

## **Attachment 1: PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES APPROVED BY THE BOARD IN JULY 2007 WITH PROPOSED MODIFIED TEXT**

Shown on the following pages are proposed modifications to the original proposed regulation set forth in Appendix A to the Staff Report: Initial Statement of Reasons, which was released April 5, 2007. Text proposed for adoption during the 45-day notice period is shown without underline as permitted in title 1, California Code of Regulations, section 8. The proposed modifications that were made available by the first "15-day" notice on December 11, 2007, are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. The proposed modifications that were made available in the Second Notice are shown in double underline to indicate additions and double ~~strikeout~~ to indicate deletions. The proposed modifications being made available in this Third Notice are shown in shaded underline to indicate additions and shaded ~~strikeout~~ to indicate deletions.

## PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES

Adopt new sections 2449, 2449.1, 2449.2, and 2449.3 in title 13, article 4.8, chapter 9, California Code of Regulations (CCR) to read as follows:

(Note: The entire text of article 4.8, section ~~2499~~2449 is new language.):

### Article 4.8 In-Use Off-Road Diesel-Fueled Fleets

#### Section 2449 ~~Emission Standards~~ General Requirements for In-Use Off-Road Diesel-Fueled Fleets

##### *(a) Purpose*

The purpose of this regulation is to reduce diesel particulate matter (PM) and criteria pollutant emissions from in-use off-road diesel-fueled vehicles.

##### *(b) Applicability*

Except as provided in the paragraphs below, the regulation applies to any person, business, or government agency who owns or operates within California any diesel-fueled or alternative diesel fueled off-road compression ignition vehicle engine with maximum power of 25 horsepower (hp) or greater that is used to provide motive power in a workover rig or to provide motive power in any other motor vehicle that (1) cannot be registered and driven safely on-road or was not designed to be driven on-road, and (2) is not an implement of husbandry or recreational off-highway vehicle. Vehicles that were designed to be driven on-road, have on-road engines, and still meet the original manufacturer's on-road engine emission certification standard are considered on-road and are specifically excluded from this regulation, even if they have been modified so that they cannot be registered and driven safely on-road. Off-road vehicles that were designed for off-road use and have off-road engines are considered off-road and are subject to this regulation, even if they have been modified so that they can be driven safely on-road.

This regulation also applies to any person who sells a vehicle with such an engine within California.

Persons who provide financing in the form of "finance leases," as defined in California Uniform Commercial Code Section 10103(a)(7), for in-use off-road diesel-fueled vehicles, do not "own" such vehicles for the purposes of this regulation.

Vehicles with engines subject to this regulation are used in construction, mining, rental, government, landscaping, recycling, landfilling, manufacturing, warehousing, ski industry, composting, airport ground support equipment, industrial, and other operations. The regulation does not cover locomotives, commercial marine vessels,

(A) the additive is supplied to the vehicle or 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 vehicle or 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.

**(4)(3) “Alternative fuel”** means natural gas, propane, ethanol, methanol, gasoline (when used in hybrid electric vehicles only), 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.

**(5)(4) “Best Available Control Technology” (BACT)** means the exhaust retrofit and accelerated turnover requirements in sections 2449.1(da)(2) and 2449.2(a)(2).

**(6)(5) “Captive Attainment Area Fleet”** means a fleet or an identified subpart of the fleet (fleet portion, consistent with section 2449(d)), regardless of size, in which all of its the vehicles in the fleet or fleet portion operate exclusively only within the following counties: Alpine, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Monterey, Plumas, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz, Shasta, Sierra, Siskiyou, Trinity, Tehama, and Yuba. A Ffleets or identified fleet portion that operates one or more vehicles outside the counties listed above may is not be defined as a captive attainment area fleets.

**(7) “Carryover retrofit credit”**, as calculated under section 2449.2(da)(2)(BA)2., means a way of tracking retrofits accomplished in excess of those required by the BACT retrofit requirements. Fleets may take credit for such excess retrofits in earlier years in order to do less retrofitting in later years.

**(8)(7) “Carryover turnover credit”**, as calculated under section 2449.1(da)(2)(A)2., means a way of tracking turnover accomplished in excess of the BACT turnover requirements. Fleets may take credit for such excess turnover in earlier years to do less turnover in later years.

**(9)(8) “Combat and Tactical Support Equipment”** means equipment that meets military specifications, is owned by the U.S. Department of Defense and/or the U.S. military services or its allies, and is used in combat, combat support, combat service support, tactical or relief operations or training for such operations.

**(10)(9) “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

the Tier 1 NOx standard for the same horsepower in title 13, CCR, Section 2423(b)(1)(A) and is less than or equal to the NOx emissions of a diesel engine of the same model year and horsepower.

2. Fleets may include a diesel vehicle with a maximum power 25 horsepower or greater that has been converted to alternative fuel in their fleet average index and target rate calculations. The Emission Factor for NOx remains the same as the emission factor for the diesel vehicle. The Emission Factor for PM is 0.

3.b. For the purposes of compliance with sections 2449.1(d)(1)(A) and 2449.2(d)(1)(B), electric vehicles shall be credited as follows:

**a.i. Max Hp for Electric Vehicles** - For an electric vehicle that replaced a diesel vehicle in the owner's fleet, the maximum power of the diesel vehicle replaced may be used as the electric vehicle's *Max Hp*. For an electric vehicle added to the fleet, the fleet owner may apply to the Executive Officer to use the maximum power of a diesel vehicle that serves the same function and performs equivalent work to that of the electric vehicle. In making his or her determination, the Executive Officer will approve the use of the minimum *Max Hp* of a diesel vehicle that would be required to perform the same functions and equivalent work. If no request to the Executive Officer is received otherwise, the electric vehicle's own maximum power rating should be used.

**b.ii. Double Credit for Electric in 2010-2016** - For compliance dates in 2010 through 2016, the *Max Hp* of all electric vehicles purchased on or after January 1, 2007 may be doubled in determining the *Max Hp* that is used in calculating the Diesel PM Index, and as appropriate, NOx Index. An *Emission Factor* of 0 may be used. The *Max Hp* of each electric vehicle is included but not doubled in the calculation of Diesel PM Target Rate and NOx Target Rate.

**c.iii. Single Credit for Electric in 2017 and Later** - For compliance dates in year 2017 and later, the *Max Hp* of all electric vehicles purchased on or after January 1, 2007 is used in determining the *Max Hp* that is used in calculating the Diesel PM and NOx Target Rates, Diesel PM Index, and, as appropriate, NOx Index. An *Emission Factor* of 0 may be used.

4.e. For the purposes of compliance with sections 2449.1(d)(1)(A) and 2449.2(d)(1)(B), each alternative fuel vehicle should use an Emission Factor equal to the emission standard to which its engine is certified in g/bhp-hr. If the alternative fuel vehicle is not certified to a NOx or diesel PM emission standard, the owner may apply to the Executive Officer to use provide an appropriate emission factor. In the application, the owner must, as demonstrated that the chosen emission factor is appropriate and not exceeded by the alternative fuel vehicle to the Executive Officer.

**(B)2. Electric and Alternative Fuel Vehicle Purchased Prior to January 1, 2007**

1.a. GSE: Electric airport GSE vehicles with a maximum power of 25 horsepower or greater (or that replaced a diesel vehicle with maximum

power 25 horsepower or greater) purchased prior to January 1, 2007, may be partially counted in the fleet average calculations as follows:

**a.4. Max Hp for Electric Vehicles** - For an electric vehicle that replaced a diesel vehicle in the owner's fleet, the maximum power of the diesel vehicle replaced may be used as the electric vehicle's *Max Hp*. Otherwise, the electric vehicle's own maximum power rating should be used.

**b.ii.** Include such vehicle's *Max Hp* times 0.2 as the *Max Hp* in the calculating the Target Rate, Diesel PM Index, and, as appropriate, NOx Index in sections 2449.1(d)(1)(A) and 2449.2(d)(1)(B), along with an *Emission Factor* of 0.

**2. Non-GSE:**

**a.** Fleet owners may count a non-GSE electric or alternative fuel vehicle purchased prior to January 1, 2007 in the fleet average calculations if all of the following conditions are met:

- i. The owner can demonstrate it serves a function and performs the work equivalent to that of diesel vehicles and is used for a purpose for which diesel vehicles are predominantly used,
- ii. the electric or alternative fuel vehicle is used predominantly outdoors,
- iii. the vehicle is not already counted toward the fleet average emission level requirements for large spark ignition engine fleets in ~~Title 13, CCR, section 2775.1;~~ and
- iv. if the vehicle is alternative fuel vehicle with a certified NOx emission level, the certified NOx emission levels are lower than the NOx standard for the same model year and horsepower in ~~Title 13, CCR, Section 2423(b)(1)~~ and Title 40, CFR, Part 89.112(a) and Title 40, CFR, Part 1039.101.

**b.** Include such vehicle's *Max Hp* as the *Max Hp* in the calculating the Target Rate, Diesel PM Index, and, as appropriate, NOx Index in sections 2449.1(a)(1) and 2449.2(a)(1). For an electric vehicle, use along with an *Emission Factor* of 0. For an alternative fuel vehicle, use an Emission Factor equal to the emission standard to which its engine is certified in g/bhp-hr. If the alternative fuel vehicle is not certified to a NOx or diesel PM emission standard, the owner may apply to the Executive Officer to use an emission factor. In the application, the owner must demonstrate that the chosen emission factor is appropriate and not exceeded by the alternative fuel vehicle.

**(C)3. Stationary or Portable System Used to Replace Mobile Diesel Vehicle**

Fleet owners may apply to the Executive Officer to include electric portable or electric stationary systems that replace mobile diesel vehicles, such as an electric conveyor system used to replace diesel haul trucks at a mine, in the fleet average calculations. The system may be considered in the fleet average calculations by including the maximum power of the diesel vehicles replaced in the calculations of Target Rate, Diesel PM Index, and NOx Index

- 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.

**(B) Appeals – Hearing Conducted by Written Submission.** In lieu of the hearing procedure set forth in (A) 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 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 2449(e)(8)(A)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 2449(e)(8)(A)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.

**(9)(7) Compliance Flexibility for Delays in Availability of Tier 3 or Tier 4**

**Vehicles:** - If the Executive Officer finds that there is a delay in availability of vehicles with engines meeting the Tier 3 or Tier 4 interim or final emission standards so that vehicles with Tier 3 or Tier 4 interim or final engines to meet a fleet's needs are not available or not available in sufficient numbers or in a sufficient range of makes, models, and sizes, then the Executive Officer may grant an extension to the fleet from the requirements in sections 2449.1(d)(1), 2449.2(a)(1), 2449.1(a)(2) and 2449.2(d)(2). If such a delay affects a group of fleets, the Executive Officer may issue an extension to all fleets with certain characteristics. Any such delay must be documented based on verifiable

information from the fleet regarding its vehicle needs and/or verifiable information from the equipment manufacturer, engine manufacturer, distributor, and/or dealer regarding the unavailability of appropriate vehicles with Tier 3 or Tier 4 interim or final engines.

**(10)(8) Exemption for Vehicles Awaiting Sale** - Vehicles in the possession of dealers, financing companies, or other entities who do not intend to operate the vehicle nor offer the vehicle for hire, that are operated only to demonstrate functionality to potential buyers or to move short distances while awaiting sale or for maintenance purposes are exempt from all requirements in sections 2449.1, 2449.2, and 2449.3.

**(11)(9) Exemption for Vehicle Used Over Half the Time for Agriculture** - A vehicle that is used by its owner for agricultural operations for over half of its annual operating hours but that is not used exclusively for agricultural operations is exempt from the performance requirements in section 2449(d), 2449.1(a), and 2449.2(a), but still must be labeled and reported in accordance with sections 2449(f) and (g). Vehicles used exclusively for agricultural operations are completely exempt from the performance, labeling, and reporting requirements. A vehicle that is rented or leased for use by others is exempt only if it is exclusively used for agricultural operations.

**(12) 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 2449. 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.

**(13) Exemption for Job Corps Vehicles** – Vehicles used by the Job Corps nonprofit apprenticeship training program are exempt from the performance requirements in sections 2449(d), 2449.1(a), 2449.2(a) and 2449.3(d) but still must be labeled and reported in accordance with sections 2449(f) and (g).

**(f) Labeling** –

All vehicles with engines subject to the regulation must be labeled with an ARB-issued equipment identification number (EIN). Electric and alternative fuel vehicles, stationary or portable systems, and gasoline-powered vehicles used to replace diesel vehicles under section 2449(d)(1)(C) must also be labeled with an ARB-issued EIN. ARB will issue unique EIN to the fleet owner for each vehicle subject to the regulation in response to the initial reporting described in §section 2449(g)(1) and, for vehicles added in the 30 days before the annual reporting date, the annual reporting described in §section 2449 (g)(2). Vehicles with two engines that provide motive power will receive two EINs. All owners of vehicles subject to the regulation must comply with the following labeling requirements.

**(1) Application for EIN for added vehicle** – Notwithstanding the requirements for vehicles used for emergency operations in section 2449(e)(3), if a fleet owner adds a vehicle to his California fleet or brings a vehicle into California from outside the state, the fleet owner has 30 days from the date of purchase or the date the vehicle enters California to apply to ARB for an EIN or, if the vehicle already has an EIN, to inform ARB of the purchase using forms approved by the Executive Officer for submittal of required reporting information. If the reporting date under ~~Section~~ section 2449(g)(2) occurs before 30 days after purchase, the annual reporting may serve as the application for an EIN.

Applications for an equipment identification number should be submitted electronically per the guidelines approved by the Executive Officer for electronic data reporting, or mailed or delivered to ARB at the address listed immediately below:

California Air Resources Board  
Mobile Source Control Division (In-Use Off-road Diesel)  
P.O. Box 2815  
Sacramento, CA 95812.

**(2) Affixing Equipment Identification Number** – Within 30 days of receipt of the ARB-issued EIN, fleet owners shall permanently affix or paint the EIN(s) on the vehicle in clear view according to the following specification:

- (A) The EIN shall be white on a red background.
- (B) The EIN shall be located in clear view on the right (starboard) side of the outside of the vehicle approximately 5 feet above the ground, or, if the vehicle is not 5 feet tall, lower on the vehicle.
- (C) Each character shall be at least 3 inches (7.6 centimeters) in height and 1.5 inches (3.8 centimeters) in width.
- (D) The EIN shall be maintained in a manner that retains its legibility for the entire life of the vehicle.

**(g) Reporting** –

Reporting is required for each and every fleet. Large and medium fleets may report separately for different divisions or subsidiaries of a given company or agency. Fleet owners must submit reporting information using forms (paper or electronic) approved by the Executive Officer. ~~However, in engine data required to be reported is unknown, such engines are assumed to be 1900-1969 vehicles for fleet average.~~

**(1) Initial reporting** – All fleet owners must submit the information in section 2449(g)(1)(A) through (~~GG~~) to ARB by their initial reporting date. In the initial reporting, fleet owners must report information regarding each vehicle subject to this regulation that was in their fleet as of March 1, 2009. Systems or non-diesel fueled vehicles that are used in place of a vehicle that would be subject to this regulation must also be reported. The initial reporting date for large fleets is April 1, 2009. The initial reporting date for medium fleets is June 1, 2009. The



initial reporting date for small fleets is August 1, 2009. Reports ~~should~~must include the following information:

**(A) Fleet Owner –**

1. Fleet owner's name;
2. Corporate parent name (if applicable);
3. Corporate parent taxpayer identification number (if applicable);
4. Company taxpayer identification number;
5. Address;
6. Responsible person name;
7. Responsible person title;
8. Contact name;
9. Contact phone number;
10. Contact email address (if available);
11. Whether the fleet owner is a low population county local municipality fleet;
12. Whether the fleet owner has an approval from the Executive Officer to be treated as if in a low-population county;
13. Whether the fleet owner is a non-profit training center;
14. Whether the fleet has an idling policy documented and available to employees;
15. Whether the fleet is using a fuel-based strategy as an emissions control strategy;
16. Whether the fleet is a Captive Attainment Area Fleet.

~~**(A) Owner Contact Information** – Responsible person name, corporate parent (if applicable), company or agency name, street address, phone number, email address (if available), and taxpayer identification number.~~

**(B) Vehicle List** – A list of each vehicle subject to this regulation along with the following information for each vehicle:

1. Vehicle type;
2. Vehicle manufacturer;
3. Vehicle model;
4. Vehicle model year;
5. Vehicle serial number;
6. Whether the vehicle is a low-use vehicle;
7. If the vehicle is a low-use vehicle, whether the vehicle was operated outside of California during the previous compliance year;
8. Whether the vehicle is a specialty vehicle;
9. Whether the vehicle is a vehicle used solely for emergency operations;~~a dedicated emergency vehicle;~~
10. Whether the vehicle is a dedicated snow removal vehicle;
11. Whether the vehicle is used for agricultural operations for over half of its annual operating hours;
12. Whether the vehicle is an electric vehicle that replaced a diesel vehicle;  
~~Whether the vehicle is one that the owner intends to retire within one year;~~
13. Whether the vehicle has been retrofit, repowered, or replaced with Surplus Off-road Opt-in for NOx program funding and, if so, the start and end dates of the contract period;

14. Whether the vehicle has been retrofit, repowered, or replaced with Carl Moyer program funding;

15. Whether the vehicle has been retrofit through a demonstration program, and - if so - which program.;

16. EIN if it has already been assigned.

**(C) Engines** - For each engine that powers a vehicle listed per section 2449(g)(1)(B) report the following information.

1. Engine manufacturer;

2. Engine model;

3. Engine family (if any);

4. Engine serial number;

5. Engine model year;

6. Engine maximum power;

7. Engine displacement;

8. Whether the engine is a repower and – if so – date repowered;

9. If the engine is a Post-2007 flexibility engine, an engine certified to on-road standards, or an engine certified by ARB or U.S. Environmental Protection Agency to a lower emission standard than shown in Appendix A, the emission standard to which the engine is certified and the certification Executive Order or certificate number;

10. Whether the engine has been rebuilt to a more stringent emissions configuration.

**(D) Verified Diesel Emission Control Strategies** - For each VDECS that is installed on an engine listed per section 2449(g)(1)(C) report the following information.

1. VDECS Manufacturer;

2. VDECS Model;

3. Verification level;

4. Verified percent NOx reduction (if any);

5. Date installed;

**(E) Non-Diesel Vehicle Used in Place of a Diesel Vehicle** - For each electric, alternative fueled, or gasoline fueled vehicle report the information listed in sections 2449(g)(1)(B)1. through 2449(g)(1)(B)5. and sections 2449(g)(1)(C)1. through 2449(g)(1)(C)6. as well as

1. Date purchased;

2. If the vehicle replaced a diesel vehicle in the fleet, the horsepower of the diesel vehicle replaced and the date replaced;

3. If not electric, the NOx and PM emission factor;

**(F) Stationary or Portable Systems Used in Place of a Diesel Vehicle** – For stationary or portable systems that are used in place of a diesel vehicle, report the following information:

1. Description of the system;

2. Type and number of vehicles that would otherwise be used;

3. Horsepower of the vehicle(s) that would otherwise be used;

**(G) Credit for Early Actions** – Fleet owners claiming credit for early action must report information required under sections 2449(g)(1)(B)1. through

## **Section 2449.1 NOx Performance Requirements**

### **(a) Performance Requirements**

Each fleet must meet the fleet average requirements in this section by March 1 of each year or demonstrate that it met the best available control technology (BACT) requirements as described in section 2449.1(a)(2). There are differing requirements for large and medium fleets. Small fleets are not subject to the NOx fleet average performance requirements.

If various portions of a 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 portions may comply with the performance requirements separately and be reported separately. A fleet may have some fleet portions that meet the definition of captive attainment area fleet and some fleet portions that do not. However, the total maximum power of the vehicles under common ownership or control determines the fleet size. Once a fleet begins to comply and report separately as fleet portions, the fleet portions must continue to comply and report separately, and the fleet portions must meet the adding vehicle requirements in section 2449(d)(7) just as if they were separate fleets.

Fleets owned by low-population county local municipalities are subject to the small fleet requirements, even if their total maximum power exceeds 2,500 horsepower. Captive attainment area fleets are not subject to the NOx fleet average performance requirements. Section 2449(d)(4) describes requirements for fleets that change size.

### **(1) Fleet Average Requirements**

#### **(A) Fleet Average Requirements for Large and Medium Fleets**

- 1. NOx Fleet Average** - For each compliance date, a large or medium fleet that is not a captive attainment area fleet must demonstrate that its NOx Index was less than or equal to the calculated NOx Target Rate.

The equation for calculating NOx Target Rate is below:

NOx Target Rate = [SUM of (Max Hp for each engine in fleet multiplied by Target for each engine in fleet) for all engines in fleet] divided by [SUM of (Max Hp) for all engines in fleet]

where Target is the NOx target in g/bhp-hr from Table 1. To find the Target for each engine, read the value for the appropriate row based on the compliance year and the appropriate column based on the engine's maximum power from Table 1.

The equation for calculating NOx Index is below:

This Page Begins with 2449.1(a)(1)(A)1.

$$\text{NOx Index} = \frac{\text{[SUM of (Max Hp for each engine in fleet multiplied by NOx Emission Factor for each engine in fleet) for all engines in fleet]}}{\text{[SUM of (Max Hp) for all engines in fleet]}}$$

Table 1 shows the targets used to calculate the NOx Target Rate for each compliance date for large and medium fleets. The Emission Factors are defined in Appendix A.

**Table 1 – Large and Medium Fleet NOx Targets  
For Use in Calculating NOx Target Rates [g/bhp-hr]**

Compliance Date: March 1 of Year	NOx Targets for each Max Hp Group							
	25-49 hp	50-74 hp	75-99 hp	100- 174 hp	175-299 hp	300-599 hp	600- 750 hp	>750 hp
<b>2010 (large fleets only)</b>	5.8	6.5	7.1	6.4	6.2	5.9	6.1	7.2
<b>2011 (large fleets only)</b>	5.6	6.2	6.7	6.0	5.8	5.5	5.6	6.8
<b>2012 (large fleets only)</b>	5.3	5.8	6.2	5.5	5.3	5.1	5.2	6.5
<b>2013</b>	5.1	5.5	5.7	5.1	4.9	4.7	4.8	6.1
<b>2014</b>	4.9	5.1	5.2	4.7	4.5	4.3	4.4	5.7
<b>2015</b>	4.6	4.8	4.8	4.3	4.1	3.9	4.0	5.3
<b>2016</b>	4.4	4.4	4.3	3.8	3.6	3.5	3.6	4.9
<b>2017</b>	4.2	4.1	3.8	3.4	3.2	3.1	3.2	4.5
<b>2018</b>	4.0	3.7	3.3	3.0	2.8	2.7	2.7	4.1
<b>2019</b>	3.7	3.4	2.8	2.6	2.3	2.3	2.3	3.8
<b>2020</b>	3.5	3.2	2.4	2.2	1.9	1.9	1.9	3.4

**(2) BACT Requirements** – Each year, each fleet must determine if it will be able to meet the fleet average requirements for the next March 1 compliance date, and if not, the following BACT requirement must be met. If a fleet does not meet the NOx target rate in section 2449.1(a)(1), it must meet the BACT turnover requirements in section 2449.1(a)(2)(A) below.

**(A) Turnover Requirements for Fleets Not Meeting NOx Target Rate** – A fleet may meet the turnover requirements by retiring a vehicle, designating a vehicle as a low-use vehicle, repowering a vehicle, rebuilding the engine to a more stringent emissions configuration, or applying a VDECS verified to achieve NOx reductions. If repowering a vehicle or rebuilding the engine to a more stringent emissions configuration, the new engine must be Tier 2 or higher and must be a higher tier than the engine replaced or rebuilt. The method for counting VDECS verified to achieve NOx reductions is specified in section 2449.1(a)(2)(A)8.

**1. Turnover Rate** – If a fleet does not meet the NOx Target Rate in section 2449.1(a)(1) on a compliance date on or before March 1, 2015, it must demonstrate on the applicable compliance date that it has turned over 8 percent of the total maximum power of the fleet that existed on March 1

of the previous year since March 1 of the previous year. If a fleet does not meet the NOx Target Rate in section 2449.1(a)(1) on a compliance date after March 1, 2015, it must demonstrate on the applicable compliance date that it turned over 10 percent of its total maximum power that existed on March 1 of the previous year since March 1 of the previous year. Any carryover turnover credit previously accrued may be applied towards the turnover required in a later year.

**2. Carryover turnover credit –**

**a. Beginning –** All fleets other than those meeting the criteria in (i) or (ii) or (iii) below begin with zero carryover turnover credit on March 1, 2009. All fleets may begin accumulating carryover turnover credit on March 1, 2010.

**i. Credit for Early Repowers -** Fleets that have repowered their vehicles with Tier 1 or higher engines before March 1, 2009 begin with a carryover turnover credit (in horsepower) equal to: the maximum power of Tier 1 or higher repower engines installed in affected vehicles before March 1, 2009. The credit can only be claimed for engines that remain in the fleet. To claim credit, fleets must keep adequate records as described in section 2449(h).

**ii. Credit for Early Retirement –** Fleets that have retired their Tier 0 vehicles at an average rate greater than 8 percent of total maximum power per year between March 1, 2006 and March 1, 2009 begin with carryover turnover credit (in horsepower) equal to: [(Total maximum power of Tier 0 vehicles retired between March 1, 2006 and March 1, 2009) minus (Total maximum power of Tier 0 vehicles added between March 1, 2006 and March 1, 2009)] minus [(Total maximum power of fleet on March 1, 2007 times 0.08) plus (Total maximum power of fleet on March 1, 2008 times 0.08) plus (Total maximum power of fleet on March 1, 2009 times 0.08)]. Tier 0 vehicles repowered with newer engines are counted under (i) above and shall not be counted under (ii). To claim such credit, fleets must keep adequate records as described in section 2449(h).

**iii. Credit for Early NOx Retrofits –** Fleets that have installed VDECS that have been verified as achieving NOx reductions on their vehicles before March 1, 2009 begin with a carryover turnover credit (in horsepower) equal to: (Verified Percent NOx Reduction divided by 60 percent) multiplied by (Maximum power on which VDECS verified to achieve NOx reductions was installed before March 1, 2009).

**b. Accumulating carryover turnover credit –**

**i. 2010-2015 -** From March 1, 2010 through March 1, 2015, a fleet accumulates carryover turnover credit each year it turns over more than 8 percent of its maximum power. The amount accumulated is the maximum power turned over in excess of 8 percent in the 12

months prior to March 1 of the year in which the carryover is calculated.

**ii. After 2015** - After March 1, 2015, a fleet accumulates carryover turnover credit each year it turns over more than 10 percent of its maximum power. The amount accumulated is the maximum power turned over in excess of 10 percent in the 12 months prior to March 1 of the year in which the carryover is calculated.

**c. Using carryover turnover credit** - Accumulated carryover turnover credit may be applied to meeting the turnover requirements of section 2449.1(a)(2)(A)1 in a later year. The amount of carryover turnover credit used to meet the turnover requirements in any one year is subtracted from the carryover turnover credit total available in subsequent years. The amount of actual turnover plus the amount of carryover turnover credit used must equal the minimum BACT turnover required by section 2449.1(a)(2)(A)1.

**3. Order of turnover** – All engines in a fleet that were not subject to a PM standard for new engines (Tier 0 and Tier 1 with no PM standard, i.e., Tier 1 engines between 50 and 174 horsepower), except those in vehicles that qualify for an exemption under section 2449.1(a)(2)(A)4., must be turned over before turnover of any other higher tier engines may be counted toward the turnover requirements in section 2449.1(a)(2)(A) or toward accumulating carryover turnover credit.

**4. Exemptions** – A vehicle is exempt from the turnover requirements of section 2449.1(a)(2)(A)1. if all its vehicles in the fleet that do not qualify for an exemption under this section have been turned over and the vehicle meets one of the following conditions:

a. On the compliance date, the vehicles is less than 10 years old – If all vehicles in a fleet will be less than 10 years old based on the date of manufacture on the compliance date, no turnover is required.

b. The vehicle meets all of the following criteria:

i. The fleet has turned over all other vehicles first.

ii. No repower is available for the specialty vehicle, as demonstrated to the Executive Officer.

iii. A used vehicle with a cleaner engine is not available to serve a function and perform the work equivalent to that of the specialty vehicle, as demonstrated to the Executive Officer, and

iv. The specialty vehicle has been retrofitted with highest level VDECS.

c. The vehicle has been retrofitted within the last six years with a Level 2 or 3 VDECS that was highest level VDECS at the time of retrofit, or

d. The vehicle with has a Tier 4 interim engine or Tier 4 final engine.

**5. Delay Tier 1 turnover** - All vehicles with a Tier 1 or higher engine are exempt from the turnover requirement until March 1, 2013, provided that all Tier 0 vehicles in the fleet owner's fleet that do not qualify for an exemption under section 2449.1(a)(2)(A)4. have been turned over.

**Table 3 – Small Fleet PM Targets  
For Use in Calculating PM Target Rates [g/bhp-hr]**

<b>Compliance Date: March 1 of Year</b>	<b>PM Targets for each Max Hp Group</b>							
	<b>25-49 hp</b>	<b>50-74 hp</b>	<b>75-99 hp</b>	<b>100- 174 hp</b>	<b>175- 299 hp</b>	<b>300- 599 hp</b>	<b>600- 750 hp</b>	<b>&gt;750 hp</b>
<b>2015</b>	<u>0.46</u>	<u>0.60</u>	<u>0.62</u>	<u>0.33</u>	<u>0.23</u>	<u>0.18</u>	<u>0.20</u>	<u>0.30</u>
<b>2016</b>	<u>0.46</u>	<u>0.60</u>	<u>0.62</u>	<u>0.33</u>	<u>0.23</u>	<u>0.18</u>	<u>0.20</u>	<u>0.30</u>
<b>2017</b>	<u>0.39</u>	<u>0.43</u>	<u>0.46</u>	<u>0.26</u>	<u>0.16</u>	<u>0.14</u>	<u>0.14</u>	<u>0.24</u>
<b>2018</b>	<u>0.39</u>	<u>0.43</u>	<u>0.46</u>	<u>0.26</u>	<u>0.16</u>	<u>0.14</u>	<u>0.14</u>	<u>0.24</u>
<b>2019</b>	<u>0.29</u>	<u>0.23</u>	<u>0.24</u>	<u>0.18</u>	<u>0.11</u>	<u>0.11</u>	<u>0.11</u>	<u>0.18</u>
<b>2020</b>	<u>0.29</u>	<u>0.23</u>	<u>0.24</u>	<u>0.18</u>	<u>0.11</u>	<u>0.11</u>	<u>0.11</u>	<u>0.18</u>
<b>2021</b>	<u>0.21</u>	<u>0.18</u>	<u>0.19</u>	<u>0.14</u>	<u>0.08</u>	<u>0.08</u>	<u>0.08</u>	<u>0.11</u>
<b>2022</b>	<u>0.21</u>	<u>0.18</u>	<u>0.19</u>	<u>0.14</u>	<u>0.08</u>	<u>0.08</u>	<u>0.08</u>	<u>0.11</u>
<b>2023</b>	<u>0.12</u>	<u>0.12</u>	<u>0.13</u>	<u>0.10</u>	<u>0.06</u>	<u>0.06</u>	<u>0.06</u>	<u>0.08</u>
<b>2024</b>	<u>0.12</u>	<u>0.12</u>	<u>0.13</u>	<u>0.10</u>	<u>0.06</u>	<u>0.06</u>	<u>0.06</u>	<u>0.08</u>
<b>2025</b>	<u>0.08</u>	<u>0.08</u>	<u>0.07</u>	<u>0.06</u>	<u>0.03</u>	<u>0.03</u>	<u>0.03</u>	<u>0.06</u>

**(2) BACT Requirements** – Each year, each fleet must determine if it will be able to meet the fleet average requirements for the next March 1 compliance date, and if not, the following BACT requirement must be met. If a fleet does not meet the Diesel PM Target Rate in section 2449.2(a)(1), it must meet the BACT Retrofit Requirements in section 2449.2(a)(2)(A). Fleets that fail to meet both an applicable NOx target rate in section 2449.1(a)(1) and the Diesel PM Target Rates in section 2449.2(a)(1) in a compliance year must first meet the BACT turnover requirements in section 2449.1(a)(2) in that year and then meet the BACT Retrofit Requirements in section 2449.2(a)(2)(A) in that year.

**(A) PM Retrofit Requirements for Fleets Not Meeting Diesel PM Target Rate**

**1. PM Retrofit Rate** - If a fleet does not meet the Diesel PM Target Rate in section 2449.2(a)(1), it must demonstrate that it retrofit 20 percent of its total maximum power (not including specialty vehicles retrofitted and exempted from turnover in section 2449.1(a)(2)(A)4.b.) with highest level VDECS since March 1 of the previous year. Any carryover retrofit credit previously accrued may be applied toward the 20 percent retrofit required. If the VDECS is not new (i.e., is being reused), it must have been taken from a vehicle that is no longer operating in California. Fleets may count acquisition of vehicles with Tier 4 interim or Tier 4 final engines or retirement of Tier 0 vehicles toward the retrofit requirement as described below.

**a. Turnover to Tier 4 In Lieu of Retrofitting** - If since March 1 of the previous year, a fleet acquired ~~vehicles with~~ Tier 4 interim or Tier 4 final engines already equipped with an original equipment manufacturer diesel particulate filter or vehicles equipped with such engines, the total maximum power of the Tier 4 interim and Tier 4 final engines may be counted toward the required hp to be retrofit under section 2449.2(a)(2)(A)1. or used to accumulate carryover PM retrofit

credit if during that same period, the fleet also retired Tier 0, 1, 2, or 3 engines with that total maximum power or greater.

- b. Retirement of Tier 0 Vehicles in Lieu of Retrofitting for Fleets with Reduced Horsepower** - If since March 1 of the previous year, a fleet's total maximum power has decreased, the lesser of the total maximum power of Tier 0 vehicles retired since March 1 of the previous year and the total horsepower by which the fleet has been decreased may be counted toward the required hp to be retrofit under section 2449.2(a)(2)(A)1. Such retirement of Tier 0 vehicles may not be used to accumulate carryover PM retrofit credit. Retired Tier 0 vehicles that are counted toward the required hp to be retrofit under this subsection may not be used in subsection a. above to demonstrate that the fleet retired Tier 0, 1, 2, or 3 engines with at least the total maximum power of the Tier 4 engines added.
- c. Conversion of Diesel Vehicles to Alternative Fuel** - Fleets that convert a diesel vehicle subject to the regulation to alternative fuel may count the max power of the vehicle converted toward the required hp to be retrofit under section 2449.2(a)(2)(A)1. or to accumulate carryover PM retrofit credit.

**2. Carryover PM retrofit credit –**

- a. Beginning** - All fleets other than those meeting the criteria in (i) or (ii) below for vehicles remaining in their fleets begin with zero carryover retrofit credit on March 1, 2009.
- i. Double Credit for Early PM Retrofits** – Fleets that have installed the highest level VDECS on their vehicles before March 1, 2009 begin with a carryover retrofit credit equal to: 2 multiplied by total maximum power of engines on which highest level VDECS was installed before March 1, 2009, unless the contract for funding the VDECS stipulates single credit for installation of the VDECS.
- ii. Single Credit for Other PM Retrofits Before Initial Compliance Date** – Medium fleets that install highest level VDECS on their vehicles between March 1, 2009 and February 29, 2012 accumulate carryover retrofit credit equal to total maximum power of engines on which highest level VDECS was installed. Small fleets that install highest level VDECS on their vehicles between March 1, 2009 and February 28, 2014 accumulate carryover retrofit credit equal to total maximum power of engines on which highest level VDECS was installed.
- b. Accumulating carryover PM retrofit credit** – Beginning March 1, 2010 for large fleets, March 1, 2013 for medium fleets, and March 1, 2015 for small fleets, a fleet accumulates carryover retrofit credit each year it retrofits more than 20 percent of its maximum power. The amount accumulated is the percent of maximum power retrofit in excess of 20 percent in the past 12 months prior to March 1.
- c. Using carryover PM retrofit credit** - Accumulated carryover retrofit credit may be applied to meeting the retrofit requirements of section



2449.2(a)(2)(A)1. in a later year. The amount of carryover retrofit credit used to meet the retrofit requirements in any one year is subtracted from the carryover retrofit credit total available in subsequent years. The amount of actual retrofit plus the amount of carryover retrofit credit used must equal the minimum BACT retrofit rate required by section 2449.2(a)(2)(A)(1).

**3. Order of PM Retrofit** – No Level 2 VDECS may be counted toward the retrofit requirements in section 2449.2(a)(2)(A) until all engines in vehicles older than 5 years for which the highest level VDECS available is a Level 3 VDECS have been retrofit, except for specialty vehicles utilizing the exemption in section 2449.21(a)(2)(A)4.b. for which Level 2 is the highest level VDECS.

**4. Exemptions** – A vehicle is exempt The following exemptions from the retrofit requirement apply, provided that retrofits have been or are being applied to all other engines in the fleet owner's fleet not subject to these exemptions. A fleet is exempt from the retrofit requirements in section 2449.2(a)(2)(A)1. if all its vehicles in the fleet that do not qualify for an exemption under this section under due to one of the following conditions have been retrofitted, and the vehicle 'engines-meets one of the following conditions criteria below:

- a. On the date of compliance, Tthe Engines in vehicles is less than 5 years old based on from the vehicle's date of manufacture,
- b. Engines for which Tthere is no highest level VDECS available for the vehicle's engine (i.e., for which there is no Level 2 or 3 VDECS, or for which there is and a Level 2 or 3 VDECS which cannot be used without impairing the safe operation of the vehicle as demonstrated per section 2449(e)(8)).
- c. The Enginesvehicle's engine is equipped with an original equipment manufacturer diesel particulate filter that came new with the vehicle, or
- d. The Enginesvehicle's engine has already been retrofitted with a Level 2 or 3 VDECS that was the highest level VDECS available at time of installation. An engine with a Level 2 VDECS that was not the highest level VDECS at time of installation does not qualify for this exemption.

**5. Rounding** - If the horsepower required to be retrofit under section 2449.2(a)(2)(A) is less than half of the maximum power of the lowest horsepower engine in the fleet that is subject to the retrofit requirements, the next engine is not required to be retrofitted. However, on the next year's compliance date, any horsepower not retrofit due to this rounding provision must be added to the required retrofit under section 2449.2(a)(2)(A). Once the required horsepower to be retrofit equals or exceeds half of the maximum power of the next engine in the fleet that is subject to the retrofit requirements, the next engine must be retrofitted.

**(3) Adding Vehicles After the Final Target Date** – Commencing respectively on March 1, 2020 for large and medium fleets, and March 1, 2025 for small fleets, if a fleet owner adds a vehicle to his fleet and the engine did not come with an