

State of California
AIR RESOURCES BOARD

**STAFF REPORT: INITIAL STATEMENT OF REASONS FOR
RULEMAKING**

**NOTICE OF PUBLIC HEARING TO CONSIDER PROPOSED
AMENDMENTS TO NEW PASSENGER MOTOR VEHICLE
GREENHOUSE GAS EMISSION STANDARDS FOR MODEL YEARS
2012-2016 TO PERMIT COMPLIANCE BASED ON FEDERAL
GREENHOUSE GAS EMISSION STANDARDS**

Date of Release: January 7, 2010

Scheduled for Consideration: February 25, 2010

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 PROPOSED AMENDMENTS TO
NEW PASSENGER MOTOR VEHICLE GREENHOUSE GAS
EMISSION STANDARDS FOR MODEL YEARS 2012-2016 TO PERMIT
COMPLIANCE BASED ON FEDERAL GREENHOUSE GAS EMISSION
STANDARDS**

Date of Release: January 7, 2010

Scheduled for Consideration: February 25, 2010

TABLE OF CONTENTS

I. INTRODUCTION AND BACKGROUND.....	2
II. DESCRIPTION OF PUBLIC PROBLEM, ADMINISTRATIVE CIRCUMSTANCE PROPOSAL IS INTENDED TO ADDRESS; PROPOSED SOLUTIONS AND RATIONALE FOR EACH REGULATORY PROVISION.....	3
III. SUMMARY OF RECOMMENDED ACTION.....	4
IV. AIR QUALITY, ENVIRONMENTAL, AND ECONOMIC IMPACTS	7
A. Air Quality	7
B. Economic Impact	9
C. Alternatives.....	10
V. ENVIRONMENTAL JUSTICE	11
VI. LIST OF APPENDICES	11
VII. REFERENCES.....	12

I. INTRODUCTION AND BACKGROUND

Climate change is critically important to California. If left unchecked, its far-reaching consequences will dramatically affect many aspects of our lives including public health, the economy, and the environment. In 2002, in response to the threat of global warming, California adopted AB 1493 (Pavley (Chap. 200, Stats.2002)), which directed the Air Resources Board (ARB) to develop regulations to reduce greenhouse gas emissions from the new passenger vehicle fleet (passenger vehicles are responsible for approximately 30 percent of the total greenhouse gas emissions in California).

In September 2004, the ARB adopted regulations (known as the “Pavley regulations”) requiring significant reductions in greenhouse gas emissions from passenger cars and light-duty trucks (i.e., vehicles less than 8,500 lbs. gross vehicle weight) and sport utility vehicles (i.e., medium-duty passenger vehicles). These requirements went into effect with the 2009 model year, and become increasingly stringent through 2016, at which time emissions from the new vehicle fleet will be reduced by 30 percent..

The Pavley regulations reduce greenhouse gas emissions from new passenger vehicles by requiring that each year between 2009 and 2016, manufacturers meet separate, increasingly stringent fleet average greenhouse gas levels based on the size of the vehicles – a numerically lower level for passenger cars and the smallest of the light-duty trucks (PC + LDT1), and a higher level for larger light-duty trucks and medium-duty passenger vehicles (LDT2 + MDPV). The greenhouse gas emissions included within the scope of the Pavley regulations include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). In addition, a manufacturer may earn credits toward complying with the requirements by equipping vehicles with an advanced “low-leak” air conditioning system or one that uses a refrigerant with a lower global-warming potential than HFC-134a, which is used today.

To demonstrate compliance with the fleet average greenhouse gas requirements, a manufacturer must first group the vehicles in its fleet based on similarities, such as engine, transmission type, or weight, that impact greenhouse gas emissions. A manufacturer must then conduct testing to determine the greenhouse gas emissions from each group of vehicles. Using these data, and applying any emission credits that may be earned for vehicles equipped with advanced air conditioning systems, the average grams per mile of “CO₂-equivalent” emissions is calculated for each vehicle group. A manufacturer must then calculate its overall fleet average greenhouse gas level by calculating the sales-weighted average CO₂-equivalent emissions from its PC + LDT1 fleet and from its LDT2 + MDPV fleet. Manufacturers are required to submit emission testing data and sales data in sufficient detail to allow staff to verify a manufacturer’s fleet average greenhouse gas levels for each model year.

II. DESCRIPTION OF PUBLIC PROBLEM, ADMINISTRATIVE CIRCUMSTANCE PROPOSAL IS INTENDED TO ADDRESS; PROPOSED SOLUTIONS AND RATIONALE FOR EACH REGULATORY PROVISION

Since Board approval in 2004, motor vehicle manufacturers and their trade associations have challenged the Pavley regulations in numerous federal and state court proceedings and have opposed California’s request to U.S. EPA (or EPA) for a required waiver of preemption under the federal Clean Air Act to allow California to enforce its adopted standards.

On May 19, 2009, challenging parties, automakers, California, and the federal government committed to a series of actions that would resolve these current and potential future disputes over the standards through model year 2016. In summary, the U. S. Environmental Protection Agency and the U. S. Department of

Transportation committed to adopt a federal program to reduce greenhouse gases and improve fuel economy, respectively, from passenger vehicles, to achieve equivalent or greater greenhouse gas benefits as the Pavley regulations for the 2012–2016 model years. (The Notice of Proposed Rulemaking (NPRM) on the national program was issued on September 28, 2009. 74 Fed.Reg. 49454 (September 28, 2009).) Manufacturers committed to ultimately drop current, and forego similar future legal challenges for the 2009 through 2016 model years, including challenging a waiver subsequently granted by EPA on June 30, 2009. 74 Fed.Reg. 32744 (July 8, 2009). For its part, California committed to: (1) revise its standards to allow manufacturers to demonstrate compliance with the fleet average greenhouse gas emission standard by “pooling” California and Section 177 State vehicle sales; (2) revise its regulations for 2012 through 2016 model year vehicles such that compliance with equivalent EPA-adopted greenhouse gas standards would serve as compliance with California’s standards; and (3) revise its standards as necessary to allow manufacturers to use emission data from the federal Corporate Average Fuel Economy (CAFE) program to demonstrate compliance with the Pavley regulations. Regulatory changes that implement the first and third commitments made by California were approved by the Board at a public hearing on September 24, 2009. The current proposed amendments to California’s passenger motor vehicle regulations, which are discussed in greater detail below, address the second commitment made by California.

III. SUMMARY OF RECOMMENDED ACTION

California committed to accept national program compliance for model years 2012 through 2016 with the understanding that it would provide equivalent or better overall greenhouse gas reductions nationwide than California’s program (which has been adopted by 13 other states and the District of Columbia) standing alone. Consistent with this understanding, ARB submitted comments to EPA on the NPRM that express concerns that the proposed National Program might not meet these expectations. Specifically, two issues need to be addressed by U.S. EPA in the Final Rule to ensure California’s continued support for the National Program. These concerns are discussed in greater detail below. It should also be noted that adoption of this proposal does not eliminate the reporting requirements for California that have already been adopted by the Board prior to this hearing. Specifically, a manufacturer will still be required to submit emission testing data and sales data for California each of the Section 177 states in sufficient detail to allow staff to verify the manufacturer’s average greenhouse gas levels for each model year.

In this rulemaking, staff is proposing adoption of the proposed national passenger motor vehicle greenhouse gas regulations for the 2012 through 2016 model years, as an alternative compliance option to the Pavley regulations, on the assumption that U.S. EPA will address ARB’s concerns in the Final Rule for the National Program, due to be released in March, 2010. Upon release of the Final Rule, Board staff will issue 15-day changes, which will finalize California’s adoption of this rule. If U.S. EPA does not address ARB’s concerns in their Final Rule, staff will return to the Board to ask direction as to how to proceed.

Issues of Concern with the Proposed National Greenhouse Gas Program

U.S. EPA Must Maintain the Stringency of the Greenhouse Gas Standards Proposed in the NPRM in the Final Rule

As previously mentioned, back in May, when California made a commitment to allow manufacturers to demonstrate compliance with the Pavley regulations for the 2012 through 2016 model years by demonstrating compliance with a national greenhouse gas program, it was with the full expectation that the emission benefits of our program would be maintained. This was part of the commitment made by EPA to California, otherwise, we would not have agreed to accept the National Program. The greenhouse gas emission standards currently contained in the NPRM are consistent with our understanding. Thus it is critical to the agreement that EPA upholds its commitment to California and does not weaken the proposed standards and the program's reduction in GHG emissions in the Final Rule.

National Advanced Technology Vehicle Credit Provisions for Electric Vehicles, Plug-in Hybrid Electric Vehicles, and Fuel Cell Vehicles

EPA believes that electric vehicles (EVs), plug-in hybrid electric vehicles (PHEVs), and fuel cell vehicles (FCVs) have the potential to reduce greenhouse gases more significantly than any commercially-available technologies, and ARB fully agrees with this. EPA is, therefore, proposing that additional credits be given to these advanced technologies in the 2012 through 2016 model years, in order to encourage their development.

These advanced technology credits would take the form of multipliers in the range of 1.2 to 2.0, allowing an EV, PHEV, or FCV to count as more than one vehicle during the calculation of a manufacturer's fleet average CO₂ level to determine compliance with the applicable footprint-based standard. These multipliers would not be applied when calculating the actual footprint-based CO₂ standard to which a manufacturer must comply. (Footprint is determined by multiplying the vehicle's wheelbase by the vehicle's average track width. The greenhouse gas standards being proposed by EPA are expressed as mathematical functions that depend on vehicle footprint.)

In addition, EPA is proposing to assign a value of zero grams per mile of CO₂ for EVs and for the electric portion of PHEV operation, when including these vehicles in a manufacturer's average. EPA acknowledges that there are upstream CO₂ emissions from electricity generation, which are produced during EV and PHEV charging. Similarly there are upstream emissions from hydrogen production for FCVs. However, EPA feels that the significant greenhouse gas emission reductions that may be achieved from this technology outweighs the dis-benefits of ignoring these emissions within this timeframe.

Staff agrees with EPA's goal of encouraging the early development and production of advanced technology vehicles. However, staff believes that the

approach proposed by EPA could allow manufacturers to earn unreasonably high numbers of credits, thereby potentially reducing the overall GHG reductions achieved by the national program and delaying the implementation of improved greenhouse gas technologies on conventional vehicles.

Consequently, staff believes that EPA's Final Rule must strike a better balance between advanced vehicle development and protecting greenhouse gas reductions by assigning average lifecycle emissions to these vehicles, and restricting credits to EVs and FCVs only.

Other Issues

Other issues of concern to ARB include our belief that it is important that EPA's Final Rule include a backstop measure to guarantee that emission reductions are achieved, regardless of any unforeseen changes in the fleet mix. Also, ARB does not support the provisions for allowing manufacturers to earn early credits prior to implementation of the National Program that are currently proposed in the NPRM unless such credits are accrued by exceeding California's requirements in California and the Section 177 states. Restricting a manufacturer's ability to earn early credits in this way will assure that credits earned in the early years do not provide a windfall for vehicle manufacturers and that the emission reductions envisioned for the National Program are realized. We expect that EPA will carefully consider California's concerns when they finalize their greenhouse gas rulemaking.

Offsetting Greenhouse Gas Debits from the California Program

Staff does not anticipate that any manufacturer will accumulate compliance debits from California's greenhouse gas regulations in the 2009 and 2010 model years, and for most manufacturers, none will be incurred in the 2011 model year either. However, in the unlikely event that debits are incurred they must be equalized within the five model years provided in the regulation, at which time we expect all or most manufacturers to participating in the federal program with its own scheme for the generation of credits and debits. In order to ensure that debits incurred in the 2009 through 2011 model years are equalized, staff is proposing that a manufacturer be required to either carry a zero greenhouse gas debit balance at the end of the 2011 model year or submit a plan for offsetting any greenhouse debits incurred in California, the Section 177 states, and the District of Columbia using credits earned under the National greenhouse gas program before it may opt into the federal program. Upon approval of the plan by the Executive Officer, the manufacturer will be allowed to opt into the National greenhouse gas program.

IV. AIR QUALITY, ENVIRONMENTAL, AND ECONOMIC IMPACTS

A. Air Quality

While the proposed national passenger motor vehicle greenhouse gas standards are of equal stringency to the Pavley regulations in the 2016 model year, they are less stringent than the Pavley standards in the 2011 through 2015 model years. Consequently, allowing manufacturers to comply with the Pavley regulations in the 2012 through 2015 model years by demonstrating compliance with the national regulations in these model years will result in slightly less reduction in greenhouse gas reductions within California and the individual states that have adopted California's program. However, staff believes that nationwide, greenhouse gas emission reductions from the proposed national GHG program – assuming California's comments on the proposed rulemaking are affirmatively addressed – will be greater than if the Pavley program were implemented without the national GHG program. This occurs because although the proposed national standards are less stringent than California's in model years 2012 through 2015, the national standards apply to more than twice as many vehicles than are subject to the Pavley regulations.

Staff calculated the comparative GHG benefits of the Pavley rules and the federal program in calendar years 2016 and 2020 relative to a baseline year of 2002. ARB's approach was to employ GHG emissions rates that are the basis of California's Pavley regulation and the proposed federal program. For the federal program, staff used the values from table 1.D.2-5, "Projected Fleet-wide Emission Levels Under the Proposed Footprint-Based Standards (g/mi)," in the NPRM. 74 FR at 49470 (September 28, 2009). This table lists the projected national fleet emission levels taking into account the impact of credits available under the national program for flex-fuel vehicles and the temporary lead time allowance standards. The estimated federal GHG emission rates could then be compared to those established by California's Pavley rules for new vehicles sold between 2012 and 2016. The effectiveness of the Pavley and the federal program was determined by calculating the percent reduction in GHGs achieved for each new model year relative to the 2002 baseline.

ARB staff then calculated the tons of greenhouse gases reduced in California under the proposed federal program compared to those that occur under the Pavley rules by applying the new vehicle model year-specific GHG reductions to CO₂ tons per day emission estimates output from the EMFAC on-road emissions inventory model. The EMFAC model reflects the current and projected vehicle fleet in California, based on data from the Department of Motor Vehicles, the Smog Check inspection and maintenance program, and local and regional transportation planning agencies. The emission rates in the EMFAC model are derived from testing of in-use vehicles. Documentation and downloadable copies of the EMFAC model are available at http://www.arb.ca.gov/msei/onroad/latest_version.htm.

To develop estimates of GHG reductions for the other 49 states, staff scaled California ton reductions from EMFAC using state-specific motor vehicle gasoline consumption data as a surrogate. For the federal fleet mix, staff used the fleet mix

shown for model years 2012-2016 in the spreadsheet EPA-HQ-OAR-2009-0472-0085 from the Public Docket for the national program. Table 1 compares the annual benefits of the Pavley program in California and California and the 177 states with the proposed national GHG program in these states for model years 2016 and 2020.

Table 2 compares the annual benefits of the Pavley program in California, California and the 177 states, and national fuel economy requirements for 2012 through 2016 in the rest of the states with the proposed national GHG program applied nationwide for model years 2016 and 2020. The national fuel economy requirements were derived from projecting a linear increase in fuel economy from 2011 to 2020 in order to meet the 35 miles per gallon requirement of H.R. 6, the Energy Independence and Security Act of 2007.

Table 3 compares the cumulative benefits of the Pavley program in California and California and the 177 states with the proposed national GHG program in these states for model years 2016 and 2020.

Table 4 compares the cumulative benefits of the Pavley program in California, California and the 177 states, and national fuel economy requirements for 2012 through 2016 in the rest of the states with the proposed national GHG program applied nationwide for model years 2016 and 2020. The national fuel economy requirements were derived from projecting a linear increase in fuel economy from 2011 to 2020 in order to meet the 35 miles per gallon requirement of H.R. 6, the Energy Independence and Security Act of 2007.

As expected, due to the slightly relaxed federal standards for model years 2012-2015, the benefits of the proposed national program are slightly lower in California and the other states that have adopted the Pavley program. However, as shown in Tables 2 and 4, when the proposed national GHG standards are applied nationwide, greater reductions are achieved.

Table 1 – Annual Greenhouse Gases Reduced (MMT^a)
California and 177 States

Region	Year	Scenario 1 CA + 13 177 States Pavley Standard	Scenario 2 Proposed National GHG Standard
California	2016	15	12
	2020	26	23
California and 13 177 States ^b	2016	45	36
	2020	79	68

^a Million Metric Tons

^b Includes states that have adopted California's standards (Arizona, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and the District of Columbia).

Table 2 – Annual Greenhouse Gases Reduced (MMT^a)
Nationwide

Region	Year	Scenario 1 CA + 13 177 States:Pavley Standard Other States: National Fuel Economy Program	Scenario 2 Proposed National GHG Standard
		Nationwide	2016
	2020	155	197

^a Million Metric Tons

Table 3 – Cumulative Greenhouse Gases Reduced (MMT^a)
California and 177 States

Region	Year	Scenario 1 CA + 13 177 States: Pavley Standard	Scenario 2 Proposed National GHG Standard
		California	2016
	2020	132	109
California and 13 177 States ^b	2016	133	99
	2020	401	325

^a Million Metric Tons

^b Includes states that have adopted California's standards (Arizona, Connecticut, Maine, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and the District of Columbia).

Table 4 – Cumulative Greenhouse Gases Reduced (MMT^a)
Nationwide

Region	Year	Scenario 1 CA + 13 177 States:Pavley Standard Other States: National Fuel Economy Program	Scenario 2 Proposed National GHG Standard
		Nationwide	2016
	2020	793	941

^a Million Metric Tons

B. Economic Impact

There are no additional costs due to this amendment. The proposed amendments will provide the approximately thirty vehicle manufacturers subject to the Pavley regulations with an optional method for complying with them. Staff expects that the proposed amendments could reduce the cost of compliance for vehicle manufacturers that choose to meet the alternative requirements. A manufacturer may also choose to comply with the regulations as they currently are written, in which case there would still be no economic impact from these amendments on that manufacturer.

There will be no fiscal impacts to the State from the proposed amendments, either in terms of tax revenue or personnel requirements. These amendments are not expected to change vehicle prices in a way that would alter vehicle purchase decisions. The inclusion of alternative compliance options does not substantially increase the volume of data to review or the enforcement burden to the ARB that would justify hiring additional staff.

C. Alternatives

1. Evaluation of alternatives considered and reasons for rejecting them

Staff considered the following regulatory alternative to the proposed amendments.

Do not amend current Pavley regulations. This alternative would require vehicle manufacturers to produce lower emitting vehicles for California and its partner states, and could result in different, higher emitting vehicles being sold in the remaining states, depending on if or how the final EPA standards are adopted.

This alternative was rejected because California committed to making the proposed amendments as part of the commitments made by California, the federal government, and other parties on May 19, 2009, as discussed in Section II. These commitments were based on the belief that the national program would result in greater nationwide GHG emission reductions, and possibly lower compliance costs to vehicle manufacturers due to a single nationwide regulation.

2. Description of reasonable alternatives considered that would lessen impact on small business

No alternatives were considered to lessen the impact on small business, because small businesses will not be impacted by these proposed amendments.

3. Evidence relied upon to support initial determination in the notice that the regulation will not have a significant adverse economic impact on business

The proposed amendments will not significantly affect businesses, since vehicle purchase price and model availability will not be adversely impacted. Vehicle manufacturers will not be required to expend any money to comply with the new requirements. Rather, this proposal could save them money.

4. Justification for adoption of regulations different from federal regulations contained in the Code of Federal Regulations

The proposed amendments do not adopt regulations that are substantively different than federal regulations. Climate change threatens California's public health, water resources, agricultural industry, ecology, and economy. Due to these and other threats, AB 1493 (Chapter 200, Statutes of 2002 (Pavley)) specifically directed the Air Resources Board to adopt regulations to control greenhouse gas emissions from

motor vehicles. At that time, there were no federal regulations to reduce greenhouse gas emissions from passenger vehicles. In September, 2004, the ARB approved the nation's first passenger vehicle greenhouse gas regulations (Pavley regulations). While as discussed above EPA has proposed a National greenhouse gas program there currently is no federal GHG emission standard for motor vehicles.

These proposed amendments do not replace California's own passenger motor vehicle greenhouse gas regulations. (Historically, California has maintained a separate and distinct program for controlling emissions from motor vehicles, which is consistent with the intent of Congress in their adoption of the Clean Air Act.) Rather, these proposed amendments will allow a manufacturer to demonstrate compliance with our greenhouse gas regulations in the 2012 through 2016 model years by demonstrating compliance with the national passenger motor vehicle greenhouse gas regulations. (The final rule for the national program is expected to be released in March, 2010.) For any manufacturer that elects to comply with the national program within this timeframe, there are no substantive differences between the California requirements and the National Program. For any manufacturer that elects to comply with the original Pavley regulations within this timeframe, the proposed amendments will have no effect.

V. ENVIRONMENTAL JUSTICE

"Environmental Justice" is defined as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Government Code §65040.12(c)).

Staff does not believe that this proposal will have any adverse environmental justice impacts because the stringency of California's passenger vehicle greenhouse gas requirements is not affected by the proposed changes to the regulations. Furthermore, since the criteria pollutant regulations must still be met on an individual state-by-state basis, there will be no increase in criteria pollutants in California due to mix shifting of vehicles between California and other states.

VI. LIST OF APPENDICES

Appendix A: Proposed Regulation Order

Appendix B: Proposed Amendments to the California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles

VII. REFERENCES

1. Alliance of Automobile Manufacturers, Letter from The Honorable David McCurdy, President and Chief Executive Officer, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, May 18, 2009
2. American Honda Motor Company, Inc., Letter from John Mendel, Executive Vice President, Automobile Sales, American Honda Motor Company, Inc., to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, May 17, 2009
3. Behrentz, E., Ling, R., Rieger, P., and Winer, A.M. Measurements of nitrous oxide emissions from light-duty motor vehicles: a pilot study. Submitted to Journal of Atmospheric Environment, April 2004
4. BMW, Letter from Dr.-Ing. Norbert Reithofer, Chairman of the Board of Management, BMW, to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 18, 2009
5. California Air Resources Board, Letter from Mary D. Nichols, Chairman, to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 18, 2009
6. California Air Resources Board (CARB), Letter from Mary D. Nichols, Chairman, to a-and-r-Docket@epa.gov, CARB's comments on the "Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards; 74 Fed. Reg. 49454 (September 28, 2009); EPA Docket ID No. EPA-HQ-OAR-2009-0472," November 25, 2009
7. Chrysler LLC, Letter from Robert L. Nardelli, Chairman and Chief Executive Officer, Chrysler LLC to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, May 17, 2009
8. Daimler AG, Letter from Dr. Dieter Zetsche, Chairman of the Board of Management of Daimler AG and Head of Mercedes-Benz Cars, and Dr. Thomas Weber, Member of the Board of Management, Group Research & Mercedes-Benz Cars Development, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, May 18, 2009

9. EMFAC, 2007. Version 2.3,
http://www.arb.ca.gov/msei/onroad/latest_version.htm.
10. Federal Register, Volume 74, No. 129 / Wednesday, July 8, 2009 / Notice, Environmental Protection Agency, "California State Motor Vehicle Pollution Control Standards; Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles."
11. Federal Register, Volume 74, No. 186 / Monday, September 28, 2009 / Proposed Rules, Environmental Protection Agency and Department of Transportation, "Proposed Rulemaking to Establish Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards."
12. Ford Motor Company, Letter from Alan R. Mulally, President and Chief Executive Officer, Ford Motor Company, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, May 17, 2009
13. General Motors Corporation, Letter from Frederick A. Henderson, Chief Executive Officer, General Motors Corporation, to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 17, 2009
14. Mazda North American Operations, Letter from Jim O'Sullivan, President and Chief Executive Officer, Mazda North American Operations, to The Honorable Ray LaHood, Secretary, United States Department of Transportation and The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency, May 18, 2009
15. State of California, Air Resources Board, "Initial Statement of Reasons for proposed Rulemaking, Public Hearing to Consider Adoption of Regulations to Control Greenhouse Gas Emissions Form Motor Vehicles," August 6, 2004
16. State of California, Air Resources Board, spreadsheet
"California_Benefits_SC1.xls"
17. State of California, Air Resources Board, spreadsheet
"California_Benefits_SC2.xls"
18. State of California, Air Resources Board, spreadsheet
"CO₂_Emission_Rate_SC1.xls"
19. State of California, Air Resources Board, spreadsheet
"CO₂_Emission_Rate_SC2.xls"

20. State of California, Air Resources Board, spreadsheet "EPA-HQ-OAR-(National Fleet).xls"
21. State of California, Air Resources Board, spreadsheet "state-by-state Benefits_SC1(Annual_and_Cumulative).xls"
22. State of California, Air Resources Board, spreadsheet "state-by-state Benefits_SC2(Annual_and_Cumulative).xls"
23. State of California, Letter from Governor Arnold Schwarzenegger to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 18, 2009
24. State of California, Office of the Attorney General, Letter from Edmund G. Brown, Jr., Attorney General, State of California, to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 18, 2009
25. Toyota Motor Sales, Letter from James E. Lentz, President, Toyota Motor Sales, to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 17, 2009
26. Volkswagen Group of America, Letter from Stefan Jacoby, President and Chief Executive Officer, Volkswagen Group of America, to The Honorable Lisa P. Jackson, Administrator, United States Environmental Protection Agency and The Honorable Ray LaHood, Secretary, United States Department of Transportation, May 17, 2009.

Appendix A

PROPOSED REGULATION ORDER

Set forth below are the proposed amendments to title 13 of the California Code of Regulations. Amendments proposed and subject to comment in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions. Because there are three other pending ARB rulemakings that also amend the incorporated test procedures, the amendments proposed herein identify these other pending amendments as follows: 1) amendments to these regulations that were adopted by ARB on December 2, 2009 as part of the “Rulemaking to Consider Plug-In Hybrid Electric Vehicle Test Procedure Amendments and Aftermarket Parts Certification Requirements Adoption”, which have not yet been approved by the Office of Administrative Law, are indicated in ~~SMALL CAPITAL DOTTED UNDERLINE~~ to indicate additions and ~~SMALL CAPITAL DOUBLE STRIKEOUT~~ to indicate deletions. That rulemaking was sent to California’s Office of Administrative Law (OAL) for approval on December 3, 2009. OAL has until January 15, 2010 to make a determination; 2) amendments to these regulations that were approved by the Board in September 2009 as part of the “Rulemaking to Consider Proposed Amendments to New Passenger Motor Vehicle Greenhouse Gas Emission Standards” are shown in italics with bold underline, but not bold text to indicate additions and ~~italics double strikeout~~ to indicate deletions; and 3) those approved by the Board in November 2009 as part of the “Rulemaking to Consider the Repeal of the 2007 Amendments to California’s Emission Warranty Information Reporting (EWIR) and Recall Regulations and Emission Test Procedures and Readopt the Prior EWIR Regulations and Emission Test Procedures” are shown in italics with dashed underline and bold text to indicate additions and ~~bold italics double strikeout~~ to indicate deletions.

Subsections for which no changes are proposed in this rulemaking are indicated with [No change] or “* * * *”.

Amend the following Sections of Title 13, California Code of Regulations, to read:

§ 1961. Exhaust Emission Standards and Test Procedures - 2004 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

Introduction. [No change.]

Sections (a) through (c). [No change.]

(d) *Test Procedures.* The certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the “California Exhaust Emission Standards and Test Procedures for 2001 and

Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” as amended ~~MAY 2, 2008~~ ~~DECEMBER 2, 2009~~ ~~[insert date of the September 2009 greenhouse gas amendment for this rulemaking]~~ ~~[insert date of the November 2009 EWIR amendment for this rulemaking]~~ [insert date of this rulemaking], and the “California Non-Methane Organic Gas Test Procedures,” as amended July 30, 2002, which are incorporated herein by reference. In the case of hybrid electric vehicles and on-board fuel-fired heaters, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the “California Exhaust Emission Standards and Test Procedures for 2005 ~~AND SUBSEQUENT THROUGH 2008~~ Model Zero-Emission Vehicles, and 2001 ~~AND SUBSEQUENT THROUGH 2008~~ Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes,” incorporated by reference in section 1962 ~~AND THE “CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2009 AND SUBSEQUENT MODEL ZERO-EMISSION VEHICLES AND HYBRID ELECTRIC VEHICLES, IN THE PASSENGER CAR, LIGHT-DUTY TRUCK AND MEDIUM-DUTY VEHICLE CLASSES.” INCORPORATED BY REFERENCE IN SECTION 1962.1.~~

(e) *Abbreviations.* [No change.]

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204, and 43205, Health and Safety Code.

§ 1961.1. Greenhouse Gas Exhaust Emission Standards and Test Procedures - 2009 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

(a) *Greenhouse Gas Emission Requirements.* The greenhouse gas emission levels from new 2009 and subsequent model year passenger cars, light-duty trucks, and medium-duty passenger vehicles shall not exceed the following requirements. Light-duty trucks from 3751 lbs. LVW – 8500 lbs. GVW that are certified to the Option 1 LEV II NOx Standard in section 1961(a)(1) are exempt from these greenhouse gas emission requirements, however, passenger cars, light-duty trucks 0-3750 lbs. LVW, and medium-duty passenger vehicles are not eligible for this exemption.

(1) *Fleet Average Greenhouse Gas Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.*

(A)(i) The fleet average greenhouse gas exhaust mass emission values from passenger cars, light-duty trucks, and medium-duty passenger vehicles that are produced and delivered for sale in California each model year by a large volume manufacturer shall not exceed:

FLEET AVERAGE GREENHOUSE GAS EXHAUST MASS EMISSION REQUIREMENTS FOR PASSENGER CAR, LIGHT-DUTY TRUCK, AND MEDIUM-DUTY PASSENGER VEHICLE WEIGHT CLASSES¹ (4,000 mile Durability Vehicle Basis)		
<i>Model Year</i>	<i>Fleet Average Greenhouse Gas Emissions</i> <i>(grams per mile CO₂-equivalent)</i>	
	<i>All PCs; LDTs 0-3750 lbs. LVW</i>	<i>LDTs 3751 lbs. LVW - 8500 lbs. GVW; MDPVs</i>
2009	323	439
2010	301	420
2011	267	390
2012	233	361
2013	227	355
2014	222	350
2015	213	341
2016+	205	332

¹ Each manufacturer shall demonstrate compliance with these values in accordance with section 1961.1(a)(1)(B).

1. For each model year, a manufacturer must demonstrate compliance with the fleet average requirements in this section 1961.1(a)(1)(A) based on one of two options applicable throughout the model year, either:

Option 1: the total number of passenger cars, light-duty trucks, and medium-duty passenger vehicles that are certified to the California exhaust emission standards in this section 1961.1, and are produced and delivered for sale in California;
or

Option 2: the total number of passenger cars, light-duty trucks, and medium-duty passenger vehicles that are certified to the California exhaust emission standards in this section 1961.1, and are produced and delivered for sale in California, the District of Columbia, and all states that have adopted California's greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

a. For the 2009 and 2010 model years, a manufacturer that selects compliance Option 2 must notify the Executive Officer of that selection, in writing, within 30 days of the effective date of the amendments to this section (a)(1)(A)1 or must comply with Option 1.

b. For the 2011 and later model years, a manufacturer that selects compliance Option 2 must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or must comply with Option 1.

c. When a manufacturer is demonstrating compliance using Option 2 for a given model year, the term "in California" as used in subsections 1961.1(a)(1)(B)3. and 1961.1(b) means California, the District of Columbia, and all states that have adopted California's greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

d. A manufacturer that selects compliance Option 2 must provide to the Executive Officer separate values for the number of vehicles produced and delivered for sale in the District of Columbia and for each individual state within the average.

(A)(ii) For the 2012 through 2016 model years, a manufacturer may elect to demonstrate compliance with this section 1961.1 by demonstrating compliance with the National greenhouse gas program as follows:

a. A manufacturer that selects compliance with this option 1961.1(a)(1)(A)(ii) must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or must comply with 1961.1(a)(1)(A)(i).

b. The manufacturer must submit to ARB a copy of the official report that it submitted to EPA as required under 40 CFR §86-1865-12 for demonstrating compliance with the National greenhouse gas program and the official EPA determination of compliance. These must be submitted no later than May 1 of the calendar year following the close of the model year, for each model year that a manufacturer selects compliance with this option 1961.1(a)(1)(A)(ii). and

c. If a manufacturer has outstanding greenhouse gas debits at the end of the 2011 model year, as calculated in accordance with 1961.1(b), the manufacturer must submit to the Executive Officer a plan for offsetting all outstanding greenhouse gas debits by using greenhouse gas credits earned under the National greenhouse gas program. Upon approval by the Executive Officer, the manufacturer may demonstrate compliance with this section 1961.1 by demonstrating compliance with the National greenhouse gas program.

Sections (a)(1)(B) through (d). [No change.]

(e) *Definitions Specific to this Section.* The following definitions apply to this section 1961.1:

(1) "A/C Direct Emissions" means any refrigerant released from a motor vehicle's air conditioning system.

(2) "A/C Indirect Emissions" means any increase in motor vehicle exhaust CO₂ emissions that can be attributed to the operation of the air conditioning system.

(3) “GHG Vehicle Test Group” means vehicles that have an identical test group, vehicle make and model, transmission class and driveline, aspiration method (e.g., naturally aspirated, turbocharged), camshaft configuration, valvetrain configuration, and inertia weight class.

(4) “Greenhouse Gas” means the following gases: carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons.

(5) “Grid-Connected Hybrid Electric Vehicle” means a hybrid electric vehicle that has the capacity for the battery to be recharged from an off-board source of electricity and has some all-electric range.

(6) “GWP” means the 100-year global warming potential specified in IPCC (Intergovernmental Panel on Climate Change) 2000: Emissions Scenarios. N. Nakicenovic et. al. editors, Special Report of Working Group III of the IPCC, Cambridge University Press, Cambridge UK, ISBN 0-521-80493-0.

(7) “National greenhouse gas program” means the national program that applies to new 2012 through 2016 model year passenger cars, light-duty trucks, and medium-duty passenger vehicles as promulgated by the U.S. Environmental Protection Agency on March XX, 2010 [Insert Reference in Federal Register for Final GHG Rule], as incorporated in and amended by the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

~~(87)~~ “Normal Operation” of an air conditioning system means typical everyday use of the A/C system to cool a vehicle. “Normal Operation” does not include car accidents, dismantling of an air conditioning system, or any other non-typical events.

~~(98)~~ “Optional GHG Test Vehicle Configuration” means any GHG vehicle configuration that is selected for testing by the manufacturer as allowed by section G.2.3 of the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” other than the worst-case configuration.

~~(109)~~ “Renewable Energy Resource” means a facility that meets all of the criteria set forth in Public Resources Code section 25741(a), except that the facility is not required to be located in California or near the border of California.

~~(110)~~ “Variable Displacement Compressor” means a compressor in which the mass flow rate of refrigerant is adjusted independently of compressor speed by the control system in response to cooling load demand.

~~(124)~~ “Variable Speed Compressor” means a compressor in which the mass flow rate of refrigerant can be adjusted by control of the compressor input shaft speed, independent of vehicle engine speed. For example, a variable speed compressor can have electric drive, hydraulic drive, or mechanical drive through a variable speed transmission.

~~(132)~~ “Worst-Case” means the vehicle configuration within each test group that is expected to have the highest CO₂-equivalent value, as calculated in section 1961.1(a)(1)(B)1.

Sections (f) and (g). [No change.]

Note: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43018.5, 43101, 43104 and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 39667, 43000, 43009.5, 43013, 43018, 43018.5, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43204, 43205, and 43211, Health and Safety Code.

Appendix B

California Environmental Protection Agency
AIR RESOURCES BOARD

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2001 AND SUBSEQUENT MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES

Adopted: August 5, 1999
Amended: December 27, 2000
Amended: July 30, 2002
Amended: September 5, 2003 (corrected February 20, 2004)
Amended: May 28, 2004
Amended: August 4, 2005
Amended: June 22, 2006
Amended: October 17, 2007
Amended: May 2, 2008
~~AMENDED:.....DECEMBER 2, 2009~~
Amended: [Insert Date of Sept 2009 GHG Amendments]
Amended: [Insert Date of Nov 2009 Warranty Amendments]
Amended: [Insert Date of Feb 2010 GHG Amendments]

Note: The proposed amendments to this document are shown in single underline to indicate additions and ~~strikeout~~ to indicate deletions compared to the test procedures as last amended May 2, 2008. Because there are three other pending ARB rulemakings that also amend the incorporated test procedures, the amendments proposed herein identify these other pending amendments as follows: 1) amendments to these regulations that were adopted by ARB on December 2, 2009 as part of the “Rulemaking to Consider Plug-In Hybrid Electric Vehicle Test Procedure Amendments and Aftermarket Parts Certification Requirements Adoption”, which have not yet been approved by the Office of Administrative Law, are indicated in ~~SMALL CAPITAL DOTTED UNDERLINE~~ to indicate additions and ~~SMALL CAPITAL DOUBLE STRIKEOUT~~ to indicate deletions. That rulemaking was sent to California’s Office of Administrative Law (OAL) for approval on December 3, 2009. OAL has until January 15, 2010 to make a determination; 2) amendments to these regulations that were approved by the Board in September 2009 as part of the “Rulemaking to Consider Proposed Amendments to New Passenger Motor Vehicle

Greenhouse Gas Emission Standards” are shown in *italics with bold underline, but not bold text* to indicate additions and ~~*italics double strikeout*~~ to indicate deletions; and 3) those approved by the Board in November 2009 as part of the “Rulemaking to Consider the Repeal of the 2007 Amendments to California’s Emission Warranty Information Reporting (EWIR) and Recall Regulations and Emission Test Procedures and Readopt the Prior EWIR Regulations and Emission Test Procedures” are shown in *italics with dashed underline and bold text* to indicate additions and ~~*bold italics double strikeout*~~ to indicate deletions. Section numbering changes from these three other rulemakings are not indicated in this document. [n/a] indicated provisions of the proposed federal rule (74 Fed.Reg. 49454 (September 28, 2009)) that do not apply in California and are not proposed for incorporation. [No change] indicates proposed federal provisions that are also proposed for incorporation herein without change. Existing intervening text that is not amended in this rulemaking is indicated by “* * * *”.

Amend “CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2001 AND SUBSEQUENT MODEL PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES, “ as incorporated by reference in Title 13, California Code of Regulations, Section 1961(d) to read:

* * * *

**CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES
FOR 2001 AND SUBSEQUENT MODEL
PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES**

The provisions of Subparts B, C, and S, Part 86, Title 40, Code of Federal Regulations, as adopted or amended on May 4, 1999 or as last amended on such other date set forth next to the 40 CFR Part 86 section title listed below, and to the extent they pertain to exhaust emission standards and test procedures, are hereby adopted as the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles,” with the following exceptions and additions.

**PART I: GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE
VERIFICATION OF EMISSIONS**

A. General Applicability

1. §86.1801 Applicability.

* * * *

1.2 §86.1801-12. [Insert Federal Register for the National Greenhouse Gas Final Rule]. Amend as follows:

1.2.1 Amend subparagraph (a) as follows: Except as otherwise indicated, the provisions of this subpart apply to new passenger cars, light-duty trucks, and medium-duty vehicles, including multi-fueled, alternative fueled, hybrid electric, plug-in hybrid electric, and electric vehicles. In cases where a provision applies only to a certain vehicle group based on its model year, vehicle class, motor fuel, engine type, or other distinguishing characteristics, the limited applicability is cited in the appropriate section of this subpart.

1.2.2 Subparagraph (b) *Aftermarket conversions*. [n/a]

1.2.3 Amend subparagraph (c) *Optional Applicability* as follows:

(a) Amend subparagraph (c)(1) as follows: A manufacturer must certify any heavy-duty complete Otto-cycle vehicle of 14,000 pounds Gross Vehicle Weight Rating (GVWR) or less in accordance with the medium-duty chassis-standards of Section E.1 of these test procedures. A manufacturer must certify all heavy-duty diesel engines or vehicles of 14,000 pounds GVWR or less

to the medium-duty engine standards in title 13, CCR, section 1956.8(g) or (h). A manufacturer may request to certify heavy-duty complete diesel vehicles to the chassis-standards in Section E.1 of these test procedures; heavy-duty engine or heavy-duty vehicle provisions of 40 CFR Part 86 subpart A do not apply to such a vehicle or engine.

(b) Subparagraph (c)(2) [No change.]

(c) Subparagraph (c)(3) [No change.]

(d) Subparagraph (c)(4) [n/a; aftermarket conversions]

(e) Subparagraph (c)(5) [n/a]

1.2.4 Amend subparagraph (d) as follows: Small volume manufacturers. Special certification procedures are available for any manufacturer whose projected or actual combined California sales of passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles and heavy-duty engines in its product line are fewer than 4,500 units based on the average number of vehicles sold for the three previous consecutive model years for which a manufacturer seeks certification. For manufacturers certifying for the first time in California, model-year production volume shall be based on projected California sales. The small-volume manufacturer's light- and medium-duty vehicle and truck certification procedures are described in 40 CFR §86.1838, as modified in Section G.12 of these test procedures.

1.2.5 Subparagraph (e). [n/a; NLEVs.]

1.2.6 Subparagraph (f) [n/a; Tier 2 phase-in provisions]

1.2.7 Subparagraph (g) [n/a; Tier 2 phase-in provisions]

1.2.8 Subparagraph (h) [No change.]

1.2.9 Subparagraph (i) [No change, except that this subparagraph shall only apply to vehicles certifying to the National greenhouse gas program for the 2012 through 2016 model years, in accordance with section E of these test procedures.]

1.2.10 Subparagraph (j) [No change, except that this subparagraph shall only apply to vehicles certifying to the National greenhouse gas program for the 2012 through 2016 model years, in accordance with section E of these test procedures.]

* * * *

B. Definitions, Acronyms and Abbreviations

1. §86.1803 Definitions.

* * * *

1.2 §86.1803-01. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except as otherwise noted below.] The version of §86.1803-01 as incorporated by this section B.1.2 shall only apply to vehicles certifying to the National greenhouse gas program for the 2012 through 2016 model years, in accordance with section E of these test procedures.

2. California Definitions.

* * * *

“National greenhouse gas program” or “National greenhouse gas final rule” means the national program that applies to new 2012 through 2016 model year passenger cars, light-duty trucks, and medium-duty passenger vehicles adopted by the U.S. Environmental Protection Agency on March XX, 2010 [Insert Federal Register for the National Greenhouse Gas Final Rule], as incorporated in and amended by these test procedures.

* * * *

C. General Requirements for Certification

1. §86.1805 Useful Life.

* * * *

1.3 §86.1805-12. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section §86.1805-12 shall only apply to vehicles certifying to the National greenhouse gas program for the 2012 through 2016 model years, in accordance with section E of these test procedures.]

2. §86.1806 On-Board Diagnostics.

2.1 §86.1806-01; §86.1806-05. Delete.

* * * *

5. §86.1809 Prohibition of Defeat Devices.

* * * *

5.2 §86-1809-10. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change except that requirements applicable to the Air Conditioning Idle Test shall only apply to vehicles certifying to the National greenhouse gas program, and subparagraph (e) shall apply to vehicles subject to the California TLEV, LEV, ULEV and SULEV standards.]

D. §86.1810 General standards; increase in emissions; unsafe conditions; waivers

* * * *

3. §86.1810-09. February 26, 2007[Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that the amendments to §86.1810-01 set forth in D.1 and D.2 shall also apply.]

E. California Exhaust Emission Standards.

Delete 40 CFR §§86.1811 through 86.1819, except that for model years 2012 through 2016, a manufacturer may demonstrate compliance with the requirements of sections E.2.5 and E.3.2 by demonstrating compliance with §86.1818.12 [Insert Federal Register for the National Greenhouse Gas Final Rule].

* * * *

2. Emission Standards Phase-In Requirements for Manufacturers

* * * *

2.5 Fleet Average Greenhouse Gas Requirements for Passenger Cars, Light-Duty Trucks, and Medium-Duty Passenger Vehicles.

2.5.1(i) The fleet average greenhouse gas exhaust mass emission values from passenger cars, light-duty trucks, and medium-duty passenger vehicles that are produced and delivered for sale in California each model year by a large volume manufacturer shall not exceed:

FLEET AVERAGE GREENHOUSE GAS EXHAUST MASS EMISSION REQUIREMENTS FOR PASSENGER CAR, LIGHT-DUTY TRUCK, AND MEDIUM-DUTY PASSENGER VEHICLE WEIGHT CLASSES¹ (4,000 mile Durability Vehicle Basis)		
Model Year	<i>Fleet Average Greenhouse Gas Emissions (grams per mile CO₂-equivalent)</i>	
	<i>All PCs; LDTs 0-3750 lbs. LVW</i>	<i>LDTs 3751 lbs. LVW - 8500 lbs. GVW; MDPVs</i>
2009	323	439
2010	301	420
2011	267	390
2012	233	361
2013	227	355
2014	222	350
2015	213	341
2016+	205	332

¹ Each manufacturer shall demonstrate compliance with these values in accordance with Section E.2.5.2.

2.5.1.1 For each model year, a manufacturer must demonstrate compliance with the fleet average requirements in this section E.2.5.1 based on one of two options applicable throughout the model year, either:

Option 1: the total number of passenger cars, light-duty trucks, and medium-duty passenger vehicles that are certified to the California exhaust emission standards in section 1961.1, title 13, CCR, and are produced and delivered for sale in California; or

Option 2: the total number of passenger cars, light-duty trucks, and medium-duty passenger vehicles that are certified to the California exhaust emission standards in section 1961.1, title 13, CCR, and are produced and delivered for sale in California, the District of Columbia, and all states that have adopted California's greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

2.5.1.1.1 For the 2009 and 2010 model years, a manufacturer that selects compliance Option 2 must notify the Executive Officer of that selection in writing within 30 days of the effective date of the amendments to this section 2.5.1.1, or must comply with Option 1.

2.5.1.1.2 For the 2011 and later model years, a manufacturer that selects compliance Option 2 must notify the Executive Officer of that selection in writing prior to the start of the applicable model year or must comply with Option 1.

2.5.1.1.3 When a manufacturer is demonstrating compliance using Option 2 for a given model year, the term “in California” as used in subsections E.2.5.2.3 and E.3.2 means California, the District of Columbia, and all states that have adopted California’s greenhouse gas emission standards for that model year pursuant to Section 177 of the federal Clean Air Act (42 U.S.C. § 7507).

2.5.1.1.4 A manufacturer that selects compliance Option 2 must provide to the Executive Officer separate values for the number of vehicles produced and delivered for sale in the District of Columbia and for each individual state within the average.

2.5.1(ii) For the 2012 through 2016 model years, a manufacturer may elect to demonstrate compliance with this section E.2.5 by demonstrating compliance with the National greenhouse gas program as follows:

(a) A manufacturer that selects compliance with this option E.2.5.1(ii) must notify the Executive Officer of that selection, in writing, prior to the start of the applicable model year or must comply with E.2.5.1(i).

(b) The manufacturer must submit to ARB a copy of the official report that it submitted to EPA as required under 40 CFR §86-1865-12 for demonstrating compliance with the National greenhouse gas program and the official EPA determination of compliance. These must be submitted no later than May 1 of the calendar year following the close of the model year, for each model year that a manufacturer selects compliance with this option E.2.5.1(ii). and

(c) If a manufacturer has outstanding greenhouse gas debits at the end of the 2011 model year, as calculated in accordance with E.3.2, the manufacturer must submit to the Executive Officer a plan for offsetting all outstanding greenhouse gas debits by using greenhouse gas credits earned under the National greenhouse gas program. Upon approval by the Executive Officer, the manufacturer may demonstrate compliance with this section E.2.5 by demonstrating compliance with the National greenhouse gas program.

* * * *

F. Requirements and Procedures for Durability Demonstration

* * * *

4.2 §86.1823-08 ~~January 17, 2006~~ [Insert Federal Register for the National Greenhouse Gas Final Rule], [No change, except that the amendments to §86.1823-01 set forth in F.4.1 shall apply, and subparagraph (m) applies only to vehicles certifying to the National greenhouse gas program.]

* * * *

G. Procedures for Demonstration of Compliance with Emission Standards

1. §86.1827 Test Group Determination.

1.1 §86.1827-01. ~~October 6, 2000~~February 26, 2007 [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that subparagraphs (a)(5) and (f) shall only apply to vehicles certifying to the National greenhouse gas program.]

* * * *

3. §86.1829 Durability data and emission data testing requirements; waivers.

3.1 §86.1829-01. ~~December 8, 2005~~February 26, 2007 [Insert Federal Register for the National Greenhouse Gas Final Rule]. Amend as follows:

3.1.1 Delete (b)(1)(ii) and replace with: For Otto-cycle vehicles or hybrid vehicles that use Otto-cycle engines, evidence shall be supplied showing that the air/fuel metering system or secondary air injection system is capable of providing sufficient oxygen to theoretically allow enough oxidation to attain the CO emission standards at barometric pressures equivalent to those expected at altitudes ranging from sea level to an elevation of 6000 feet. For fuel injected vehicles or hybrid electric vehicles that use fuel-injected engines, compliance may be demonstrated upon a showing by the manufacturer that the fuel injection system distributes fuel based on mass air flow, rather than volume flow, and is therefore self-compensating. All submitted test proposals will be evaluated on their acceptability by the Executive Officer. As an alternative to the demonstration described above, a manufacturer may demonstrate compliance by testing California vehicle configurations as part of its federal high altitude certification requirements. Engine families that meet all the applicable California low altitude emission standards when tested at the EPA test elevation are deemed to be in compliance. The SFTP standards do not apply to testing at high altitude.

3.1.2 (b)(1)(iii)(E) [No change, except that references to Tier 2 or interim non-Tier 2 vehicles shall mean California LEVs, ULEVs or SULEVs.]

3.1.3 Amend (b)(1)(iii)(G) as follows: For the 2012 model year only, in lieu of testing a vehicle for N₂O emissions, a manufacturer may provide a statement in its application for certification that such vehicles comply with the applicable standards. Such a statement must be based on previous emission tests, development tests, or other appropriate information and good engineering judgment. This subparagraph (b)(1)(iii)(G) only applies to vehicles certifying to the National greenhouse gas program.

3.1.4~~3~~ Amend (b)(4)(i) as follows: All 2001 and subsequent model-year emission-data vehicles shall be required to be tail-pipe tested at 4,000 miles or at the mileage at which the vehicle is stabilized as determined in §86.1827-01 and demonstrate compliance with the California Inspection and Maintenance (“I/M”) emission standards

as specified in the "Mandatory Exhaust Emissions Inspection Standards and Test Procedures," title 16, California Code of Regulations, Section 3340.42. A manufacturer shall have the option of using the I/M test procedures in place at the time of certification or, if the I/M test procedures have been amended within two years of the time of certification, a manufacturer may use the preceding procedures. Test vehicles shall undergo preconditioning procedures prior to the tail-pipe test, which consist of idle conditions for a minimum period of ten minutes after the thermostat is open. Preconditioning and test procedures shall be conducted at an ambient temperature from 68° to 86° F. The manufacturer shall, in accordance with good engineering practices, attest that such test vehicles will meet the requirements of this section when preconditioned and tested at ambient temperatures from 35° to 68° F.

3.1.54 Amend (b)(4)(ii) as follows: In lieu of testing vehicles according to the provisions of §86.1829(b)(4)(i), a manufacturer may provide a statement in its application for certification that, based on the manufacturer's engineering evaluation of such I/M testing as the manufacturer deems appropriate, all light-duty vehicles and light-duty trucks comply with the I/M emission standards.

3.1.65 Delete (b)(5). Idle CO Testing.

* * * *

H. Certification, Information and Reporting Requirements.

1. §86.1841 Compliance with emission standards for the purpose of certification

* * * *

1.2 For 2012 through 2016 model year vehicles certifying to the National greenhouse gas program, §86.1841-01 [Insert Federal Register for the National Greenhouse Gas Final Rule] shall apply. Changes specified under section H.1.1 shall also apply for this section H.1.2.

1.32 **Scope of Certification.** Certification, if granted, is effective only for the vehicle/test group described in the original manufacturer's certification application. Modifications by a secondary manufacturer to vehicles/engines shall be deemed not to increase emissions above the standards under which those vehicles/engines were certified and to be within the original certification if such modifications do not: (1) increase vehicle weight more than 10 percent above the curb weight, increase frontal area more than 10 percent, or result in a combination increase of weight plus frontal area of more than 14 percent; or (2) include changes in axle ratio, tire size, or tire type resulting in changes in the drive train ratio of more than 5 percent; or (3) include any modification to the emission control system. No originally certified vehicle/engine which is modified by a secondary manufacturer in a manner described in items (1) through (3) of the preceding sentence may be sold to an ultimate purchaser, offered or delivered for sale to an ultimate purchaser, or registered in California unless the modified vehicle/engine is certified by the state board in accordance with applicable test procedures to meet emission standards for the model year for which the vehicle/engine was originally certified. For the

purposes of this subsection, "secondary manufacturer" means any person, other than the original manufacturer, who modifies a new motor vehicle prior to sale to the ultimate purchaser.

1.43 **SFTP.** For vehicles certified to the SFTP standards in Section E.1.2.2, full and intermediate useful life shall mean 4,000 miles.

1.54 **Certification of a Federal Vehicle in California.** Whenever a manufacturer federally-certifies a 2004 or subsequent model-year passenger car, light-duty truck or medium-duty vehicle model to the standards for a particular emissions bin that are more stringent than the standards for an applicable California vehicle emissions category, the equivalent California model may only be certified to (i) the California standards for a vehicle emissions category that are at least as stringent as the standards for the corresponding federal emissions bin, or (ii) the exhaust emission standards to which the federal model is certified. However, where the federal exhaust emission standards for the particular emissions bin and the California standards for a vehicle emissions category are equally stringent, the California model may only be certified to either the California standards for that vehicle emissions category or more stringent California standards. The federal emission bins are those contained Tables S04-1 and S04-2 of 40 CFR section 86.1811-04(c) as adopted February 10, 2000. A California vehicle model is to be treated as equivalent to a federal vehicle model if all of the following characteristics are identical:

- (a) Vehicle make and model;
- (b) Cylinder block configuration (e.g., L-6, V-8);
- (c) Displacement;
- (d) Combustion cycle;
- (e) Transmission class;
- (f) Aspiration method (e.g., naturally aspirated, turbocharged); and
- (g) Fuel (e.g., gasoline, natural gas, methanol).

The comparative stringency of the standards for the federal exhaust emissions bin and for the California vehicle emissions category shall be based on a comparison of the sum of the 100,000, 120,000, or 150,000 mile standards for NMOG and NO_x.

1.54.1 If a federally-certified vehicle model is certified in California in accordance with subparagraph 1.4, the model shall be subject to the federal requirements for exhaust emissions, SFTP emissions, cold CO emissions and highway NO_x. The vehicle model shall be subject to all other California requirements including evaporative emissions, OBD II, greenhouse gas emissions, and emissions warranty, except that a 2004 or earlier model-year vehicle in the federal heavy light-duty truck or medium-duty passenger vehicle classes may at the manufacturer's option be subject to the federal requirements for evaporative emissions and OBD II.

1.54.2 Prior to certification of a 2004 or subsequent model-year vehicle, a manufacturer must submit information sufficient to enable the Executive Officer to determine whether there is a federally-certified vehicle model for that model year that is equivalent to the California vehicle model based on the criteria listed in subparagraph 1.4.

1.54.3 If the Executive Officer determines that there is a federally-certified vehicle model for that model year that is equivalent to the California vehicle model, the following information shall be submitted with the Part I or Part II Application for Certification as set forth below:

(a) Part I Application for Certification: (i) Evidence of federal certification including, but not limited to, federal certification exhaust emission levels and compliance with federal SFTP, cold CO and highway NOx emission levels; and (ii) evidence of compliance with California evaporative emission requirements, California OBD II requirements, and California greenhouse gas requirements or, where permitted under Section 1.4.1 for a 2004 or earlier model-year vehicle, evidence of federal certification evaporative emission levels and compliance with federal OBD II requirements.

(b) Part II Application for Certification: evidence of a warranty on emission-related parts in accordance with sections 2035 et seq., title 13 CCR as they apply to vehicles certified under the primary California standard.

1.54.4 For purposes of meeting the California NMOG fleet average phase-in requirements or for determining vehicle equivalent credits, the applicable California NMOG value for passenger cars and light-duty trucks or vehicle equivalent credits for medium-duty vehicles shall be determined as follows:

(a) The sum of the federal full useful life (100,000, 120,000 or 150,000) NMOG and NOx value shall be compared with the next less stringent California full useful life NMOG plus NOx value to determine which emission category (e.g., LEV, ULEV or SULEV) is to be used for the fleet average value or vehicle equivalent credit calculation.

(b) For passenger cars and light-duty trucks, once the equivalent California emission category is determined (e.g., whether the vehicle is considered a LEV, ULEV or SULEV), the applicable NMOG value to be used in the fleet average calculation is set forth in the table in section E.2.1.2 of these test procedures for passenger cars and light-duty trucks. For example, if the full useful life (120,000 miles) NMOG plus NOx standard to which the federal vehicle is certified is 0.110 grams per mile, that vehicle would be considered a LEV II ULEV for fleet average purposes because the combined LEV full useful life NMOG plus NOx value is 0.125 and is the next less stringent emission category. The applicable emission standard to be used in the fleet average calculation would therefore be 0.040 grams per mile.

1.54.5 The vehicle shall be subject to the federal in-use requirements and the emission standard applicable for in-use compliance purposes shall be the federal standard to which the vehicle was federally-certified.

1.5.6 The tune up label shall meet the federal requirements applicable to such a vehicle with an additional sentence which reads: "This vehicle conforms to federal regulations and is certified for sale in California." The value used in the smog index label shall be the California emission category to which the vehicle was deemed certified for fleet average NMOG purposes.

1.5.7 The requirements in Section H.1.4 do not apply in the case of a federally-certified vehicle model that is only marketed to fleet operators for applications that are subject to clean fuel fleet requirements established pursuant to section 246 of the federal Clean Air Act (42 U.S.C. sec. 7586). In addition, the Executive Officer shall exclude

from the requirements a federally-certified vehicle model where the manufacturer demonstrates to the Executive Officer's reasonable satisfaction that the model will primarily be sold or leased to clean fuel fleet operators for such applications, and that other sales or leases of the model will be incidental to marketing to those clean fuel fleet operators.

1.54.8 A manufacturer may certify a passenger car, light-duty truck or medium-duty vehicle to federal exhaust emission standards pursuant to Section H.1.4 prior to the 2004 model year.

* * * *

4.5 Greenhouse Gas Reporting Requirements.

(a) For the purpose of demonstrating compliance with greenhouse gas requirements, the manufacturer shall provide by May 1 of the calendar year following the close of the model year:

(i) A manufacturer that demonstrates compliance under section E.2.5.2.1.1, Option A, must submit a comprehensive list of all emission test results, including the test vehicle description and identification number, CO₂, CH₄, and N₂O emission data, the data and/or justifications used to determine the "worst case" greenhouse gas test vehicle configuration, as required by G.2.34.2, for each greenhouse gas vehicle test group. A manufacturer that demonstrates compliance under section E.2.5.2.1.1, Option B, must submit a comprehensive list of all emission test results used to calculate its Corporate Average Fuel Economy, including the test vehicle description and identification number, for each subconfiguration and the number of vehicles produced and delivered for sale under Option 1 or Option 2 in section E.2.5.1.1, as applicable, that are represented by the subconfiguration. A manufacturer must not submit any emission test results from vehicles tested, or calculated results, as part of the Corporate Average Fuel Economy Program, unless those results have been judged acceptable by the U.S. Environmental Protection Agency, in accordance with §600.007-08. A manufacturer that submits data from the Corporate Average Fuel Economy Program must clearly indicate whether the data is derived from vehicle testing or whether it is calculated. A manufacturer that elects to use CAFE Program emissions data to demonstrate compliance with the greenhouse requirements must use all of the data that is used by the U.S. Environmental Protection Agency to determine a manufacturer's corporate average fuel economy for the applicable model year, and may forego testing of the "worst-case" configuration;

* * * *

(b) For the 2012 through 2016 model years, a manufacturer that elects to demonstrate compliance with the requirements of sections E.2.5 and E.3.2 by

demonstrating compliance with the National greenhouse gas program must submit all data to the Executive Officer in accordance with the reporting requirements as required under 40 CFR §86.1865-12.

(bc) All data submitted in accordance with this section H.4.5, must be submitted electronically and organized in a format specified by the Executive Officer to clearly demonstrate compliance with the fleet average greenhouse gas exhaust emission requirements in section E.2.5 or §86.1865-12, as applicable.

I. In-Use Compliance Requirements and Procedures

1. §86.1845 Manufacturer in-use verification testing requirements.

* * * *

1.2 §86.1845-04. ~~December 8, 2005~~December 28, 2006 [Insert Federal Register for the National Greenhouse Gas Final Rule]. Amend as follows:

* * * *

1.5 Greenhouse Gas Requirements.

For the 2009 through 2011 model years, tThe manufacturer in-use verification testing requirements shall not apply to the greenhouse gas emission requirements set forth in Section E.2.5 of these test procedures. For the 2012 through 2016 model years, the manufacturer in-use verification testing requirements shall apply to a manufacturer that certifies its California fleet under the National greenhouse gas program.

2. §86.1846 Manufacturer in-use confirmatory testing requirements.

2.1 §86.1846-01 ~~July 12, 2004~~December 28, 2006 [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No Change.]

* * * *

2.4 Greenhouse Gas Requirements.

For the 2009 through 2011 model years, tThe manufacturer in-use compliance testing requirements shall not apply to the greenhouse gas emission requirements set forth in Section E.2.5 of these test procedures. For the 2012 through 2016 model years, the manufacturer in-use compliance testing requirements shall apply to a manufacturer that certifies its California fleet under the National greenhouse gas program.

* * * *

J. Procedural Requirements

1. §86.1848-01 Certification. October 6, 2000. [No change.]
- ~~2. §86.1848-10 Certification. February 26, 2007. [No change.]~~
- ~~3. §86.1848-10 Certification. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this version of §86.1848-10 shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years,]~~
- ~~43.~~ §86.1849-01 Right of entry. [No change.]
- ~~54.~~ §86.1850-01 Denial, Suspension or Revocation of Certificate of Conformity. [No change.]
- ~~65.~~ §86.1851 Application of good engineering judgment to manufacturers' decisions. [No change.]
- ~~76.~~ §86.1852 Waivers for good in-use emission performance. [No change.]
- ~~87.~~ §86.1853 Certification hearings. [No change.]
- ~~9.~~ §86.1854-12 Prohibited acts. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change.]
- ~~108.~~ §§86.185~~4~~ - 86.1859. [Reserved]
- ~~119.~~ §86.1860-04 How to comply with the Tier 2 and interim Tier 2 fleet average NOx standards. [n/a]
- ~~120.~~ §86.1861-04 How do the Tier 2 and interim Tier 2 NOx averaging, banking and trading programs work? [n/a]
- ~~134.~~ §86.1862-04 Maintenance of records and submittal of information relevant to compliance with fleet average NOx standards. [n/a]
- ~~142.~~ §86.1863-07 Optional Chassis Certification for Diesel Vehicles. ~~January 18, 2004~~ June 17, 2003. [No change]
- ~~15.~~ §86.1865-12 How to comply with the fleet average CO₂ standards. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years,]
- ~~16.~~ §86.1866-12 CO₂ fleet average credit programs. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years,]
- ~~17.~~ §86.1867-12 Optional early CO₂ credit programs. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years,]

PART II: CALIFORNIA EXHAUST AND PARTICULATE EMISSION TEST PROCEDURES FOR PASSENGER CARS, LIGHT-DUTY TRUCKS AND MEDIUM-DUTY VEHICLES

This part describes the equipment required and the procedures necessary to perform gaseous and particulate exhaust emission tests (40 CFR Part 86, Subpart B); cold temperature test procedures (40 CFR Part 86, Subpart C); the California 50°F test procedure; the development of reactivity adjustment factors; and the supplemental federal test procedure (40 CFR Part 86, Subpart B) on passenger cars, light-duty trucks and medium-duty vehicles.

A. 40 CFR Part 86, Subpart B - Emission Regulations for 1977 and Later Model Year New Light-Duty Vehicles and New Light-Duty Trucks; Test Procedures.

* * * *

100.2 Equipment and Facility Requirements.

* * * *

86.111-94 Exhaust gas analytical-system. ~~September 30, 1994~~ [Insert Federal Register for the National Greenhouse Gas Final Rule].

* * * *

100.5 Test Procedures and Data Requirements.

86.127-00 Test procedures; overview. ~~May 4, 1999~~ [Insert Federal Register for the National Greenhouse Gas Final Rule].

* * * *

100.5.3 California Vehicle Preconditioning Requirements.

* * * *

86.135-00 Dynamometer procedure. [Insert Federal Register for the National Greenhouse Gas Final Rule] [No change.]

* * * *

100.5.4 Calculations; exhaust emissions.

* * * *

- 86.165-12 Air Conditioning idle test procedure. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years.]
- 86.166-12 Method for calculating emissions due to air conditioning leakage. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years.]
- 86.167-12 N₂O measurement devices. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years.]
- 86.168-12 Interference verification for N₂O analyzers. [Insert Federal Register for the National Greenhouse Gas Final Rule]. [No change, except that this section shall only apply to vehicles certifying under the National greenhouse gas program for the 2012 through 2016 model years.]

* * * *