

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**

Date of Release: August 7, 2009

Scheduled for Consideration: September 24-25, 2009

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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, which are phased-in from 2009 through 2016, will reduce emissions from the new vehicle fleet by 30 percent within this timeframe.

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 lower one for passenger cars and the smallest of the light-duty trucks (PC + LDT1), and a higher one for larger light-duty trucks and medium-duty passenger vehicles (LDT2 + MDPV). The greenhouse gas emissions that are 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 most commonly 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 this data, and applying any emission credits that may be earned for vehicles that are 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 emissions 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) for a required waiver of preemption under the federal Clean Air Act to allow California to enforce its adopted standards. In the waiver context and elsewhere they have also argued that other states, exercising their right under section 177 of the Clean Air Act to adopt California’s vehicle emission standards, will create an unmanageable “patchwork” of different programs due to variations in the mix of vehicles sold in each of the states.

On May 19, 2009, challenging parties, automakers, California, and the federal government reached agreement on 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 agreed 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. Manufacturers agreed to ultimately drop current, and forego similar future legal challenges, including challenging a waiver grant, which occurred 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 standards for 2012-16 model year vehicles such that compliance with 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. The current proposed amendments to the Pavley regulations, which are discussed in greater detail below, address the first and third commitments made by California. Amendments to the regulations that will be needed to implement the second commitment are scheduled for presentation to the Board for consideration in December of this year.

As to the second commitment, revising the standards to allow compliance with the EPA-adopted greenhouse gas standards in lieu of compliance with California standards, EPA is anticipated to issue a Notice of Proposed Rulemaking (NPRM) on the national program in August 2009. While the particulars of the federal program are unknown at this time, we anticipate that its compliance provisions will be similar to California’s in that manufacturers will be required to meet a fleet average greenhouse gas requirement and will accrue credits for over compliance with the fleet average and debits for under compliance.

Under either the existing regulations requiring California-only sales data or under the proposed pooling option, we foresee compliance and no debits in 2009 and 2010, and for most manufacturers, none in 2011 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 California will be 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, California will likely require that manufacturers opting into the federal program will offset any debits incurred in California by earning a commensurate number of credits in the federal program and retiring those credits rather than using them to meet their federal obligations. Staff will consider amending the Pavley regulations at the December Board hearing, to address this issue. Manufacturers that do not equalize debits within the five model years provided in the regulations shall be subject to penalties under the provisions of section 43211 of the Health & Safety Code. Under the proposed pooling option, debits that are not equalized in the time specified must be apportioned between California and the Section 177 states according to their new vehicle sales in the model year the debits are first accrued. However, as EPA indicated in granting California’s waiver, (74 Fed.Reg. 32744, 32778 (July 8, 2009)), while debits from model year 2009 may offset credits generated in later years and reduce available credits, noncompliance or civil penalties cannot be based on 2009 MY debits. While it is currently unknown exactly how credits earned under the

Pavley program in the 2009 through the 2011 model years will be treated under the federal program, this issue will presumably be address by EPA in their final rule.

III. SUMMARY OF RECOMMENDED ACTION

Consistent with the aforementioned agreement, staff is proposing two types of modifications to the Pavley regulations to address manufacturers' concerns.

Allow Manufacturers to Meet the Fleet Average Greenhouse Gas Emission Standard by "Pooling" the California and Section 177 State Vehicles

First, staff proposes to allow a manufacturer to comply with the fleet average greenhouse gas requirement based on the combined sales of passenger cars and light-duty trucks in California and the other states that have adopted California's vehicle regulations ("Section 177" states). Manufacturers have stated that this approach will allow them to reduce overall compliance costs and implementation concerns, since they will be able to develop a compliance plan for all states subject to the Pavley requirements, without having to address the particular vehicle mix in each individual state

Accordingly, manufacturers that choose to comply with the fleet average GHG requirements by pooling GHG emissions for California and Section 177 states must state their intention to do so prior to the start of the model year. Since the certification process for model year 2009 and 2010 is already underway, manufacturers must notify the Executive Officer of their intent to comply by pooling emissions in writing within 30 days of the effective date of the amendments. Beginning with the 2011 model year, manufacturers must notify the Executive Officer in writing prior to the start of the applicable model year. A manufacturer choosing emission pooling as a compliance option must commit to pooling emissions from California and all Section 177 states. A manufacturer that chooses to pool GHG emissions for any model year may not opt-out for that model year, however, it may opt out for future model years.

Any manufacturer that chooses to comply with the Pavley regulations by meeting the fleet average greenhouse gas requirements based on the combined sales of new passenger vehicles in California and the Section 177 states will be required to submit emission testing data and sales data for the combined fleet. The data must be submitted in sufficient detail to allow staff to verify the manufacturer's average greenhouse gas levels for each model year. This is an additional reporting requirement. A manufacturer must still provide to the Air Resources Board California-specific test data and sales data in sufficient detail to allow staff to easily calculate the fleet average greenhouse gas emissions for new passenger cars and light-duty trucks sold in California in each model year. This data is needed in order to track progress in meeting the targeted GHG emission reductions from the transportation sector called for in AB 32. Manufacturers must also provide state-specific test data and sales data for each of the Section 177 states. In many cases, these states have their own GHG programs similar to California's AB 32 program that require emission reductions from sectors other than the transportation sector.

Accordingly, these states too will need to track progress in reducing GHG emission data from the transportation sector. The state-specific test and sales data must be submitted separately from the combined California plus Section 177 state data.

Allow the Use of Data from the Federal CAFÉ Program to Demonstrate Compliance with the Pavley Regulations

The second change that staff is proposing is to allow manufacturers to use emission test data from the federal CAFE program to demonstrate compliance with California's Pavley regulations. This change will also reduce costs to the manufacturers, by reducing the number of tests that must be conducted solely for the purpose of California's regulations.

To demonstrate compliance, manufacturers must submit GHG emission data for the worst case vehicle for each test group. Manufacturers may submit additional test data for vehicles within the test group with lower GHG emissions than the worst case configuration. Consistent with the May 19, 2009 agreement, manufacturers may use emission data from tests conducted as part of the federal CAFE program. When submitting emission data from the federal CAFE program, manufacturers must make a demonstration that the appropriate vehicle emission test data, consistent with the regulatory requirements, has been selected. A manufacturer that elects to use CAFE Program data to demonstrate compliance with the greenhouse requirements must use all acceptable data from the program, and may forego testing of the "worst-case" configuration.

Furthermore, because manufacturers are not required to measure methane (CH₄) and nitrous oxide (N₂O) emissions under the CAFE Program, a manufacturer that uses CAFE data to demonstrate compliance with the greenhouse gas requirements will be allowed to substitute the term 1.9 CO₂-equivalent grams per mile for the terms "296 x N₂O + 23 x CH₄" in the following equation, which is used to calculate the CO₂-equivalent values for the vehicles.

$$\text{CO}_2\text{-Equivalent Value} = \text{CO}_2 + 296 \times \text{N}_2\text{O} + 23 \times \text{CH}_4 - \text{A/C Direct Emissions Allowance} - \text{A/C Indirect Emissions Allowance}$$

The 1.9 CO₂-equivalent grams per mile value was derived from EMFAC, California's inventory model for on-road vehicles. Specifically, an emission rate of 0.005 grams of CH₄ per mile was derived from the EMFAC emission rate for CH₄ for 2019 model year light-duty vehicles. An emission rate of 0.006 grams of N₂O per mile driven was derived from the ratio of N₂O to oxides of nitrogen (NO_x) determined from emission test data generated at ARB's vehicle test facility (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). This ratio was then applied to the EMFAC emission rate for NO_x for 2019 model year light-duty vehicles. These values, expressed as CO₂-equivalent, were then used to establish the fleet average greenhouse gas values (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). Therefore, for CAFE vehicles, it is appropriate to allow

use of this default value to account for N₂O and CH₄ emissions, when no actual N₂O and CH₄ test data is available.

Adopt Minor Changes to the Test Procedures

Staff is also proposing a number of minor amendments to the test procedures for light- and medium-duty vehicles, to align them with current federal requirements. These amendments consist primarily of updating the test procedures to ensure that the applicable dates of the sections of the Code of Federal Regulations that are referenced therein are current.

IV. AIR QUALITY, ENVIRONMENTAL, AND ECONOMIC IMPACTS

A. Air Quality

Pooling emissions for all states may result in minor changes in greenhouse gas reductions within the individual states due to the portability of credits and debits incurred by the manufacturers. Because exactly how manufacturers will comply under an emission pooling scheme is unknown at this time, staff is unable to quantify the emissions impact for the individual states. Nonetheless, staff anticipates that there will be no significant emissions impact from this proposal because it does not fundamentally change the fleet average greenhouse gas requirements to which a manufacturer must certify its fleet.

B. Economic Impact

The proposed amendments will provide vehicle manufacturers that are subject to the requirements of California's passenger vehicle greenhouse gas regulations with an optional method for complying with the Pavley regulations. Staff expects that the proposed amendments could reduce the cost of compliance for vehicle manufacturers that choose to meet these alternative requirements. In any instances where the proposed amendments would increase compliance costs, manufacturers retain the option to comply with the regulations as originally written.

Manufacturers are already required to conduct emission testing to measure the CO₂ emissions from their passenger fleet as part of the CAFE program. So, allowing a manufacturer to use these data to demonstrate compliance with California's greenhouse gas requirements would reduce the number of emission tests that will need to be conducted solely for the California program. However, this economic impact, while positive, is expected to be minimal. If a manufacturer chooses to comply with the Pavley regulations as they currently are written, there would be no economic impact from these amendments on that manufacturer.

Similarly, staff does not expect there to be any economic impacts due to the test procedure revisions, since manufacturers will continue to use the same test procedures for both California and federal purposes rather than having to conduct two different procedures.

The proposed amendments also may impose additional reporting requirements if manufacturers choose to calculate fleet average emissions across all states that have adopted the Pavley regulations. While manufacturers are currently required to report California sales data that are used to demonstrate compliance with the Pavley regulations, the amendments would require manufacturers to also report sales data from the other states that have adopted the Pavley regulations. The additional reporting requirements are needed as part of the multi-state pooled sales compliance option, the proposal of which is an essential element in the May 2009 commitments. This and the other commitments best ensure that California achieves the greenhouse gas emission reductions required by AB 1493 and assumed toward meeting AB 32. Thus with this Initial Statement of Reasons staff proposes that the Board find it is necessary for the health and welfare of the people of the State that any additional reporting required by the proposed amendments apply to the affected businesses.

The additional cost due to this amendment is not expected to be significant, since under the current regulations, each state already requires manufacturers to submit sales data for each of these states. The proposed amendments will simply require this data to also be submitted to the Air Resources Board. Manufacturers may choose to submit only California sales data and comply with the regulations on an individual state basis as they currently are written, in which case there would 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 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. The significant proposed changes to the Pavley regulations (allowing manufacturers to comply with a single greenhouse gas fleet average level for California and all the other states that have adopted our regulations, and allowing manufacturers to demonstrate compliance with the Pavley regulations using data from the federal CAFE program) are, according to manufacturers, needed to reduce their costs and simplify their compliance demonstration. These changes could provide cost benefits for manufacturers, and they would maintain the emission benefits of the current regulations. The proposed changes to the test procedure – in addition to those changes simply implementing proposed changes in the regulatory text – are needed to maintain alignment with federal testing requirements.

This alternative was rejected because California committed to making the proposed amendments as part of the agreement that was signed by California, the federal government, and other parties on May 19, 2009, as discussed in section II. Furthermore, maintaining the Pavley regulations in their current form would provide no greater emissions benefit than the proposed changes, but at a likely higher cost to the affected industry.

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 regulations different from federal regulations contained in the Code of Federal Regulations

There are currently no federal regulations to reduce greenhouse gas emissions from passenger vehicles. However, climate change threatens California's public health, water resources, agricultural industry, ecology, and economy. Due to this threat Chapter 200, Statutes of 2002 (AB 1493, Pavley) specifically directed the Air Resources Board to adopt regulations to control greenhouse gas emissions from motor vehicles.

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

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16. 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
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