination includes methane control measures, those credits could be subject to invalidation. When a permitting agency issues a PSD permit, it is required to consider both the technical and economic availability of emissions reductions measures. If, in making this determination, a state reaches a BACT determination that imposes strong GHG limits – rather than succumbing to the incentive to weaken permitting standards as described in section A above – certain otherwise eligible emissions reductions may no longer be creditable under the Protocol. If a PSD permit finds that the project activities constitute BACT, and are therefore legally required, the project could no longer be considered legally additional under the Protocol, and buyer liability would be triggered. In this situation, we are concerned that the triggering of buyer liability might affect investor confidence in this project type and/or the ARB offsets program more generally and that the Board could face protracted litigation.

At particular risk of invalidation are offsets issued for the term between the effective date of the BACT determination (which could precede the date the permit is issued if the mine

[64] Climate Action Reserve, Summary of Comments and Responses – Coal Mine Methane Project Protocol Version 2.0, 3.4.4.1 (p. 3), http://www.climateactionreserve.org/wp-content/uploads/2009/10/Summary_of_Comments_and_Responses_CMM_Project_Protocol_V2.0.pdf

[65] *Alaska Dep't Envtl. Conservation v. Envtl. Prot. Agency*, 540 U.S. 461 (2004).

has failed to apply for the permit in a timely manner) and the end of the reporting period during which the effective date occurs. Depending on the circumstances of the PSD program, the Board's determination may be more complicated, and even reaching a clear understanding of which credits are valid and invalid may be extremely difficult to establish.

Furthermore, in a situation where a state BACT determination invalidates some or all of a project's credits under the Protocol, it will not necessarily be clear at what point those legal obligations invalidated the credits. For example, if a mine did not apply for a PSD permit, but a court determined that one was needed, does a subsequent BACT determination that sets a performance standard above the MMC invalidate all credits the project generated, or just the ones issued after the court decision? This complexity increases the uncertainty created by the interaction between the Clean Air Act and the MMC protocol.

2. The Board Should Adopt Measures to Affirmatively Address Conflicts with the Clean Air Act

In order to reduce the risks described above, the Board should adopt two measures that would serve to address both the regulatory incentive problem and any resultant uncertainty around potential invalidation. First, the Board should establish a schedule of dates and/or triggering events for re-evaluation of the legal additionality baseline under the protocol. The schedule should anticipate ongoing GHG BACT determinations, changing market conditions, and recent technical developments; it should also indicate the Board's willingness to examine differences in GHG BACT determinations among different state permitting agencies for similar mines in evaluating additionality under the MMC protocol.

Second, the Board should adopt separate offsets eligibility criteria for projects at existing mines and projects at mines that may arguably be considered new or major modifications for the purposes of NSR. In these separate procedures for new or expanded mines, MMC projects at new mines or new emissions associated with major expansions of existing mines should remain ineligible for crediting until there is greater clarity about how NSR will be applied to mines, including specifically how BACT for GHG emissions will be determined. At a minimum, if the Board does consider crediting MMC projects at new or newly expanded mines, the Board should set more conservative eligibility criteria for these mines to avoid conflict with BACT determinations. In addition, the Board should require project developers to attest in writing that the mine is in compliance with all PSD permitting requirements, and that any even arguably needed BACT determinations are finalized prior to establishing the baseline emissions for the project. These latter requirements, however, only address the risk of invalidation and would not avoid regulatory incentives to weaken GHG BACT determinations.

A. The Board should adopt scheduled updating procedures to MMC baselines.

As we suggested to CAR, by establishing a clear schedule of dates and/or triggering events for re-evaluating the protocol legal and technical baselines, the Board will reduce the strength of perverse incentives to create long-term distortions in both the offsets market and Clean Air Act implementation. This measure will send a clear signal that, notwithstanding any attempts to manipulate additionality determination through artificially weak GHG BACT determinations, the Board will not allow these determinations to set an additionality baseline either unilaterally or for an extended and indefinite time. A triggering event could be a particular event, such as the issuance of the fifth PSD permit for mine methane emissions, or a certain level of market penetration of a methane reduction technology. Alternatively, the Board could use a time horizon. Moreover, unless the Board plans to monitor every relevant GHG BACT determination on its own, we suggest that it explicitly invite interested parties to identify relevant problems as the PSD program gains experience under the Tailoring Rule, reviewing the legal additionality standard at its discretion.

One of the principal benefits of this adaptive management feature would be that regulated entities and state regulators outside of California would have clear guidance regarding the conditions under which the baselines will be adjusted. As a result, market participants could invest with greater certainty, and the temptation for state regulators to game the GHG BACT process would be reduced. While this measure would not eliminate risk of states making GHG BACT determinations that are one generation behind the Protocol's latest baseline adjustment, this form of adaptive management would limit the long-term lock-in of weak GHG BACT in states where financial incentives are oriented towards maximizing revenues from offsets for coal and other mines. It would also help to maintain the integrity of the protocol by reducing the perception that the protocol creates perverse incentives that might undermine the environmental benefits of mine methane reduction offsets.

B. The Board should refrain from crediting projects at arguably new mines or major modifications of existing mines. If it chooses to credit projects at these sites, it should do so only after ensuring that credited offsets will not be retroactively invalidated. Such projects should be required to meet more conservative eligibility criteria that avoid conflict with GHG BACT determinations.

Given the very real influence that California's MMC Protocol may have on GHG BACT determinations for coal mines, the Board should avoid possible conflicts with the Clean Air Act by refraining from crediting projects at mines that are even arguably new or major modifications of existing mines for the purposes of NSR until several PSD permits have been issued in multiple states. Once it is clearer how states will make GHG BACT determinations for coal mines, the Board will be better able to identify eligibility criteria that would avoid crediting projects which might also have been considered GHG BACT in the absence of the Protocol.

If the Board rejects this position and instead elects to approve any projects from new mines or mine modifications large enough to raise the possibility that a PSD permit may

be required, it should be particularly conservative in determining eligibility criteria. Eligibility criteria should be established for these mines that conservatively avoids crediting any activity that may be considered BACT. In any event, no credits should be issued for these projects until all arguably required PSD permitting procedures are complete and any measures required by these permits are implemented and verified. To operationalize this requirement, MMC Protocol project developers should be required to attest to such completion as a part of their project registration.

Even after there is greater clarity about how GHG BACT is being applied to coal mines, the Board should still maintain separate eligibility criteria for projects at mines that may arguably be subject to NSR. By adopting separate baseline determination procedures for projects at new mines and for major modifications, the Board can assess the GHG BACT determination made for each mine and determine whether the mandated controls reflect an additionality threshold consistent with the Board's assessment of the state of the industry. In this way, the Board can simultaneously eliminate the risk that a particular GHG BACT determination might invalidate existing offsets and establish a baseline that will counteract the effects of any artificially weakened GHG BACT determinations that might arise in response to the protocol.

Appendix D of July 1, 2013 letter (attached to written testimony submitted April 5, 2014) commenting on the Climate Action Reserve's Coal Mine Methane Project Protocol Version 2.0

APPENDIX D

The Environmental Law Clinic, part of the Mills Legal Clinic at Stanford Law School, submits these comments to the Climate Action Reserve (the "Reserve") on behalf of Dr. Michael Wara, Associate Professor at Stanford Law School, regarding the Coal Mine Methane Project Protocol, Version 2.0 for Public Comment (the "Protocol").

We appreciate the opportunity to share our perspective on the updated Protocol, and hope our views will contribute to the development of high-quality offset protocols. We would also like to acknowledge the detailed work that has gone into preparing the Protocol by both CAR Staff and the CMM working group. The result is both thorough and fully transparent.

Although the Protocol is generally robust in our opinion, we hope to (1) raise some potential concerns associated with the interaction between the Protocol and the Clean Air Act, and (2) discuss our reservations about the performance standard test with respect to on-site use of methane.

1. Regulatory Conflicts. The Protocol has the potential to undermine implementation of Clean Air Act regulations for coal mine methane emissions. This issue requires high-level policy discussion that is not part of the Protocol documentation to date.

As a preliminary matter, we want to highlight a potential conflict the Protocol might create with implementation of stationary source controls on greenhouse gas ("GHG") emissions under the Clean Air Act ("CAA"). We believe this is an issue the Reserve should consider in more detail, especially if the Reserve intends to submit the Protocol to the California Air Resources Board for approval as a compliance-grade protocol for the California carbon market.

As the Protocol notes, EPA has begun regulating GHG emissions from stationary sources under the CAA. Under the legal requirements test for the Protocol, any EPA or CAA requirements for controlling methane would immediately become a part of a project's baseline calculation, and thus not eligible for offset credits.[66] With no existing regulations that force destruction or capture of methane (outside of mine safety rules), the Protocol suggests that the possibility of future regulation is simply one risk factor that projects will have to consider.

This view oversimplifies the applicable Clean Air Act provisions and neglects several key issues, which we discuss below. These issues have potentially significant implications for this Protocol or any other involving a large stationary source of GHGs, both for the Reserve and the California Air Resources Board. As a result, we believe further high-level discussion is required to ensure that the Protocol does not create actual unintended conflicts—or even the appearance of unintended conflicts—with EPA or the Clean Air Act.

Indeed, these sorts of interactions are increasingly likely in a fragmented climate policy landscape, and the Reserve is well positioned to be a leader in developing carefully considered climate strategies that minimize potential conflicts with other regulatory systems.

1.1. Because BACT determinations are made by state permitting agencies, the Protocol could undermine effective implementation of CAA requirements by creating political pressure to weaken BACT standards outside of California.

We are concerned that the Protocol has the potential to undermine or weaken implementation of CAA regulations by creating an incentive for state regulators to weaken BACT determinations for controlling coal mine methane emissions. EPA's recent Tailoring Rule requires certain new facilities or major modifications of existing facilities to obtain a Prevention of Significant Deterioration ("PSD") permit, for which state permitting agencies must determine and apply the best available control technology ("BACT").[67] In particular, major modifications of existing facilities, including

[66] Protocol § 3.4.1.1.

[67] *See generally* Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31514 (June 3, 2010).

coal mines, that result in increased emissions of at least 75,000 tons per year of CO2e are required to obtain PSD permits.[68]

Although EPA sets the basic contours of the PSD program, application of BACT is left to the states. In *ADEC v. EPA*, the Supreme Court decided that EPA's ability to challenge state BACT determinations is limited to when the state's determination is "not based on a reasoned analysis."[69] This decision gives state permitting agencies wide discretion in determining BACT, subject only to procedural review from EPA. Because states have effective control over BACT determination, those with coal mine projects seeking offset credits under this Protocol will face additional political pressure to set BACT at levels that create headroom for offset creation. Strict BACT determinations would reduce or eliminate income from offsets, and thus state regulators could face pressure from offset project owners and developers to keep BACT determinations low. Further, state regulators will be aware, or will be made aware by the regulated sources, that in the event they set BACT less stringently, emissions reductions will nevertheless occur because of offsets. Under the *ADEC* standard, EPA would have limited options to challenge any state determinations it perceived as weak. Should this situation arise, the effect of the Protocol would be to unintentionally weaken or undermine implementation of the Clean Air Act.[70]

Even if the income generated from Protocol projects has no influence on state regulators' BACT determinations, the Protocol could nevertheless create the appearance of influence. This might occur if states make widely divergent BACT determinations. If some states apply strict BACT determinations, while others apply weak determinations, the Protocol could be seen as subsidizing the disparate outcome, as Protocol projects would presumably cluster in states with the most lax permitting agencies. It may be possible to create a "race to the top" in the Protocol's legal requirements test by adopting a threshold from the strictest BACT determinations. But without knowing how states will make BACT determinations, and in what form, it is difficult to imagine writing such a provision into the Protocol at this stage of the CAA regulations.

While these concerns are only hypothetical at this point, we believe the Reserve should have a broader discussion about the unintended consequences its offsets protocols may have in sectors where impending state or federal regulations complicate the application of offset protocol design. We also believe that CAR should develop a plan, set down explicitly in the protocol, to address these concerns once we know more about

---

[68] *Id.* at 31516.

[69] *Alaska Dep't Envtl. Conservation v. Envtl. Prot. Agency*, 540 U.S. 461, 490 (2004) (citations omitted).

[70] We note that exactly this situation has allegedly occurred under the CDM, where national regulators weakened standards for large landfills in order to create headroom for the creation of CERs under CDM landfill methane protocols. *See* Christiana Figueres, Sectoral CDM: Opening the CDM to the yet Unrealized Goal of Sustainable Development, 2 MCGILL INT. JOURNAL OF SUSTAINABLE DEVELOPMENT LAW AND POLICY 1, 12 (2006).

how states will proceed with BACT determinations for CMM. We would propose that once 5 BACT determinations have been concluded, CAR review them and consider revising Section 3 of the Protocol as appropriate.

1.2. Determining what constitutes a "major modification" of an existing coal mine under EPA's Tailoring Rule is an open legal question. The Protocol does not offer any guidance on how project developers would bear the risks associated with litigation on this issue.

The Protocol does not sufficiently anticipate the possibility that PSD permits might be required for existing coal mines, even without new regulations from EPA. To the best of our knowledge, there are no cases or regulations clarifying what constitutes a "major modification" of an existing coal mine for the purposes of the CAA. If certain common activities—for example, beginning work on a new section of a coal seam within an existing large mine—are determined to be major modifications, then the Tailoring Rule would apply, and PSD permits would be required for mines creating new emissions above the established threshold.

The Protocol would benefit from a fuller discussion of how these risks would be distributed, especially with the prospect of lengthy litigation or subsequent regulatory developments. We have several questions about what the timing of these kinds of changes would imply for calculating additionality under the Protocol:

- Does the Protocol's legal requirements test apply at the time the legal requirement is identified (*i.e.*, when a court or administrative agency finds that a PSD permit is required) or when the actual legal requirement is specified (*i.e.*, when a state regulator identifies BACT for a particular mine project)?
- If litigation produces a determination that a major modification took place, does the Protocol's legal requirements test adopt BACT requirements retroactively, from the date of the legal decision, or from the date of the subsequent issuance of a permit? Does it matter whether the question litigated was a new issue that was fairly disputed by both sides?
- If litigation or a new regulation defines a threshold for major modifications, must all applicable projects immediately adopt BACT requirements as part of the legal requirements test, or are those requirements not binding for the purposes of the Protocol during a legally valid gap (*e.g.*, a temporary window for securing permits)?

1.3. Air pollution from coal mines is not yet subject to new source performance standards under Section 111 of the CAA, the future implementation of which would set a floor for state determination of BACT for PSD permits. The Reserve should monitor developments on this front.

EPA has not yet exercised its authority to create performance standards for coal mine methane emissions controls under Section 111 of the CAA, but faces pressure to do so. These performance standards would apply to all new and existing coal mines. In June 2010, a group of environmental organizations petitioned EPA to list coal mines as a

category of stationary sources subject to performance standards for GHGs, including coal mine methane as a particular source of concern. EPA has not acted on this petition. As a result, the environmental groups sued, seeking to compel EPA to grant or deny the petition.[71]

The outcome of this ongoing litigation matters, as EPA's performance standard authority extends to both new and existing emissions sources.[72] Moreover, state determinations of BACT cannot allow emissions higher than levels determined under Section 111 of the CAA.[73] That is, state BACT determinations are constrained to be no weaker than a performance standard set by EPA under its § 111 authority. Therefore, we believe the Reserve should pay close attention to this issue going forward, as it may either exacerbate or relieve some of the other CAA interactions described above.

If and when EPA sets a § 111 performance standard, it will act to significantly shift the baseline emissions for all participating or potential projects under the CMM protocol. The concerns raised above in section 1.2 also apply here. Furthermore, the Reserve should plan on this performance standard being subject to lengthy litigation. How will project registrations be treated and offsets generated by registered projects during this period of uncertainty be credited?

2. Additionality. The Protocol's Performance Standard Test does not adequately address the possibility that drainage systems have the economically viable option to inject methane into a commercial pipeline, but choose instead to use or flare methane onsite.

We are concerned that some offset projects may be able to switch back and forth between earning offsets under this Protocol and selling methane into a pipeline network. If permitted, this temporal "stacking" would undermine the additionality of the Protocol, and runs counter to principles articulated in other Reserve protocols.[74]

Our concerns arise because the Protocol's eligibility rules allow a drainage system to qualify for offsets by flaring or otherwise using methane, even if selling methane to a pipeline is commercially viable. In other words, the eligibility rules do not include an

---

[71] *WildEearth Guardians, et al., v. U.S. Envtl. Prot. Agency and Lisa P. Jackson*, No. 1:11-cv-02064-RJL (D.D.C.) (complaint filed Nov. 17, 2011).

[72] 42 U.S.C. § 7411(b) (new sources); 42 U.S.C. § 7411(d) (existing sources); *see also* Georgetown Climate Center, Issue Brief: EPA's Forthcoming Performance Standards for Regualting Greenhouse Gas Pollution from Power Plants (Clean Air Act Section 111).

[73] 42 U.S.C. § 7479(3).

[74] *See, e.g.*, Climate Action Reserve, Rice Cultivation Project Protocol, Version 1.0 § 3.5.3 (prohibiting stacking of ecosystem service payment systems in addition to earning carbon offsets for the same mitigation activities).

analysis of the economic viability of injecting methane into a pipeline network. Drainage projects pass the performance standard test simply if they destroy methane "through any end-use management option other than injection into a natural gas pipeline."[75] Remaining eligibility rules require only that that project start dates be no more than three months after the drainage system begins commencing destruction of methane.[76]

Under these rules, a drainage system that injects methane into a pipeline would not appear to qualify for offsets if the project developer decides to build a flare or other end-use management application to replace pipeline exports. Assuming the switch happens after three months of injection, it would appear to violate the eligibility rule on timing. However, the eligibility rules allow for multiple drainage systems to exist at a single coal mine, raising the prospect that as new boreholes are drilled as the mine face advances, the mine operator could elect to either create offsets by flaring or sell pipeline gas from new drainage wells.

We would appreciate the Reserve confirming this matter, and suggest further that there is no valid reason to view a project at a mine that has ever injected gas into a pipeline as additional.

Unfortunately, nothing in the protocol rules precludes the reverse ordering: a project that could economically inject methane into a pipeline might choose instead to pursue an on-site activity and earn offset credits. So long as the drainage system does not inject methane into a pipeline network, it is assumed to be additional under the performance standard test.

That assumption is flawed, however, under a variety of plausible economic conditions. Project developers might instead see the Protocol rule structure as giving them the chance to bet long on carbon prices, with a backstop option to sell methane into a pipeline network if carbon prices do not rise as expected. Indeed, the rational project developer considering pipeline sales would be wise to consider whether or not a carbon offset provides a higher value hedge against low gas prices, as Figure 1 demonstrates.

Figure 1: Value of Carbon Offset Minus Value of Pipeline Sales ($ per metric ton of CH_4)[77]

[75] Protocol § 3.4.2 (based on the analysis in Protocol Appendix A).
[76] *Id.* § 3.2.
[77] Source: authors' calculations using flaring as an example offset project. Assumptions: 52.73 mmBTU per tCH4 and 18.25 tCO2e avoided per tCH4 destroyed (using GWP and "r" values from Protocol equations 5.5 and 5.9, respectively); prices as shown in chart.

		CO2 price ($/tCO2-eq.)				Value of natural gas sales
		5	15	25	50	
Natural gas price ($/mmBTU)	2.5	$ (40.58)	$ 141.92	$ 324.42	$ 780.67	$ 131.83
	3.5	$ (93.31)	$ 89.19	$ 271.69	$ 727.94	$ 184.56
	4.5	$ (146.05)	$ 36.45	$ 218.95	$ 675.20	$ 237.30
	5.5	$ (198.78)	$ (16.28)	$ 166.22	$ 622.47	$ 290.03
	6.5	$ (251.51)	$ (69.01)	$ 113.49	$ 569.74	$ 342.76
	7.5	$ (304.24)	$ (121.74)	$ 60.76	$ 517.01	$ 395.49
Value of carbon offsets		$ 91.25	$ 273.75	$ 456.25	$ 912.50	

Each cell in the main table of Figure 1 shows the difference between the value of the carbon offset derived from flaring methane and the value of selling that methane into a pipeline, for a range of natural gas and carbon prices, per metric ton of CH_4. Positive numbers are highlighted and indicate that for the prices applicable in that cell, the carbon offset is more valuable than the direct sale of methane. Thus, under these conditions, a project developer will prefer to generate offset credits rather than sell captured methane into the pipeline network.

For context, the U.S. Energy Information Administration reports that average wellhead natural gas prices in December 2011 were $3.06 per mmBTU; prices since 2000 have generally ranged from $2.5 to $7.5 per mmBTU, with a few higher spikes.[78] A carbon price of $5/tCO2e is a reasonable approximation of the voluntary carbon market, whereas estimates of California's compliance costs are bounded by the remaining prices shown here.

We note that at current forward delivery prices for CCAs ($14.80 for Dec 2013 delivery),[79] current compliance grade carbon prices would tend to push a coal mine to orchestrate a switch to selling offsets from selling pipeline gas.

The net effect of these incentives is to undermine a key assumption in the Protocol's additionality calculations. By defining the performance standard test for drainage systems as any control technology that does not involve pipeline injection, the Protocol implies that pipeline sales are already economically viable and that all projects not injecting into pipelines do not find it viable to do so.[80] The calculations presented in

[78] Energy Information Adminstration, U.S. Natural Gas Wellhead Price (March 25, 2012), available at:

http://www.eia.gov/dnav/ng/hist/n9190us3M.htm. EIA reports December 2011 prices were $3.14 per thousand cubic feet of natural gas. At 1.025 mmBTU per thousand cubic feet of natural gas, this price is equivalent to $3.06 per mmBTU.

[79] *See* PointCarbon, Carbon Markets North America, 23 March 2012, *at* 2.

[80] Protocol Appendix A draws erroneous conclusions to support the proposition that drainage systems using non-pipeline control technologies are always additional. Specifically, Appendix A concludes that the paucity of non-pipteline control technologies reflects their being uneconomic generally, rather than being

Figure 1 contradict this assumption and demonstrate that a rational project developer might prefer to pursue carbon offsets above pipeline sales, with the option to exit the Protocol and sell methane into a pipeline if relative carbon and natural gas prices do not justify the pursuit of offset credits. Indeed, the rational project developer might well prefer to view the Protocol as a hedge against low natural gas prices.

This situation is problematic and undermines the actually additionality of the Protocol. We recommend the Reserve revise the Protocol to prohibit switching from offset credits to pipeline sales, and vice versa.

Our understanding of VAM mitigation technologies is that no rational project developer would seek to invest in the capability to convert ventilation air (less than 1% methane) into pipeline quality gas (90-95% methane).[81] This investment would be necessary to create the option for temporal stacking described above. Thus, our concern applies only to drainage systems.

Response: There is no conflict between the MMC protocol and the Clean Air Act (CAA). No action that ARB takes in execution of California's Cap-and-Trade Program precludes federal action on greenhouse gas emissions. The CAA does not empower ARB nor the commenter to determine what is the Best Available Control Technologies (BACT); that is left to regulators in mining states. Staff rejects the commenter's assessment that there is the potential for crediting non-additional projects or over-estimating reductions from individual projects based

---

less economic than pipeline injection. According to Appendix A, only four of twelve drainage systems that do not have a pipeline interconnection employ an alternative mitigation technology. Of these four projects, two are at mines that also have pipeline injections; the analysis excludes these two projects, and focuses only on the two remaining projects that use methane at mines where no pipeline interconnection is present.

On this basis, Appendix A concludes that "on-site end use projects are uncommon even at mines that do not sell their [methane] to pipelines . . . this finding suggests that such project types are generally uneconomic under current conditions, rather than simply less economic than pipeline sales projects." To the extent two drainage projects permit any valid basis for establishing *ex ante* additionality criteria, a more appropriate conclusion would be that the data cannot rule out the alternative hypothesis that pipeline injection is generally more economic than alternative mitigation measures. The difference matters because the first erroneous conclusion supports the Protocol's additionality criterion (which Figure 1 contradicts), whereas the second conclusion is consistent with both the data in Appendix A and the calculations in Figure 1.

[81] C. Özgen Karacan et al., *Coal mine methane: A review of capture and utilization practices with benefits to mining safety and to greenhouse gas reduction*, 86 INTERNATIONAL JOUNRAL OF COAL GEOLOGY 121, 147 (2011) (reviewing VAM characteristics and typical pipeline injection standards), *available at:* http://www.epa.gov/cmop/docs/cmm-paper-2011.pdf.

on the bad faith assumptions of regulators in other states charged with determining BACT as part of the Prevention of Significant Deterioration (PSD) permitting process under the CAA. Cited accounts of poor governance in international arena are not thought to be representative of regulatory agencies in the United States where the protocol is applicable.

Additionally, staff does not agree that there is a foreseeable threat of invalidation of offset credits from emission reductions achieved under the MMC protocol. Project developers must meet the regulatory compliance requirements set forth in section 95973(b) of the Cap-and-Trade Regulation and offset credits will not be issued if a project is not in compliance with regulatory requirements. Staff sees no need to require a specific attestation from project developers stating that they are in compliance with all PSD permitting requirements and BACT determinations. First, to be eligible under the protocol, active mines must be classified as active, intermittent, or temporarily idle, thereby excluding mines that are planned, but not yet active, those referred to as "new" by the commenter. An offset project at a new mine will only be eligible for crediting of emission reductions in excess of what is required by any laws, regulations, and legally binding mandates requiring the destruction of methane at the time of offset project commencement, including those required for PSD permits during the construction phase. Similarly, a potential project at a mine undergoing major modifications will need to assess all laws, regulations, and legally binding mandates at time of offset project commencement. If an offset project has already commenced at a mine that subsequently undergoes modifications, any change to emission reduction requirements as a result of PSD permitting will be assessed at time of crediting period renewal. The use of crediting periods was explained in 2010 Staff Report: Initial Statement of Reasons (ISOR) and will again be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

In contrast to the arguments presented by the commenter, staff believes that it is likely that BACT standards could be strengthened by the MMC protocol as more mines utilize methane capture and destruction technologies promoted by the MMC protocol. Staff fundamentally disagrees with the commenter and perceives no need to create special eligibility criteria for new or expanding mines. Moreover, staff will periodically review new or modified regulations that could affect additionality as laid out in Compliance Offset Protocol Review Process available at: http://www.arb.ca.gov/cc/capandtrade/compliance-offset-protocol-process.pdf. Staff does not believe that the Board should provide a schedule of time or event-based thresholds that would trigger a review of the protocol. Staff has already stated it will conduct a periodic review of all adopted protocols to ensure they represent the latest science in monitoring and quantification. This schedule of updates must be balanced against the market's need for certainty.

During the MMC protocol development process, ARB has endeavored to consider and respond to all comments made during the technical working group meetings and workshops. There was also extensive discussion about some of the concerns related to the MMC protocol at the October 2013 Board hearing. As with every rulemaking, ARB responds to all comments received during the formal comment periods in the final statement of reasons, which is developed after a Board vote and prior to submittal of the rulemaking package to the Office of Administrative Law.

The comments related to the perceived incentive to flare methane rather than put it to productive use will also be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm. The comment is also addressed in the next response.

The commenter's claim that the MMC protocol represents business-as-usual and concerns over additionality will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

The comments related to the eligibility criteria and additionality will be addressed in written responses to all comments included in the Final Statement of Reasons (FSOR) that will be made available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm.

The comments related to the potential increased profitability of coal mining are addressed in the response to the comment immediately following.

Comment: Comments on Board staff responses to three concerns raised by stakeholders at the October 2013 Board meeting

A. Economic analysis – the potential for profits generated by the MMC protocol to extend the lives of participating mines

At the October 2013 Board meeting, we and other stakeholders raised the concern that the profits generated from the MMC Protocol could be sufficient to extend the lives of some participating coal mines. Our concern focused on flaring projects at gassy underground coal mines where the MMC Protocol can increase mine profits by as much as 2% to 59% at $10 per offset credit. We also raised the concern that large Ventilation Air Methane (VAM) projects may also provide significant windfall profits to gassy

underground mines as the sizes of these projects increase with experience and if offset prices were also to increase.

In the materials released with the current 15-day draft of the Protocol, Staff published an economic analysis that fails to respond to the specific concerns we raised pertaining to (1) the profitability of flaring projects at gassy underground mines primarily, and large VAM projects over time, and (2) the ability for offsets income from these projects to extend the operation of some mines. Instead, Staff's economic analysis examines the potential effect of the offset program on coal prices across the country and the potential effect on mine profits of three specific MMC projects – one at a surface mine and two small-scale VAM projects. Although we have not thoroughly reviewed the details of Staff's economic analysis, we note that the results of its analysis are what would be expected from the analysis that was performed. If we had chosen to analyze the same mines as Staff, we expect that we would have reached similar conclusions.

Our concern regards two project types that the Board staff's analysis fails to consider. In particular, we note that the profit margins of the three MMC projects chosen by the Board averaged 15%, while the US EPA's Coal Mine Methane Project Cash Flow Model[82] predicted profit margins averaging 70% for the eight hypothetical flaring projects we assess in our analysis, as described in early comments, which are attached hereto for the Board's convenience. Given the potential sizes of flaring and VAM projects at active underground mines and their potential profits, it is conceivable that these two project types will generate a large portion of credits under the Protocol. We regret that Staff failed to perform an economic analysis that addresses the specific concerns raised at the October 2014 Board meeting – that profits generated under the Protocol by flaring projects at gassy underground mines could be large enough to extend mining operations, and that the same could be true for large VAM projects if offset prices were to increase substantially above $10 per offset credit.

We continue to strongly recommend that the Board amend the Protocol to avoid increasing mine profits enough to extend mine operations. This result can be accomplished by eliminating eligibility of drainage methane flaring at active underground mines or by placing a fee on credits generated by this project type. We also recommend that the Board include provisions in the Protocol to monitor the profits from VAM projects if project sizes and offset prices increase. Please see a more detailed description of these recommendations in Sections 2 and 3 of our comment letter to the Board dated February 14, 2014, and the details of our economic analysis of eight flaring and four large VAM projects in Section 8 of our comment letter to the Board dated October 23, 2013, both attached below.

February 14, 2014 (attached to written testimony submitted April 5, 2014)

[82] http://www.epa.gov/methane/cmop/resources/cashflow_model.html accessed 20 October 2013

(2) In order to avoid increasing mine profits by amounts large enough to extend the lives of some mines, the Board should consider eliminating eligibility of drainage methane flaring at active mines or placing a fee on credits generated by this project type. Such a change would also create greater incentive for mines to capture drainage methane for productive use rather than for flaring. We also suggest that the Board commit to monitoring the offset profits earned from drainage methane and ventilation air methane (VAM) capture projects as offset prices change and as experience is gained with these technologies. We suggest that the Board include provisions for a response if, in fact, profits become large enough to extend mine operation.

There is substantial evidence that flaring projects from drainage wells at active underground mines can increase mining profits enough to affect mining operation. A simple assessment of eight of the ten US coal mines with drainage wells that do not already capture most of their drainage methane shows the potential for offset revenues to increase mining profits by 2% to 59% at $10 per offset credit (see Table 1 in our comments to the Board from 23 October 2013 attached hereto). These large profits are due to the large quantities of methane currently vented from these wells and the low cost of implementing and operating flaring systems. While increases in mining profits will be even larger if offset prices rise, profits at $10 per offset credit are already large enough to extend the life of a struggling gassy mine. Excluding flaring or creating a differential offset price for flaring projects with a fee can avoid large windfall profits to the gassiest mines.

In addition, this recommendation (in either of its variations) also creates greater incentive for mines to capture drainage methane for productive use rather than for flaring. The Board should design the Protocol to create incentives for the capture and use of drainage methane when such projects are cost effective with offset credit sales. Under the current draft Protocol, it is likely that mines that do not already capture methane for use will find flaring more cost effective than pipeline sales because flaring projects are less expensive to implement. Since mine methane is a valuable natural resource with added benefit to the climate if it is used, the Board should avoid incenting flaring when use is reasonably possible with the help of the Protocol.

Lastly, we suggest that the Board commit to monitoring the offset profits earned from drainage methane and ventilation air methane (VAM) capture projects as offset prices change and as experience is gained with these technologies. We suggest that the Board include provisions for a response if, in fact, profits become large enough to extend mine operation.

Our economic analyses continue to show the potential for windfall profits to coal mining operations from the incentives created by the Protocol. We look forward to reviewing the Board staff's analysis of the potential for these profits.

October 23, 2013 (attached to written testimony submitted April 5, 2014)

Improving coal mine profits: The Protocol has the potential to substantially improve coal mining profits for some participating coal mines, improving their financial standing at the

present time when coal is competing neck-to-neck with natural gas and many coal mines are shutting down.

Recommendation: The Board should only adopt the Protocol if conservative analysis shows that the increase in mining profits from offsets revenues will not result in an increase in production or use of coal, or that any increase will be small and is accounted for by the Protocol.

In our July 1, 2013 comments to the Board on the Protocol (attached hereto) we showed that the Protocol has the potential to meaningfully increase the profits of some participating coal mines. We recommended that the Board perform a more detailed analysis examining the potential for increased profits to lead to an increase in the production and use of coal. We made this recommendation with the understanding that increasing coal mining profits must not be taken lightly. When offsets are allowed to be generated by high emitting industries, they in effect subsidize that industry. Subsidizing coal mining – the most carbon intensive of industries – is especially a concern at the present moment when, due to declines in natural gas prices, coal and natural gas are in close competition as fuels for electricity generation. Over the past few years natural gas has replaced some coal as base load in the United States, and small differences in fuel prices are affecting marginal dispatch of power plants. We recommended that the Board perform an analysis that examines the potential effects of the revenues generated by the Protocol on the production and use of coal.

ARB staff response to this concern: ARB staff assessed the potential financial impact of the Protocol on participating coal mines, estimating that offsets revenues would amount to less than one percent of mining revenues, and that offsets profits would amount to less than one percent of mining profits. They conclude that this small increase in revenues is inconsequential to the market. We understand that the Board's analysis is based on the assumption that a typical MMC project has a profit margin of around 15% (meaning that MMC project implementation costs equal around 85% of offsets revenues).

Our early analysis submitted to the Board in our letter dated July 1, 2013 showed that the effect of the MMC protocol on profits is potentially significant on some participating mines and pointing to the need for the Board to do its own analysis of this consequence of the Protocol.

We question the Board's assumption that the profit margin of MMC projects is only 15%. An analysis must not only assess the effects of the Protocol on an average mine, but also the effects on those mines most likely to participate in the Protocol and those most likely to be affected by the increased income. The Protocol will have a disproportionate impact on decisions at the gassiest mines and those mines that are on the verge of closing. To understand the impacts of the Protocol, the Board's analysis should assess those impacts on the range of mines it could influence.

We used the US Environmental Protection Agency's (EPA's) Coal Mine Methane Project Cash Flow Model to examine the costs of MMC projects for twenty sample projects.[83] We build on our analysis from July 1 which estimated the potential effect of offsets, at $10 per tCO2e, on ten gassy active underground mines that the EPA has identified as having drainage wells, but where mine operators were venting (i.e., not destroying) either all or nearly all mine methane emissions in 2006.[84] We analyzed two methane capture projects at each mine: one which flared all of the drainage methane previously vented to the atmosphere, and a second which oxidized 50% of the ventilation air methane.

The EPA Cash Flow Model predicts that eight mines with drainage methane flows greater than one million cubic feet per day are viable candidates for flaring projects. These eight projects are predicted to have profit margins between 40% and 92%, with an average of 70%. The Cash Flow Model predicts that the mines with ventilation air methane (VAM) concentrations of 0.8% or greater are viable candidates for VAM oxidation projects. Predicted profit margins for these projects range from 40% to 53%, with an average of 46%. Each of these estimates used mine-specific methane flows and VAM concentrations as reported by the EPA,[85] and mid-point values for each project cost parameter for which the Model displayed a range of possible inputs. The use of average values for all cost parameters means that some modeled MMC projects will have higher profit margins and others lower, depending on the actual cost of the particular project. We include a moderate assessment of annual monitoring and verification costs in our analysis, which is too small to meaningfully affect our profit analysis.

Table 1 shows the results of these revised estimates in terms of the possible effects of carbon offset profits on mining profits.[86] Using the assumptions described herein, we find that flaring projects can increase mining profits by an average of 12% for the eight modeled flaring projects, and VAM projects can increase mining profits by 5% for the four modeled VAM projects. These numbers would be higher if mine profit margins or MMC implementation costs are less than average, or if offsets prices exceed $10 per tonne CO2e. We continue to believe that the potential profit margins of these magnitudes for some MMC offsets projects are large enough to suggest that the Board should perform a more detailed analysis to better understand the effects of these profits on the production and use of coal.

---

[83] http://www.epa.gov/methane/cmop/resources/cashflow_model.html accessed 20 October 2013

[84] EPA. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04-003

[85] EPA. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04-003, and EPA. 2010. U.S. Underground Coal Mine Ventilation Air Methane Exhaust Characterization

[86] Since we do not have profit data for the specific mines we examine, we apply, in our analysis, a profit margin of 9.4%. This is the average profit margin over a five year period from 2008 to 2012 achieved by six U.S. coal mining companies: Alliance Resource Partners, Alpha Natural Resources, Arch Coal, CONSOL, Patriot Energy, and Walter Industries.12 These six companies are the only companies listed in the EPA 2009 report as owners of large gassy underground U.S. coal mines with publically available annual reports that focus their business primarily on coal mining

TABLE 1: OFFSETS PROFITS AS % OF COAL MINING PROFITS

For hypothetical offsets projects

assuming a 9.4% coal mining profit margin without offsets

		at an offsets price of:		
Mine	State	$10	$20	$50
FLARING PROJECTS (using 100% of drainage methane)				
McElroy Mine	WV	4%	7%	18%
Bailey Mine	PA	6%	12%	31%
San Juan South	NM	10%	20%	50%
West Elk Mine	CO	59%	118%	296%
Robinson Run No. 95	WV	4%	8%	21%
Elk Creek Mine	CO	10%	20%	51%
Federal No. 2	WV	2%	3%	9%
American Eagle	WV	4%	9%	22%
Average:		12%	25%	62%
Range:		2% - 59%	3% - 118%	9% - 296%
VAM PROJECTS (oxidizing 50% VAM)				
McElroy Mine	WV	7%	15%	37%
Bailey Mine	PA	4%	7%	18%
Robinson Run No. 95	WV	4%	7%	19%
Federal No. 2	WV	6%	11%	28%
Average:		5%	10%	25%
Range:		4% - 7%	7% - 15%	18% - 37%

July 1, 2013 (attached to written testimony submitted April 5, 2014)

The Board should examine and monitor the potential for emissions leakage resulting from increases in the profitability of coal mining due to revenues from offset credits under the Protocol.

Appendix C demonstrates that offsets revenues for MMC projects can substantially improve the profits of companies engaged in underground coal mining. At carbon offset prices as low as $10 per tonne of carbon dioxide equivalent (tCO2e), offset revenues can increase the profits of an underground coal mine with an average profit margin and level of gassiness by approximately 13%, and can increase mine profits by over 50% at the gassiest mines and at mines with relatively low profit margins. An offset price of $50/tCO2e would lead to an increase in profits of an average coal mine by around 66%, while more than doubling the profits of the most gassy mines and at mines with relatively low profit margins. We encourage the Board to perform its own examination of the possible leakage emissions that could be induced by the Protocol and to monitor this risk as energy prices and conditions change, methane capture technologies improve, and offsets prices increase. The leakage risk created from increasing mine profits means that the conservative choice of project eligibility criteria to prevent any non- additional projects from participating are especially crucial for this protocol.

In conclusion, we emphasize that the risks associated with an MMC Protocol go beyond crediting non-additional projects and over-estimating reductions from individual projects. The potential for an MMC Protocol to cause a weakening of BACT standards, to incentivize flaring over productive methane use, and to increase profits from coal mining could lead to an increase in emissions substantially greater than the credits generated. Our analyses find that these effects may be substantial. The Board should take affirmative steps to avoid these effects in the design of the Protocol, through applying conservative project eligibility criteria, developing safeguards against conflicts with the Clean Air Act, and monitoring these effects as technologies and conditions change over time.

Appendix C of July 1, 2013 letter (attached to written testimony submitted April 5, 2014)

APPENDIX C

The Effects of a Mine Methane Capture Protocol on Coal Mining Profits

At the first Potential Mine Methane Capture (MMC) Compliance Offset Protocol Technical Working Group meeting on May 3rd, 2013, we mentioned that we were analyzing the potential effects of revenues from offset credits generated by coal mine methane destruction on the on coal mining operations and the risk of leakage emissions resulting from this new revenue source. Below are the results of this analysis.

1. Summary of Results

We find that offsets revenues from MMC projects can substantially improve the profits of companies engaged in underground coal mining. At carbon offset prices as low as $10 per tonne of carbon dioxide equivalent (tCO2e), offset revenues can increase the profits of an underground coal mine with an average profit margin and level of gassiness by 13%, and can increase mine profits by over 50% at the gassiest mines and at mines with relatively low profit margins. An offset price of $50/tCO2e would lead to an increase in profits of an average coal mine by 66%, while more than doubling the profits of the most gassy mines and of mines with relatively low profit margins. Further, income from offsets would also provide coal mining companies with some buffer against annual variability of revenues from coal sales, such as results from relatively common temporary mine closures.[87] Increases in coal mine profits from offsets would come at a time when coal and natural gas are in close competition as fuels for electricity generation; small differences in fuel prices can affect the marginal dispatch order of power plants, and in turn, their associated greenhouse emissions. This set of conditions suggest that by substantially increasing the profits of some coal mines, the MMC protocol has the potential to

[87] Mines continue to emit methane when active mining operations have been suspended.

induce leakage in the form of increased emissions from continued and expanded mining operations.

These results derive from an analysis of the revenues that could be generated from mine methane capture projects at the ten gassy active underground mines that the EPA has identified as having drainage wells, but where mine operators were venting (i.e., not destroying) either all or nearly all mine methane emissions in 2006.[88] For these ten mines, we analyze the potential offsets revenues from twenty hypothetical projects: the capture of 100% of drainage/gob methane emissions from each of the ten mines, and the capture of 50% of ventilation air methane emissions ("VAM") from each of the ten mines. We use offsets prices of $10, $20 and $50 per tCO2e to examine the potential for carbon offsets revenues to meaningfully improve the economics of underground coal mining. Since this analysis uses average state-level coal prices, average mining profit margins, and mine-specific coal production and methane emissions from a single year (2006), this analysis is meant to provide insight into the range of financial benefits that could be derived from MMC offsets projects at active underground coal mines, rather than an assessment of the financial benefits of specific methane capture projects at specific mines. The assumptions used in this analysis are described below in the "Details of the Analysis" section.

TABLE 1: OFFSETS REVENUES AS % OF COAL MINING PROFITS

For 20 hypothetical offsets projects
assuming a 9.4% coal mining profit margin without offsets

		Offsets	at an offsets price of:		
Mine	State	project	$10	$20	$50
McElroy Mine	WV	100% drained	5%	10%	26%
		50% VAM	14%	29%	71%
Bailey Mine	PA	100% drained	8%	16%	39%
		50% VAM	9%	18%	46%
San Juan South	NM	100% drained	13%	27%	67%
		50% VAM	10%	20%	51%
West Elk Mine	CO	100% drained	64%	129%	322%
		50% VAM	32%	64%	161%
Robinson Run No. 95	WV	100% drained	7%	14%	35%
		50% VAM	8%	16%	41%
Elk Creek Mine	CO	100% drained	16%	32%	79%
		50% VAM	23%	47%	117%
Federal No. 2	WV	100% drained	5%	10%	25%
		50% VAM	15%	29%	73%
Bowie No. 2	CO	100% drained	5%	10%	24%
		50% VAM	7%	14%	36%
Dugout Canyon	UT	100% drained	3%	6%	16%
		50% VAM	5%	11%	26%
American Eagle	WV	100% drained	7%	13%	34%
		50% VAM	5%	10%	25%
		Average:	13%	26%	66%
		Range:	3% - 64%	6% - 129%	16% - 322%

[88] EPA. 2009. Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006. EPA 430-K-04-003

Table 1 shows the potential effects on coal mine profits from the revenues for offsets generated by the twenty mine methane capture projects analyzed. We find the potential for large profit increases from MMC offsets. Profit margins vary dramatically among companies and over time. The impact that offsets revenues could have on the profits of mines with lower-than- average profit margins, which are also those mines most at risk of closure, would be larger than the results given here.

We did not perform a full analysis of the emissions leakage that might result from an increase in mine profits from offsets. Determining the extent to which increases in mining profits may cause an increase in coal use from individual mines is substantially more complex and involved than the analysis provided herein. Increasing the profitability of gassy mines generating offsets credits under the Protocol may enable some mines to expand operations or avoid closure. If these gassy mines displace coal that otherwise would have been produced by less gassy mines, the Protocol could result in a large increase in methane emissions that is unaccounted for by the Protocol. A second avenue by which increased coal mining profits can cause emissions leakage is if the increased profits result in lowered coal prices. This is of particular concern under present conditions, considering that reductions in natural gas prices over the last several years have lead to a substantial shift from coal to natural gas as fuels used to generate electricity in the United States.[89] We encourage the Board to perform its own examination of the possible leakage emissions that could be induced by the increase in mining profits shown here and to monitor this risk as energy prices and conditions change, methane capture technologies improve, and offsets prices increase.

The leakage risk created by choosing to credit emissions reduction projects at facilities that produce coal, a fuel responsible for a large portion of the country's greenhouse gas emissions, suggests that conservative project eligibility criteria that avoid crediting any non- additional activity is especially crucial for this Protocol. Since the main costs of a non-additional offsets projects are monitoring and verification (technology costs of the offsets project are effectively zero since the technology would have been implemented anyway), revenues from non-additional projects go directly into profits. Until the leakage risk is better understood, it is best to take extra precaution to avoid windfall profits to non-additional activities by establishing conservative eligibility criteria.

2. Details of the Analysis

We estimate coal revenues using coal prices from underground coal mines by state and by type of coal (steam or metallurgical) obtained from the Energy Information Administration's (EIA's) 2012 Annual Coal Report averaged over 2010-2011.[90] For the

[89] Pratson, L. F., D. Haerer & D. Patiño-Echeverri (2013) Fuel Prices, Emission Standards, and Generation Costs for Coal vs Natural Gas Power Plants. *Environental Science & Technology*, 4926–4933

[90] U.S. Energy Information Administration. 2012. Annual Coal Report 2011. Washington, DC. Table 28. Average sales price of coal by State and mine type, 2011, 2010, http://www.eia.gov/coal/annual/.

quantities of coal mined, we use data from 2006, compiled in the EPA 2009 report on mine methane emissions.

Since we do not have profit data for the ten specific mines we examine, we apply, in our analysis, a profit margin of 9.4%. This is the average profit margin over a five year period from 2008 to 2012 achieved by six U.S. coal mining companies: Alliance Resource Partners, Alpha Natural Resources, Arch Coal, CONSOL, Patriot Energy, and Walter Industries.[91] These six companies are the only companies listed in the EPA 2009 report as owners of large gassy underground U.S. coal mines with publically available annual reports that focus their business primarily on coal mining.

To compare offsets revenues with coal mining profits, we assume very low offsets project implementation costs compared to offsets revenues, such that practically all of the calculated revenues go directly into profits. This would be true for non-additional projects, for which the main costs are monitoring and verification, and for technologies with implementation costs well below offsets income, as would likely be the case for flaring projects.[92] The effects of carbon offsets on mining profits would be less significant for offsets projects with costs that are closer in size to the revenues generated by the offsets project.

Table 2 provides information about the ten mines and twenty projects analyzed, including estimates of their revenues from offsets and coal sales based on the assumptions described above. The last columns of this table shows offsets revenues as a percentage of coal sales revenues for various offsets prices.

The maximum values of offsets revenues as a percentage of coal sales revenues shown in this table are from a gassy mine that was closed for several months in 2006 (West Elk Mine). The temporary closure of this mine resulted in relatively high methane emission per ton of coal produced, since methane continues to vent even when mining operations have been paused. While this mine produces methane at substantially higher rates per ton of coal produced than the other nine mines analyzed, temporary mine closures are common, and EPA's 2009 report which provides data on fifty active gassy underground mines shows that these levels of methane emissions per ton coal produced are not uncommon and can be much higher.

We would be more than happy to provide the spreadsheet used in this analysis.

---

[91] Profit margins between 2008 to 2012 taken from these companies' annual reports, are as follows: Alliance Resource Partners: 17.0%, Alpha Natural Resources: 2.6%; Arch Coal: 8.0% (we use a zero profit margin during 2012 when Arch Coal had negative profits); CONSOL: 9.1%; Patriot Energy: 3.0% (we use a zero profit margin during 2010 to 2012 when Patriot Energy had negative profits); Walter Industries: 16.6% (we use a zero profit margin during 2012 when Walter Industries had negative profits).

[92] Ranges of capital and operating costs for CMM flaring projects are documented in the US EPA Coal Mine Methane Project Cash Flow Model, http://www.epa.gov/cmop/resources/cashflow_model.html (accessed 11 June 2013)

Table 2: Mine methane capture carbon offest revenues compared with gross coal sales revenues

		COAL REVENUES				OFFSETS REVENUES					OFFSETS REVENUES AS % OF GROSS COAL REVENUES		
		Coal mined in 2006 (mill	Coal type: steam or metallurgical	$ / ton	Revenues from coal sales	Offsets projects	Methane that would be captured	Revenues (mil$) at an offsets price of:			at an offsets price of:		
Mine	State	tons)(1)	(1)	coal (2)	(mil$)	assessed	(MTCO2e)(1)	$10	$20	$50	$10	$20	$50
McElroy Mine	WV	10.5	Steam	$58.11	$610.10	100% drained	0.29	$2.94	$5.88	$14.71	0.5%	1.0%	2.4%
						50% VAM	0.82	$8.19	$16.37	$40.93	1.3%	2.7%	6.7%
Bailey Mine	PA	10.2	Steam (4)	$54.78	$558.71	100% drained	0.41	$4.09	$8.19	$20.46	0.7%	1.5%	3.7%
						50% VAM	0.48	$4.80	$9.59	$23.98	0.9%	1.7%	4.3%
San Juan South	NM	7.0	Steam	$37.44	$262.08	100% drained	0.33	$3.33	$6.65	$16.63	1.3%	2.5%	6.3%
						50% VAM	0.25	$2.5	$5.0	$12.5	1.0%	1.9%	4.8%
West Elk Mine	CO	6.0	Steam	$32.02	$192.09	100% drained	1.16	$11.6	$23.3	$58.2	6.1%	12.1%	30.3%
						50% VAM	0.58	$5.8	$11.6	$29.1	3.0%	6.1%	15.1%
Robinson Run No. 95	WV	5.7	Steam	$58.11	$331.20	100% drained	0.22	$2.2	$4.3	$10.9	0.7%	1.3%	3.3%
						50% VAM	0.26	$2.6	$5.1	$12.8	0.8%	1.5%	3.9%
Elk Creek Mine (3)	CO	5.1	Steam	$32.02	$163.28	100% drained	0.24	$2.4	$4.9	$12.2	1.5%	3.0%	7.4%
						50% VAM	0.36	$3.6	$7.2	$17.9	2.2%	4.4%	11.0%
Federal No. 2	WV	4.6	Steam	$58.11	$267.28	100% drained	0.13	$1.3	$2.6	$6.4	0.5%	1.0%	2.4%
						50% VAM	0.36	$3.6	$7.3	$18.2	1.4%	2.7%	6.8%
Bowie No. 2	CO	4.4	Steam	$32.02	$140.87	100% drained	0.06	$0.6	$1.3	$3.2	0.5%	0.9%	2.3%
						50% VAM	0.10	$1.0	$1.9	$4.8	0.7%	1.4%	3.4%
Dugout Canyon	UT	4.4	Steam	$38.13	$167.77	100% drained	0.05	$0.5	$1.0	$2.6	0.3%	0.6%	1.5%
						50% VAM	0.08	$0.8	$1.7	$4.2	0.5%	1.0%	2.5%
American Eagle	WV	2.4	Both (5)	$169.02	$405.64	100% drained	0.26	$2.6	$5.1	$12.8	0.6%	1.3%	3.2%
						50% VAM	0.19	$1.9	$3.8	$9.6	0.5%	0.9%	2.4%
										Average:	1.2%	2.5%	6.2%
										Range:	0.3% - 6.1%	0.6% - 12.1%	1.5% - 30.3%

Response: The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

The assumptions and level of analysis contained within ARB's mining economics study differed from those of the commenter's. In reviewing the figures provided by the commenter, staff found several assumptions that were flawed and not the least of which was reliance upon the U.S. EPA's Coal Mine Methane Project Cash Flow Model which contains the explicit disclaimer that "the model was NOT

DESIGNED for conducting a detailed economic analysis". The dissatisfaction expressed in the April 5th letter to ARB can be summarized as criticizing the analysis for not taking the same approach to the subject as the commenter. The analysis provided by ARB included not only a microeconomic analysis at the project level but also a macroeconomic analysis of the market for coal, the primary factor influencing coal production decisions. Staff maintains that the proposed MMC protocol will not incentivize the production or burning of coal. Rather, the protocol provides an incentive to reduce the potent greenhouse gas emissions otherwise emitted during the mining process.

The comments related to the perceived incentive to flare mine methane over productive utilization are addressed in the response to the comment immediately preceding this one and will be addressed further in the FSOR, as the incentive to flare mine methane is distinct and separate from the environmental analysis associated with flaring mine methane.

TAYLORR

Name:	Jeremy Taylorr
Affiliation:	Private Individual
Written Testimony:	3/31/2014
15-Day Comment #:	35

Comment: Most of the Energy efficiency with Oil and coal degrades our environment and alternative sources need to be considered, other wise our environments sustain ability will only continue to degrade. Please do you part to sustain a better living Environment!

Response: The limited use of offsets serves as an important cost-containment feature in the Cap-and-Trade Program, which reduces emissions and works in conjunction with other AB 32 measures that shift California's energy consumption toward renewable sources. An environmental analysis of the proposed MMC protocol concluded that its potential impacts to air quality would likely not be adverse, and where an adverse impact may occur would be less than significant due to the requirement that all projects comply with all applicable federal, state and local laws and regulations. The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

THORNBURGH

Name:	Jack Thornburgh
Affiliation:	Peninsula EcoVision
Written Testimony:	4/2/2014
15-Day Comment #:	55

Comment: The Mine Methane Capture Protocol will only encourage further coal extraction and burning, leading to more GHGs. Please reconsider

Response: The MMC protocol incentivizes the capture and destruction of methane that would otherwise be vented into the atmosphere as a result of mining operations. Staff does not believe the MMC protocol incentivizes the extraction or burning of coal that would otherwise remain unearthed and therefore does not increase emissions from the mining industry. In response to Board Resolution 13-44, staff released The Mine Methane Capture Protocol and Mining Economics study. The study approached the issue from various perspectives including comparing the value of offsets to the value of coal, evaluating the likelihood that the protocol would encourage new coal mines to begin production or encourage existing mines to produce more coal, assessing whether the protocol would shift production between existing coal mines, or impact the price of coal. From this analysis, staff concluded that the MMC protocol would have a nearly imperceptible impact on mine economics. While the protocol presents an opportunity to achieve emission reductions in a carbon-intensive industry, it would not encourage additional coal mining. On average, the rate of return from the MMC offset project would increase coal mine profits by less than one percent, which would not shift long-term production decisions. The analysis is available in electronic form on the ARB rulemaking webpage at: http://www.arb.ca.gov/regact/2013/capandtrade13/capandtrade13.htm

CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO CONSIDER PROPOSED ASSEMBLY BILL (AB) 118 AIR QUALITY IMPROVEMENT PROGRAM CLEAN VEHICLE REBATE PROJECT WAITING LIST EXPANSION

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider expanding the Clean Vehicle Rebate Project waiting list.

DATE: April 24 & 25, 2014

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 two-day meeting of the Board, which will commence at 9:00 a.m., April 24, 2014, and may continue at 8:30 a.m. on April 25, 2014. This item may not be considered until April 25, 2014. Please consult the agenda for the meeting, which will be available at least 10 days before April 24, 2014, to determine the day on which this item will be considered.

Background:

The Air Quality Improvement Program (AQIP), administered by ARB, is a voluntary incentive program created under the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (AB 118; Nuñez, Chapter 720, Statutes of 2007). Through AQIP, ARB invests in clean light- and heavy-duty vehicle and equipment projects that reduce criteria pollutant and air toxic emissions, often with concurrent climate change benefits. Staff prepares funding allocations and policy updates and presents them to the Board annually in the Proposed AB 118 AQIP Funding Plan (Funding Plan). The fiscal year (FY) 2013-14 Funding Plan was approved by the Board on July 25, 2013 and amended on September 26, 2013. Staff intends to propose the FY 2014-15 Funding Plan to the Board at its June 2014 meeting.

Clean Vehicle Rebate Project:

The Clean Vehicle Rebate Project (CVRP) is one of several projects identified for funding in the FY 2013-14 Funding Plan. CVRP is designed to promote the purchase and use of zero-emission vehicles (ZEV), including electric, plug-in hybrid electric, and fuel cell vehicles. Rebates of up to $2,500 per light-duty vehicle are available for individuals, nonprofits, government entities and business owners who purchase or lease

a new eligible zero-emission or plug-in hybrid electric vehicles. As of January 2014, CVRP has provided approximately $100 million in rebates for approximately 49,000 vehicles in California, resulting in the reduction of about 400 tons of nitrogen oxides and 490,000 metric tons of carbon dioxide equivalents.

The FY 2013-14 Funding Plan allocated a total of $59.55 million to CVRP from multiple sources: 1) $10 million allocation from AQIP, 2) $5 million approved by the Energy Commission, 3) $20 million appropriated by Senate Bill 359, and 4) $24.55 million transferred to the Air Quality Improvement Fund by Assembly Bill 101 and allocated by the Board in September 2013.

Despite this significant investment, rebate demand has outstripped available funding. In FY 2013-14, CVRP experienced a rapid rise in rebate demand after manufacturers announced vehicle price reductions, with over 160 percent increase in rebate reservations in 2013 compared to 2012. In December 2013, a new record was set, with over 3,700 rebates reserved. Because of this increased demand, ARB staff is projecting a potential funding shortfall of about $30 million for the current fiscal year.

The Board approved FY 2013-14 Funding Plan allows for creation of a FY 2013-14 waiting list of up to $5 million to be funded from FY 2014-15 funding for CVRP to bridge any short-term funding gap and ensure program continuity. The waiting list has been opened; however, based on current expenditures, staff anticipates exhausting the $5 million waiting list funding for FY 2013-14 by the end of April 2014. Therefore, staff recommends expanding the waiting list for FY 2013-14 by $25 million, supported by future funding anticipated as part of the FY 2014-15 State Budget, which is expected to fully meet rebate demand through the end of June 2014. Staff recommends that CVRP applicants approved for the waiting list be subject to existing Board approved eligibility criteria and funding amounts.

SUBMITTAL OF COMMENTS

ARB staff will present the *Proposed AB 118 Air Quality Improvement Program Clean Vehicle Rebate Project Waiting List Expansion* at the meeting. Interested members of the public may present comments orally or in writing at the meeting and may provide comments 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 5:00 p.m. on April 21, 2014,** 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.

ARB requests that written and email statements on this item be filed at least 10 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 Ms. Lisa Macumber, Air Pollution Specialist, at (916) 323-2881, or Ms. Graciela Garcia, Air Pollution Specialist, at (916) 323-2781.

SPECIAL ACCOMMODATION REQUEST

Consistent with California Government Code Section 7296.2, special accommodation or language needs may be provided for any of the following:

- An interpreter to be available at the meeting;
- Documents made available in an alternate format 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 meeting. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Consecuente con la sección 7296.2 del Código de Gobierno de California, una acomodación especial o necesidades lingüísticas pueden ser suministradas para cualquiera de los siguientes:

- Un intérprete que esté disponible en la audiencia;
- Documentos disponibles en un formato alterno u 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 envié 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

Date: April 4, 2014

Richard W. Corey
Executive Officer