

**STATE OF CALIFORNIA**  
**AIR RESOURCES BOARD**

**Proposed Greenhouse Gas (GHG) )**  
**Regulations for Medium and Heavy- )**  
**Duty Engines and Vehicles; Optional )**  
**Reduced Emission Standards for Heavy- )**  
**Duty Engines; Proposed Amendments to )**  
**the Tractor-Trailer GHG Regulation; )**  
**Proposed Amendments to the Airborne )**  
**Toxic Control Measure to Limit Diesel- )**  
**Fueled Commercial Motor Vehicle )**  
**Idling; and Proposed Amendments to the )**  
**California Interim Certification )**  
**Procedures for 2004 and Subsequent )**  
**Model Hybrid-Electric Vehicles in the )**  
**Urban Bus and Heavy-Duty Vehicle Classes )**

**Notice File No.**  
**Z2013-1015-07**

**Hearing Date:**  
**December 12, 2013**

**COMMENTS OF THE**  
**TRUCK AND ENGINE MANUFACTURERS ASSOCIATION**

**Timothy A. Blubaugh**  
**Timothy A. French**  
**Truck and Engine Manufacturers Association**  
**333 West Wacker Drive**  
**Chicago, Illinois 60606**

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**COMMENTS OF THE**

**TRUCK AND ENGINE MANUFACTURERS ASSOCIATION**

The Truck and Engine Manufacturers Association (“EMA”) hereby submits its comments on the California Air Resources Board’s (“CARB’s”) Notice of Public Hearing to consider several proposed regulations related to heavy-duty engines and vehicles (the “HD Rulemaking Package”). See 43-Z Cal. Regulatory Notice Reg. 1656-1668 (Oct. 25, 2013).

EMA is a trade association representing the worldwide manufacturers of the internal combustion engines and commercial motor vehicles that are the subject of the proposed regulations in the HD Rulemaking Package. Accordingly, EMA and its members have a direct and significant stake in the proposed California rules.

**I. OVERVIEW**

In the HD Rulemaking Package, CARB is proposing a number of regulatory initiatives related to heavy-duty engines and vehicles. EMA and its members have worked closely with CARB and the U.S. Environmental Protection Agency (“EPA”) to deploy innovative emissions control technologies that achieve EPA’s and CARB’s rigorous regulatory obligations. These comments highlight issues in the HD Rulemaking Package that must be addressed to ensure that CARB’s proposed new requirements are workable and implementable, and thus ensure that our past successes in reducing heavy-duty emissions can be extended into the future.

EMA supports CARB's proposed adoption of EPA's "Phase I" greenhouse gas ("GHG") emissions standards. In aligning with the national program that was established by EPA, CARB avoids potentially undermining the success of EPA's leading-edge GHG program. Nevertheless, we have identified deviations from the EPA's program that we look forward to working with CARB Staff to resolve.

Heavy-duty engine manufacturers have invested tremendous resources to develop and commercialize advanced emissions control technologies to meet EPA's and CARB's aligned near-zero NO<sub>x</sub> emissions standards that went into effect in 2010. Since the successful implementation of those rigorous standards, evidence continues to show that the 2010 emissions control technologies are not only very effective at reducing emissions, but that they also are well-received in the marketplace. Truck buyers are embracing the 2010 emissions control technologies because over the past three years manufacturers have simultaneously worked to improve engines and aftertreatment to make them operate more efficiently – and thereby consume less fuel.

CARB now proposes a set of optional "ultra-low" NO<sub>x</sub> standards that are 50, 70 and 90 percent below the current very low nationwide standard. EMA generally supports programs designed to provide incentives for the purchase of advanced technology engines; however, we anticipate significant obstacles to manufacturers' ability to overcome the enormous technical and cost barriers to meeting the proposed ultra-low NO<sub>x</sub> standards. In addition, the new technologies that will be required to meet the lower NO<sub>x</sub> levels also will be very expensive to develop and bring to market. Deploying such technologies likely will sacrifice some percentage of the engine's fuel efficiency and increase its GHG emissions, thereby increasing its fuel consumption. Furthermore, there are substantial questions concerning the atmospheric chemistry assumptions behind CARB's conclusion that lower NO<sub>x</sub> emissions from heavy-duty vehicles will reduce the formation of ozone.

EMA supports CARB's proposed amendments to the California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles in the Urban Bus and Heavy-Duty Vehicle Classes ("Hybrid Certification Procedures"). We are encouraged by CARB's proposal to expand the procedures to cover a broader range of hybrid vehicles, and we believe that the procedures will be enhanced by CARB's proposal to align them with current industry standards. Nevertheless, we recommend a modification to the proposed amendments.

Finally, we strongly object to CARB's proposed attempt to redefine and greatly expand the definition of "emissions standard." CARB's proposal to circumvent two pending lawsuits with the proposed redefinition in the HD Rulemaking Package is unlawful and invalid.

## **II. GHG EMISSION REGULATIONS**

As we stated during CARB's March 11<sup>th</sup> public workshop, EMA supports CARB's adoption of EPA's Phase I GHG emissions standards. EPA's historic GHG rule, which was published on September 15, 2011 and will be effective January 1, 2014, was the result of a tremendous amount of collaborative discussion and data-sharing between government and industry. That collaboration led to the progression from a proposed rule to a final rule in less than ten months' time. Moreover, the resulting standards take effect with only two years of

leadtime, instead of the customary four full model years. That first-ever program not only was expeditiously developed, and is being quickly implemented, but it also will achieve significant GHG reductions nationwide.

### **A. Single National GHG Program**

The cornerstone principle that enabled the successful development and implementation of the groundbreaking federal GHG rule is that it serves as a single national program. That is, the EPA's GHG regulations are fully aligned with the National Highway Traffic Safety Administration's fuel efficiency regulations, such that compliance with one rule means compliance with the other. Further, CARB represented, and it was our understanding in supporting the rule, that the Phase I rule also would address CARB's interests and CARB would not adopt different requirements.

By their nature, heavy-duty commercial vehicles are involved in interstate commerce, and they are purchased, used, and sold by companies throughout the country. Only certain regional trucks are operated primarily in one state, and those trucks travel many fewer miles than line-haul vehicles and consequently emit significantly less greenhouse gases. Accordingly, a single nationwide program is the most effective regulatory structure for reducing GHG emissions from heavy-duty engines and vehicles. Such a single national program has proven effective in controlling criteria pollutants from the heavy-duty sector, and it is the only effective method for controlling GHG emissions. CARB should fulfill the goal and expectation of a single national GHG program in adopting and implementing its GHG program.

Even before the federal GHG program has been fully implemented, EPA already has begun developing a new, more stringent second phase of the program. We are encouraged that CARB will actively participate with EPA in developing the "Phase II" program. Maintaining a single national GHG program is essential as it evolves into its second phase.

### **B. Certification Process**

CARB's proposed adoption of EPA's Phase I GHG standards includes a process that would recognize those manufacturers that comply with the EPA program as having been "deemed to comply" with the California standards. EMA supports such an approach as the method of aligning CARB's GHG standards with EPA's and maintaining a single national program – thus enabling manufacturers to use a single compliance strategy to meet both EPA and CARB requirements. Specifically, we support CARB's proposal to maintain a single compliance strategy that recognizes the federal program for averaging, banking and trading ("ABT") emissions credits. Nonetheless, we are concerned with certain deviations from the EPA program that CARB is proposing.

### **C. Certification Labels**

One of the deviations from the EPA program that CARB proposes to require is that vehicle manufacturers add a California specific statement to their GHG certification labels. Modifying certification labels is never as easy as simply typing in new language. Manufacturers

utilize many different and complex vehicle specification and manufacturing systems to provide information that defines what language is included on each label. Additionally, typically there is very little space on a vehicle to affix a certification label where it will be both visible and protected from damage. As such, adding even a few words to a certification label can require manufacturers to reprogram many affected systems, and may require redesigning the label itself. Moreover, adding language would create a burden for manufacturers that does not provide any corresponding environmental benefit.

CARB should maintain complete alignment of certification labels with its “deemed to comply” certification process and not require any additional language. If California specific language is necessary, manufacturers will need sufficient leadtime to implement the new requirement. At a minimum, we recommend that CARB require manufacturers to add the proposed California specific statement to the GHG certification labels effective no earlier than January 1, 2015.

#### **D. Reporting**

Another deviation from the EPA program that CARB proposes is for manufacturers to submit to CARB all of the GHG data that they submit to EPA. The required data is contained in the manufacturer’s certification application, end-of-year reports, and final ABT report. CARB must ensure that the requirement to send the EPA reports to CARB does not become unnecessarily burdensome or expensive. Specifically, CARB should accept the data as it is submitted to EPA on VERIFY system templates. Any requirement to modify, expand, or reformat the data would consume manufacturer resources for no added benefit, and it would deviate further from the goal of a single national program. We realize that CARB may not be able to accept VERIFY data electronically, but CARB can and should accept the data in .pdf or other similar form based on the VERIFY format and limited to the VERIFY data.

In addition to the EPA reports, CARB is proposing to require manufacturers to “provide the Executive Officer separate numbers for each family of heavy-duty engines *produced and delivered for sale in California* each model year.” See CARB’s proposed amendments to § 1036.108 (emphasis added). Additionally, CARB proposes to require similar information “for each subfamily of heavy-duty vehicles.” See CARB’s proposed amendments to § 1037.101. We understand that CARB intends for manufacturers to determine the numbers of engines and vehicles in California in the same manner that they have determined the numbers of California engines and vehicles for the purpose of calculating CARB certification fees. Specifically, CARB requires manufacturers to calculate their total certification fee obligation by multiplying the per-vehicle or per-engine fees by the total number of “*vehicles or engines produced for California sale.*” See 13 CCR § 1993 (emphasis added). However, CARB’s proposed GHG rule uses slightly different language to define the same population of engines or vehicles.

The difference between the proposed language in the new GHG regulation and the existing language in the certification fee calculation regulation could lead to different interpretations. To avoid such uncertainty and inconsistency, and to streamline manufacturers’ reporting requirements, CARB should modify the language in the proposed GHG regulations to match the existing language in the certification fee calculation regulation.

### **III. OPTIONAL LOW NO<sub>x</sub> EMISSION STANDARDS**

#### **A. NO<sub>x</sub>/GHG Tradeoff**

One of the most effective ways for an engine manufacturer to decrease GHG emissions is to maximize combustion efficiency, with attendant increases in engine-out NO<sub>x</sub>, while at the same time maximizing the conversion efficiency of the selective catalytic reduction (“SCR”) aftertreatment system to reduce tailpipe NO<sub>x</sub> emissions to meet the standard. In effect, manufacturers are maximizing fuel efficiency while meeting the low NO<sub>x</sub> emissions standards by using advanced SCR systems.

However, CARB proposes new ultra-low NO<sub>x</sub> standards that are up to 90 percent below CARB’s and EPA’s current low standards. Since SCR systems are near the limits of their NO<sub>x</sub> conversion capabilities, engine manufacturers likely will need to further reduce engine-out NO<sub>x</sub>, and/or provide additional heat to the SCR catalyst to maintain optimum temperature, to meet the new ultra-low emissions standards. The physics and thermodynamics associated with those changes will result in worse fuel efficiency and increased GHG emissions. CARB must consider the implications of the NO<sub>x</sub>/GHG tradeoff when adopting optional, or mandatory, lower NO<sub>x</sub> emissions standards.

#### **B. Impediments to Achieving the Optional Standards**

As detailed below, EMA has a number of significant concerns relating to the technical feasibility, and efficacy, of the optional low NO<sub>x</sub> standards that CARB has included in the HD Rulemaking Package. Whether optional or mandatory, each emission standard carries with it a number of ancillary requirements that are part of certifying an engine to the standard. First, a manufacturer must be able to accurately and repeatedly measure emissions to ensure compliance with the standard. Second, to ensure that no engine exceeds the standard, a manufacturer must certify engines significantly below the standard, *i.e.*, with a compliance margin. To account for emission deterioration, manufacturers must conduct expensive and time-consuming engine testing to predict the level of deterioration, and add that factor to the measured emissions level to ensure that the emissions will remain under the standard for the useful life of the engine.

Third, EPA and CARB mandate on-board diagnostics (“OBD”) systems to monitor emissions-related components and subsystems and provide alerts and diagnostic information when specific malfunction thresholds are exceeded. Fourth, manufacturers must assume at the time of certification that an engine may be subject to assembly-line and in-use compliance audits (and their associated variability). Finally, manufacturers must monitor the number of in-service failures of emissions-related components and potentially conduct product recalls to remedy defects. All of the above requirements are part of a manufacturer’s emissions certification and ongoing compliance obligations.

Set against that backdrop, what follows are further details regarding the impediments to achieving the proposed optional low NO<sub>x</sub> standards in the HD Rulemaking Package.

## **1. Measurement Accuracy**

EMA has significant concerns about the technological feasibility of certifying engines to the 0.10 g/bhp-hr, 0.05 g/bhp-hr, or 0.02 g/bhp-hr optional NO<sub>x</sub> standards proposed by CARB. For example, the currently acceptable level of variability for emissions measurement is plus or minus five percent of the standard, which helps to ensure the stability and repeatability of measuring the very low emissions from today's aftertreatment-equipped engines. That level of accuracy represents the current state-of-the-art for emissions control and measurement technologies for a 0.2 g/bhp-hr standard. However, the variability associated with that degree of accuracy likely is unworkable for measuring to a 0.10 g or 0.05 g, let alone a 0.02 g NO<sub>x</sub> standard. Moreover, the level of accuracy may be even greater at the lower emissions levels. Therefore, a new benchmark of engine emissions testing stability and measurement accuracy will be necessary to certify engines to the new optional lower NO<sub>x</sub> standards. Even if achieving those levels were feasible, the measurement costs alone may be prohibitively high. Before CARB considers such new ultra-low NO<sub>x</sub> standards, it should validate that measurement technologies have been developed to a point of being commercially available, cost effective, accurate and repeatable enough for the new emissions levels at issue -- particularly the most stringent levels.

## **2. Compliance Margin**

Compounding our questions and concerns about achieving, and measuring, emissions to the proposal optional low NO<sub>x</sub> standards, are the necessary compliance margins that manufacturers must obtain. Because of the variability in production and measurement tolerances, manufacturers must certify their engines significantly below the compliance requirement. Often, that compliance margin is 50 percent below the standard. Only if a manufacturer is able to certify an engine to some target like 50 percent below the standard will the manufacturer have an acceptable degree of confidence that no engines produced under the engine family certification will be found to exceed the standard. Because the current mandatory standard already is so close to zero, and so challenging to achieve, the data CARB provides in the Initial Statement of Reasons ("ISOR") for the HD Rulemaking Package confirms that less than 20 percent of current engines are actually achieving a 50 percent compliance margin for the existing 0.2 g NO<sub>x</sub> standard. Achieving such a compliance margin with the proposed optional lower NO<sub>x</sub> standards may not be feasible, and therefore would serve as another barrier to manufacturers choosing to certify to them. Nonetheless, if CARB persists in implementing the optional lower NO<sub>x</sub> standards despite this barrier, CARB should recognize the increasingly difficult task of certification at such low NO<sub>x</sub> levels by increasing the flexibility associated with procedures such as assembly-line testing (13 CCR § 2065) and in-use testing (13 CCR §§ 2100 *et seq.*). Specifically, with assembly-line testing, CARB should define an acceptable quality level larger than that applicable to 0.2 g NO<sub>x</sub> engines. And with in-use testing, CARB should define a larger multiplication factor between the applicable emission standard or family emission limit ("FEL") and the not-to-exceed standard.

## **3. Deterioration Factors**

We understand that CARB will require that manufacturers certifying engines to the optional low NO<sub>x</sub> standards must estimate the deterioration of the emissions level of an engine over its useful life and apply a deterioration factor ("DF") to the measured emissions level of a

new engine for the purposes of demonstrating compliance to the engine's full useful life at certification. Establishing a DF for the proposed lower NO<sub>x</sub> standards and applying it to the NO<sub>x</sub> emissions of an engine may serve as another insurmountable obstacle to certification. Indeed, the issues relating to emissions repeatability and measurement accuracy may be too large to make it possible to certify to the lower NO<sub>x</sub> levels, and ensure compliance over the useful life of the engine, with any reasonable degree of confidence and compliance margin. Consequently, DFs stand as a significant barrier to implementation of the proposed optional lower NO<sub>x</sub> standards.

#### **4. On-Board Diagnostics**

The current OBD requirements have NO<sub>x</sub> emission malfunction thresholds of plus 0.20 g above the tailpipe standard, or 2.0 times the tailpipe standard. Based on the proposed regulatory language, it appears that the OBD thresholds for engines certified to the optional lower NO<sub>x</sub> standards would be the same additive or multiplicative values above the 0.10 g, 0.05 g, or 0.02 g standards. Current state-of-the-art OBD sensing technologies, however, are likely unable to properly detect potential malfunctions down to those ultra-low levels. Furthermore, in the HD Rulemaking Package, CARB proposes to condition the use of any alternative OBD thresholds on the Executive Officer's approval of individual manufacturer's requests to use alternative thresholds. Such an approach is unduly burdensome and fails to provide manufacturers the necessary certainty to invest in the development of technologies to meet the optional NO<sub>x</sub> standards. Manufacturers are unlikely to invest the significant resources required to achieve the ultra-low NO<sub>x</sub> levels when they have no certainty that they will be able to obtain OBD approval from the Executive Officer.

Even more problematic than the uncertainty associated with achieving initial certification, a manufacturer faces the potential that CARB will frequently change the OBD requirements based on evolving levels of what the Executive Officer determines is technologically feasible. Such potential year-after-year changes in a regulatory requirement are untenable. OBD is therefore another major, if not prohibitive, barrier to implementation of the proposed optional lower NO<sub>x</sub> standards. Alternatively, CARB could actually promote certification to the lower NO<sub>x</sub> standard by setting the OBD thresholds based on the current mandatory 0.2 g standard.

#### **5. In-Use Testing**

CARB's current method of in-use compliance testing utilizing an engine dynamometer raises the same repeatability and accuracy questions noted above. As such, manufacturers may not be able to achieve sufficient certainty that engines certified to the optional lower NO<sub>x</sub> standards would pass an in-use compliance audit. In-use compliance testing is one more barrier to the implementation of the proposed optional lower NO<sub>x</sub> standards.

#### **6. ABT Credits**

In the HD Rulemaking Package CARB, proposes to exclude engines certified to the optional low NO<sub>x</sub> standards from generating credits in the ABT program. That limitation is overly restrictive and would discourage manufacturers from certifying engines to the optional



low NO<sub>x</sub> standards. CARB should eliminate the restriction and allow manufacturers to generate emissions credits from such engines. At a minimum, CARB should only restrict engines certified to the 0.10g optional low NO<sub>x</sub> standard from generating NO<sub>x</sub> credits.

## **7. Certification Labels**

In the HD Rulemaking Package, CARB also proposes adding language to the certification label stating that the engine is certified to an optional low NO<sub>x</sub> engine emissions standard and stating the specific standard. Since the certification label already must include the NO<sub>x</sub> standard or FEL to which the engine is certified, the additional statement is redundant and unnecessary. Requiring it would impose a burden on manufacturers without providing any environmental benefit. CARB should remove the additional labeling requirements from the proposed low NO<sub>x</sub> certification requirements.

### **C. NO<sub>x</sub> Projections and Potential Ozone Disbenefits**

Although the low NO<sub>x</sub> standards are presented as an optional program to reduce NO<sub>x</sub> (and thereby ozone emissions), there is nonetheless an underlying assumption, confirmed by CARB Staff, that these voluntary standards are likely to be proposed as mandatory standards, and that such mandatory NO<sub>x</sub> reductions would yield corollary reductions in ambient ozone levels. Two key factors impact the validity of that assumption: the projection of future atmospheric NO<sub>x</sub> emissions levels; and the modeling of how those NO<sub>x</sub> emission level interact chemically with Volatile Organic Compounds (“VOC”) concentrations to form ozone. The first of those factors is typically estimated and projected through ARB’s EMFAC model. It has been some time since ARB has held workshops to review the inputs to EMFAC, especially with respect to those inputs that most heavily determine future emissions levels (e.g., malfunction rates and deterioration). EMA would appreciate an opportunity to review the estimates of heavy-duty vehicle population growth, average VMT/vehicle, the change in deterioration factors, rates of tampering and malfunction, rebuild practices for future model years, ‘zero hour’ gram per mile emission rates, as well as other factors for the future heavy-duty vehicles that most influence future emission levels. Accordingly, EMA requests that ARB provide a forum for the detailed review of those key emission inventory factors.

The second aspect of this modeling effort – assessing how NO<sub>x</sub> emissions interact chemically with VOC levels to form ozone – is typically estimated utilizing the Community Multiscale Air Quality (“CMAQ”) Model. Critical to the results of that type of modeling is whether the regional atmosphere at issue is “NO<sub>x</sub>-limited” or “VOC-limited.” In a VOC-limited environment (i.e., where lower VOC/NO<sub>x</sub> ratios prevail), marginal decreases in NO<sub>x</sub> can actually cause increases in ozone.

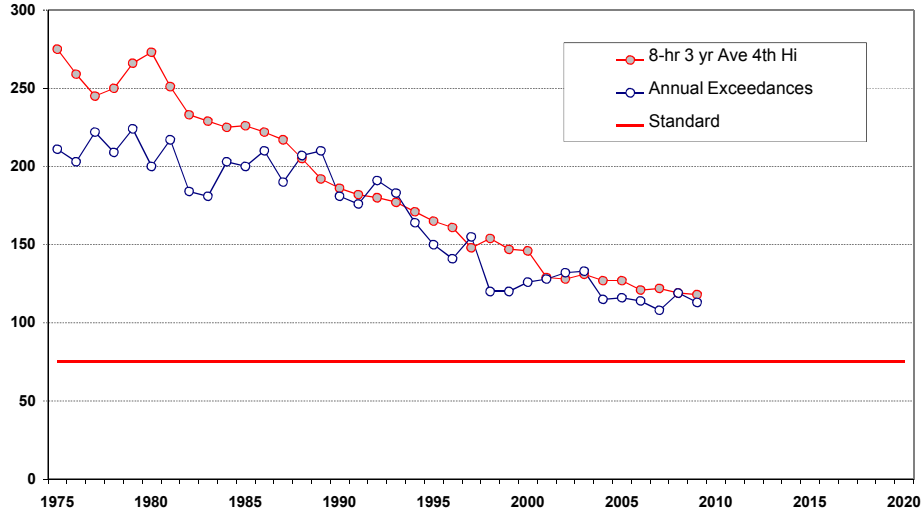
Given the foregoing, there is a fundamental public policy issue that is embedded in CARB’s pursuit of an ultra-low NO<sub>x</sub> standard for heavy-duty on-highway (“HDOH”) engines and vehicles, regardless of whether that standard is styled as “optional” or not. CARB’s motivating public policy assumption is that reducing NO<sub>x</sub> emissions from HDOH vehicles in California by up to an additional 90% will yield corresponding reductions in ambient ozone concentrations. Unfortunately, given the “VOC-limited” nature of the prevailing atmospheric chemistry in California, most especially in the South Coast Air Basin (“SoCAB”), CARB’s

assumption is very likely incorrect. The net result, as summarized below, is that CARB's quest for a new ultra-low NO<sub>x</sub> standard for HDOH vehicles and engines is likely to cause significant increases in ambient ozone levels for a significant period of time.

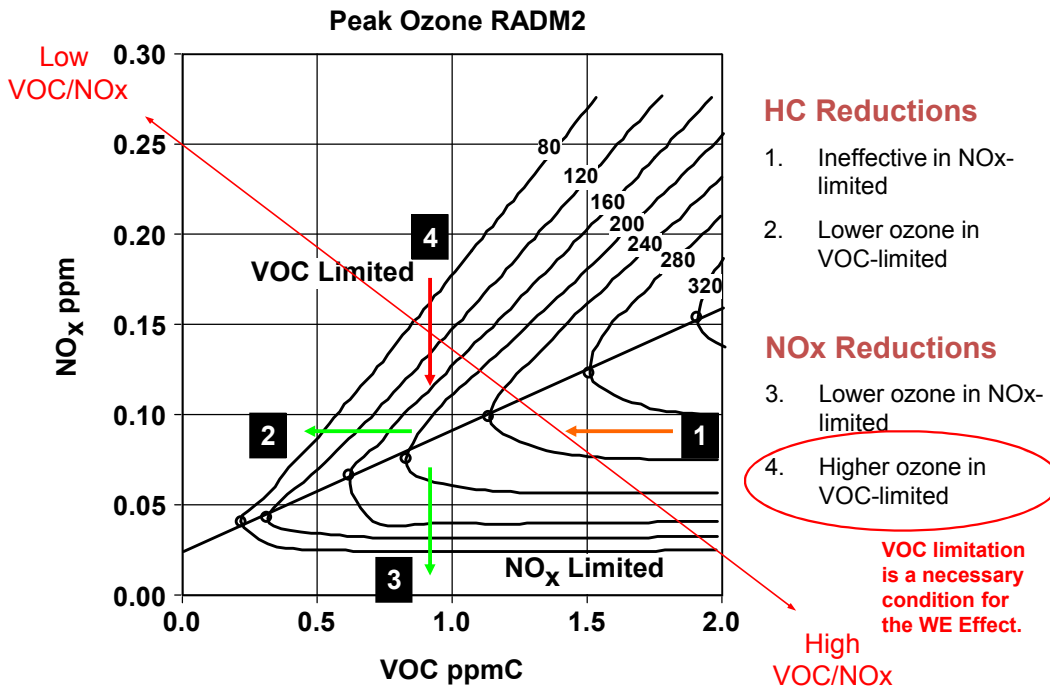
Extensive research has been conducted on the chemistry of ozone formation in California over the past twenty years. That work has been performed by Drs. Eric Fujita, Doug Lawson, Bill Stockwell, and others. See, e.g., Fujita, et al. (2013), "Past and future ozone trends in California's South Coast Air Basin," *Journal of Air & Waste Manag. Ass'n.*, 63:1, 54-59. Taken together, that work (including the well-established weekday/weekend ozone phenomenon, and the prevailing ozone trends in the SoCAB) demonstrates that at low VOC/NO<sub>x</sub> ratios (i.e., in "VOC-limited" environments) unilateral reductions in NO<sub>x</sub> cause an increase, not a decrease, in ambient ozone levels. The ozone contour plots depicted on the following pages show how a reduction in NO<sub>x</sub> levels (on the vertical axis) is likely to cause significant ozone increases as higher ozone concentration contour lines are crossed (e.g. levels could rise from approximately 110 ppb to approximately 200 ppb, or even higher under certain scenarios). Similarly, the ozone formation graph (the fourth of the four charts) depicts how ozone levels are likely to increase in the SoCAB (moving from right to left on the graph's horizontal axis) as ambient NO<sub>x</sub> levels are reduced.

Thus, in light of the prevailing science, it is incumbent on CARB to thoroughly investigate and publicly discuss the ozone "disbenefits" that are likely to result from any proposed reductions in NO<sub>x</sub> emissions. Simply stated, since ozone reductions are a function of both NO<sub>x</sub> and VOCs, unilateral reductions in NO<sub>x</sub>, as CARB is pursuing, are much more likely to increase ozone levels, especially in the SoCAB. This fundamental issue of public policy and atmospheric chemistry needs to be addressed in a comprehensive manner *before* CARB takes any final action on any new standards for HDOH vehicles and engines that either incentivize lower NO<sub>x</sub> standards, or that mandate them. Otherwise, the unintended consequences of CARB's rulemakings may be significantly detrimental. In that regard, and as CARB Staff is aware, the Coordinating Research Council (CRC) is sponsoring an update to the work of Dr. Fujita and his colleagues to assess the potential impacts of unilateral NO<sub>x</sub> reductions in the SoCAB based on current assessments of the prevailing NO<sub>x</sub>/VOC ratios. (See CRC Project A-91, Exploration of Potential Ozone Disbenefits.) Any further action by CARB pertaining to this regulatory matter should, at a minimum, be informed by the results of that CRC project.

# Ozone Trends from 1975 to 2009 in the South Coast Air Basin (SoCAB)

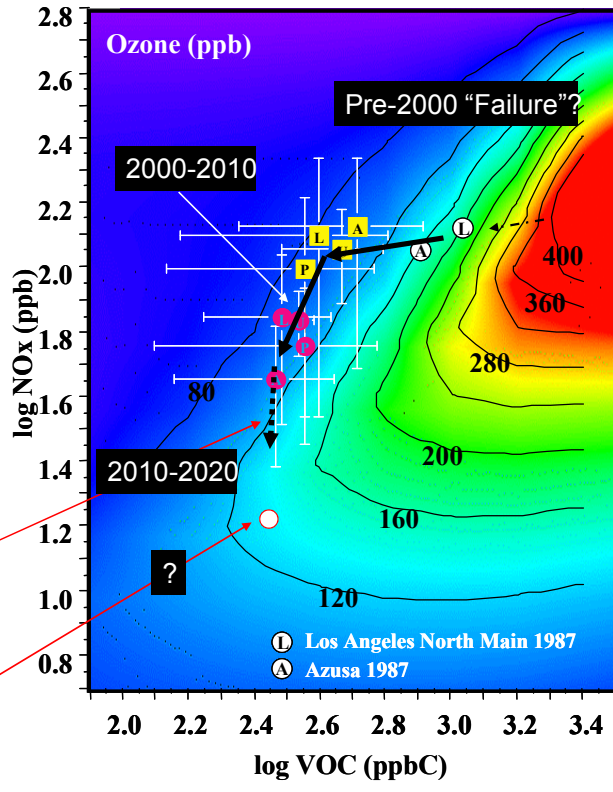


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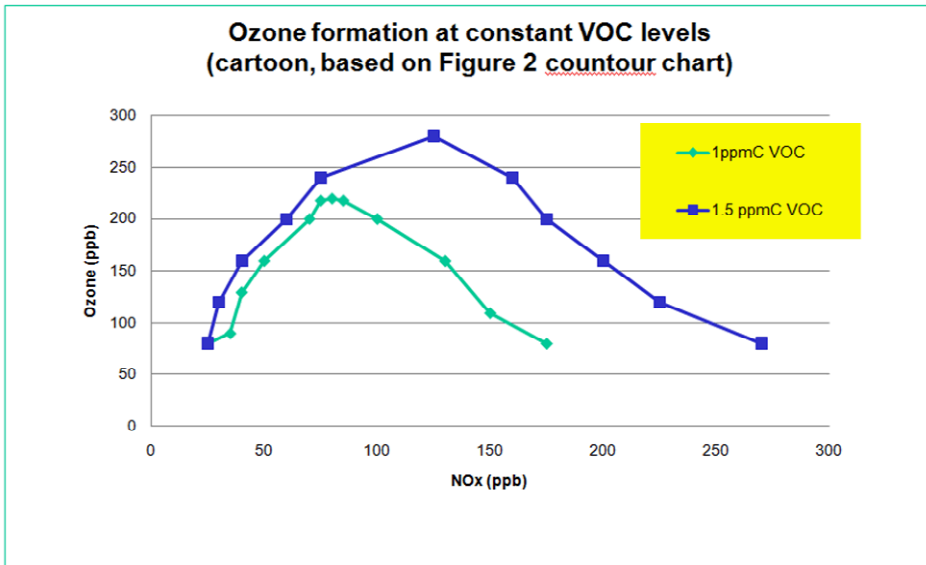
To reduce ozone in SoCAB, future reductions in NOx must be accompanied by reductions in VOC.

2010 to 2020 projected reductions in VOC of ~10% and NOx of ~40%.  
70% NOx reduction near ridgeline



Ozone is a function of NOx and VOCs (not NOx alone)

Figure 3



#### **IV. HYBRID VEHICLE CERTIFICATION PROCEDURES**

EMA generally supports CARB's proposed amendments to its Hybrid Certification Procedures. Specifically, we support expanding the applicability of those procedures to all heavy-duty vehicles above 14,000 pounds Gross Vehicle Weight Rating. Additionally, EMA supports expanding the procedures to other types of hybrid vehicles such as hydraulic, turbine, flywheel and fuel cell. EMA further appreciates that the amended procedures would provide more information about how to certify vehicles with energy storage devices such as electromechanical flywheels and capacitors. Finally, we support amending the procedures to reference the May 2012 draft of the SAE International Recommended Practice for Measuring Fuel Economy and Emissions of Hybrid-Electric and Conventional Heavy-Duty Vehicles (J2711). Nonetheless, CARB should make the following modification to the proposed amendments to the Hybrid Certification Procedures.

Section 2, Chassis Dynamometer Test Procedure, of the proposed amendments to the Hybrid Certification Procedures includes paragraph 2.2.2 requiring at least one preliminary run of the desired test cycles. That requirement fails to recognize the preconditioning that hybrid system components and engine aftertreatment systems need to achieve consistent results that reflect real world operation. Accordingly, we recommend that CARB modify paragraph 2.2.2 as follows:

The test vehicle shall be operated through at least one preliminary run of the desired test cycles to familiarize the driver with vehicle operation, precondition the hybrid system components and engine aftertreatment systems, and verify function of laboratory instrumentation.

#### **V. REDEFINITION OF "EMISSION STANDARD"**

One of the core and cross-cutting proposals in the HD Rulemaking Package is the inclusion of an amended and multi-faceted new definition of the term "emission standard." As explained below, CARB's proposed definitional amendment is unlawful and invalid. Not coincidentally, it also is subject to two pending lawsuits in the California Superior Court for the County of Sacramento. See EMA v. CARB, Case No. 34-2013-00150733 (Sac. Cty.); Alliance of Automobile Manufacturers v. CARB, Case No. 34-2013-\_\_\_\_\_ (Sac. Cty.).

CARB asserts that its authority to amend statutory definitions for regulatory purposes is found at Health and Safety Code ("HSC") section 39601(b), which provides that CARB may revise the definition of certain statutory terms solely in order "to conform those definitions to federal laws and rules and regulations." However, CARB's proposed multi-faceted definition of the term "emission standard" does not, in fact, conform with any federal law or rule or regulation. As a result, it is invalid.

CARB's lone basis for its new definition of "emission standard" (as well as the sub-definitions of "evaporative emission standards" and "exhaust emission standards") is dicta from a 2004 U.S. Supreme Court case that addressed the scope of preemption under section 209(a) of the federal Clean Air Act ("CAA"). See EMA v. SCAQMD, 541 U.S. 246 (2004).

Significantly, dicta is not a federal law or rule or regulation, and reliance on dicta is not a proper basis for a conforming definition under HSC section 39601(b).

Moreover, the 2004 Supreme Court decision did not address the specific federal definition of the term “emission standard” as utilized in the CAA. Rather, that case addressed the scope of federal preemption, which, in turn, is governed by the following statutory phrase: “No State or any political subdivision thereof shall adopt or attempt to enforce *any standard relating to the control of emissions* from new motor vehicles or new motor vehicle engines.” (Emphasis added.) 42 U.S.C. § 7543(a). It is obvious that the phrase “standard relating to the control of emissions” is both fundamentally broader than and different from the specific term “emission standard.” Indeed, in stark contrast to the expansive definition of “emission standard” (and thus regulatory authority) that CARB is seeking to adopt for itself, the relevant portion of the federal definitions in the CAA narrowly define “emission standard” to mean a “requirement established by the State [of California] or the Administrator [of EPA], which limits the quantity, rate, or concentration of emissions of air pollution.” 42 U.S.C. § 7602(k). The federal regulations, as adopted by U.S. EPA, are similarly narrow. For example, 40 CFR section 60.21(f) defines the term “emission standard” to mean “a legally enforceable regulation setting forth an allowable rate of emissions, into the atmosphere...or proscribing equipment specifications for the control of air pollution emissions.”

Thus, CARB’s proposed re-definition of the term “emission standard” does not conform to any federal law or regulation, and is not justified by the U.S. Supreme Court’s consideration of the much broader statutory phrase “standards relating to the control of emissions.” In that regard, it is important to note that Congress utilized the broader statutory phrase in CAA section 209(a) for a reason. Specifically, Congress sought to preempt all of the States and their political subdivisions from adopting or enforcing any sort of measure with any connection to motor vehicle emissions – to stave off a potentially impracticable patchwork of emissions-related regulations that could cripple the ability of motor vehicles to operate in interstate commerce – and so inserted an expansive phrase in section 209(a) to suit that purpose. The fact that the Supreme Court gave due deference to the breadth of that statutory phrase for preemption purposes does not create or amount to a new federal definition of the different and much more narrow term, “emission standard.”

The net result is that CARB’s attempt to redefine and greatly expand the definition of “emission standard” is not in accordance with HSC section 39601(b), and so is unlawful and invalid. As a consequence, so are the revised definitions that are included in multiple places throughout the HD Rulemaking Package (see CCR, title 13, section 1900(b)(3)-(5), 1956.8(i)(2)-(4), 95662(a)(4), 95302(a)(19.1)-(19.3), 2485(h)(7)-(9)).

## **VI. CONCLUSION**

We hope that the Board will direct the Staff to resolve the important issues identified above. We stand ready to work with CARB to make the optional lower NO<sub>x</sub> standards workable and implementable, and to ensure that CARB's proposed GHG requirements are fully aligned and harmonized with EPA's Phase I GHG rule, as intended.

Respectfully submitted,

TRUCK AND ENGINE MANUFACTURERS  
ASSOCIATION